TRIDONIC

5DPI 14f Mounting Kit

Compact control module with ambient light sensor and motion sensor

Product description

_ Mounting frame for attaching all 5DP 14f sensor directly to the luminaire housing
_ Optional shutter to prevent presence detection in a specific direction (for PIR sensors)
_ Glow wire test with 750 °C according to EN 61347-1

Website
http://www.tridonic.com/28001558

TRIDONIC

5DPI 14f Mounting Kit

Compact control module with ambient light sensor and motion sensor

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
5DPI 14f mounting kit	**28001558**	100 pc(s).	0.004 kg
5DPI 14f mounting kit black	**28001575**	100 pc(s).	0.004 kg

TRIDONIC

ACU 034 Z20 LEX-MR 150mm

SWARM Module for indoor use

Product description

_ LEX-MR is optional accessory suporting the Zhaga 20 standard
_ Responding luminaire plug LEX-LP available from Amphenol Benelux to be specified by lighting OEM's depending on specific fixture design:
_ FLM-S23-00, FLM-S23-W0
_ P-FLM-S21-00, P-FLM-S21-W0
_ Further information:
https://www.zhagastandard.org/products.html, product (zhagastandard.org) and supplier information:
https://www.amphenol-cs.com/product-series/zhaga-book-20-compliant-flm.html

Interfaces

_ Supplies Zhaga Book 20

Website

http://www.tridonic.com/28004616

TRIDONIC

ACU 034 Z20 LEX-MR 150mm

SWARM Module for indoor use

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU 034 Z20 LEX-MR 150mm	**28004616**	100 pc(s).	1 pc(s).	0.002 kg

TRIDONIC

ACU BLIND COVER 60x22mm

Mounting accessory for sensor integration into the luminary

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

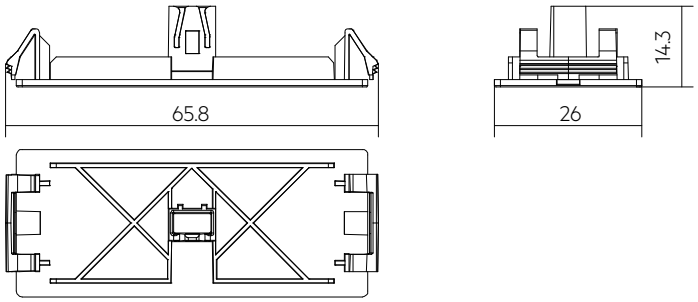
_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005056

ACU BLIND COVER 60x22mm

Mounting accessory for sensor integration into the luminary



Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 040 60x22 WH	**28005056**	10 pc(s).	100 pc(s).	0.004 kg
ACU BLIND COVER 040 60x22 BK	**28005057**	10 pc(s).	100 pc(s).	0.004 kg

TRIDONIC

ACU MOUNTING ADAPTER 040 60x22 CON LED

Mounting accessory for sensor integration into the luminary

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

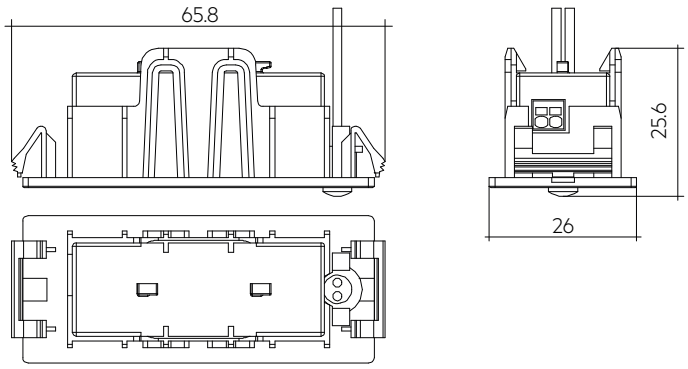
Website

http://www.tridonic.com/28005941

TRIDONIC

ACU MOUNTING ADAPTER 040 60x22 CON LED

Mounting accessory for sensor integration into the luminary



Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 WH	**28005941**	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 BK	**28005942**	10 pc(s).	100 pc(s).	0.006 kg

TRIDONIC

ACU Sensor Housing 14rs IP20

Accessory for DALI MSensor

Product description

_ Mounting frame for wired 5DP 14f sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: plastic, white
_ UV stabilized plastic
_ DALI MSensor 5DPI 14 is powered via DALI circuit, basicDIM DGC Sensor 5DPI 14f powered via control unit
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Glow wire test with 750 °C according to EN 61347-1
_ Sensor not included

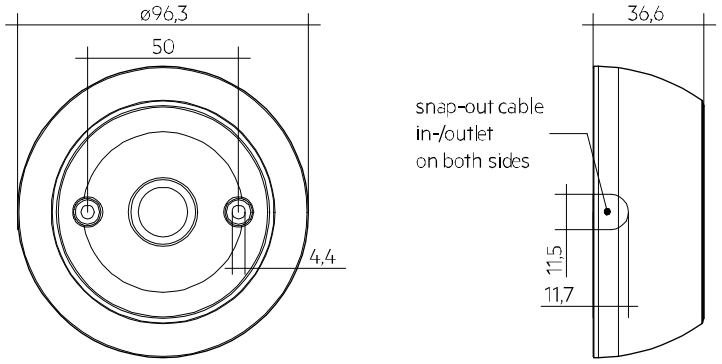
Website

http://www.tridonic.com/28001872

TRIDONIC

ACU Sensor Housing 14rs IP20

Accessory for DALI MSensor



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU Sensor Housing 14rs IP20	**28001872**	81 pc(s).	0.054 kg

TRIDONIC

ACU Z18 SKIRT 80mm

General

ACU Z18 SKIRT BLACK 80MM

ACU Z18 SKIRT GREY 80MM

Product description

- Accessory to protect the Zhaga book 18 Ed.3 connection between socket and node from dust and dirt
- Accessory is included in the product, but if it get lost or damaged it can be ordered separately

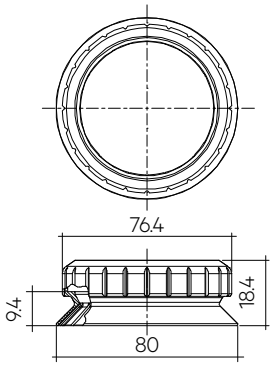
Website

http://www.tridonic.com/28005593

TRIDONIC

ACU Z18 SKIRT 80mm

General



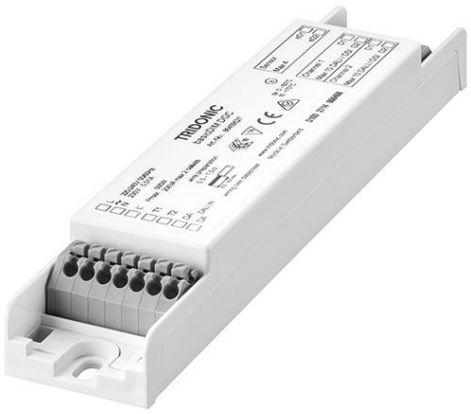
Ordering data

Type	Article number	Colour	Diameter	Packaging, carton	Weight per pc.
ACU Z18 SKIRT GREY 80MM	**28005593**	Grey	80 mm	500 pc(s).	0.008 kg
ACU Z18 SKIRT BLACK 80MM	**28005594**	Black	80 mm	500 pc(s).	0.008 kg

TRIDONIC

basicDIM DGC

Compact control module with 2 momentary-action switches input and 1 relais output



Product description

_ Compact dimensions for luminaire installation
_ For up to 20 DSI or DALI devices (max. 10 per output channel)
_ DALI IN input
_ 2 DALI/DSI output channels with adjustable negative off set from channel 2 to channel 1
_ 1 relais output
_ Sensor input for up to 4 basicDIM DGC sensors 5DPI 14
_ 2 switch inputs for on/off switching and dimming
_ Individual adjustment of the parameters with basicDIM DGC Programmer or software masterCONFIGURATOR
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

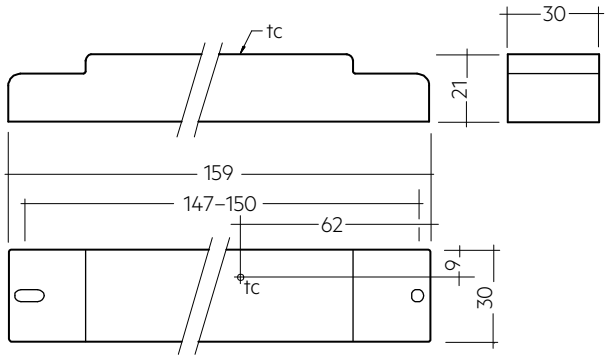
Website

http://www.tridonic.com/28000920

TRIDONIC

basicDIM DGC

Compact control module with 2 momentary-action switches input and 1 relais output



Ordering data

Type	Article number	Mounting	Packaging, carton	Weight per pc.
basicDIM DGC	**28000920**	Luminaire installation	10 pc(s).	0.06 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Power	2.5 W
Output, stand-by	0.5 W
Current draw, input (DALI bus)	2 mA
Max. number of switched drivers	2
Max. Inrush current of the load (peak / duration)	55 A / 400 µs
Typ. number of switching cycles ①	50,000
Max. resistive load	500 W
Max. inductive / capacitive load	200 VA
Dimming range	1 – 100 %
tc point	70 °C
Ambient temperature ta	0 … +60 °C
Storage temperature ts	-25 … +70 °C
Type of protection	IP20
Dimensions L x W x H	159 x 30 x 21 mm
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

CE RoHS

Standards

EN 55015, EN 61000-3-2, EN 61347-1, EN 61347-2-11, EN 61547, EN 62386-101, EN 60598-1

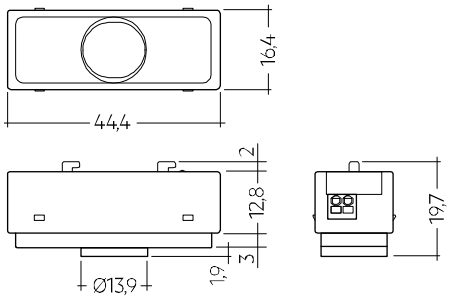
Specific technical data

	Inputs				Outputs			CH2 as Link Line		
Type	Dimming momentary-action switch	Max. cable length at 1.5 mm²	Max. basicDIM DGC sensors	Max. sensor line length at 0.2 – 1.5 mm²	Digital control line DSI/DALI	Control output per physical output (devices)	Max. cable length at 1.5 mm²	Voltage DC	Max. cable length at 1.5 mm²	Number of combinable modules
basicDIM DGC	double	100 m	4	10 m	2	10	100 m	13 V	100 m	10

① See data sheet 8.2 Switching cycles.

basicDIM DGC Sensor 5DPI 14f

Accessory



Product description

_ Light measurement and motion detection
_ Up to 4 basicDIM DGC sensors on one basicDIM DGC (only relevant for basicDIM DGC)
_ Can be remote controlled
_ Light measurement and motion detection can be deactivated
_ Individual adjustment of the parameters with basicDIM DGC Programmer or software masterCONFIGURATOR (only relevant for basicDIM DGC)
_ Power supply via basicDIM DGC (only relevant for basicDIM DGC)

Website

http://www.tridonic.com/28000933

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM DGC Sensor 5DPI 14f Luminaire installation	**28000933**	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.06 kg
basicDIM DGC Sensor 5DPI 14f black Luminaire installation	**28001696**	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.06 kg

5DPI 14f Mounting Kit

Accessory

Product description
_ Mounting frame for attaching all 5DP 14f sensor directly to the luminaire housing
_ Optional shutter to prevent presence detection in a specific direction (for PIR sensors)
_ Glow wire test with 750 °C according to EN 61347-1

Website
http://www.tridonic.com/28001558

Ordering data

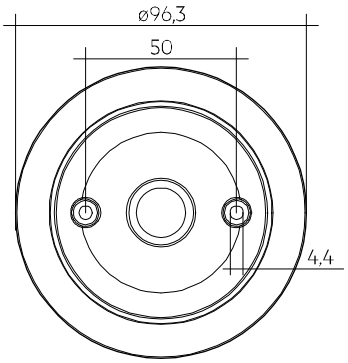
Type	Article number	Packaging, carton	Weight per pc.
5DPI 14f mounting kit	**28001558**	100 pc(s).	0.004 kg
5DPI 14f mounting kit black	**28001575**	100 pc(s).	0.004 kg

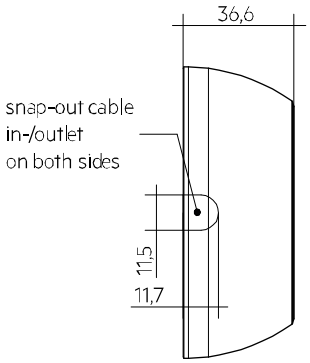
ACU Sensor Housing 14rs IP20

Accessory

Product description
_ Mounting frame for wired 5DP 14f sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: plastic, white
_ UV stabilized plastic
_ DALI MSensor 5DPI 14 is powered via DALI circuit, basicDIM DGC Sensor 5DPI 14f powered via control unit
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Glow wire test with 750 °C according to EN 61347-1
_ Sensor not included

Website
http://www.tridonic.com/28001872



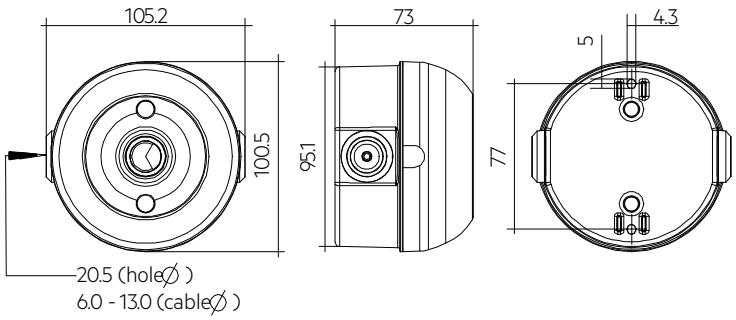


Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU Sensor Housing 14rs IP20	**28001872**	81 pc(s).	0.054 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website

http://www.tridonic.com/28005945

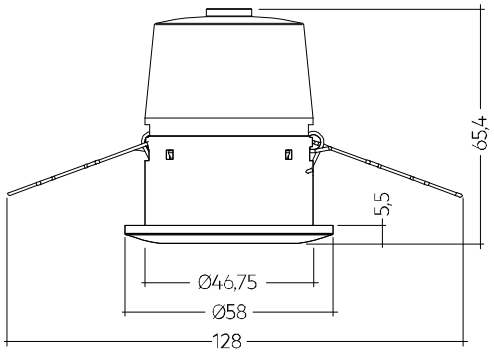
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

basicDIM DGC Sensor 5DPI 14rc

Accessory

basicDIM ILD G2 SRC 20 5DPI WH



Product description

_ Light measurement and motion detection
_ Up to 4 basicDIM DGC sensors on one basicDIM DGC (only relevant for basicDIM DGC)
_ Can be remote controlled
_ Light measurement and motion detection can be deactivated
_ Individual adjustment of the parameters with basicDIM DGC Programmer or software masterCONFIGURATOR (only relevant for basicDIM DGC)
_ Power supply via basicDIM DGC (only relevant for basicDIM DGC)
_ Independent sensor providing double insulation

Website

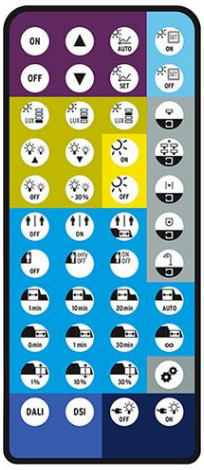
http://www.tridonic.com/28000934

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM DGC Sensor 5DPI 14rc Ceiling installation	**28000934**	128 x 58 x 65.4 mm	63 pc(s).	0.06 kg

basicDIM DGC Programmer

Accessory



Product description
_ Optinal infra-red programming unit for basicDIM DGC
_ Setting of predefined discrete parameter values
_ Programmable functions such as light level, time delay, P.I.R., bright-out, power-up

Website
http://www.tridonic.com/28000646

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM DGC Programmer	**28000646**	120 pc(s).	0.02 kg

REMOTECONTROL IR6

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

Website
http://www.tridonic.com/28000647

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

Strain-relief set

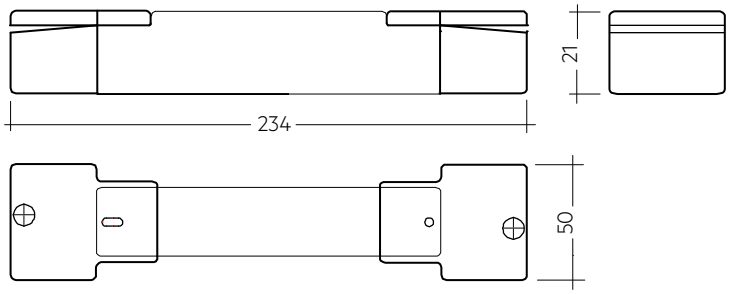
Accessory

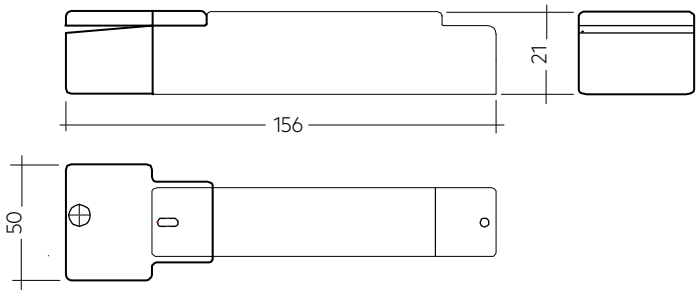
Product description

_ Strain relief for up to 3 cables suitable for cable with diameter from 2.5 up to 9 mm
_ A: 2.5 – 5 mm diameter
_ B: 5 – 9 mm diameter
_ C: 5 – 9 mm diameter
_ Optional strain-relief set for independent applications
_ Transforms the unit into a full Class II compatible unit (e.g. for ceiling installation)
_ One set includes 2 pieces strain-reliefs
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

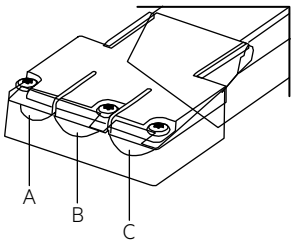
Website

http://www.tridonic.com/28000881





For basicDIM Wireless SR



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Strain-relief set	**28000881**	10 pc(s).	0.05 kg

Approval marks

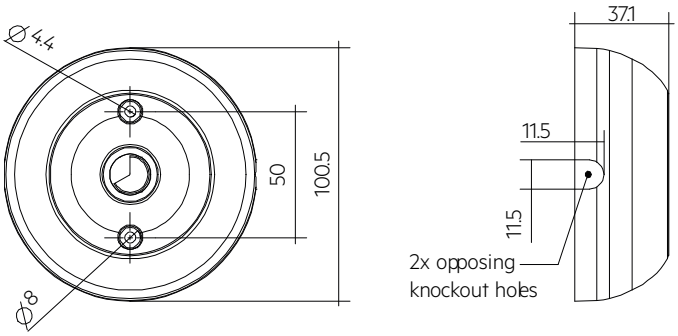
RoHS

Sensor Housing ACU 035 5DPI IP20

Accessory

Product description

_ Mounting frame for wired 5DPI sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included



Website
http://www.tridonic.com/28005943

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor Housing ACU 035 5DPI IP20 WH	**28005943**	57 pc(s).	0.052 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61347-1
EN 61347-2-11
EN 61547
EN 62386-101
EN 60598-1

1.1 DALI standard

The basicDIM DGC is designed to control control gear with DALI standard IEC 60929 (DALI V0) and IEC 62386 (DALI V1).

1.2 Glow-wire test

according to EN 61347-1 passed.

2. Common

The basic DIM DGC provides the basis for an easy-to-use and cost-effective lighting system with motion detection.
When the sensor detects movement it triggers a individual adjustable motion detection profile in the control unit.
As the amount of natural ambient light changes the illuminance from the artificial lighting system is adjusted.
The connected luminaires can be switched on and off via momentary-action switch or remote control possible.

The DALI IN interface allows integration of the basicDIM DGC module also into a comfortDIM system.

The basicDIM DGC module has 5 preprogrammed profiles which can be selected using the basicDIM DGC Programmer.
The profiles can be adjusted to your application via the masterCONFIGURATOR (≥ V2.12) software.

If the basicDIM DGC module is used in the basic application, the CH2 can be used as control channel for controlling subordinate basicDIM DGC modules (basic connection), so that the controlling and the subordinate basicDIM DGC modules can be programmed and allocated to groups using the masterCONFIGURATOR software. Every single basicDIM DGC module can be allocated to a group and respond to the presence of up to 5 groups (for more detailed information please refer to the masterCONFIGURATOR documentation).

3. Interfaces / communication

3.1 DALI IN

The DALI IN interface allows integration of the basicDIM DGC module also into a comfortDIM or other BMS systems.
However, not all DALI commands are supported. The DALI commands supported are listed in the operating instructions.

By using the DGC in basic configuration (additional DGC's connected to CH2) DALI IN interface will be deactivated.

3.2 DALI/DSI output channels CH1 - CH2

The output channels can be set to DSI or DALI (default) using the basicDIM DGC Programmer or the masterCONFIGURATOR software.

After mains failure the basicDIM DGC will set new the following parameters to CH1/CH2:
POWER ON LEVEL
SYSTEM FAILURE LEVEL
FADE TIME
MIN LEVEL
MAX LEVEL

For more detailed information please refer to the manual.

3.3 Switch

basicDIM DGC has two inputs (T1 and T2) for two external switches. Any number of switches can be connected in parallel to the inputs (parallel connection of T1 and T2 possible).

Short press (< 500 ms):	ON/OFF
Long press (> 500 ms):	Dim up/down A change in the light value deactivates lighting regulation only temporarily. As soon as the luminaire has been automatically switched on again (motion detection) or manually switched off and on again, regulation is activated again.
2 x short press:	The overwritten setpoint light value is stored (luminaire acknowledges by flashing twice) Function is lockable via the DSI programmer

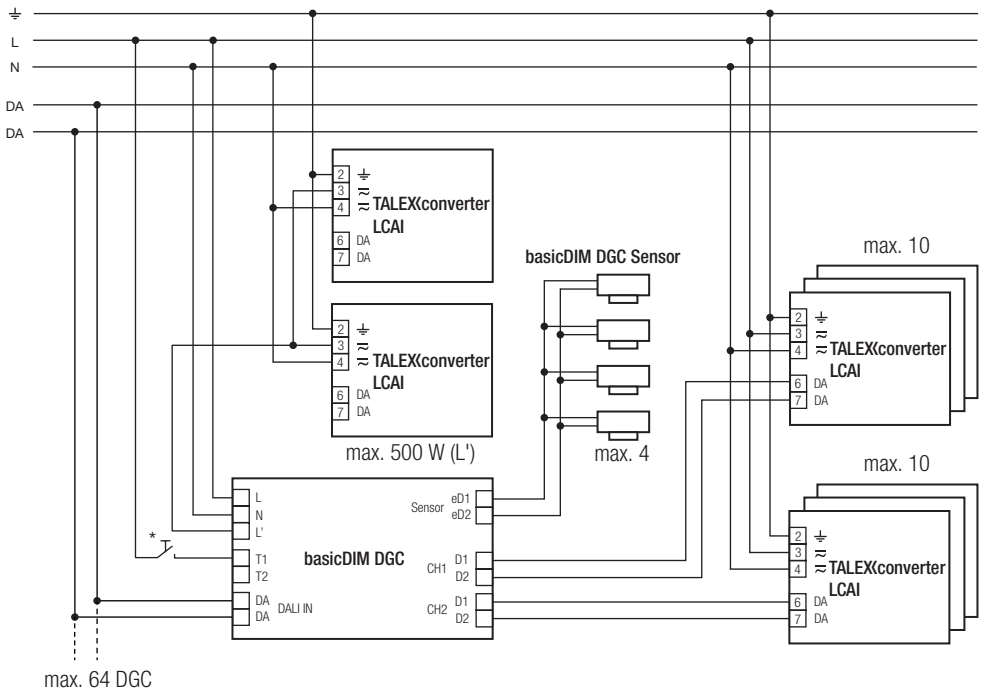
Different output channels are controlled, depending on the profile selected.

4. Installation

- basicDIM DGC can be operated without sensor. The motion detection must be disabled via masterCONFIGURATOR or with unique connecting a sensor and basicDIM DGC Programmer.
- DSI/DALI is not SELV. The installation instructions for mains voltage therefore apply.
- The maximum cable length between the external switch and basicDIM DGC is 100 m.
- The maximum cable length between the sensor and basicDIM DGC is 10 m.
- A synchronous operation of DALI and DSI ballasts at the same control gear is not possible.
- The output channels (for a cable cross-section of 1.5 mm^2) must not be exceeded 100 m.
- If CH2 is used as link line, the maximum cable length must not exceed 100 m (at 1.5 mm^2).
- If a basicDIM DGC is connected to CH2, DALI IN is disabled and CH2 is used as Link-Line (neighbourhood function). No control commands are transmitted via CH2, to reactivate DALI IN see basicDIM DGC manual.
- Any number of push to make switches may be connected in parallel to the inputs.
- Do not connect standard switches to the input.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect presence detection.
- To avoid false readings, the sensor should be installed so there is no direct light from the lamp in the detection zone.
- Sensor wires must be routed separately from the lamp wires and mains cables otherwise the lighting control system may malfunction. If separate routing is not possible (for reasons of space) shielded lamp wires and mains cables must be used.
- Avoid direct illumination of the light source on the sensor including housing.
- Control module providing basic insulation between input and output.
- The device incorporates thermal protection by means of construction.

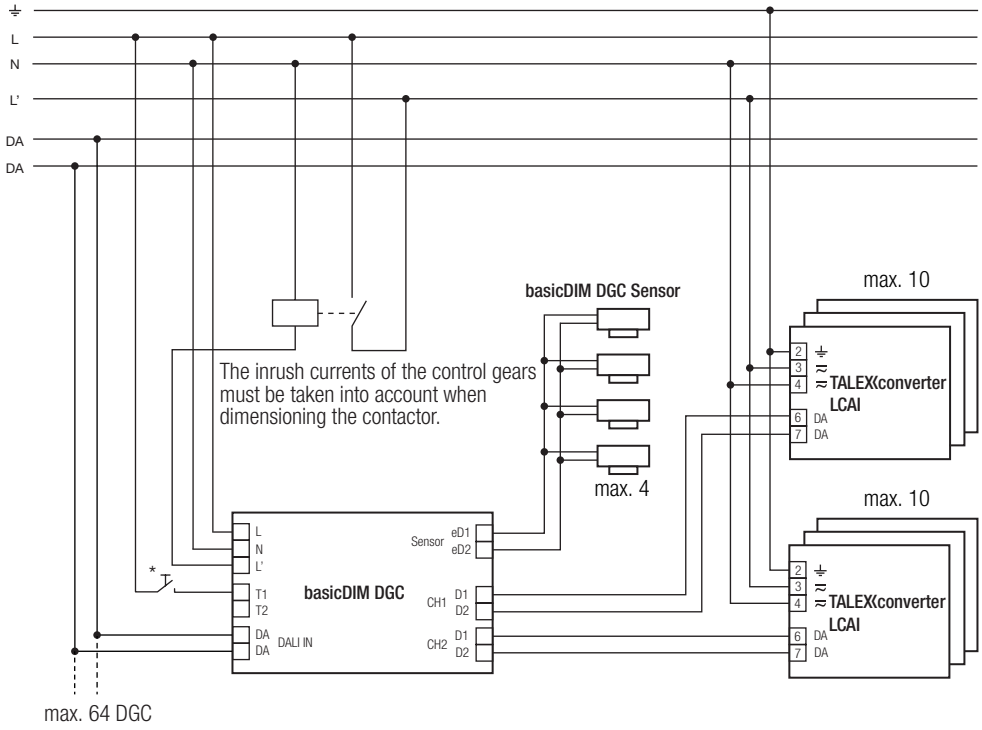
4.1 Wiring diagram basicDIM DGC

DALI



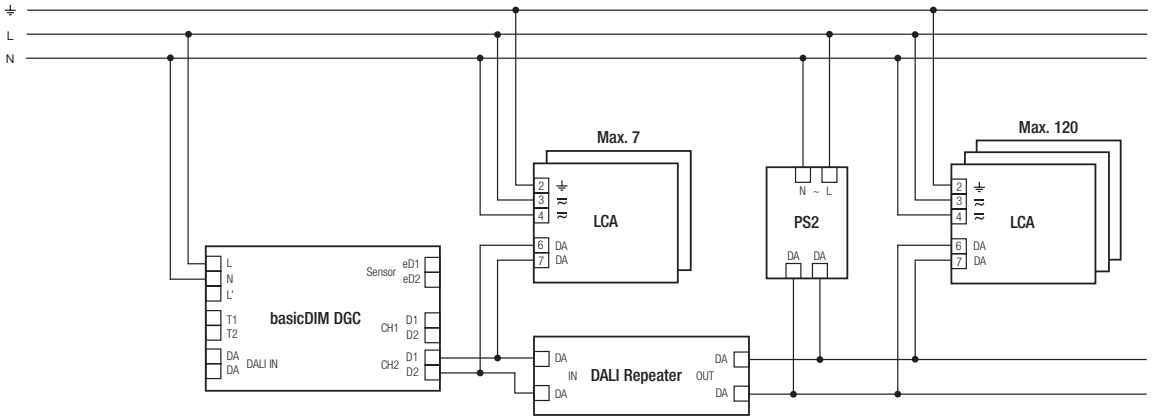
* must be the same phase as for L

Relais in standby



* must be the same phase as for L

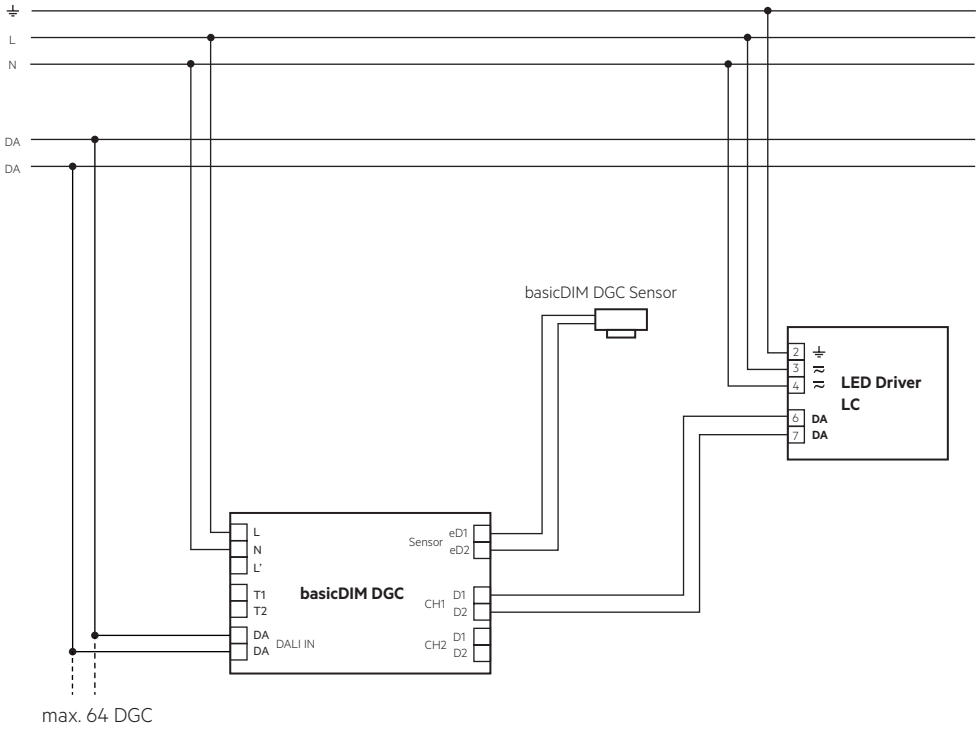
4.2 Wiring diagram basicDIM DGC with DALI PS1(2)



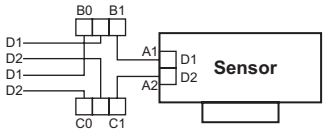
Use only in combination with DALI Repeater (86458401) and one of the following DALI supplies:
DALI PS1 (24034323), 200 mA, max. 100 additional devices
DALI PS2 (28000876), 240 mA, max. 120 additional devices

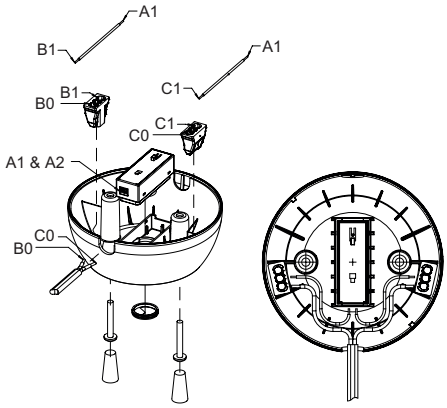
This combination can be used on CH1 and CH2.

Wiring diagram basicDIM DGC for Inteligent Luminaire



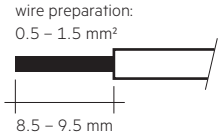
4.3 Wiring and mounting ACU Sensor Housing 14rs IP20





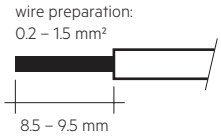
4.4 Wiring type and cross-sections for basicDIM DGC

For wiring use solid wire from 0.5 to 1.5 mm².



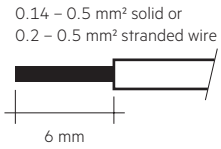
4.5 Wiring type and cross section for sensor rc version

For wiring use stranded wire with ferrules or solid wire from 0.2 to 1.5 mm².



4.6 Wiring type and cross section for sensor f version

For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².



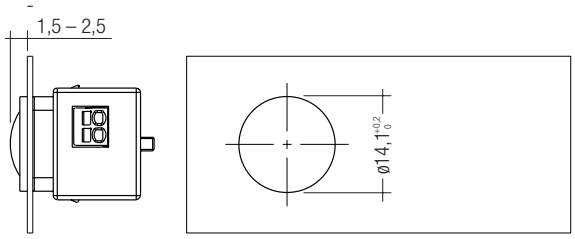
4.7 Insulation between terminals

Insulation	Mains / L´/T1/T2	DA/DA	CH1-2/ D1 D2 / eD1 eD2
Mains/ L´/T1/T2	–	basic	basic
DA/DA	basic	–	basic
CH1-2/ D1 D2 / eD1 eD2	basic	basic	–

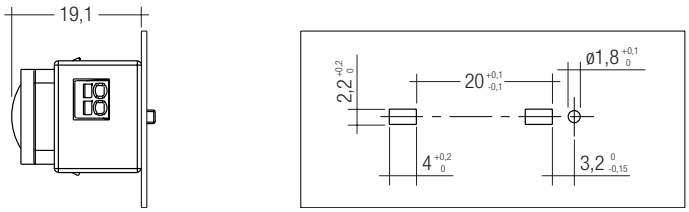
basic ... represents basic insulation.

4.7 Mounting variants luminaire installation sensor

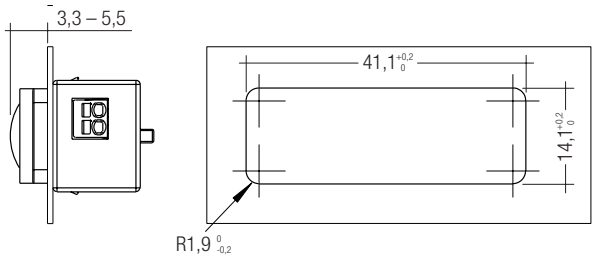
Size of the sheet: 0.8 – 1.8 mm



Size of the sheet: 0.6 – 0.8 mm



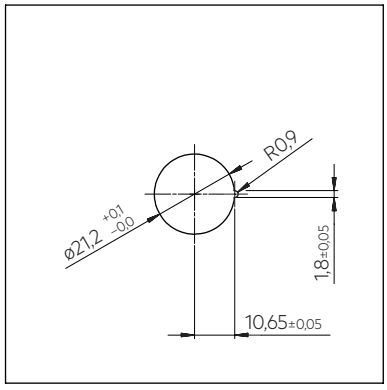
Size of the sheet: 0.8 – 3.0 mm

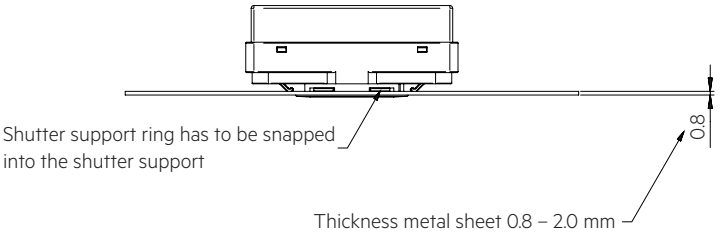


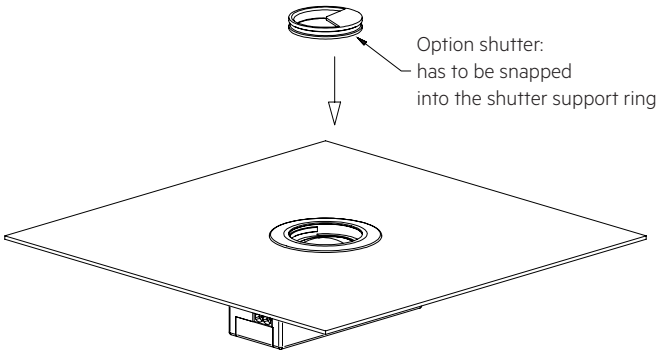
4.8 Mounting in luminaire housing with Mounting Kit:

Size of the sheet: 0.8 – 2.0 mm

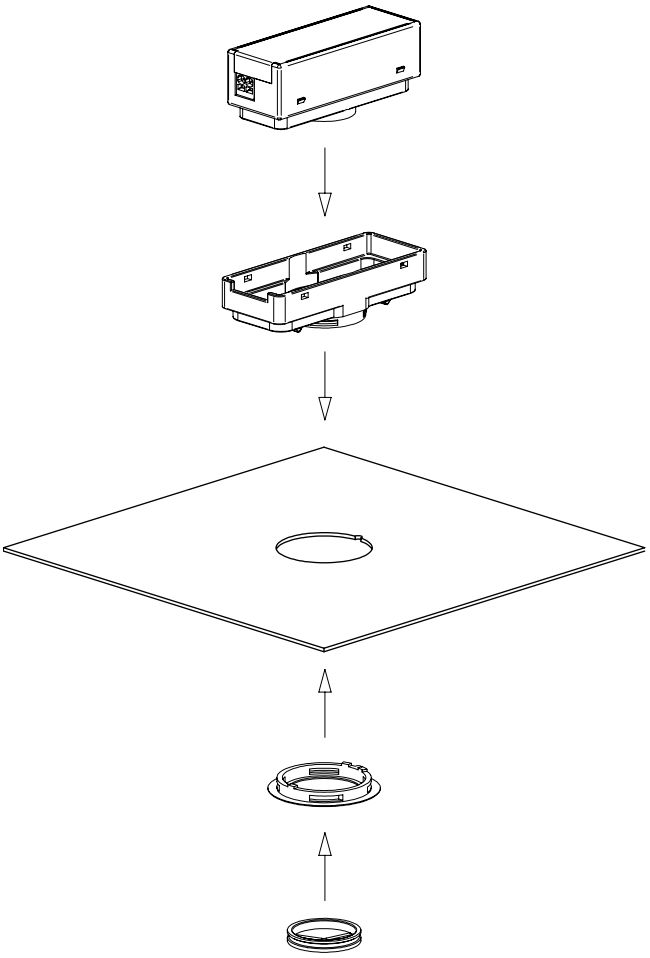
Dimension drawing for needed mounting opening





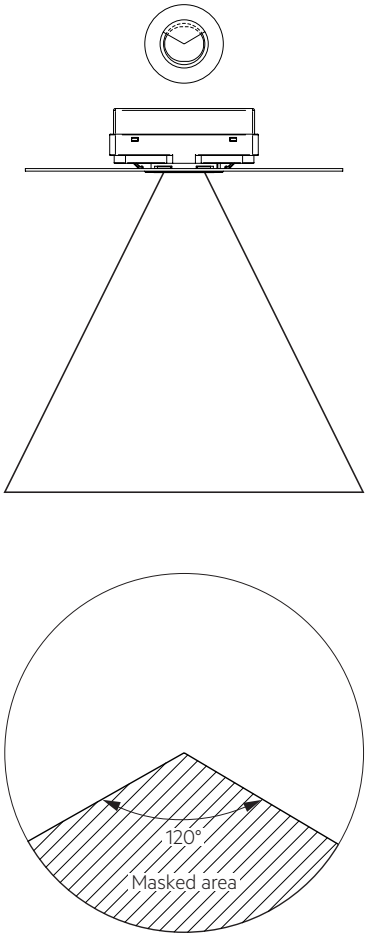


4.9 Mounting Kit mounting



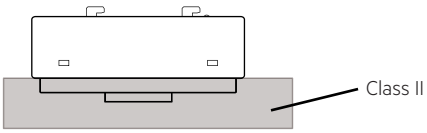
4.10 Mounting Kit Shutter

Area which is masked by the shutter.



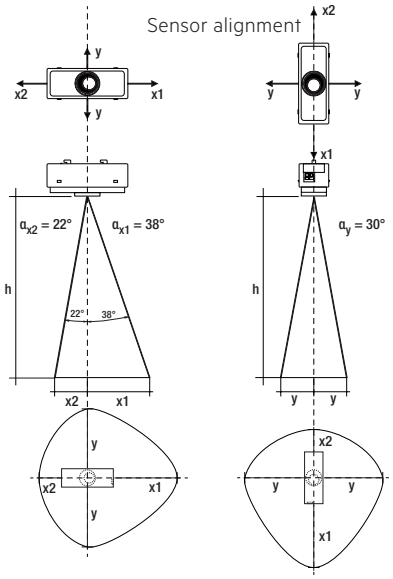
4.11 Mounting in class II luminaire

The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built into a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the front of the sensor is tested to fulfill the class II requirements for double or reinforced insulation.



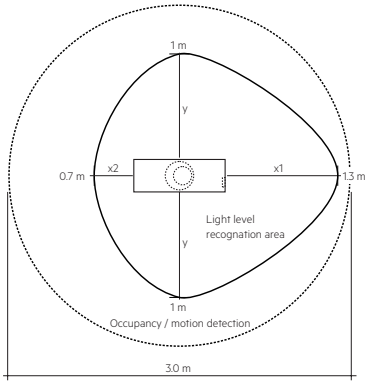
5. basicDIM DGC sensor functions

5.1 Light level recognition area



h *	x1	x2	y	d
1.7 m	1.3 m	0.7 m	1.0 m	3.0 m
2.0 m	1.6 m	0.8 m	1.2 m	3.6 m
2.3 m	1.8 m	0.9 m	1.3 m	4.1 m
2.5 m	2.0 m	1.0 m	1.4 m	4.5 m
2.7 m	2.1 m	1.1 m	1.6 m	4.9 m
3.0 m	2.3 m	1.2 m	1.7 m	5.4 m
3.5 m	2.7 m	1.4 m	2.0 m	6.3 m
4.0 m	3.1 m	1.6 m	2.3 m	7.2 m

Example for light and motion detection area at height of 1.7 m:

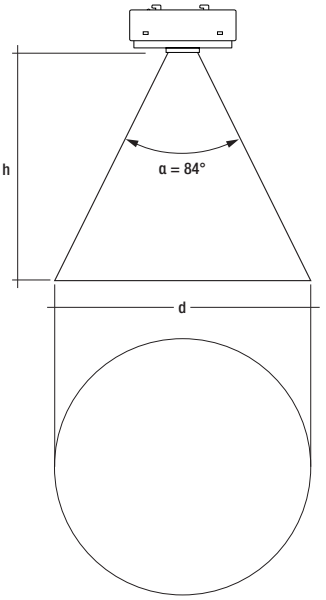


* The recommended maximum room height for office applications is 3 m and for corridor applications for example 4 m. Up to 2 m mounting height presence is detected and over 2 m motion is detected.

Calculation of the diameter (light area):
$x1 = \tan(\alpha_{x1}) \times h$
$x2 = \tan(\alpha_{x2}) \times h$
$y = \tan(\alpha_y) \times h$

Calculation of the diameter (motion area):
$d = 2 \times \tan(0{,}5 \times \alpha) \times h$

5.2 Presence / motion detection



6. Functions

6.1 Relais

The relay can be used in four different operating modes:
- Reduction of standby losses (standby wiring example)
- Independent output channel for switching non-dimmable luminaires (DALI wiring example)

Depending on the profile used, the relay will respond differently. For the 5 main profiles, the two relay profiles used are Standby and OnlyOFF.
The masterCONFIGURATOR software allows to enable or disable the relay profiles as well.

Standby		Energy saving mode If the basicDIM DGC module is switched off, the relay will switch off (after 10 minutes). If the basicDIM DGC is switched on, the relay will switch on. Switching: relay in standby mode
OnlyOFF		The relay must be switched on using the momentary-action switch, but is switched off by the presence detector.
Active		The relay is switched on or off via the presence detector.
Inactive		The relay must be switched on and off using the momentary-action switch.

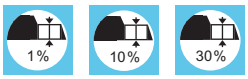
Depending on the profile used, different operating modes are preprogrammed for the presence detector. These can be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software.

	ON / OFF	The light is switched on and off automatically based on the presence/absence of people.
	Only OFF	The presence detector just switches the connected luminaires off. The luminaires are switched on manually via the connected external momentary-action switch or the remote control.
	Never OFF	If no presence is detected, the sensor dims down to the “second light level” parameter and maintains this setting.
	OFF	Presence detector disabled. The light must be switched on and off manually.

6.2 Run-on time

Run-on time of the presence detector, run-on time starts when no presence is detected.
The run-on time may vary depending on the profile used.
You can choose whether you want the basicDIM DGC module to switch off the light completely or to dim it down to the absence value after the run-on time.
It can also be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software.

Absence value

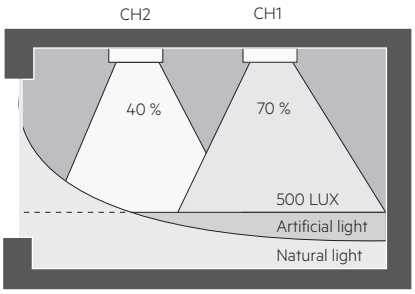


Switch-off delay

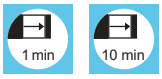
The absence value (light level) and the switch-off delay (the period for which the level is maintained) differ depending on the profile used; these parameters may be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software.

6.3 Offset

Depending on the profile used, a negative offset may be enabled between CH2 and CH1. Using the basicDIM DGC Programmer and the masterCONFIGURATOR software, this parameter may be changed (also positive offset possible).



6.4 Manual-off delay



If the light is switched off manually via momentary-action switch or remote control, the presence detector is disabled. After a period of delay without any presence detected, the presence detector is enabled again. If the sensor detects presence during the “Manual Off” delay, the delay time will start all over again. It can only be changed by using the masterCONFIGURATOR software.

6.5 Lighting control

Lighting control is started via the Auto key of the basicDIM Programmer or REMOTECONTROL IR6.

If the basicDIM DGC module has been switched on via the ON key, lighting control is disabled.
If you want to use lighting control, you need to start the DGC module via the Auto key.

Lighting control can also be disabled using the masterCONFIGURATOR software.

6.6 Set target value

The light level can be set via following options:

- REMOTECONTROL IR6 (press the key for > 3 s)
- basicDIM DGC Programmer (press the key for > 3 s)
- masterCONFIGURATOR software
- external momentary-action switch:

By briefly pressing the momentary-action switch twice the currently measured light level is saved as new target value.
(Depending on the profile used, this function is enabled or disabled, but it can be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software)

6.7 Bright-out

If the nominal illuminance level (e.g. 500 lx) is exceeded for 10 minutes at over 150 % (e.g. 750 lx), the light is switched off, even if presence is detected. The light is switched on again as soon as the measured light level falls below the target value.
Depending on the profile used, this function is either enabled or disabled and can be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software.
The bright-out status can be indicated on the sensor by a slowly flashing green status LED.
By default this function is disabled, but it can be enabled using the masterCONFIGURATOR software.

Light control incl. bright-out activated for CH1. CH2 is not illuminated controlled.

6.8 Neighbourhood function

Depending on the profile used, the basicDIM DGC can respond to presence detected in other groups.
These functions can be changed using the basicDIM DGC Programmer or the masterCONFIGURATOR software.

	Switched off	No response to presence detected in other groups. Default setting for all profiles!
	Switched on	If presence is reported by other groups, the light level will switch to presence value
	Switched on	If presence is reported by other groups, the light level will switch to absence value

6.9 Momentary-action switch inputs

	Momentary-action switch 1
	Momentary-action switch 2
	Display of outputs controlled by momentary-action switch (CH1 and CH2, or just CH1 or CH2)

6.10 Basic functions

	Switching on If the DGC module has been switched on via ON, lighting control is disabled.
	Switching off
	Dimming up
	Dimming down

6.11 Profiles

Profile 1: Individual room
Profile 2: Classroom
Profile 3: Corridor
Profile 4: WC
Profile 5: Free-standing luminaire (default profile)
Profile Test:

You may use the Profile Test to check the profile you selected.
All times relevant to the profile are reduced to 15 s.
The Profile Test will automatically be terminated after 1 h, or by pressing the Auto key of the basicDIM DGC Programmer.

The profiles can be adjusted to your needs via the masterCONFIGURATOR software or the DGC Programmer.
For more detailed information please refer to the masterCONFIGURATOR documentation at www.tridonic.com.

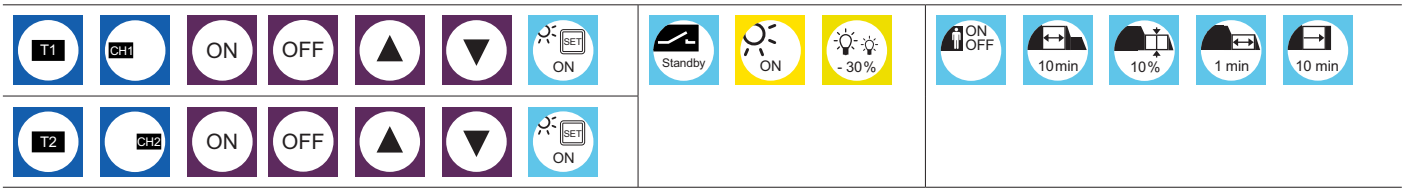
6.12 Behaviour after return of power

The basicDIM DGC module features two different types of starting behaviour after mains failure.

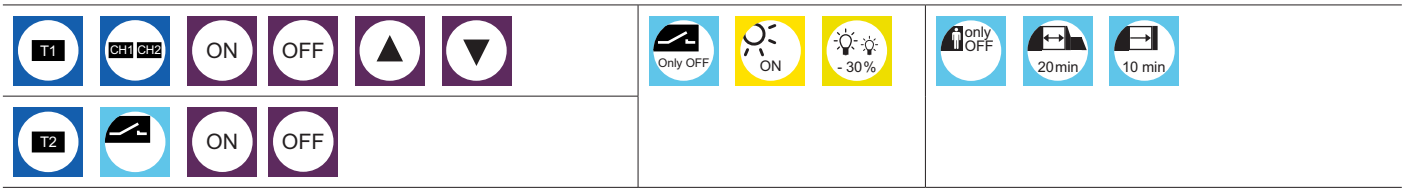
	Power ON behaviour OFF (luminaires remain switched off)
	Power ON behaviour ON (the luminaires are switched on after return of power). Default setting for all profiles!

7. Brief description of profiles

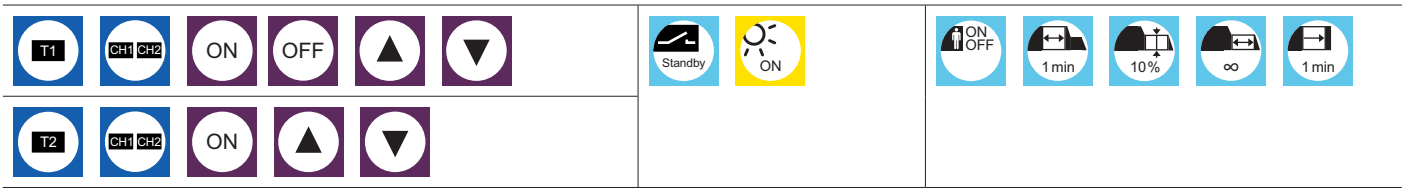
7.1 Individual room profile



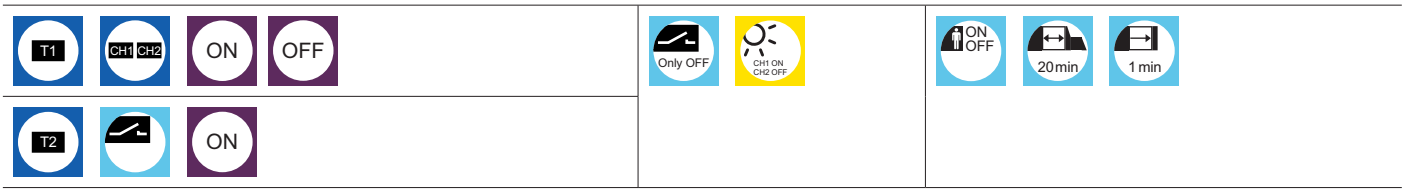
7.2 Classroom profile



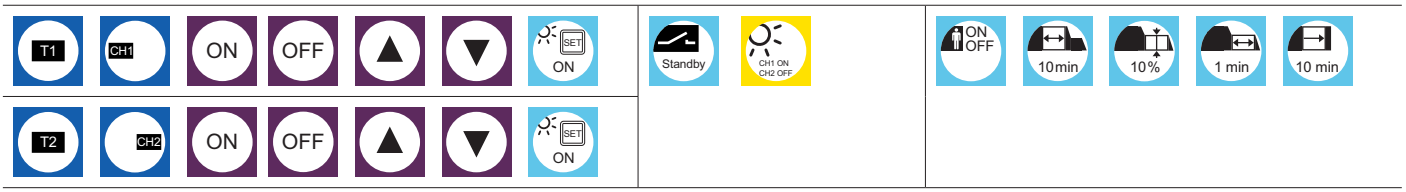
7.3 Corridor profile



7.4 WC profile



7.5 Free-standing luminaire profile (default)



8. Miscellaneous

8.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

8.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

8.3 Switching cycles

The number of switching cycles is directly related to the level and duration of the inrush current. To increase the number of cycles either LED drivers with lower inrush current (e.g. Tridonic Industry LED drivers) or an additional external relay can be used.

8.4 Control terminals

In some countries, basic insulated control terminals are to be marked with this symbol.

Control terminals marked “Caution” can become live in the event of a fault and are therefore not safe to touch. Circuits connected to control terminals marked in this way must be insulated according to the supply voltage of the controlgear and all terminals connected to such circuits must be protected against accidental contact.

8.5 FELV control terminals

WARNING: FELV terminals marked ”Risk of electric shock” are not safe to touch. Circuits connected to any FELV control terminal shall be insulated from the LV supply voltage of the control gear.
Any terminals connected to the FELV circuit shall be protected against accidental contact.

TRIDONIC

basicDIM DGC Sensor 5DPI 14f

Accessory for basicDIM DGC

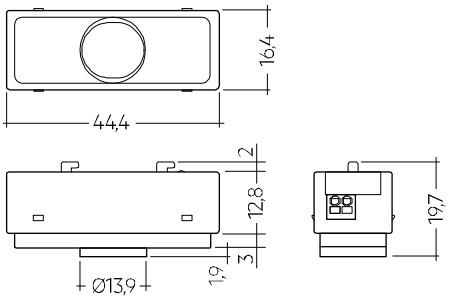
Product description

_ Light measurement and motion detection
_ Up to 4 basicDIM DGC sensors on one basicDIM DGC (only relevant for basicDIM DGC)
_ Can be remote controlled
_ Light measurement and motion detection can be deactivated
_ Individual adjustment of the parameters with basicDIM DGC Programmer or software masterCONFIGURATOR (only relevant for basicDIM DGC)
_ Power supply via basicDIM DGC (only relevant for basicDIM DGC)

Website
http://www.tridonic.com/28000933

basicDIM DGC Sensor 5DPI 14f

Accessory for basicDIM DGC



Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM DGC Sensor 5DPI 14f Luminaire installation	**28000933**	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.06 kg
basicDIM DGC Sensor 5DPI 14f black Luminaire installation	**28001696**	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.06 kg

Technical data

Sensor type	PIR sensor
Supply via	basicDIM DGC
Current draw	6 mA
Ø of detection range, mounted at a height of 2.5 m	4.5 m
Swivel design	No
Detection angle	84°
Light measurement at the sensor head ①	10 – 650 lx
Max. mounting height	5 m
Operating temperature	0 … +50 °C
Storage temperature ts	-25 … +55 °C
Type of protection	IP20

① The measured value at the sensor head corresponds to approx. 15 to 2,000 lux on the surface measured.

TRIDONIC

basicDIM DGC Sensor 5DPI 14rc

Accessory for basicDIM DGC

basicDIM ILD G2 SRC 20 5DPI WH

Product description

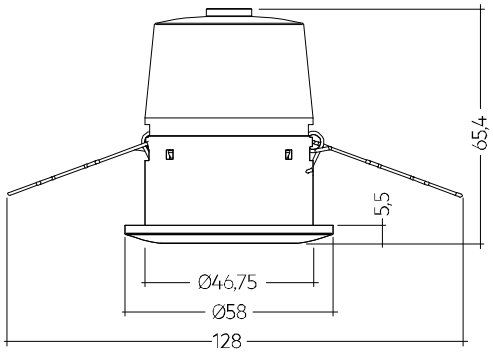
_ Light measurement and motion detection
_ Up to 4 basicDIM DGC sensors on one basicDIM DGC (only relevant for basicDIM DGC)
_ Can be remote controlled
_ Light measurement and motion detection can be deactivated
_ Individual adjustment of the parameters with basicDIM DGC Programmer or software masterCONFIGURATOR (only relevant for basicDIM DGC)
_ Power supply via basicDIM DGC (only relevant for basicDIM DGC)
_ Independent sensor providing double insulation

Website

http://www.tridonic.com/28000934

basicDIM DGC Sensor 5DPI 14rc

Accessory for basicDIM DGC



Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM DGC Sensor 5DPI 14rc Ceiling installation	**28000934**	128 x 58 x 65.4 mm	63 pc(s).	0.06 kg

Technical data

Sensor type	PIR sensor
Current draw	6 mA
Ø of detection range, mounted at a height of 2.5 m	4.5 m
Swivel design	No
Detection angle	84°
Light measurement at the sensor head ①	10 – 650 lx
Max. mounting height	5 m
Operating temperature	0 … +50 °C
Storage temperature ts	-25 … +55 °C
Type of protection	IP20

① The measured value at the sensor head corresponds to approx. 15 to 2,000 lux on the surface measured.

TRIDONIC

basicDIM ILD G2 4DPI WDA

Compact control module with ambient light sensor and motion sensor

basicDIM ILD G2 SFI 20 4DPI WDA WH

basicDIM ILD G2 SSM 20 4DPI WDA WH

basicDIM ILD G2 SRC 20 4DPI WDA WH

Product description

_ For up to 64 DALI drivers, expandable with DALI-2 Input Devices (see data sheet 3.1 Wiring)
_ Wide detection angle of up to 125° covering an area of up to 141 m²
_ Integrated application controller
_ Flexible configuration via companionSUITE
_ 2 DALI groups with adjustable offset
_ Monitoring of ambient light and motion detection
_ Infrared remote control for configuration and operation
_ Power supply via DALI line
_ Shutter for preventing occupancy detection in one direction included
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ For luminaires of protection class II
_ Wide range of accessories allowing extended application range
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

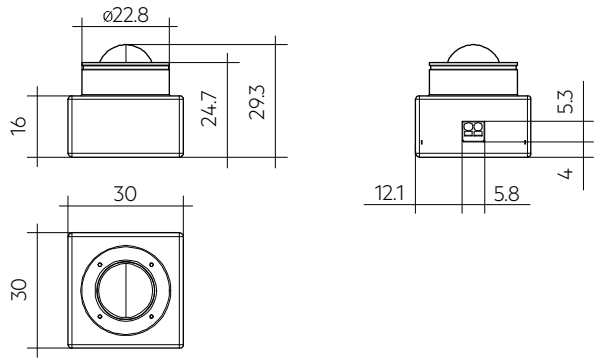
_ Casing: polycarbonate, white
_ Type of protection up to IP54

Website

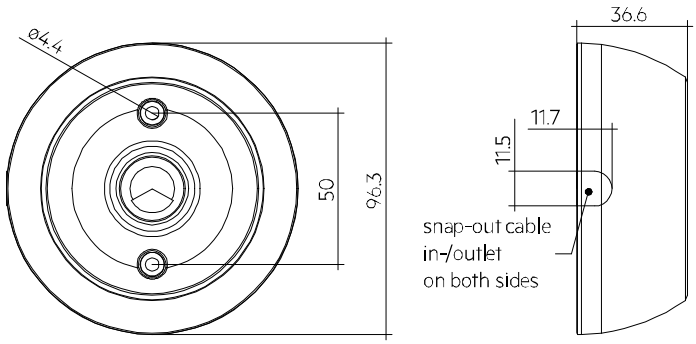
http://www.tridonic.com/28004639

basicDIM ILD G2 4DPI WDA

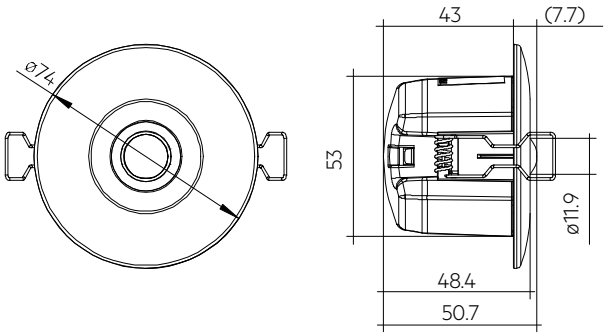
Compact control module with ambient light sensor and motion sensor



basicDIM ILD G2 SFI 20 4DPI WDA WH



basicDIM ILD G2 SSM 20 4DPI WDA WH



basicDIM ILD G2 SRC 20 4DPI WDA WH

Ordering data

Type	Article number	Suitable for	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM ILD G2 SFI 20 4DPI WDA WH	**28004639**	Luminaire installation	30.0 x 30.0 x 29.3 mm	15 pc(s).	0.013 kg
basicDIM ILD G2 SSM 20 4DPI WDA WH	**28004640**	Remote installation	96.3 x 96.3 x 36.6 mm	30 pc(s).	0.060 kg
basicDIM ILD G2 SRC 20 4DPI WDA WH	**28004641**	Ceiling installation	52.3 x 54.7 x 51.5 mm	10 pc(s).	0.058 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	11.5 – 20.5 V
Current consumption (no LED)	max. 11 mA
Current consumption (with LED)	max. 12 mA
Mounting height	2 – 4 m
Mounting hole diameter ②	23 mm
Housing thickness of the luminaire	0.75 – 4 mm
Detection angle for PIR detection ③	125°
Detection angle for light measurement ④	80° – 150°
Detection range for light measurement ⑤	2 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9010)
Housing colour lens	White
Type of protection ⑥	Up to IP54
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2-11, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 62386-101, EN 62386-103, EN 62386-301, EN 62386-303, EN 62386-304

① 14 – 20.5 V if use PBI1. Uin according to IEC 62386-101.
② This value is only valid for SFI version. For SRC version the mounting hole diameter is 55 to 57 mm.
③ For details see chapter detection area in data sheet.
④ For details see chapter light measurement in data sheet.
⑤ The measured value at the sensor head corresponds to approx. 10 to 10,000 lux on the surface measured.
⑥ Depending on the installation type up to IP54 for more details see chapter 3.7.

Sensor mounting kit ACU 033 IP66 WH

Accessory

Product description

_ Easy to mount circlip lockring, compatible with industry standard circlip pliers (size 19 – 60 mm)
_ Corrosion resistant circlip made from stainless steel
_ Appealing plastic cover ring, allowing to mount the sensor in luminaires in an easy and visual attractive way
_ Fulfills the impact energy requirements of freestanding luminaires of 0.5 J
_ Includes 2 gaskets offering flexible installation in luminaries
_ Plastic cover passed glow wire test with 750 °C in according to EN 61347-1
_ In combination with the DALI MSensor G3 SFI 30 PIR 4DPI WDA WH, a maximum of IP54 is possible
_ In combination with the basicDIM ILD G2 4DPI WDA, a maximum of IP54 is possible

Website

http://www.tridonic.com/28006311

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor mounting kit ACU 033 IP66 WH	**28006311**	15 pc(s).	0.007 kg

REMOTECONTROL IR6

Accessory

Product description

_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

Website

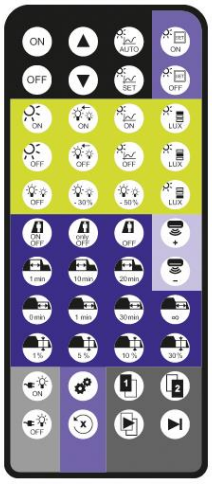
http://www.tridonic.com/28000647

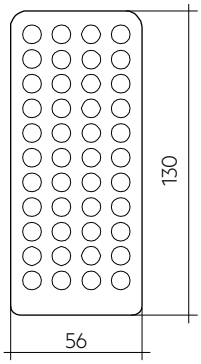
Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

basicDIM ILD G2 Programmer

Accessory





Product description

_ Optional infra-red programming unit for basicDIM ILD G2
_ Setting of predefined parameter values
_ Programmable functions such as light level, time delay, P.I.R., bright-out, power up and grouping
_ IR range up to 20 m

Website

http://www.tridonic.com/28003484

Ordering data

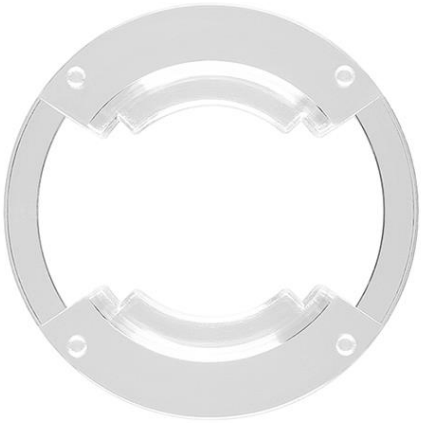
Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 PROGRAMMER	**28003484**	150 pc(s).	0.04 kg

Approval marks

RoHS

Shading Set 4DPI WDA

Accessory



Corridor

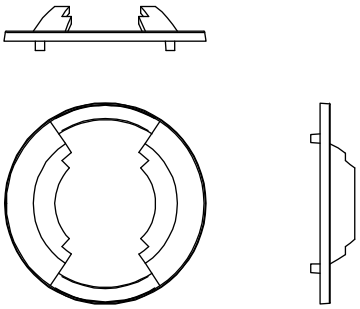
90° shutter

180° shutter

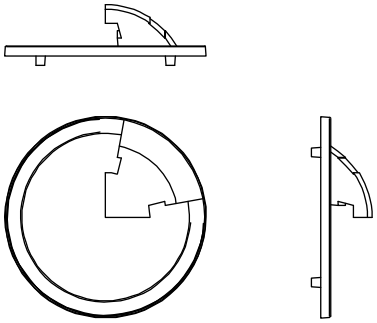
Product description

_ Shading set consisting of 3 different types of lenses: Corridor, 90° and 180° shutter
_ Shutters mountable directly to the front of the sensor in 4 different positions 0°, 90°, 180° and 270° angle relative to the sensor device
_ No disturbance of light measurement or IR receiver signals
_ Material transparent Lexan 923 with polished surface finish
_ Shutters made for one time use, once installed removal may damage the shutter and sensor lens!

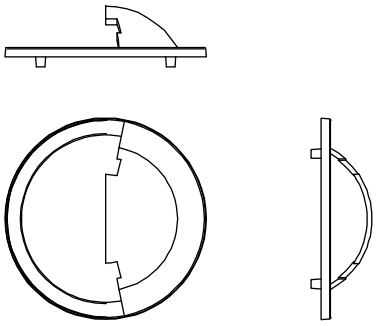
Website
http://www.tridonic.com/28003867



Corridor



90° shutter



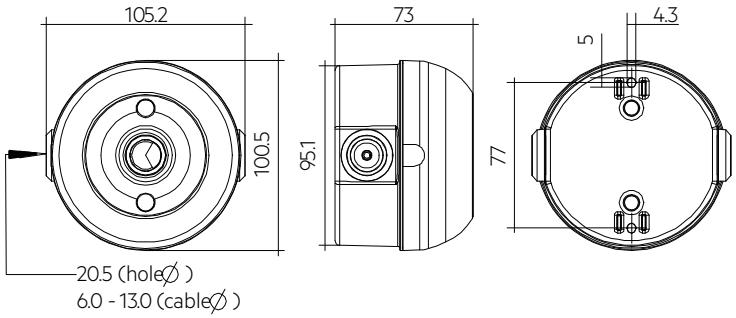
180° shutter

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU SHADING SET 034 4DPI WDA	**28003867**	20 pc(s).	0.001 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website

http://www.tridonic.com/28005945

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

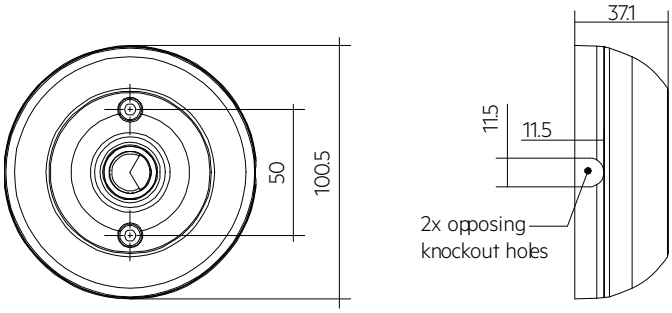
Sensor housing ACU 036 10DPI/WDA IP20 WH

Accessory

Product description

_ Mounting frame for wired 10DPI/WDA sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Including gasket for ideal IP protection
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005944



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 036 10DPI/WDA IP20 WH	**28005944**	57 pc(s).	0.051 kg

1. Standards

EN/IEC 61347-2-11
EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547
EN 62386-101
EN 62386-103
EN 62386-301
EN 62386-303
EN 62386-304

1.1 DALI standard

The basicDIM ILD G2 WDA is designed to control control gear with DALI standard IEC 60929 (DALI V0), IEC 62386 (DALI V1/DALI-2).

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

The basicDIM ILD G2 WDA provides the basis for an easy-to-use and cost-effective lighting system with motion detection.
With this Sensor, the customer gets a small sized sensor for low height applications and a protection against environmental influence up to IP54.
This sensor provides measurement of ambient light, occupancy detection via PIR sensor and IR remote control input as well as a LED output for signalisation.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a LED output for signalisation.
basicDIM ILD G2 WDA is created for following main applications:
Low height buildings such as

- Office applications
- Factory buildings
- Storage buildings and warehouses
- Corridors, passages and Garages

The basicDIM ILD G2 WDA was developed and tested exclusively for Tridonic MSensor G3, MSensor G3 WDA, XC G3 and PBI1. The use of other sensors and push button modules can lead to errors.

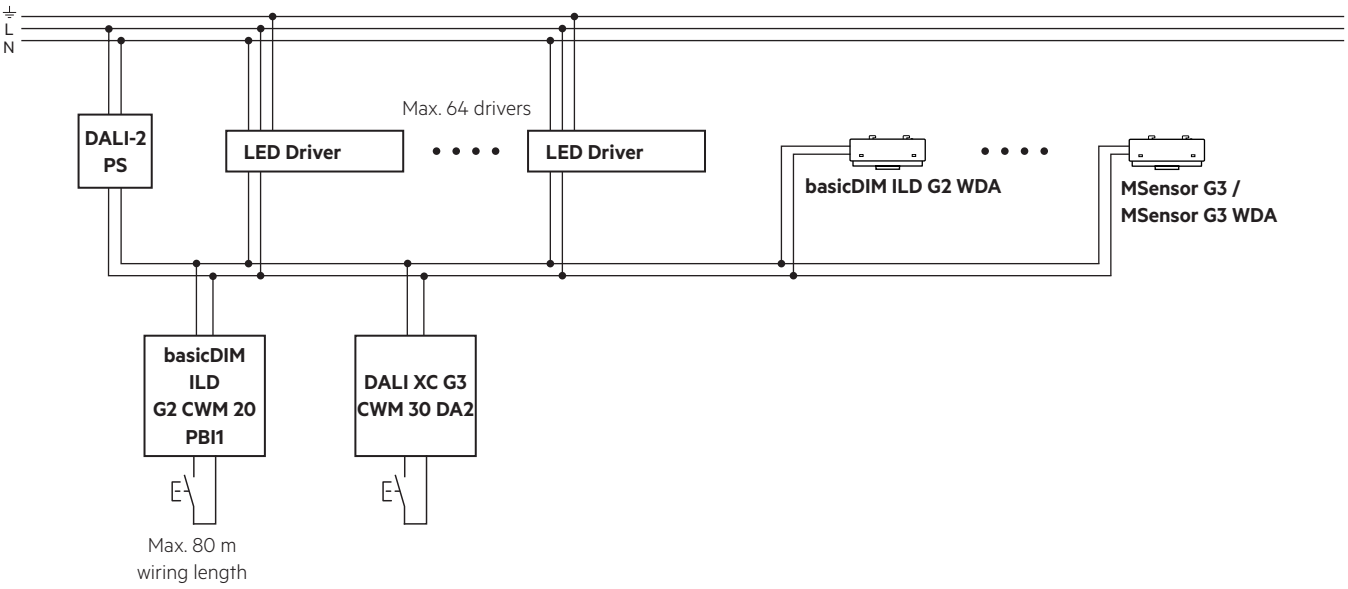
Do not use the basicDIM PBI in installations where the DALI wiring is longer than 80 m.

3. Installation

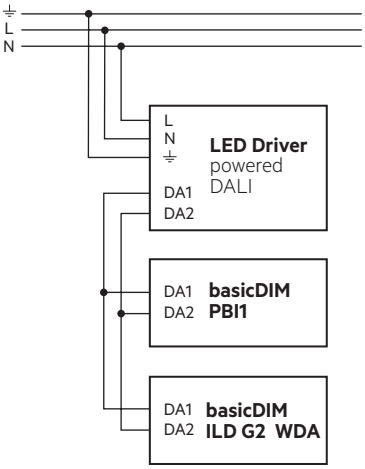
- Do not connect the basicDIM ILD G2 WDA to the mains.
  The power is supplied directly via the DALI line.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- The detection range of the sensor must be within the lighting area of the controlled luminaires.
- The detection ranges of the sensors must not overlap, as this will affect the light control.
- To avoid deviating characteristics, install the presence detector at the recommended height. If the installation is higher than recommended, the sensitivity is reduced. If the installation is lower than recommended, the detection range is reduced.
- Incorrect presence detection occurs if heaters, fans, printers or copiers are in the detection area.
- Avoid direct illumination of the light source (luminaires) on the sensor including housing.
- Additional IR sources can interfere with the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button (basicDIM ILD G2 programmer). The commissioning must be carried out again.
- Shutters are for single use only. Removal will damage the shutter and the sensor lens. Please note this before using the shutters!
- Do not use aggressive cleaning detergents to clean the sensor lens, for example. The cleaning detergents must not harm the sensor materials. Please note this before using the cleaning detergents!

3.1 Wiring

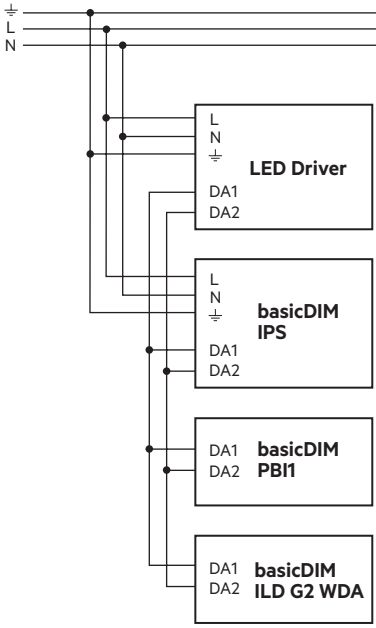
Room application:



Single / free-standing luminaires, driver with integrated power supply (DALI):



Single / free-standing luminaires, driver with separate power supply (DALI):



Maximum number of connected devices:

Devices	Number
basicDIM ILD G2 WDA	1 pc.
DALI PS	1 pc. (max. 250 mA)
LED driver	64 pcs.
Input devices (MSensor G3, XC G3)	8 pcs.
PBI1	4 pcs.

DALI repeater must not be used.

Do not use the basicDIM PBI in installations where the DALI wiring is longer than 80 m.
If more than 80 m use DALI XC G3 only.

Compatible accessories:

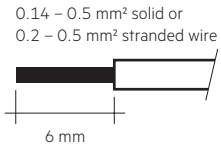
- MSensor G3 and MSensor G3 WDA as additional, slave motion detector
- XC G3 as multi channel push button interface

Factory settings for DALI XC G3:

Button	Action	Factory settings
T1	Short press	Automtic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)
T2	Short press	Automatic
	Long press	not used
	Double click	not used
T3	Short press	not used
	Long press	Dim up / Dim down
	Double click	not used
T4	Short press	Automatic (switch luminaire on or change to automatic mode)
	Long press	not used
	Double click	SET (store new value for constant light control)

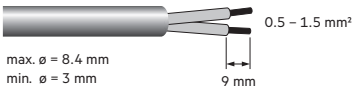
3.2 Wiring type and cross section

SFI version:
For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².



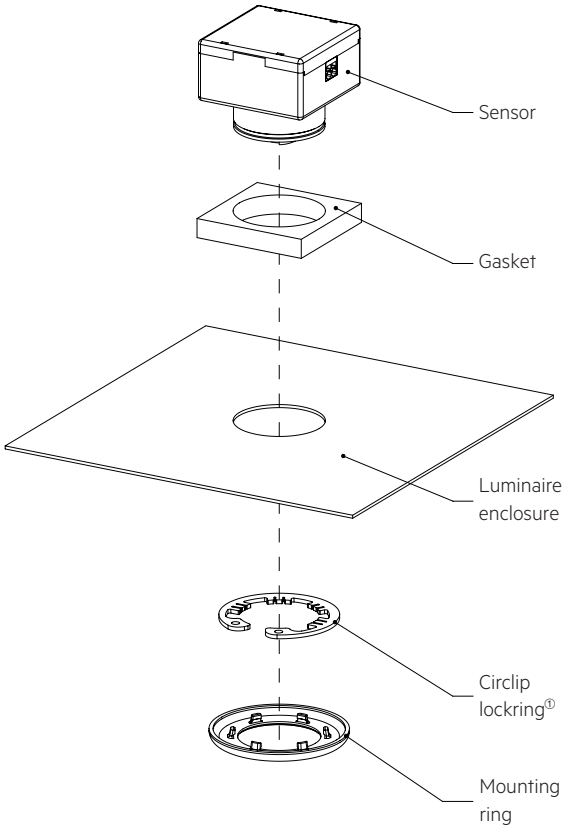
SRC version:
For wiring use stranded wire with ferrules or solid wire from 0.5–1.5 mm^2.
Strip 9 mm of insulation from the cables to ensure perfect operation of the push terminals.
Use one wire for each terminal connector only.
Use the strain relief for one cable only.

SSM version:
For wiring use solid wire from 0.5–1.5 mm^2.
Strip 9 mm of insulation from the cables to ensure perfect operation of the push terminals.
Use one wire for each terminal connector only.



3.3 Mounting variants luminaire installation sensor:

3.3.1 Installation in luminaire
To ensure the right IP protection please read chapter 3.6 Gasket.

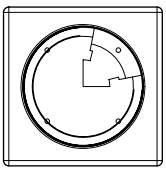


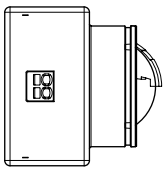
① Not included in kit ACU 030.

3.4 Detection area covers

Included in each ACU SHADING SET 034 4DPI WDA there are 3 detection area covers included.

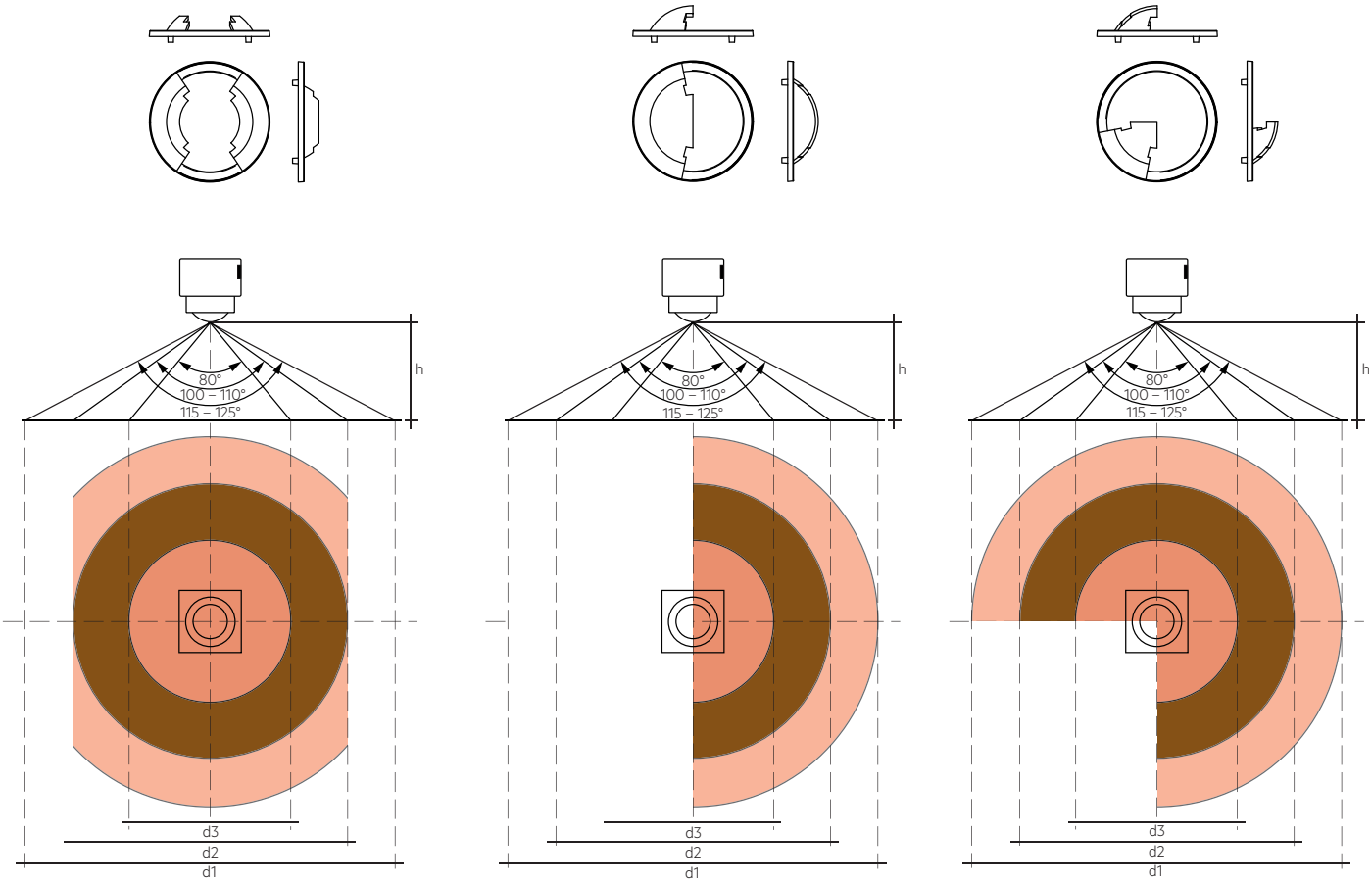
Type of material:	Lexan 923
Colour:	transparent
Surface finish:	polished





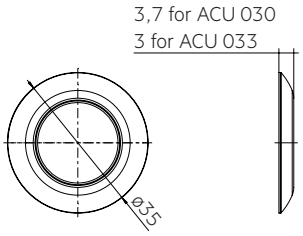
Attach the detection area cover to the sensor by inserting it into the corresponding groove at the front of the sensor.
Shutters made for one time use, once installed removal may damage the shutter and sensor lens!
If you install a damaged shutter to the sensor the risk is high that the shutter falls off!

Area which is masked by the shutter:



3.5 Mounting ring

Included in each Sensor mounting kit ACU 030 IP66 WH and kit ACU 033 IP66 WH is a mounting ring. This ring allows to mount the sensor into a luminaire in an easy and visual attractive way.



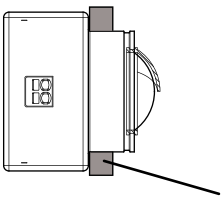
3.6 Gasket

To fulfill ingress protection different gaskets are included in the Mounting Kit.
The gaskets are necessary to ensure ingress protection as well as proper mounting of the sensor in luminaire.

Sensor can be inserted into luminaires with a cover size from 0.75 up to 4.0 mm.

According to the size of luminaire cover in certain application, one of the gaskets must be used and mounted between the front of the sensor and the luminaire housing.
It is not allowed to use a combination of e.g. two gaskets, because this will not provide the right amount of sealing and you may run in to a risk to not reach the IP54 requirements.

Use maximum possible size for your application to ensure a proper fit and protection.



Gasket (size 3, 5 or 8 mm)

Sensor mounting kit ACU 030 IP66 WH

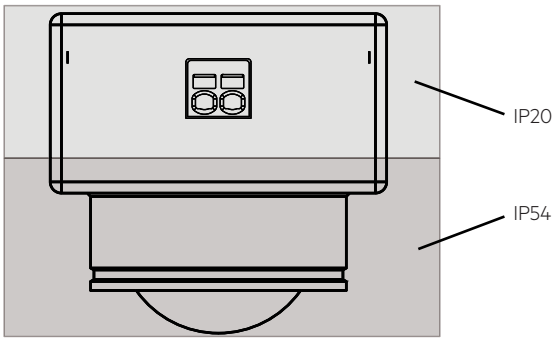
Distance between Sensor and luminare	Final size of gasket after assembly	Use gasket
2.0 – 2.4 mm	2.0 – 2.4 mm	3 mm
2.5 – 4.0 mm	2.5 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

Sensor mounting kit ACU 033 IP66 WH

Distance between Sensor and luminare	Final size of gasket after assembly	Use gasket
2.7 – 4.0 mm	2.7 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

3.7 Ingress protection

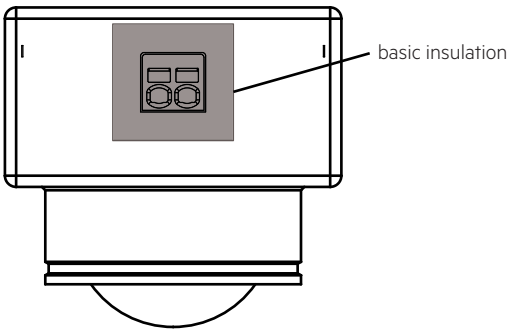
This device contains IP-protection to use it also in applications with the need of protection against dust and water ingress. IP54 protection applies to the front of the sensor whereas the back of the sensor is IP20 rated.



Only valide for SFI version.
SSM and SRC version are only IP20 protected.

3.8 Mounting in class II luminaire

The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the most part of the sensor is tested to fulfil the class II requirements for double or reinforced insulation. Basic insulation is illustrated in the graphic below and covers an area 2,5 mm around the terminal.
The rest of the sensor fulfils class II requirements.



4. Sensor function

4.1 Occupancy / motion detection

For occupancy detection PIR technology is used. The PIR Lens is made to detect moving people in areas such as office, open space or corridors with the following performance criteria:

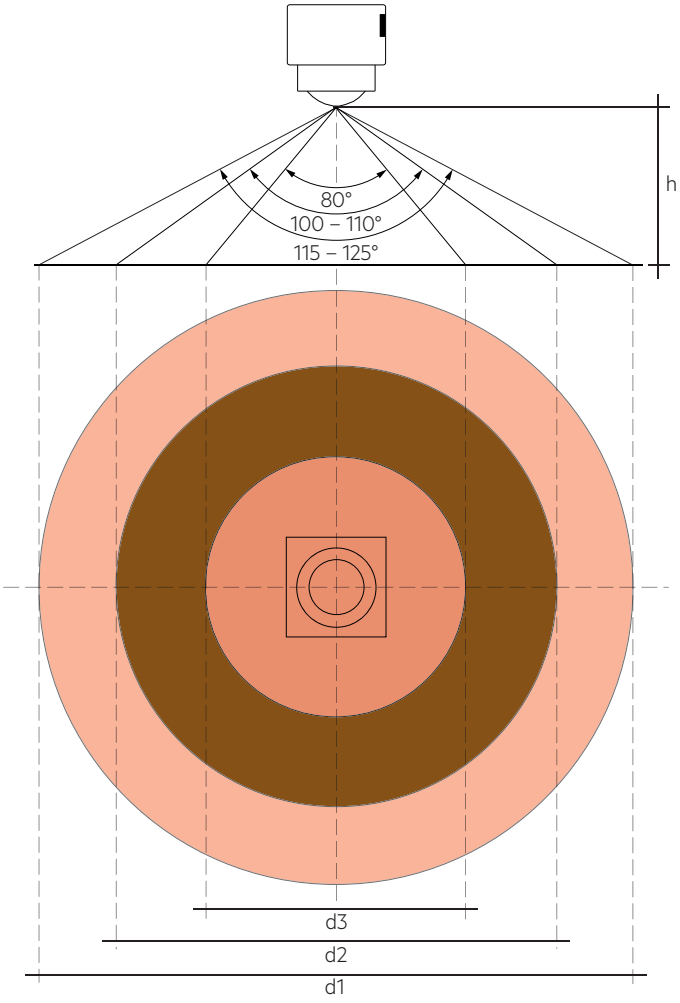
- Ceiling height from 2 up to 4 m
- Movement of human body
- Center area with increased sensitivity to detect small movements with speed ≥ 0.5 m/s for mounting heights up to 3 m (80° full angle)
- Movement speed ≥ 1.0 m/s for mounting heights up to 4 m

Reaction time of the sensor (time between occupancy detected and event information send to DALI Bus) is ≤ 25 ms.

The reaction time of the system can be extended by factors such as the amount of data on the bus, the number of connected devices or the control device used (Application Controller).

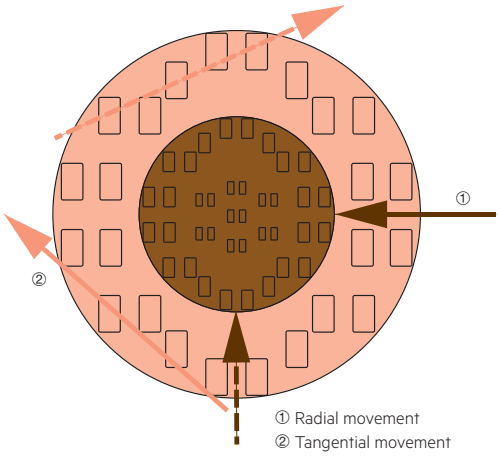
The point at which the light responds must therefore not be equated with the outer detection range.

4.2 Detection area

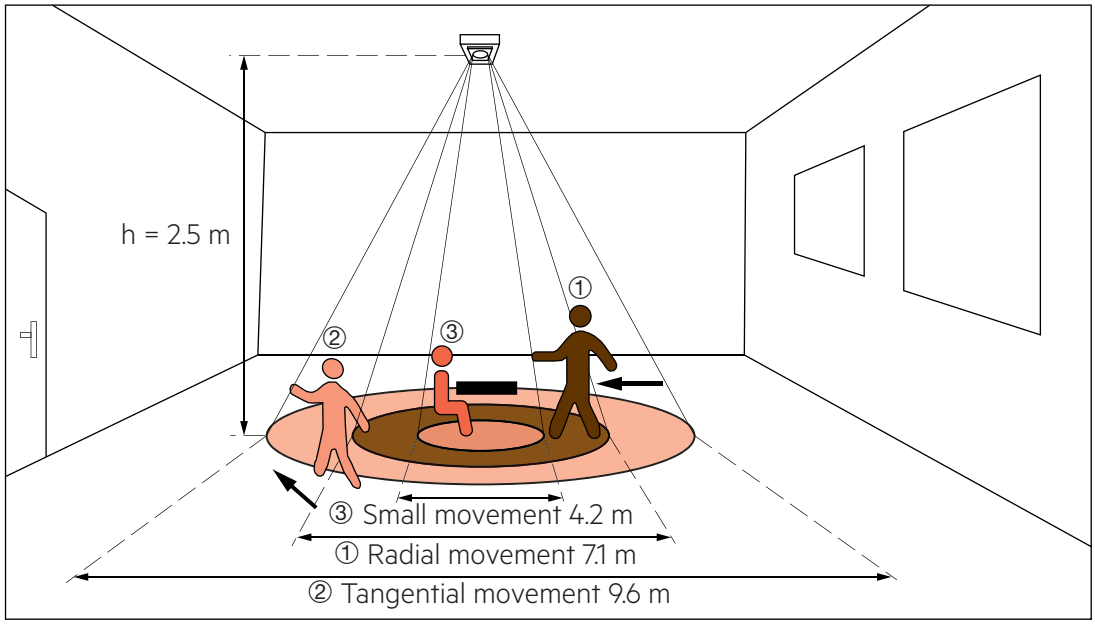


h = Height	d1 = Tangential movements		d2 = Radial movements		d3 = Small movements	
	Full angle	Diameter	Full angle	Diameter	Full angle	Diameter
2.0 m	125°	7.7 m	110°	5.7 m	80°	3.4 m
2.5 m	125°	9.6 m	110°	7.1 m	80°	4.2 m
3.0 m	125°	11.5 m	110°	8.6 m	80°	5.0 m
3.5 m	125°	13.4 m	110°	10.0 m	–	–
4.0 m	115°	12.6 m	100°	9.5 m	–	–

Schematic illustration of radial / tangential movements:

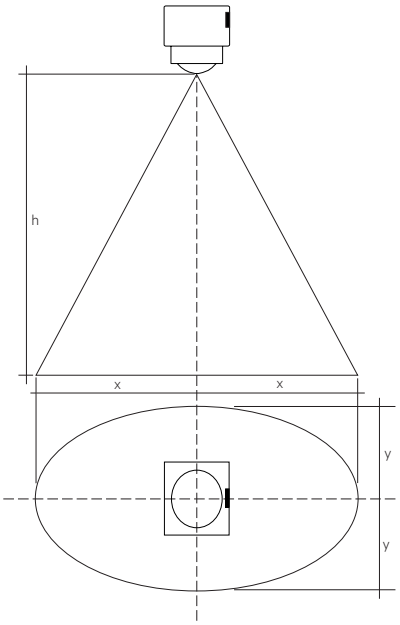


Detection example at 2.5 m mounting height:



4.3 Light measurement

The light measurement has a cone-shaped detection area with a half angle of approximately 75° in x-direction and 40° in y-direction.
Pay attention on the position of the sensor!
The detection area is asymmetrical and the position of the sensor makes a difference which area reflection is used for the light measurement.
The terminal of the sensor is visualized in the graphic and can be used for orientation of the direction.



h	dx	dy
2 m	3.0 m	1.5 m
3 m	4.6 m	2.2 m
4 m	6.1 m	2.9 m

The measurement range is between 0.5 and 2000 lx.
Measured at the sensor head.

To be able to measure values < 5 lx in an accurate way it is needed to change integration time of light sensor to 800 ms.
Integration time of light sensor is set to 100 ms by default.
For values > 5 lx there is no difference in between these measurements.

4.4 Status LED's

The status LED is deactivated by default.
There is a LED built in to indicate different status information to the user.
This LED is controlled from the sensor itself.

To not have any influence from LED to the light measurement, LED is disabled while light sensor is measuring by default.

Status	Pattern	Incident
–	–	Normal operation
Single red flash	0.2 s on. all 6 s	Motion has been detected
Permanent red flashing	0.2 s on. all 1 s	System error: - Second basicDIM ILD G2 WDA available - Stuck button time out
Long green flashing	1 s on. all 6 s	Bright-out active
Orange flashing	0.5 s on. all 0.5 s	Start-up, Grouping, Test mode, Reset active
Short blue flashing	0.2 s	Receive infrared command from basicDIM ILD G2 Programmer or IR6

4.5 User-definable parameters

Parameter	Range (Factory Settings)	Description
power-up behavior	on / off (on)	If the parameter is set to “on”, the luminaire switches on after a mains break. If the parameter is set to “off”, the luminaire does not switch on after a mains break.
presence level	1 to 100 % (100 %)	Brightness value that the ILD G2 occupies as soon as presence has been detected.
absence level	1 to 100 % (1 %)	Brightness value that the ILD G2 occupies while the switch-off delay is running.
fade-in time	0 to 15 (1)	Period of time starting as soon as presence is detected. During fade-in time, the luminous intensity fades to the presence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
fade time	0 to 15 (8)	Period of time during which the luminous intensity fades from the presence value to the absence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
run-on time	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected. After the run-on time the fade-off time is started. If another presence is detected in the room during run-on time, the run-on time is started again.
switch-off delay	off / 15 s to 60 min / never OFF (off)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).
fade-off time	0 to 15 (2)	Period of time starting after the run-on time. During the fade-off time, the luminous intensity fades to off. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s| 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
constant light control	on / off (on)	Enables or disables the constant light control
bright-out	on / off (on)	If the parameter is set to “on”, the luminaire switches off as soon as the light level exceeds the bright-out threshold of the set point for longer than 10 minutes. This could be the case if, for instance, the room is adequately illuminated by sunlight. If the bright-out threshold falls below 100 % of the set point, the luminaire switches back on again.
bright-out threshold	110 to 400 % (150 %)	Bright-out threshold used by the bright-out function
bright-out-off delay time	0 to 3,600 s (600 s)	Period of time that the light level must exceed the bright-out threshold to activate bright-out.
group 2 offset mode	fixed / converging (converging)	This parameter specifies how the group 2 offset value behaves if the light is dimmed up. If the parameter is set to “converging”, the dimming level of group 2 will keep on rising even if group 1 has already reached a dimming level of 100 %. The brightness difference will be gradually reduced up to the point where both group 1 and group 2 reach the same dimming level of 100 % which effectively reduces the group 2 offset value to zero. This way, the offset will “converge”. If the parameter is set to “fixed”, the offset is “fixed”. The brightness difference between group 1 and group 2 will stay at the value defined for the group 2 offset value. If the group 2 offset value was set to e.g. 30 %, the group 2 dimming level will always stay 30 % below the dimming level of group 1. If group 1 has reached a dimming level of 100 %, the dimming level of group 2 will stop rising because otherwise the offset would be reduced to less than the defined group 2 offset value.
group 2 offset value	0 to 95 % (30 %)	Adjustable brightness difference between group 2 and group 1

4.6 Possible push button configuration

Short Press	Long Press	Double Press
Automatic mode	Dimming up	Set target value
Recall max. level	Dimming down	No function
Off	Dimming up / dimming down	
Recall max. level / off	No function	
On with fade		
Off with fade		
Automatic mode / off with fade		
No function		

5. Miscellaneous

5.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM ILD G2 4DPI WDA

Compact control module with ambient light sensor and motion sensor

basicDIM ILD G2 SFI 20 4DPI WDA WH

basicDIM ILD G2 SSM 20 4DPI WDA WH

basicDIM ILD G2 SRC 20 4DPI WDA WH

Product description

_ For up to 64 DALI drivers, expandable with DALI-2 Input Devices (see data sheet 3.1 Wiring)
_ Wide detection angle of up to 125° covering an area of up to 141 m²
_ Integrated application controller
_ Flexible configuration via companionSUITE
_ 2 DALI groups with adjustable offset
_ Monitoring of ambient light and motion detection
_ Infrared remote control for configuration and operation
_ Power supply via DALI line
_ Shutter for preventing occupancy detection in one direction included
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ For luminaires of protection class II
_ Wide range of accessories allowing extended application range
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

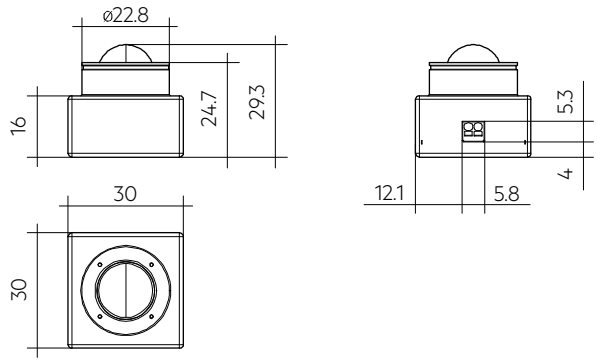
_ Casing: polycarbonate, white
_ Type of protection up to IP54

Website

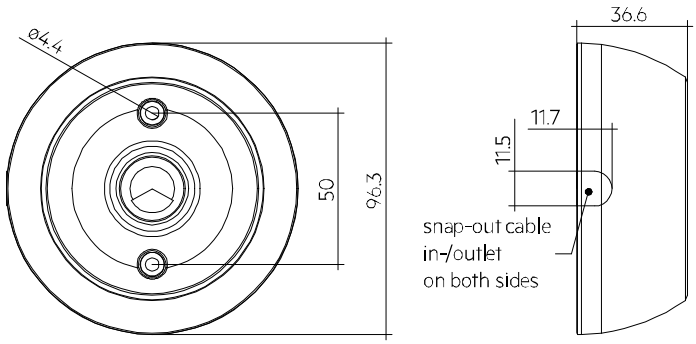
http://www.tridonic.com/28004639

basicDIM ILD G2 4DPI WDA

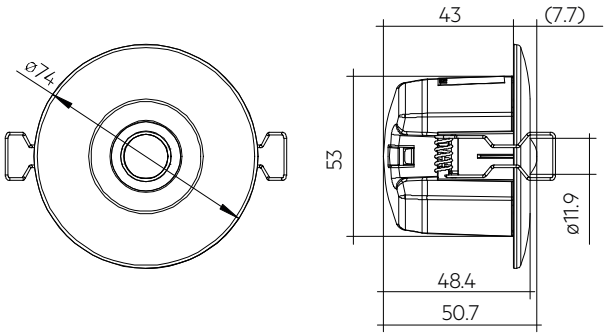
Compact control module with ambient light sensor and motion sensor



basicDIM ILD G2 SFI 20 4DPI WDA WH



basicDIM ILD G2 SSM 20 4DPI WDA WH



basicDIM ILD G2 SRC 20 4DPI WDA WH

Ordering data

Type	Article number	Suitable for	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM ILD G2 SFI 20 4DPI WDA WH	**28004639**	Luminaire installation	30.0 x 30.0 x 29.3 mm	15 pc(s).	0.013 kg
basicDIM ILD G2 SSM 20 4DPI WDA WH	**28004640**	Remote installation	96.3 x 96.3 x 36.6 mm	30 pc(s).	0.060 kg
basicDIM ILD G2 SRC 20 4DPI WDA WH	**28004641**	Ceiling installation	52.3 x 54.7 x 51.5 mm	10 pc(s).	0.058 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	11.5 – 20.5 V
Current consumption (no LED)	max. 11 mA
Current consumption (with LED)	max. 12 mA
Mounting height	2 – 4 m
Mounting hole diameter ②	23 mm
Housing thickness of the luminaire	0.75 – 4 mm
Detection angle for PIR detection ③	125°
Detection angle for light measurement ④	80° – 150°
Detection range for light measurement ⑤	2 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9010)
Housing colour lens	White
Type of protection ⑥	Up to IP54
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2-11, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 62386-101, EN 62386-103, EN 62386-301, EN 62386-303, EN 62386-304

① 14 – 20.5 V if use PBI1. Uin according to IEC 62386-101.
② This value is only valid for SFI version. For SRC version the mounting hole diameter is 55 to 57 mm.
③ For details see chapter detection area in data sheet.
④ For details see chapter light measurement in data sheet.
⑤ The measured value at the sensor head corresponds to approx. 10 to 10,000 lux on the surface measured.
⑥ Depending on the installation type up to IP54 for more details see chapter 3.7.

Sensor mounting kit ACU 033 IP66 WH

Accessory

Product description

_ Easy to mount circlip lockring, compatible with industry standard circlip pliers (size 19 – 60 mm)
_ Corrosion resistant circlip made from stainless steel
_ Appealing plastic cover ring, allowing to mount the sensor in luminaires in an easy and visual attractive way
_ Fulfills the impact energy requirements of freestanding luminaires of 0.5 J
_ Includes 2 gaskets offering flexible installation in luminaries
_ Plastic cover passed glow wire test with 750 °C in according to EN 61347-1
_ In combination with the DALI MSensor G3 SFI 30 PIR 4DPI WDA WH, a maximum of IP54 is possible
_ In combination with the basicDIM ILD G2 4DPI WDA, a maximum of IP54 is possible

Website

http://www.tridonic.com/28006311

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor mounting kit ACU 033 IP66 WH	**28006311**	15 pc(s).	0.007 kg

REMOTECONTROL IR6

Accessory

Product description

_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

Website

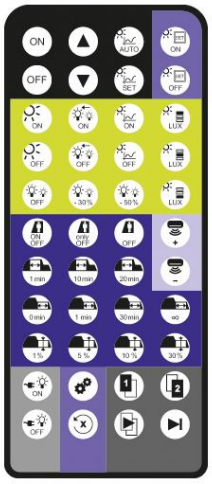
http://www.tridonic.com/28000647

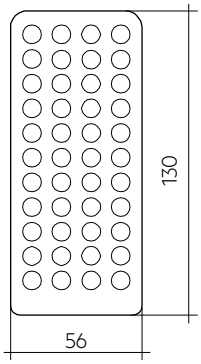
Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

basicDIM ILD G2 Programmer

Accessory





Product description

_ Optional infra-red programming unit for basicDIM ILD G2
_ Setting of predefined parameter values
_ Programmable functions such as light level, time delay, P.I.R., bright-out, power up and grouping
_ IR range up to 20 m

Website

http://www.tridonic.com/28003484

Ordering data

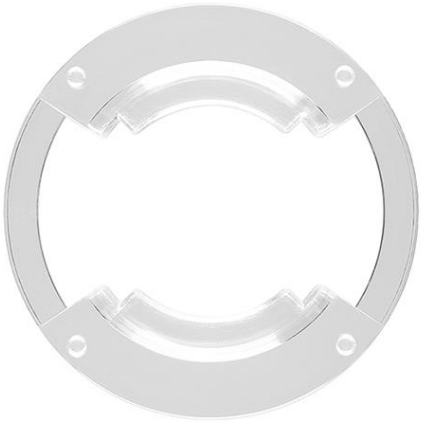
Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 PROGRAMMER	**28003484**	150 pc(s).	0.04 kg

Approval marks

RoHS

Shading Set 4DPI WDA

Accessory



Corridor

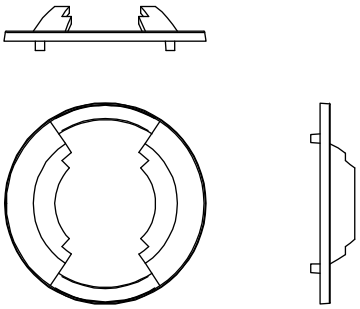
90° shutter

180° shutter

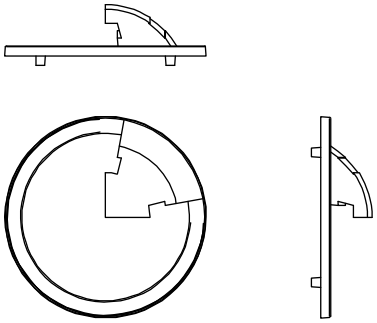
Product description

_ Shading set consisting of 3 different types of lenses: Corridor, 90° and 180° shutter
_ Shutters mountable directly to the front of the sensor in 4 different positions 0°, 90°, 180° and 270° angle relative to the sensor device
_ No disturbance of light measurement or IR receiver signals
_ Material transparent Lexan 923 with polished surface finish
_ Shutters made for one time use, once installed removal may damage the shutter and sensor lens!

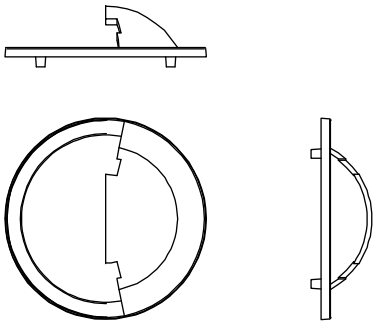
Website
http://www.tridonic.com/28003867



Corridor



90° shutter



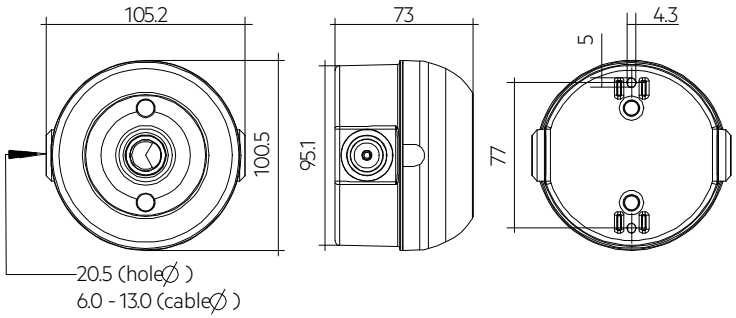
180° shutter

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU SHADING SET 034 4DPI WDA	**28003867**	20 pc(s).	0.001 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website

http://www.tridonic.com/28005945

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

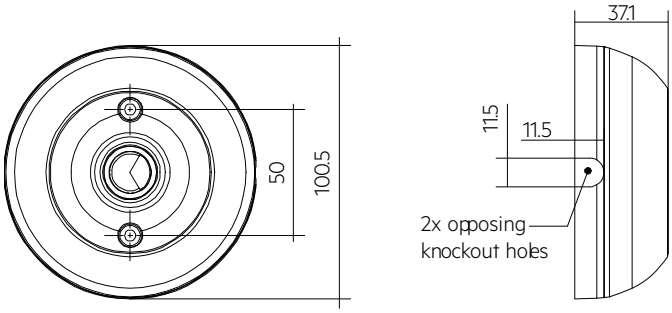
Sensor housing ACU 036 10DPI/WDA IP20 WH

Accessory

Product description

_ Mounting frame for wired 10DPI/WDA sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Including gasket for ideal IP protection
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005944



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 036 10DPI/WDA IP20 WH	**28005944**	57 pc(s).	0.051 kg

1. Standards

EN/IEC 61347-2-11
EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547
EN 62386-101
EN 62386-103
EN 62386-301
EN 62386-303
EN 62386-304

1.1 DALI standard

The basicDIM ILD G2 WDA is designed to control control gear with DALI standard IEC 60929 (DALI V0), IEC 62386 (DALI V1/DALI-2).

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

The basicDIM ILD G2 WDA provides the basis for an easy-to-use and cost-effective lighting system with motion detection.
With this Sensor, the customer gets a small sized sensor for low height applications and a protection against environmental influence up to IP54.
This sensor provides measurement of ambient light, occupancy detection via PIR sensor and IR remote control input as well as a LED output for signalisation.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a LED output for signalisation.
basicDIM ILD G2 WDA is created for following main applications:
Low height buildings such as

- Office applications
- Factory buildings
- Storage buildings and warehouses
- Corridors, passages and Garages

The basicDIM ILD G2 WDA was developed and tested exclusively for Tridonic MSensor G3, MSensor G3 WDA, XC G3 and PBI1. The use of other sensors and push button modules can lead to errors.

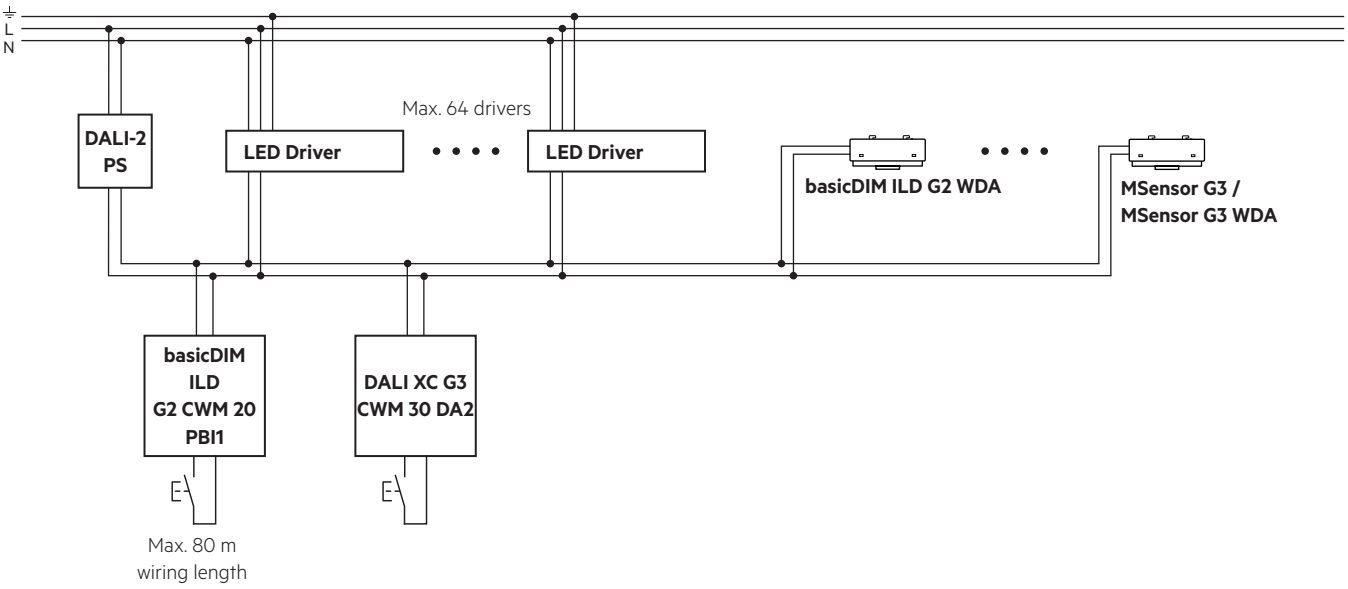
Do not use the basicDIM PBI in installations where the DALI wiring is longer than 80 m.

3. Installation

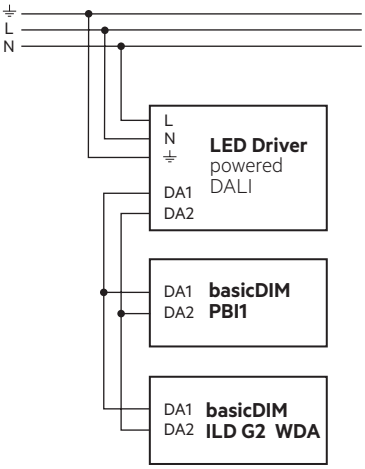
- Do not connect the basicDIM ILD G2 WDA to the mains.
  The power is supplied directly via the DALI line.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- The detection range of the sensor must be within the lighting area of the controlled luminaires.
- The detection ranges of the sensors must not overlap, as this will affect the light control.
- To avoid deviating characteristics, install the presence detector at the recommended height. If the installation is higher than recommended, the sensitivity is reduced. If the installation is lower than recommended, the detection range is reduced.
- Incorrect presence detection occurs if heaters, fans, printers or copiers are in the detection area.
- Avoid direct illumination of the light source (luminaires) on the sensor including housing.
- Additional IR sources can interfere with the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button (basicDIM ILD G2 programmer). The commissioning must be carried out again.
- Shutters are for single use only. Removal will damage the shutter and the sensor lens. Please note this before using the shutters!
- Do not use aggressive cleaning detergents to clean the sensor lens, for example. The cleaning detergents must not harm the sensor materials. Please note this before using the cleaning detergents!

3.1 Wiring

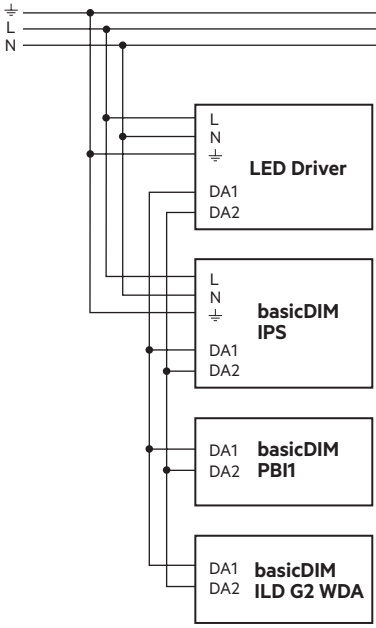
Room application:



Single / free-standing luminaires, driver with integrated power supply (DALI):



Single / free-standing luminaires, driver with separate power supply (DALI):



Maximum number of connected devices:

Devices	Number
basicDIM ILD G2 WDA	1 pc.
DALI PS	1 pc. (max. 250 mA)
LED driver	64 pcs.
Input devices (MSensor G3, XC G3)	8 pcs.
PBI1	4 pcs.

DALI repeater must not be used.

Do not use the basicDIM PBI in installations where the DALI wiring is longer than 80 m.
If more than 80 m use DALI XC G3 only.

Compatible accessories:

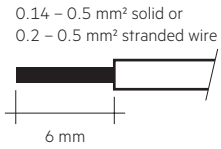
- MSensor G3 and MSensor G3 WDA as additional, slave motion detector
- XC G3 as multi channel push button interface

Factory settings for DALI XC G3:

Button	Action	Factory settings
T1	Short press	Automtic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)
T2	Short press	Automatic
	Long press	not used
	Double click	not used
T3	Short press	not used
	Long press	Dim up / Dim down
	Double click	not used
T4	Short press	Automatic (switch luminaire on or change to automatic mode)
	Long press	not used
	Double click	SET (store new value for constant light control)

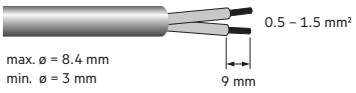
3.2 Wiring type and cross section

SFI version:
For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².



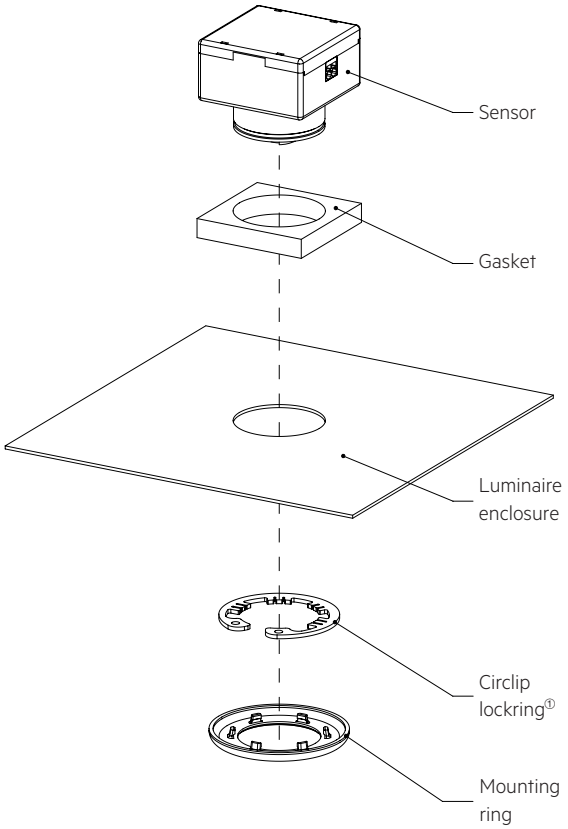
SRC version:
For wiring use stranded wire with ferrules or solid wire from 0.5–1.5 mm^2.
Strip 9 mm of insulation from the cables to ensure perfect operation of the push terminals.
Use one wire for each terminal connector only.
Use the strain relief for one cable only.

SSM version:
For wiring use solid wire from 0.5–1.5 mm^2.
Strip 9 mm of insulation from the cables to ensure perfect operation of the push terminals.
Use one wire for each terminal connector only.



3.3 Mounting variants luminaire installation sensor:

3.3.1 Installation in luminaire
To ensure the right IP protection please read chapter 3.6 Gasket.

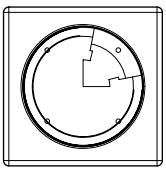


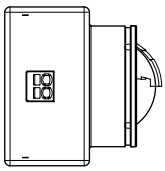
① Not included in kit ACU 030.

3.4 Detection area covers

Included in each ACU SHADING SET 034 4DPI WDA there are 3 detection area covers included.

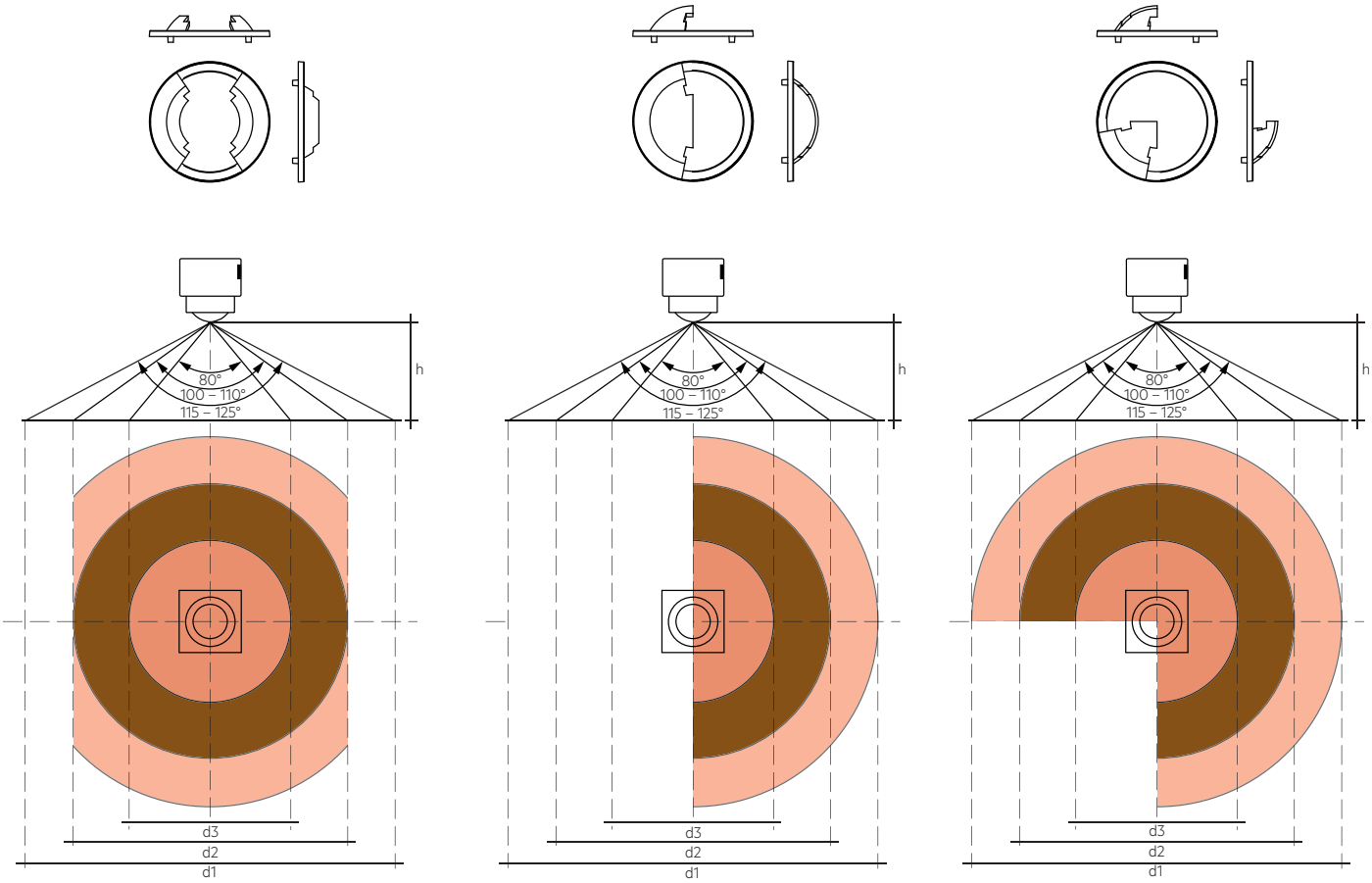
Type of material:	Lexan 923
Colour:	transparent
Surface finish:	polished





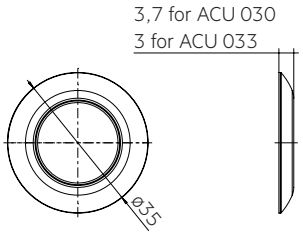
Attach the detection area cover to the sensor by inserting it into the corresponding groove at the front of the sensor.
Shutters made for one time use, once installed removal may damage the shutter and sensor lens!
If you install a damaged shutter to the sensor the risk is high that the shutter falls off!

Area which is masked by the shutter:



3.5 Mounting ring

Included in each Sensor mounting kit ACU 030 IP66 WH and kit ACU 033 IP66 WH is a mounting ring. This ring allows to mount the sensor into a luminaire in an easy and visual attractive way.



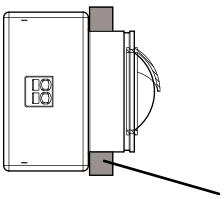
3.6 Gasket

To fulfill ingress protection different gaskets are included in the Mounting Kit.
The gaskets are necessary to ensure ingress protection as well as proper mounting of the sensor in luminaire.

Sensor can be inserted into luminaires with a cover size from 0.75 up to 4.0 mm.

According to the size of luminaire cover in certain application, one of the gaskets must be used and mounted between the front of the sensor and the luminaire housing.
It is not allowed to use a combination of e.g. two gaskets, because this will not provide the right amount of sealing and you may run in to a risk to not reach the IP54 requirements.

Use maximum possible size for your application to ensure a proper fit and protection.



Gasket (size 3, 5 or 8 mm)

Sensor mounting kit ACU 030 IP66 WH

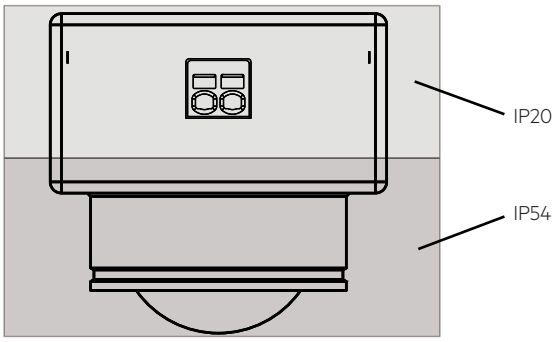
Distance between Sensor and luminare	Final size of gasket after assembly	Use gasket
2.0 – 2.4 mm	2.0 – 2.4 mm	3 mm
2.5 – 4.0 mm	2.5 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

Sensor mounting kit ACU 033 IP66 WH

Distance between Sensor and luminare	Final size of gasket after assembly	Use gasket
2.7 – 4.0 mm	2.7 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

3.7 Ingress protection

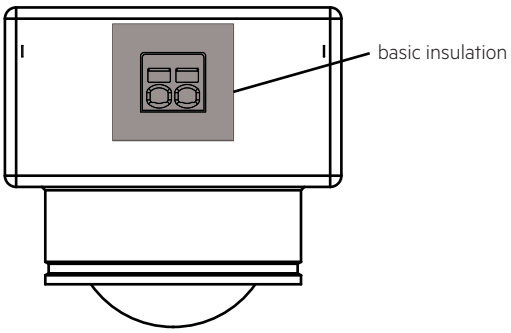
This device contains IP-protection to use it also in applications with the need of protection against dust and water ingress. IP54 protection applies to the front of the sensor whereas the back of the sensor is IP20 rated.



Only valide for SFI version.
SSM and SRC version are only IP20 protected.

3.8 Mounting in class II luminaire

The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the most part of the sensor is tested to fulfil the class II requirements for double or reinforced insulation. Basic insulation is illustrated in the graphic below and covers an area 2,5 mm around the terminal.
The rest of the sensor fulfils class II requirements.



4. Sensor function

4.1 Occupancy / motion detection

For occupancy detection PIR technology is used. The PIR Lens is made to detect moving people in areas such as office, open space or corridors with the following performance criteria:

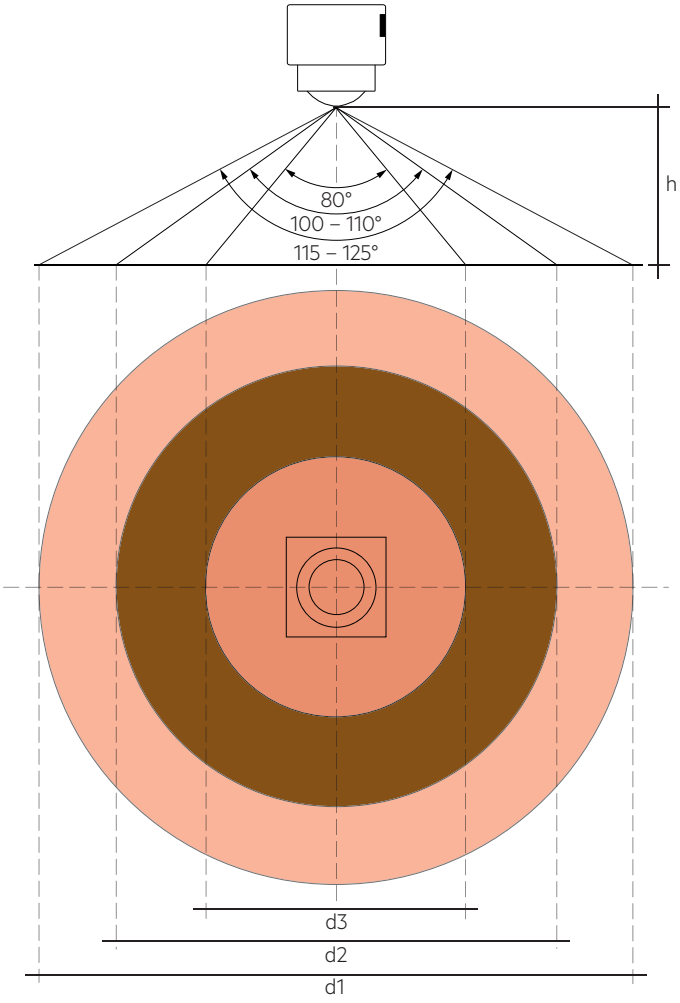
- Ceiling height from 2 up to 4 m
- Movement of human body
- Center area with increased sensitivity to detect small movements with speed ≥ 0.5 m/s for mounting heights up to 3 m (80° full angle)
- Movement speed ≥ 1.0 m/s for mounting heights up to 4 m

Reaction time of the sensor (time between occupancy detected and event information send to DALI Bus) is ≤ 25 ms.

The reaction time of the system can be extended by factors such as the amount of data on the bus, the number of connected devices or the control device used (Application Controller).

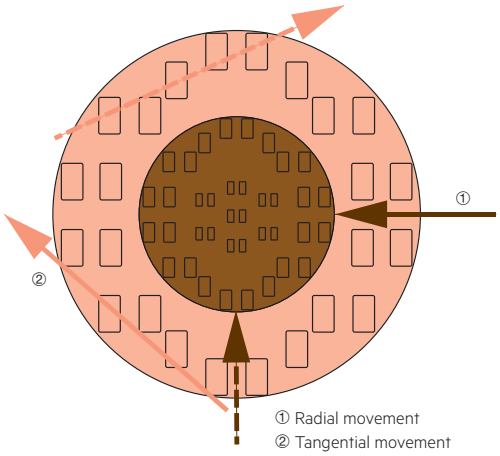
The point at which the light responds must therefore not be equated with the outer detection range.

4.2 Detection area

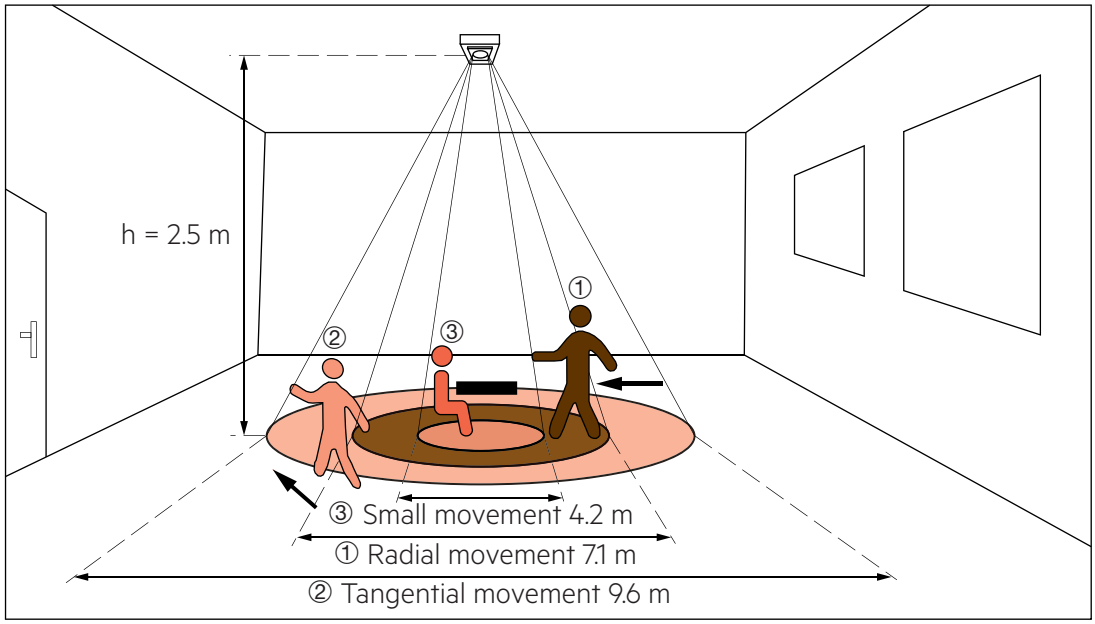


h = Height	d1 = Tangential movements		d2 = Radial movements		d3 = Small movements	
	Full angle	Diameter	Full angle	Diameter	Full angle	Diameter
2.0 m	125°	7.7 m	110°	5.7 m	80°	3.4 m
2.5 m	125°	9.6 m	110°	7.1 m	80°	4.2 m
3.0 m	125°	11.5 m	110°	8.6 m	80°	5.0 m
3.5 m	125°	13.4 m	110°	10.0 m	–	–
4.0 m	115°	12.6 m	100°	9.5 m	–	–

Schematic illustration of radial / tangential movements:

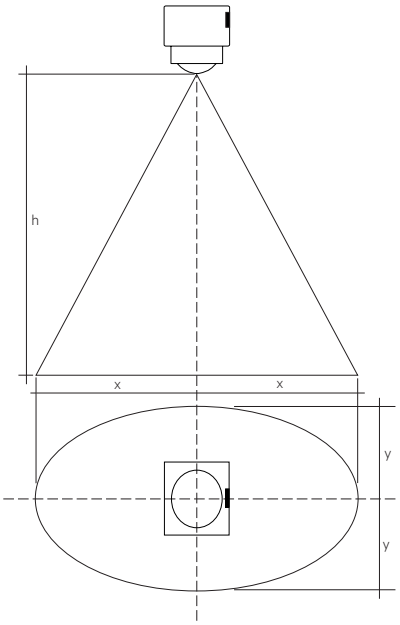


Detection example at 2.5 m mounting height:



4.3 Light measurement

The light measurement has a cone-shaped detection area with a half angle of approximately 75° in x-direction and 40° in y-direction.
Pay attention on the position of the sensor!
The detection area is asymmetrical and the position of the sensor makes a difference which area reflection is used for the light measurement.
The terminal of the sensor is visualized in the graphic and can be used for orientation of the direction.



h	dx	dy
2 m	3.0 m	1.5 m
3 m	4.6 m	2.2 m
4 m	6.1 m	2.9 m

The measurement range is between 0.5 and 2000 lx.
Measured at the sensor head.

To be able to measure values < 5 lx in an accurate way it is needed to change integration time of light sensor to 800 ms.
Integration time of light sensor is set to 100 ms by default.
For values > 5 lx there is no difference in between these measurements.

4.4 Status LED's

The status LED is deactivated by default.
There is a LED built in to indicate different status information to the user.
This LED is controlled from the sensor itself.

To not have any influence from LED to the light measurement, LED is disabled while light sensor is measuring by default.

Status	Pattern	Incident
–	–	Normal operation
Single red flash	0.2 s on. all 6 s	Motion has been detected
Permanent red flashing	0.2 s on. all 1 s	System error: - Second basicDIM ILD G2 WDA available - Stuck button time out
Long green flashing	1 s on. all 6 s	Bright-out active
Orange flashing	0.5 s on. all 0.5 s	Start-up, Grouping, Test mode, Reset active
Short blue flashing	0.2 s	Receive infrared command from basicDIM ILD G2 Programmer or IR6

4.5 User-definable parameters

Parameter	Range (Factory Settings)	Description
power-up behavior	on / off (on)	If the parameter is set to “on”, the luminaire switches on after a mains break. If the parameter is set to “off”, the luminaire does not switch on after a mains break.
presence level	1 to 100 % (100 %)	Brightness value that the ILD G2 occupies as soon as presence has been detected.
absence level	1 to 100 % (1 %)	Brightness value that the ILD G2 occupies while the switch-off delay is running.
fade-in time	0 to 15 (1)	Period of time starting as soon as presence is detected. During fade-in time, the luminous intensity fades to the presence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
fade time	0 to 15 (8)	Period of time during which the luminous intensity fades from the presence value to the absence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
run-on time	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected. After the run-on time the fade-off time is started. If another presence is detected in the room during run-on time, the run-on time is started again.
switch-off delay	off / 15 s to 60 min / never OFF (off)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).
fade-off time	0 to 15 (2)	Period of time starting after the run-on time. During the fade-off time, the luminous intensity fades to off. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s| 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
constant light control	on / off (on)	Enables or disables the constant light control
bright-out	on / off (on)	If the parameter is set to “on”, the luminaire switches off as soon as the light level exceeds the bright-out threshold of the set point for longer than 10 minutes. This could be the case if, for instance, the room is adequately illuminated by sunlight. If the bright-out threshold falls below 100 % of the set point, the luminaire switches back on again.
bright-out threshold	110 to 400 % (150 %)	Bright-out threshold used by the bright-out function
bright-out-off delay time	0 to 3,600 s (600 s)	Period of time that the light level must exceed the bright-out threshold to activate bright-out.
group 2 offset mode	fixed / converging (converging)	This parameter specifies how the group 2 offset value behaves if the light is dimmed up. If the parameter is set to “converging”, the dimming level of group 2 will keep on rising even if group 1 has already reached a dimming level of 100 %. The brightness difference will be gradually reduced up to the point where both group 1 and group 2 reach the same dimming level of 100 % which effectively reduces the group 2 offset value to zero. This way, the offset will “converge”. If the parameter is set to “fixed”, the offset is “fixed”. The brightness difference between group 1 and group 2 will stay at the value defined for the group 2 offset value. If the group 2 offset value was set to e.g. 30 %, the group 2 dimming level will always stay 30 % below the dimming level of group 1. If group 1 has reached a dimming level of 100 %, the dimming level of group 2 will stop rising because otherwise the offset would be reduced to less than the defined group 2 offset value.
group 2 offset value	0 to 95 % (30 %)	Adjustable brightness difference between group 2 and group 1

4.6 Possible push button configuration

Short Press	Long Press	Double Press
Automatic mode	Dimming up	Set target value
Recall max. level	Dimming down	No function
Off	Dimming up / dimming down	
Recall max. level / off	No function	
On with fade		
Off with fade		
Automatic mode / off with fade		
No function		

5. Miscellaneous

5.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM ILD G2 5DPI

Compact control module with ambient light sensor and motion sensor

basicDIM ILD G2 SFI 20 5DPI WH

basicDIM ILD G2 SFI 20 5DPI BK

basicDIM ILD G2 SRC 20 5DPI WH

Product description

_ For up to 64 DALI drivers, expandable with DALI-2 Input Devices (see data sheet 3.1 Wiring)
_ Integrated application controller
_ Flexible configuration via companionSUITE
_ 2 DALI groups with adjustable offset
_ Monitoring of ambient light and motion detection
_ Infrared remote control for configuration and operation
_ Power supply via DALI line
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ For luminaires of protection class I and protection class II
_ Wide range of accessories allowing extended application range
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

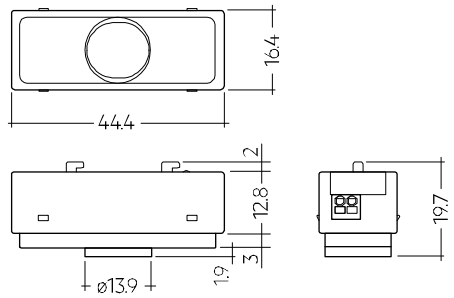
_ Casing: polycarbonate, black or white
_ Type of protection IP20

Website

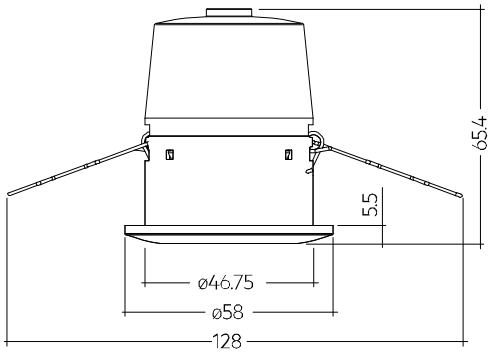
http://www.tridonic.com/28003389

basicDIM ILD G2 5DPI

Compact control module with ambient light sensor and motion sensor



basicDIM ILD G2 SFI 20 5DPI WH/BK



basicDIM ILD G2 SRC 20 5DPI WH

Ordering data

Type	Article number	Suitable for	Colour	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM ILD G2 SFI 20 5DPI WH	**28003389**	Luminaire installation	White	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.010 kg
basicDIM ILD G2 SFI 20 5DPI BK	**28003390**	Luminaire installation	Black	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.010 kg
basicDIM ILD G2 SRC 20 5DPI WH	**28003391**	Ceiling installation	White	58.0 x 58.0 x 65.4 mm	10 pc(s).	0.037 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	11.5 – 20.5 V
Current consumption (no LED)	max. 11 mA
Current consumption (with LED)	max. 12 mA
Mounting height	5 m
Mounting hole diameter	14.1 mm
Detection angle for PIR detection	84°
Detection angle for light measurement	30°
Detection range for light measurement ②	2 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9010)
Housing colour lens	White
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, IEC 60929

① 14 – 20.5 V if use PBI1. Uin according to IEC 62386-101.
② The measured value at the sensor head corresponds to approx. 10 to 10,000 lux on the surface measured.

REMOTECONTROL IR6

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

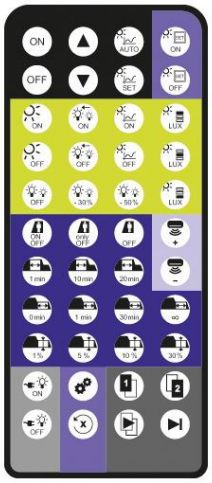
Website
http://www.tridonic.com/28000647

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

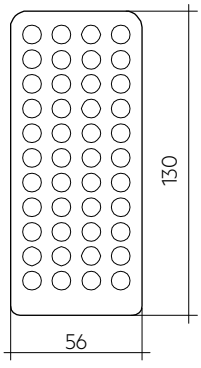
basicDIM ILD G2 Programmer

Accessory



Product description
_ Optional infra-red programming unit for basicDIM ILD G2
_ Setting of predefined parameter values
_ Programmable functions such as light level, time delay, P.I.R., bright-out, power up and grouping
_ IR range up to 20 m

Website
http://www.tridonic.com/28003484



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 PROGRAMMER	**28003484**	150 pc(s).	0.04 kg

Approval marks

5DPI 14f Mounting Kit

Accessory

Product description

_ Mounting frame for attaching all 5DP 14f sensor directly to the luminaire housing
_ Optional shutter to prevent presence detection in a specific direction (for PIR sensors)
_ Glow wire test with 750 °C according to EN 61347-1

Website
http://www.tridonic.com/28001558

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
5DPI 14f mounting kit	**28001558**	100 pc(s).	0.004 kg
5DPI 14f mounting kit black	**28001575**	100 pc(s).	0.004 kg

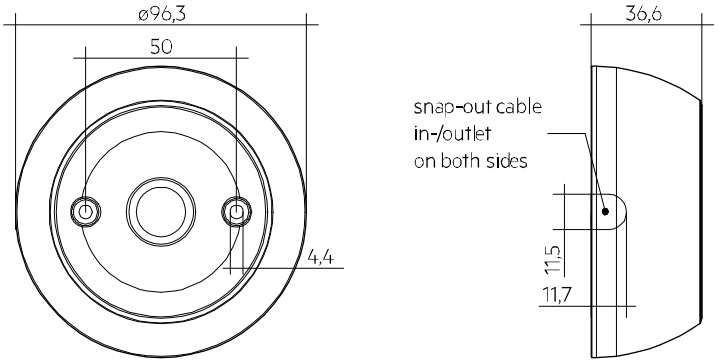
ACU Sensor Housing 14rs IP20

Accessory

Product description

_ Mounting frame for wired 5DP 14f sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: plastic, white
_ UV stabilized plastic
_ DALI MSensor 5DPI 14 is powered via DALI circuit, basicDIM DGC Sensor 5DPI 14f powered via control unit
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Glow wire test with 750 °C according to EN 61347-1
_ Sensor not included

Website
http://www.tridonic.com/28001872

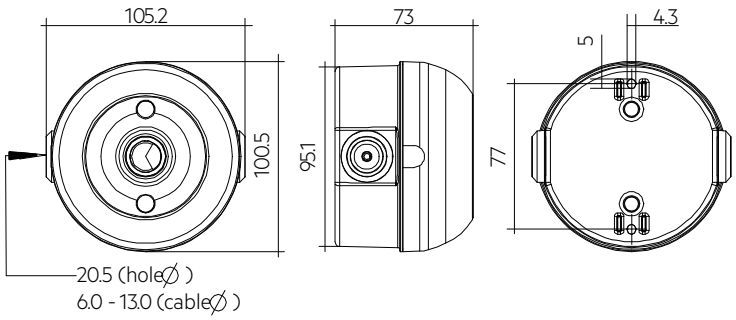

ø96,3
50
4,4
36,6
snap-out cable
in-/outlet
on both sides
11,5
11,7

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU Sensor Housing 14rs IP20	**28001872**	81 pc(s).	0.054 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website

http://www.tridonic.com/28005945

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

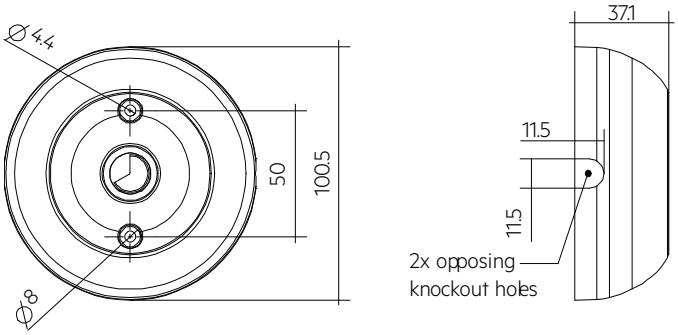
Sensor Housing ACU 035 5DPI IP20

Accessory

Product description

_ Mounting frame for wired 5DPI sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005943

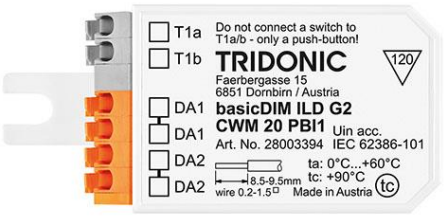


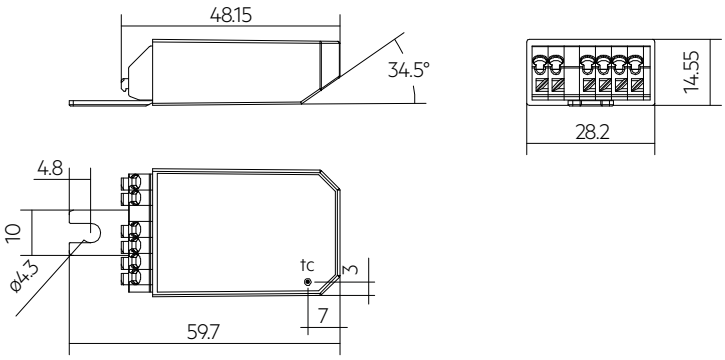
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor Housing ACU 035 5DPI IP20 WH	**28005943**	57 pc(s).	0.052 kg

basicDIM ILD G2 CWM 20 PBI1

Accessory





Product description

- Push Button Interface (PBI) for ILD G2 and ILD G2 FSL system
- Flexible configuration via the ILD G2 and ILD G2 FSL in combination with the companionSUITE
- Short push button action: automatic / fade off (factory default)
- Long push button action: dim up / dim down (factory default)
- Double push button action: set new target value for light regulation (factory default)
- Through-wiring DA1 / DA2 possible
- Detachable mounting flaps, allow installation in flush-mounted boxes and luminaires

Note

- A permanent short circuit between T1a and T1b results in limited function
- Only push buttons can be used

Website

http://www.tridonic.com/28003394

Ordering data

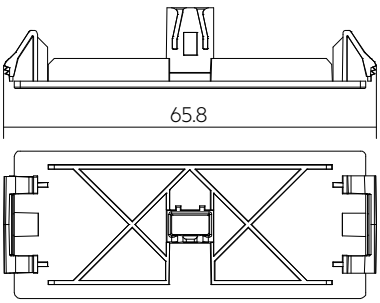
Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 CWM 20 PBI1	**28003394**	15 pc(s).	0.012 kg

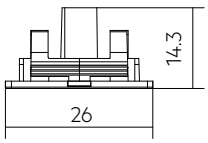
Approval marks

RoHS

ACU BLIND COVER 60x22mm

Accessory





Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005056

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 040 60x22 WH	28005056	10 pc(s).	100 pc(s).	0.004 kg
ACU BLIND COVER 040 60x22 BK	28005057	10 pc(s).	100 pc(s).	0.004 kg

ACU BLIND COVER 040 60x22 LED

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

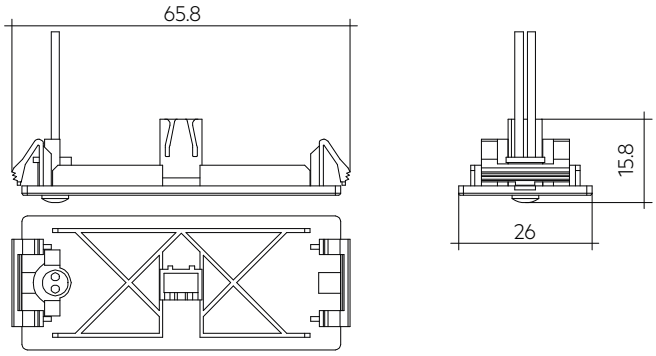
Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website
http://www.tridonic.com/28005935

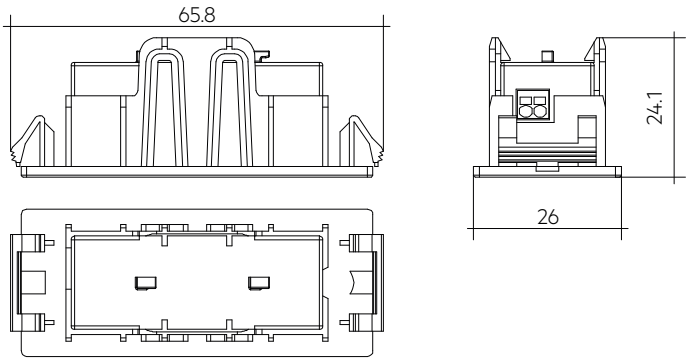


Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 60x22 LED 1.3 WH	**28005935**	10 pc(s).	100 pc(s).	0.005 kg
ACU BLIND COVER 60x22 LED 1.3 BK	**28005936**	10 pc(s).	100 pc(s).	0.005 kg

ACU MOUNTING ADAPTER 040 60x22 CON

Accessory



Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005939

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAPTER 60x22 CON 1.3 WH	**28005939**	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAPTER 60x22 CON 1.3 BK	**28005940**	10 pc(s).	100 pc(s).	0.006 kg

ACU MOUNTING ADAPTER 040 60x22 CON LED

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

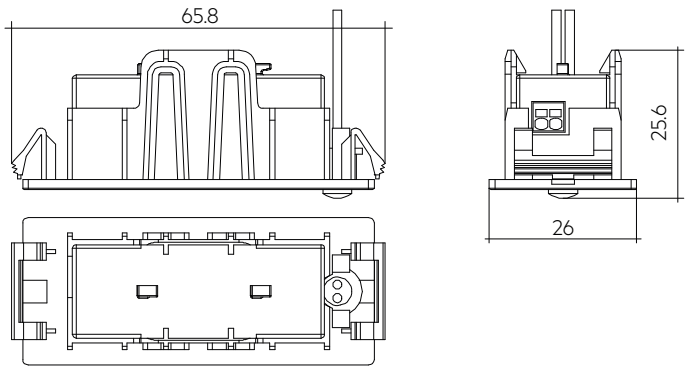
Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website
http://www.tridonic.com/28005941



Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 WH	**28005941**	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 BK	**28005942**	10 pc(s).	100 pc(s).	0.006 kg

1. Standards

EN/IEC 61347-2-11:2001
EN 55015:2013
EN 61000-3-2:2014 Part 3-2
EN 61000-3-3:2013 Part 3-3
EN 61547:2009

1.1 DALI standard

The basicDIM ILD G2 is designed to control control gear with DALI standard IEC 60929 (DALI V0), IEC 62386 (DALI V1/DALI-2).

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

The basicDIM ILD G2 provides the basis for an easy-to-use and cost-effective lighting system with motion detection.
When the sensor detects movement it triggers a individual adjustable motion detection profile in the control unit.
As the amount of natural ambient light changes the illuminance from the artificial lighting system is adjusted.
The connected luminaires can be switched on and off via momentary-action switch or remote control possible.
IR is always active.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a LED output for signalisation.
basicDIM ILD G2 is created for following main applications:
Low height buildings such as

- Corridors, passages und Garages
- Office buildings and educational institutions

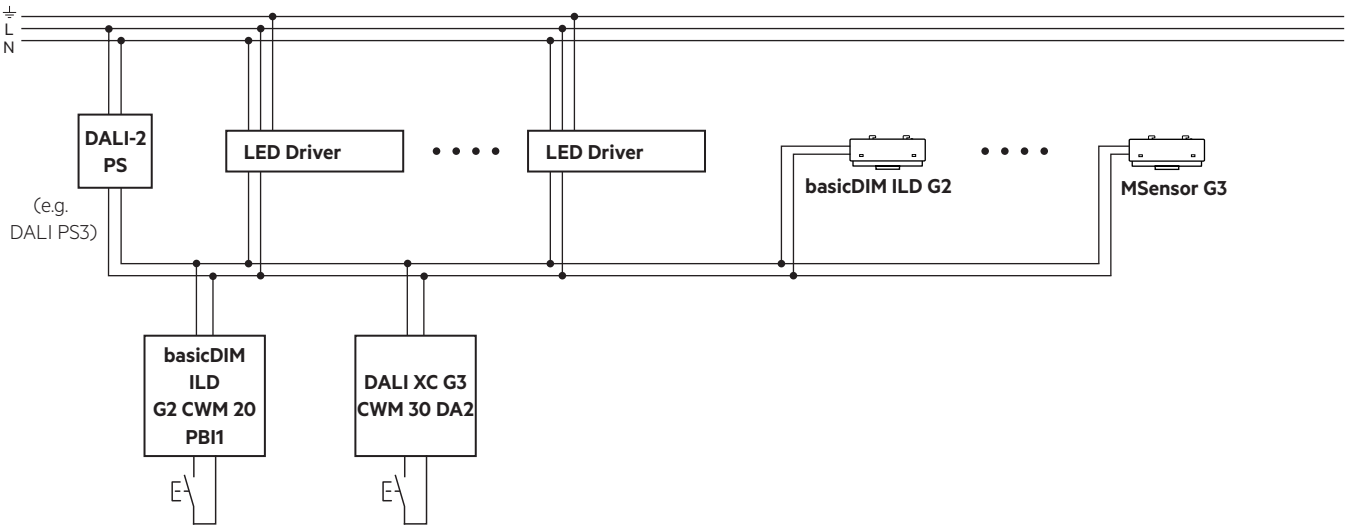
The basicDIM ILD G2 was developed and tested exclusively for Tridonic MSensor G3, XC G3 and PBI1. The use of other sensors and push button modules can lead to errors.

3. Installation

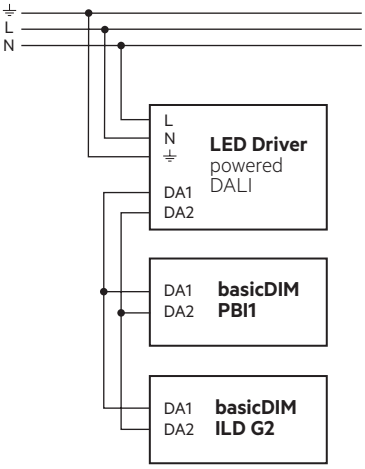
- The basicDIM ILD G2 must not be connected to the mains. It is supplied directly via the DALI power supply.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not overlap. This may have influence to the lighting control.
- When installed at a height other than the recommended installation height, the presence sensor might show different characteristics.
  When mounted at a higher level, its sensitivity is reduced.
  If mounted at a lower level, its range is reduced.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect presence detection.
- Avoid direct illumination of the light source on the sensor including housing.
- Additional IR sources can disturb the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button.
  Commissioning must be carried out again.
- Additional IR sources can interfere with the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button (basicDIM ILD G2 Programmer). The commissioning must be carried out again.

3.1 Wiring

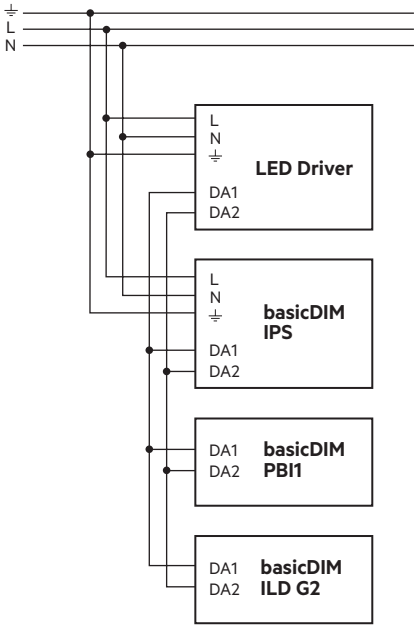
Room application:



Single / free-standing luminaires, driver with integrated power supply (DALI):



Single / free-standing luminaires, driver with separate power supply (DALI):



Maximum number of connected devices:

Devices	Number
ILD G2	1 pc.
DALI PS	2 pc. (max. 250 mA)
LED driver	64 pcs.
Input devices (MSensor G3, XC G3)	8 pcs.
PBI1	4 pcs.

DALI repeater must not be used.

Compatible accessories:

- MSensor G3 as additional, slave motion detector
- XC G3 as multi channel push button interface

Factory settings for DALI XC G3:

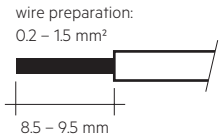
Button	Action	Factory settings
T1	Short press	Automtic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)
T2	Short press	Automatic
	Long press	not used
	Double click	not used
T3	Short press	not used
	Long press	Dim up / Dim down
	Double click	not used
T4	Short press	Automatic (switch luminaire on or change to automatic mode)
	Long press	not used
	Double click	SET (store new value for constant light control)

Factory settings for PBI1:

Button	Action	Factory settings
T1	Short press	Automtic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)

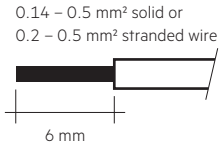
3.2 Wiring type and cross section for rc version

For wiring use stranded wire with ferrules or solid wire from 0.2 to 1.5 mm².



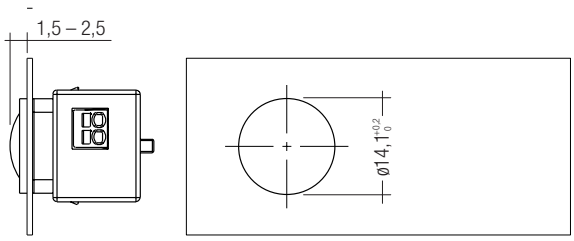
3.3 Wiring type and cross section for f version

For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².

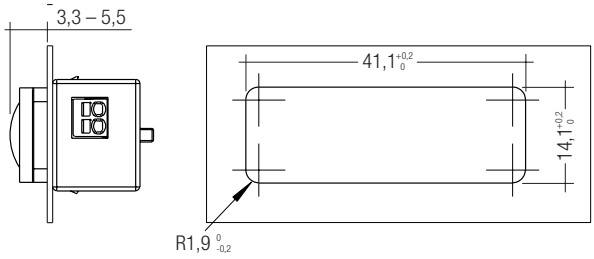


3.4 Mounting variants luminaire installation sensor:

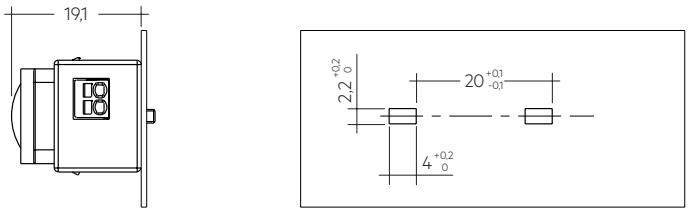
Variant 1:
Size of the sheet: 0.8 – 1.8 mm



Variant 2:
Size of the sheet: 0.8 – 3.0 mm



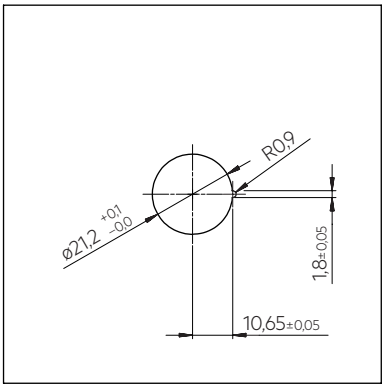
Variant 3:
Size of the sheet: 0.6 – 0.8 mm

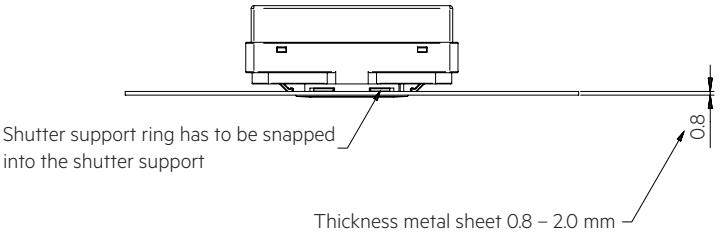


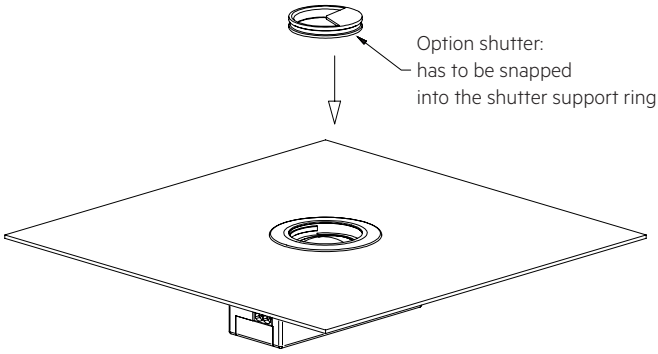
3.5 Mounting in luminaire housing with Mounting Kit:

Size of the sheet: 0.8 – 2.0 mm

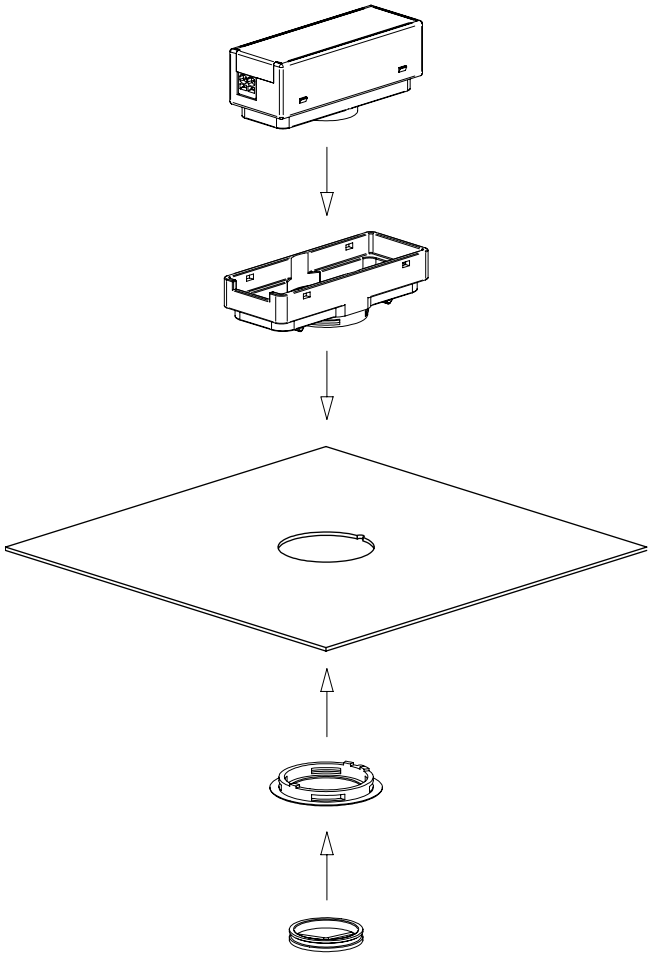
Dimension drawing for needed mounting opening





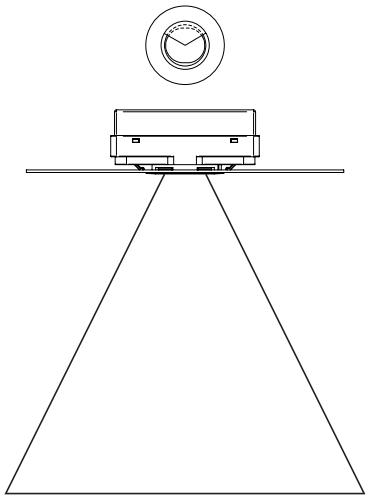


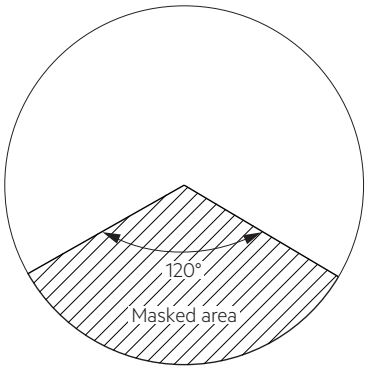
3.6 Mounting Kit mounting



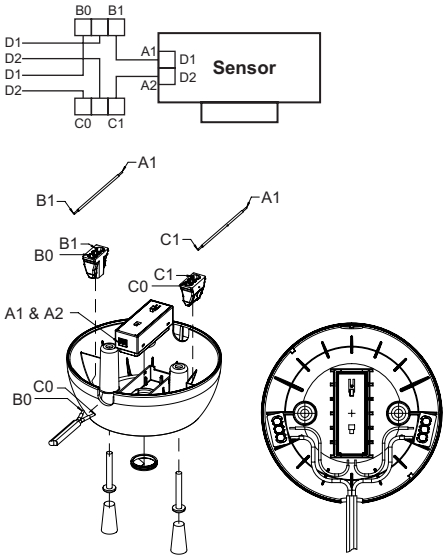
3.7 Mounting Kit Shutter

Area which is masked by the shutter.



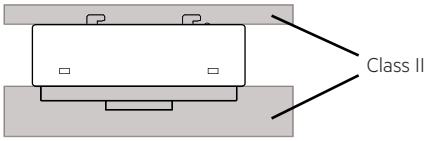


3.8 Wiring and mounting ACU Sensor Housing 14rs IP20



3.9 Mounting in class II luminaire

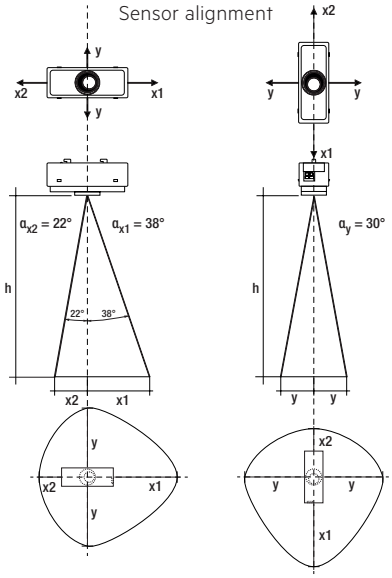
The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the front and the back of the sensor is tested to fulfill the class II requirements for double or reinforced insulation.



4. Light level recognition area

The measurement range is between 2 and 2,000 lx.
Measured at the sensor head.

Sensor alignment



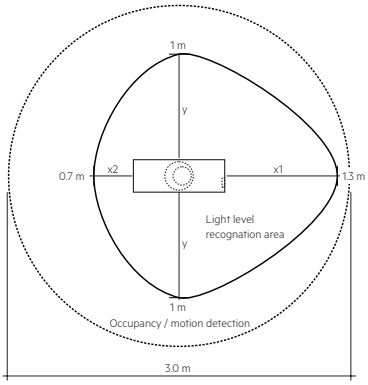
h *	x1	x2	y	d
1.7 m	1.3 m	0.7 m	1.0 m	3.0 m
2.0 m	1.6 m	0.8 m	1.2 m	3.6 m
2.3 m	1.8 m	0.9 m	1.3 m	4.1 m
2.5 m	2.0 m	1.0 m	1.4 m	4.5 m
2.7 m	2.1 m	1.1 m	1.6 m	4.9 m
3.0 m	2.3 m	1.2 m	1.7 m	5.4 m
3.5 m	2.7 m	1.4 m	2.0 m	6.3 m
4.0 m	3.1 m	1.6 m	2.3 m	7.2 m

* The recommended maximum room height for office applications is 3 m and for corridor applications for example 4 m. Up to 2 m mounting height presence is detected and over 2 m motion is detected.

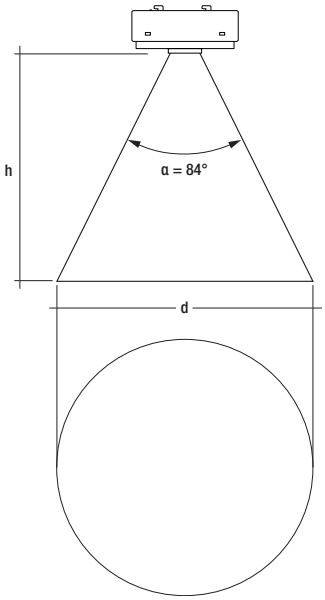
Calculation of the diameter (light area):
$x1 = \tan(\alpha_{x1}) \times h$
$x2 = \tan(\alpha_{x2}) \times h$
$y = \tan(\alpha_y) \times h$

Calculation of the diameter (motion area):
$d = 2 \times \tan(0{,}5 \times \alpha) \times h$

Example for light and motion detection area at height of 1.7 m:



4.1 Presence / motion detection



4.2 Motion detection

For motion detection PIR technology is used. PIR Lens is made to detect moving people in working areas such as corridors, passages, garages, office buildings or educational institutions with the following performance criteria:

- Ceiling height from up to 5 m
- Movement of human body:
  - up to 2 m mounting height: detection of slight motion.
  - above 2 m mounting height: no slight motion (no sitting person) detection.
- Movement ≥1.0 m/s for mounting heights up to 5 m

4.3 Status LED's

The status LED is deactivated by default.
There is a LED built in to indicate different status information to the user.
This LED is controlled from the sensor itself.

To not have any influence from LED to the light measurement, LED is disabled while light sensor is measuring by default.

Status	Pattern	Incident
–	–	Normal operation
Single red flash	0.2 s on. all 6 s	Motion has been detected
Permanent red flashing	0.2 s on. all 1 s	System error: - Second basicDIM ILD G2 available - Stuck button time out
Long green flashing	1 s on. all 6 s	Bright-out active
Orange flashing	0.5 s on. all 0.5 s	Start-up, Grouping, Test mode, Reset active application controller deactivated
Short blue flashing	0.2 s	Receive infrared command from basicDIM ILD G2 Programmer or IR6

4.4 User-definable parameters

Parameter	Range (Factory Settings)	Description
power-up behavior	on / off (on)	If the parameter is set to “on”, the luminaire switches on after a mains break. If the parameter is set to “off”, the luminaire does not switch on after a mains break.
Presence lux level	Absence level / 1,000 lux (500 lux)	Value used by the light sensor to regulate the presence level of the luminaire. On account of the room conditions and the installation height, the illuminance in the workspace may, however, be three to four times higher.
presence level	1 to 100 % (100 %)	Brightness value that the ILD G2 occupies as soon as presence has been detected.
absence level	1 to 100 % (1 %)	Brightness value that the ILD G2 occupies while the switch-off delay is running.
fade-in time	0 to 15 (1)	Period of time starting as soon as presence is detected. During fade-in time, the luminous intensity fades to the presence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
fade time	0 to 15 (8)	Period of time during which the luminous intensity fades from the presence value to the absence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
run-on time	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected. After the run-on time the fade-off time is started. If another presence is detected in the room during run-on time, the run-on time is started again.
switch-off delay	off / 15 s to 60 min / never OFF (off)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).
fade-off time	0 to 15 (2)	Period of time starting after the run-on time. During the fade-off time, the luminous intensity fades to off. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s| 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
constant light control	on / off (on)	Enables or disables the constant light control
bright-out	on / off (on)	If the parameter is set to “on”, the luminaire switches off as soon as the light level exceeds the bright-out threshold of the set point for longer than 10 minutes. This could be the case if, for instance, the room is adequately illuminated by sunlight. If the bright-out threshold falls below 100 % of the set point, the luminaire switches back on again.
bright-out threshold	110 to 400 % (150 %)	Bright-out threshold used by the bright-out function
bright-out-off delay time	0 to 3,600 s (600 s)	Period of time that the light level must exceed the bright-out threshold to activate bright-out.
group 2 offset mode	fixed / converging (converging)	This parameter specifies how the group 2 offset value behaves if the light is dimmed up. If the parameter is set to “converging”, the dimming level of group 2 will keep on rising even if group 1 has already reached a dimming level of 100 %. The brightness difference will be gradually reduced up to the point where both group 1 and group 2 reach the same dimming level of 100 % which effectively reduces the group 2 offset value to zero. This way, the offset will “converge”. If the parameter is set to “fixed”, the offset is “fixed”. The brightness difference between group 1 and group 2 will stay at the value defined for the group 2 offset value. If the group 2 offset value was set to e.g. 30 %, the group 2 dimming level will always stay 30 % below the dimming level of group 1. If group 1 has reached a dimming level of 100 %, the dimming level of group 2 will stop rising because otherwise the offset would be reduced to less than the defined group 2 offset value.
group 2 offset value	0 to 95 % (30 %)	Adjustable brightness difference between group 2 and group 1

4.5 Possible push button configuration

Short Press	Long Press	Double Press
Automatic mode	Dimming up	Set target value
Recall max. level	Dimming down	No function
Off	Dimming up / dimming down	
Recall max. level / off	No function	
On with fade		
Off with fade		
Automatic mode / off with fade		
No function		

5. Miscellaneous

5.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM ILD G2 5DPI

Compact control module with ambient light sensor and motion sensor

basicDIM ILD G2 SFI 20 5DPI WH

basicDIM ILD G2 SFI 20 5DPI BK

basicDIM ILD G2 SRC 20 5DPI WH

Product description

_ For up to 64 DALI drivers, expandable with DALI-2 Input Devices (see data sheet 3.1 Wiring)
_ Integrated application controller
_ Flexible configuration via companionSUITE
_ 2 DALI groups with adjustable offset
_ Monitoring of ambient light and motion detection
_ Infrared remote control for configuration and operation
_ Power supply via DALI line
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ For luminaires of protection class I and protection class II
_ Wide range of accessories allowing extended application range
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

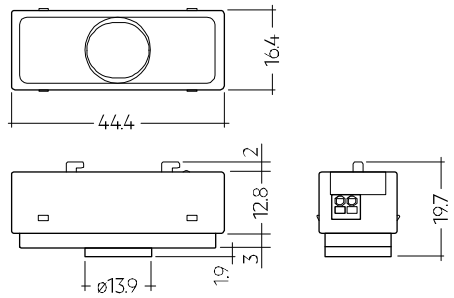
_ Casing: polycarbonate, black or white
_ Type of protection IP20

Website

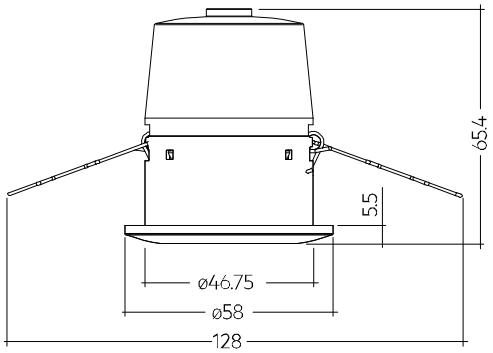
http://www.tridonic.com/28003389

basicDIM ILD G2 5DPI

Compact control module with ambient light sensor and motion sensor



basicDIM ILD G2 SFI 20 5DPI WH/BK



basicDIM ILD G2 SRC 20 5DPI WH

Ordering data

Type	Article number	Suitable for	Colour	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM ILD G2 SFI 20 5DPI WH	**28003389**	Luminaire installation	White	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.010 kg
basicDIM ILD G2 SFI 20 5DPI BK	**28003390**	Luminaire installation	Black	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.010 kg
basicDIM ILD G2 SRC 20 5DPI WH	**28003391**	Ceiling installation	White	58.0 x 58.0 x 65.4 mm	10 pc(s).	0.037 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	11.5 – 20.5 V
Current consumption (no LED)	max. 11 mA
Current consumption (with LED)	max. 12 mA
Mounting height	5 m
Mounting hole diameter	14.1 mm
Detection angle for PIR detection	84°
Detection angle for light measurement	30°
Detection range for light measurement ②	2 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9010)
Housing colour lens	White
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, IEC 60929

① 14 – 20.5 V if use PBI1. Uin according to IEC 62386-101.
② The measured value at the sensor head corresponds to approx. 10 to 10,000 lux on the surface measured.

REMOTECONTROL IR6

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

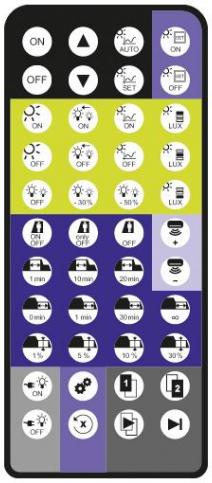
Website
http://www.tridonic.com/28000647

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

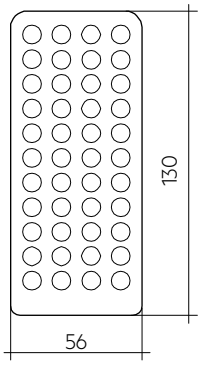
basicDIM ILD G2 Programmer

Accessory



Product description
_ Optional infra-red programming unit for basicDIM ILD G2
_ Setting of predefined parameter values
_ Programmable functions such as light level, time delay, P.I.R., bright-out, power up and grouping
_ IR range up to 20 m

Website
http://www.tridonic.com/28003484



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 PROGRAMMER	**28003484**	150 pc(s).	0.04 kg

Approval marks

5DPI 14f Mounting Kit

Accessory

Product description

_ Mounting frame for attaching all 5DP 14f sensor directly to the luminaire housing
_ Optional shutter to prevent presence detection in a specific direction (for PIR sensors)
_ Glow wire test with 750 °C according to EN 61347-1

Website
http://www.tridonic.com/28001558

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
5DPI 14f mounting kit	**28001558**	100 pc(s).	0.004 kg
5DPI 14f mounting kit black	**28001575**	100 pc(s).	0.004 kg

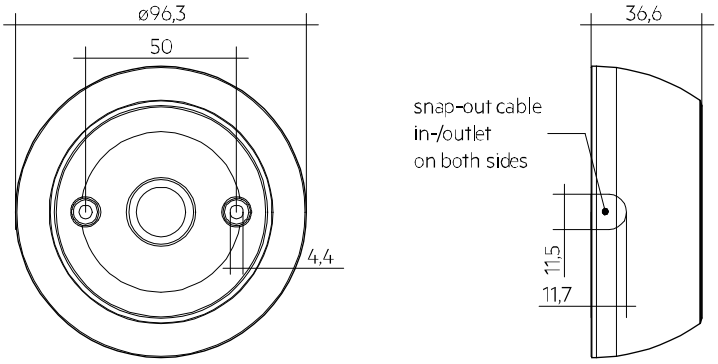
ACU Sensor Housing 14rs IP20

Accessory

Product description

_ Mounting frame for wired 5DP 14f sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: plastic, white
_ UV stabilized plastic
_ DALI MSensor 5DPI 14 is powered via DALI circuit, basicDIM DGC Sensor 5DPI 14f powered via control unit
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Glow wire test with 750 °C according to EN 61347-1
_ Sensor not included

Website
http://www.tridonic.com/28001872

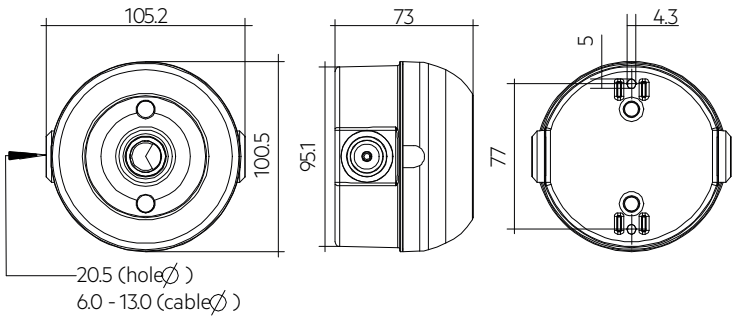

ø96,3
50
4,4
36,6
snap-out cable
in-/outlet
on both sides
11,5
11,7

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU Sensor Housing 14rs IP20	**28001872**	81 pc(s).	0.054 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website

http://www.tridonic.com/28005945

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

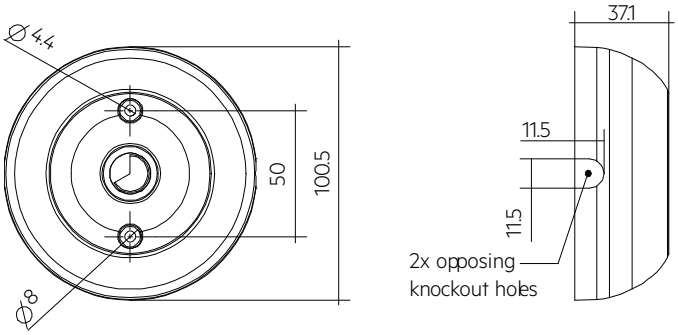
Sensor Housing ACU 035 5DPI IP20

Accessory

Product description

_ Mounting frame for wired 5DPI sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005943

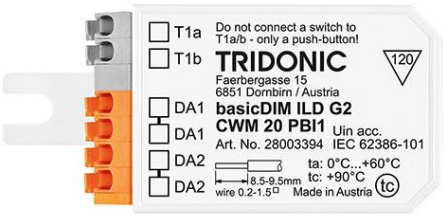


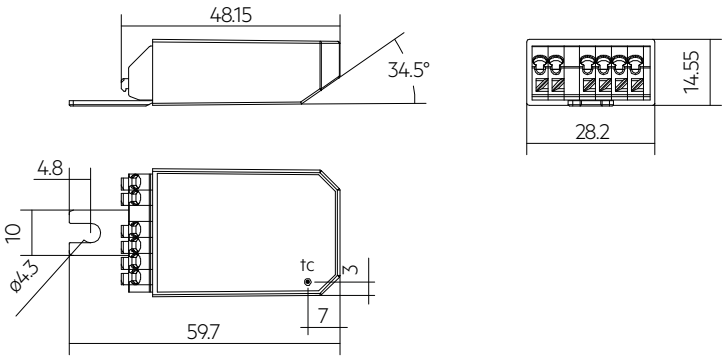
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor Housing ACU 035 5DPI IP20 WH	**28005943**	57 pc(s).	0.052 kg

basicDIM ILD G2 CWM 20 PBI1

Accessory





Product description

- Push Button Interface (PBI) for ILD G2 and ILD G2 FSL system
- Flexible configuration via the ILD G2 and ILD G2 FSL in combination with the companionSUITE
- Short push button action: automatic / fade off (factory default)
- Long push button action: dim up / dim down (factory default)
- Double push button action: set new target value for light regulation (factory default)
- Through-wiring DA1 / DA2 possible
- Detachable mounting flaps, allow installation in flush-mounted boxes and luminaires

Note

- A permanent short circuit between T1a and T1b results in limited function
- Only push buttons can be used

Website

http://www.tridonic.com/28003394

Ordering data

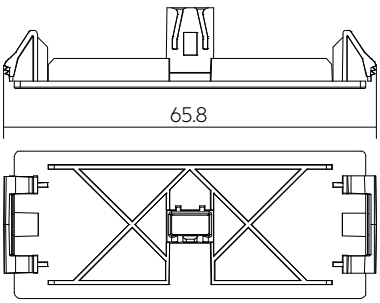
Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 CWM 20 PBI1	**28003394**	15 pc(s).	0.012 kg

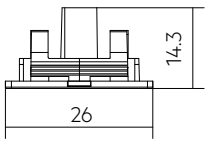
Approval marks

RoHS

ACU BLIND COVER 60x22mm

Accessory





Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005056

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 040 60x22 WH	28005056	10 pc(s).	100 pc(s).	0.004 kg
ACU BLIND COVER 040 60x22 BK	28005057	10 pc(s).	100 pc(s).	0.004 kg

ACU BLIND COVER 040 60x22 LED

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

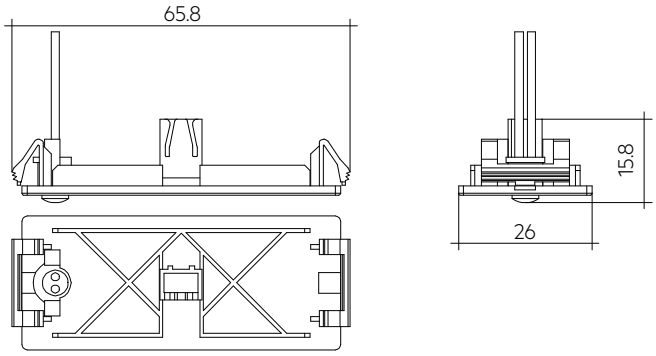
Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website
http://www.tridonic.com/28005935

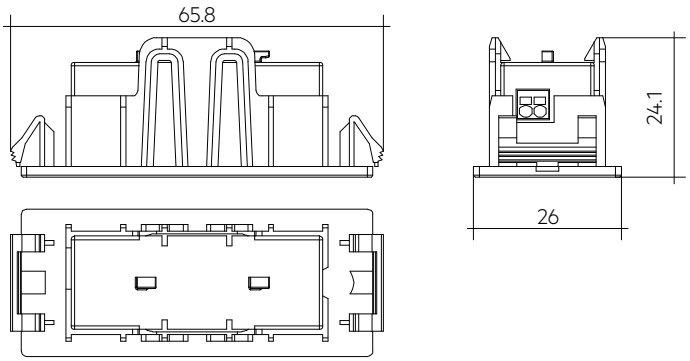


Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 60x22 LED 1.3 WH	**28005935**	10 pc(s).	100 pc(s).	0.005 kg
ACU BLIND COVER 60x22 LED 1.3 BK	**28005936**	10 pc(s).	100 pc(s).	0.005 kg

ACU MOUNTING ADAPTER 040 60x22 CON

Accessory



Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005939

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAPTER 60x22 CON 1.3 WH	**28005939**	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAPTER 60x22 CON 1.3 BK	**28005940**	10 pc(s).	100 pc(s).	0.006 kg

ACU MOUNTING ADAPTER 040 60x22 CON LED

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

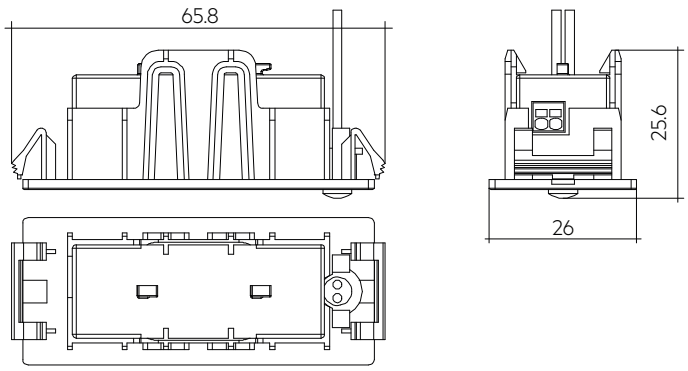
Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website
http://www.tridonic.com/28005941



Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 WH	**28005941**	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 BK	**28005942**	10 pc(s).	100 pc(s).	0.006 kg

1. Standards

EN/IEC 61347-2-11:2001
EN 55015:2013
EN 61000-3-2:2014 Part 3-2
EN 61000-3-3:2013 Part 3-3
EN 61547:2009

1.1 DALI standard

The basicDIM ILD G2 is designed to control control gear with DALI standard IEC 60929 (DALI V0), IEC 62386 (DALI V1/DALI-2).

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

The basicDIM ILD G2 provides the basis for an easy-to-use and cost-effective lighting system with motion detection.
When the sensor detects movement it triggers a individual adjustable motion detection profile in the control unit.
As the amount of natural ambient light changes the illuminance from the artificial lighting system is adjusted.
The connected luminaires can be switched on and off via momentary-action switch or remote control possible.
IR is always active.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a LED output for signalisation.
basicDIM ILD G2 is created for following main applications:
Low height buildings such as

- Corridors, passages und Garages
- Office buildings and educational institutions

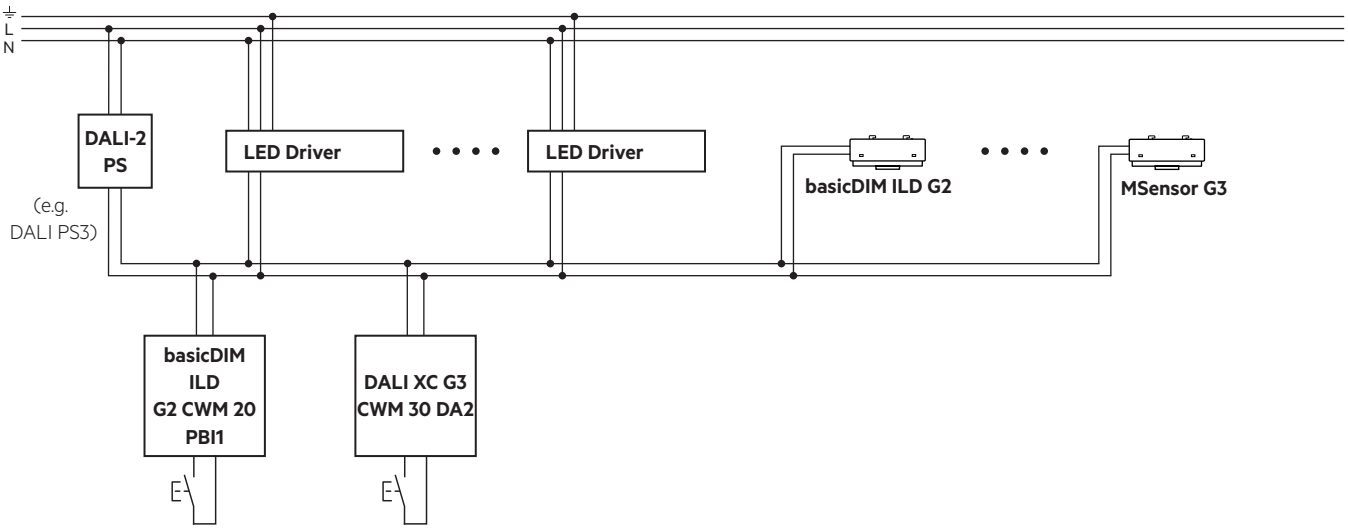
The basicDIM ILD G2 was developed and tested exclusively for Tridonic MSensor G3, XC G3 and PBI1. The use of other sensors and push button modules can lead to errors.

3. Installation

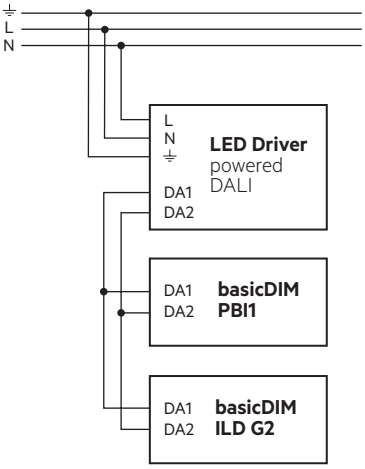
- The basicDIM ILD G2 must not be connected to the mains. It is supplied directly via the DALI power supply.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not overlap. This may have influence to the lighting control.
- When installed at a height other than the recommended installation height, the presence sensor might show different characteristics.
  When mounted at a higher level, its sensitivity is reduced.
  If mounted at a lower level, its range is reduced.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect presence detection.
- Avoid direct illumination of the light source on the sensor including housing.
- Additional IR sources can disturb the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button.
  Commissioning must be carried out again.
- Additional IR sources can interfere with the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button (basicDIM ILD G2 Programmer). The commissioning must be carried out again.

3.1 Wiring

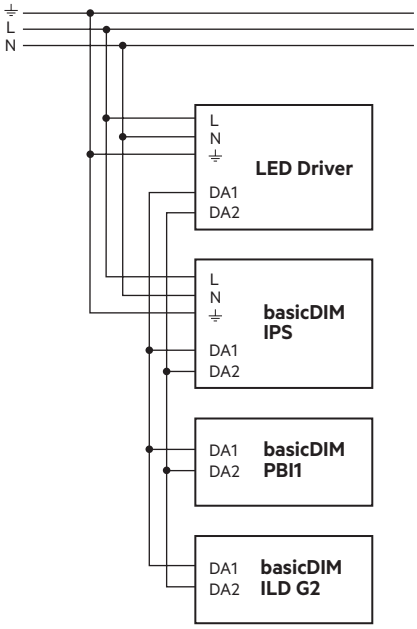
Room application:



Single / free-standing luminaires, driver with integrated power supply (DALI):



Single / free-standing luminaires, driver with separate power supply (DALI):



Maximum number of connected devices:

Devices	Number
ILD G2	1 pc.
DALI PS	2 pc. (max. 250 mA)
LED driver	64 pcs.
Input devices (MSensor G3, XC G3)	8 pcs.
PBI1	4 pcs.

DALI repeater must not be used.

Compatible accessories:

- MSensor G3 as additional, slave motion detector
- XC G3 as multi channel push button interface

Factory settings for DALI XC G3:

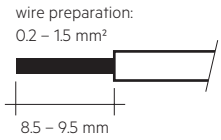
Button	Action	Factory settings
T1	Short press	Automtic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)
T2	Short press	Automatic
	Long press	not used
	Double click	not used
T3	Short press	not used
	Long press	Dim up / Dim down
	Double click	not used
T4	Short press	Automatic (switch luminaire on or change to automatic mode)
	Long press	not used
	Double click	SET (store new value for constant light control)

Factory settings for PBI1:

Button	Action	Factory settings
T1	Short press	Automtic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)

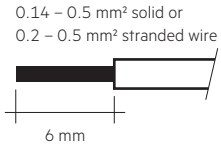
3.2 Wiring type and cross section for rc version

For wiring use stranded wire with ferrules or solid wire from 0.2 to 1.5 mm².



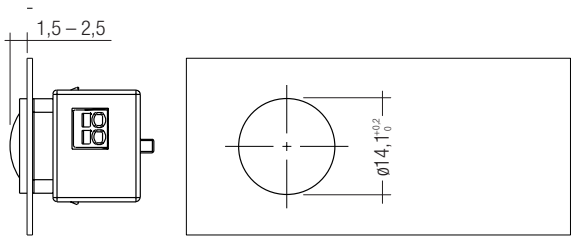
3.3 Wiring type and cross section for f version

For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².

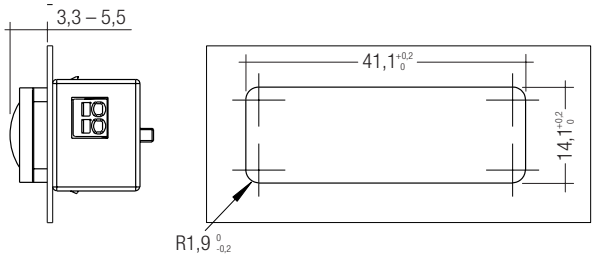


3.4 Mounting variants luminaire installation sensor:

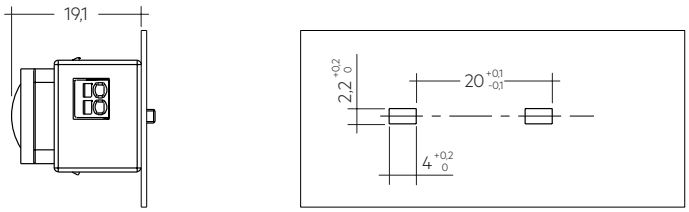
Variant 1:
Size of the sheet: 0.8 – 1.8 mm



Variant 2:
Size of the sheet: 0.8 – 3.0 mm



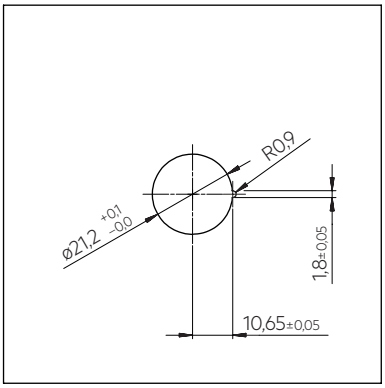
Variant 3:
Size of the sheet: 0.6 – 0.8 mm

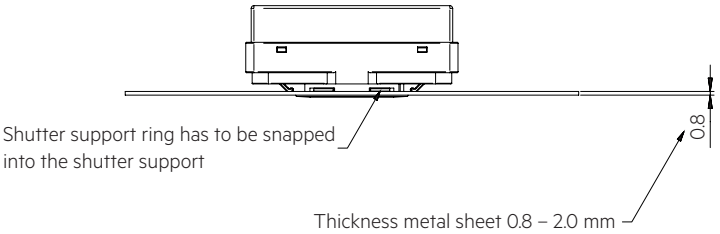


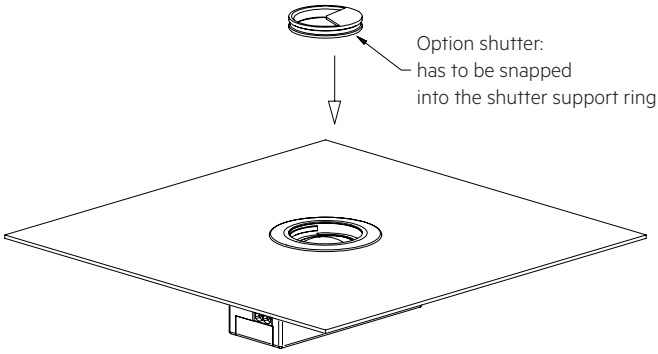
3.5 Mounting in luminaire housing with Mounting Kit:

Size of the sheet: 0.8 – 2.0 mm

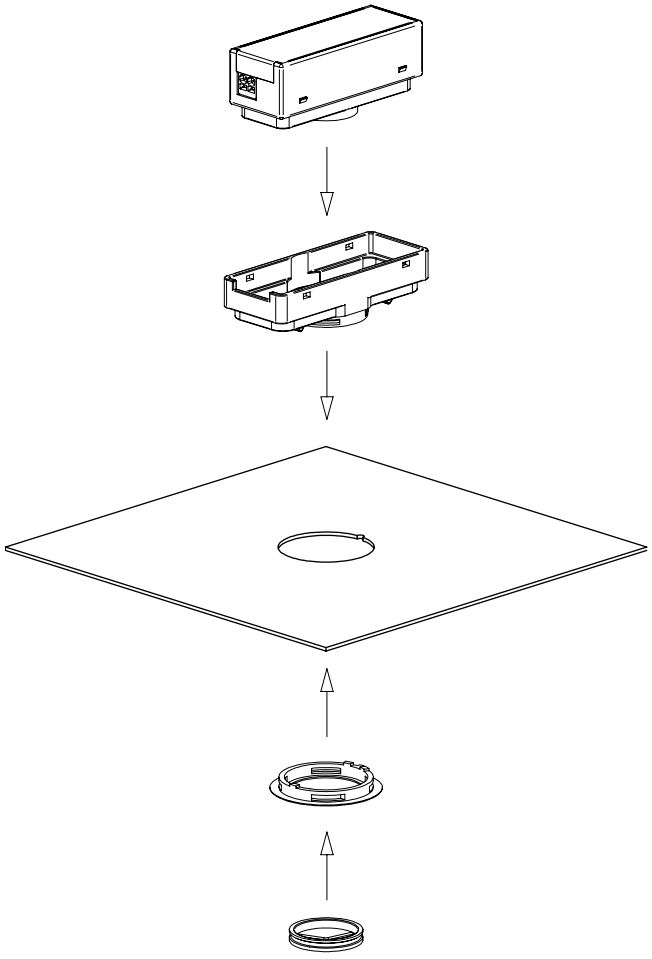
Dimension drawing for needed mounting opening





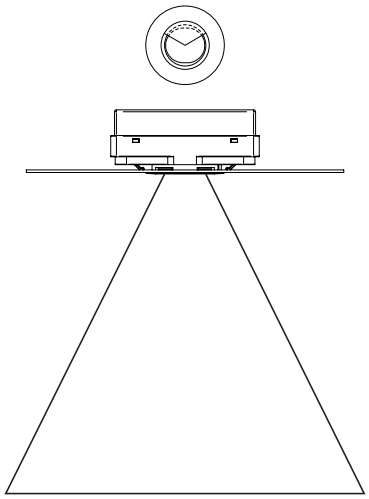


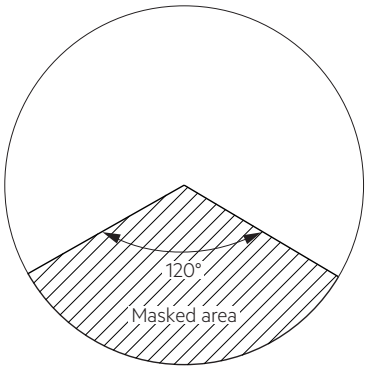
3.6 Mounting Kit mounting



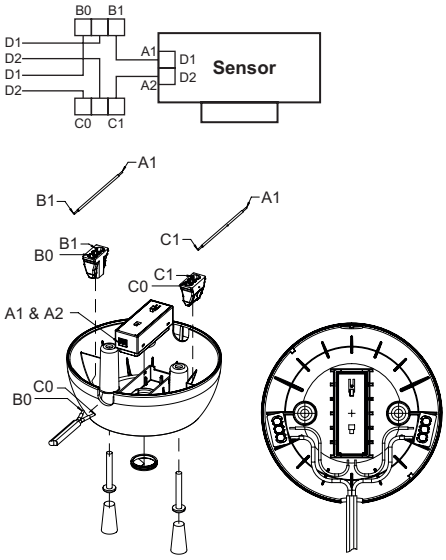
3.7 Mounting Kit Shutter

Area which is masked by the shutter.



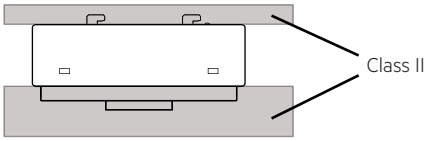


3.8 Wiring and mounting ACU Sensor Housing 14rs IP20



3.9 Mounting in class II luminaire

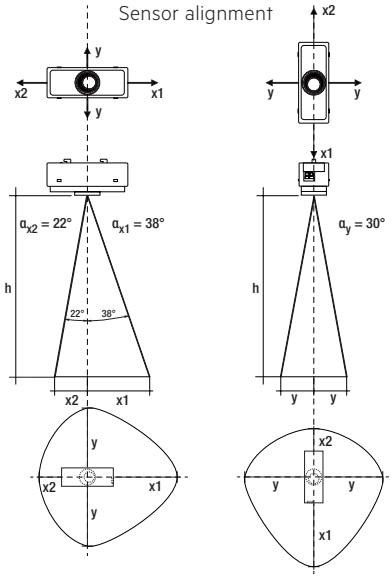
The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the front and the back of the sensor is tested to fulfill the class II requirements for double or reinforced insulation.



4. Light level recognition area

The measurement range is between 2 and 2,000 lx.
Measured at the sensor head.

Sensor alignment



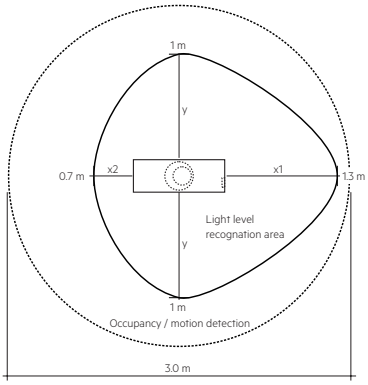
h *	x1	x2	y	d
1.7 m	1.3 m	0.7 m	1.0 m	3.0 m
2.0 m	1.6 m	0.8 m	1.2 m	3.6 m
2.3 m	1.8 m	0.9 m	1.3 m	4.1 m
2.5 m	2.0 m	1.0 m	1.4 m	4.5 m
2.7 m	2.1 m	1.1 m	1.6 m	4.9 m
3.0 m	2.3 m	1.2 m	1.7 m	5.4 m
3.5 m	2.7 m	1.4 m	2.0 m	6.3 m
4.0 m	3.1 m	1.6 m	2.3 m	7.2 m

* The recommended maximum room height for office applications is 3 m and for corridor applications for example 4 m. Up to 2 m mounting height presence is detected and over 2 m motion is detected.

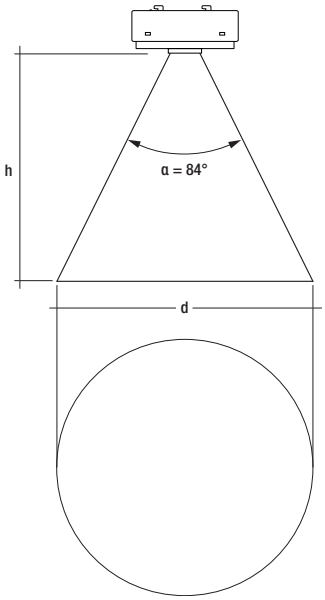
Calculation of the diameter (light area):
$x1 = \tan(\alpha_{x1}) \times h$
$x2 = \tan(\alpha_{x2}) \times h$
$y = \tan(\alpha_y) \times h$

Calculation of the diameter (motion area):
$d = 2 \times \tan(0{,}5 \times \alpha) \times h$

Example for light and motion detection area at height of 1.7 m:



4.1 Presence / motion detection



4.2 Motion detection

For motion detection PIR technology is used. PIR Lens is made to detect moving people in working areas such as corridors, passages, garages, office buildings or educational institutions with the following performance criteria:

- Ceiling height from up to 5 m
- Movement of human body:
  - up to 2 m mounting height: detection of slight motion.
  - above 2 m mounting height: no slight motion (no sitting person) detection.
- Movement ≥1.0 m/s for mounting heights up to 5 m

4.3 Status LED's

The status LED is deactivated by default.
There is a LED built in to indicate different status information to the user.
This LED is controlled from the sensor itself.

To not have any influence from LED to the light measurement, LED is disabled while light sensor is measuring by default.

Status	Pattern	Incident
–	–	Normal operation
Single red flash	0.2 s on. all 6 s	Motion has been detected
Permanent red flashing	0.2 s on. all 1 s	System error: - Second basicDIM ILD G2 available - Stuck button time out
Long green flashing	1 s on. all 6 s	Bright-out active
Orange flashing	0.5 s on. all 0.5 s	Start-up, Grouping, Test mode, Reset active application controller deactivated
Short blue flashing	0.2 s	Receive infrared command from basicDIM ILD G2 Programmer or IR6

4.4 User-definable parameters

Parameter	Range (Factory Settings)	Description
power-up behavior	on / off (on)	If the parameter is set to “on”, the luminaire switches on after a mains break. If the parameter is set to “off”, the luminaire does not switch on after a mains break.
Presence lux level	Absence level / 1,000 lux (500 lux)	Value used by the light sensor to regulate the presence level of the luminaire. On account of the room conditions and the installation height, the illuminance in the workspace may, however, be three to four times higher.
presence level	1 to 100 % (100 %)	Brightness value that the ILD G2 occupies as soon as presence has been detected.
absence level	1 to 100 % (1 %)	Brightness value that the ILD G2 occupies while the switch-off delay is running.
fade-in time	0 to 15 (1)	Period of time starting as soon as presence is detected. During fade-in time, the luminous intensity fades to the presence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
fade time	0 to 15 (8)	Period of time during which the luminous intensity fades from the presence value to the absence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
run-on time	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected. After the run-on time the fade-off time is started. If another presence is detected in the room during run-on time, the run-on time is started again.
switch-off delay	off / 15 s to 60 min / never OFF (off)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).
fade-off time	0 to 15 (2)	Period of time starting after the run-on time. During the fade-off time, the luminous intensity fades to off. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s| 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
constant light control	on / off (on)	Enables or disables the constant light control
bright-out	on / off (on)	If the parameter is set to “on”, the luminaire switches off as soon as the light level exceeds the bright-out threshold of the set point for longer than 10 minutes. This could be the case if, for instance, the room is adequately illuminated by sunlight. If the bright-out threshold falls below 100 % of the set point, the luminaire switches back on again.
bright-out threshold	110 to 400 % (150 %)	Bright-out threshold used by the bright-out function
bright-out-off delay time	0 to 3,600 s (600 s)	Period of time that the light level must exceed the bright-out threshold to activate bright-out.
group 2 offset mode	fixed / converging (converging)	This parameter specifies how the group 2 offset value behaves if the light is dimmed up. If the parameter is set to “converging”, the dimming level of group 2 will keep on rising even if group 1 has already reached a dimming level of 100 %. The brightness difference will be gradually reduced up to the point where both group 1 and group 2 reach the same dimming level of 100 % which effectively reduces the group 2 offset value to zero. This way, the offset will “converge”. If the parameter is set to “fixed”, the offset is “fixed”. The brightness difference between group 1 and group 2 will stay at the value defined for the group 2 offset value. If the group 2 offset value was set to e.g. 30 %, the group 2 dimming level will always stay 30 % below the dimming level of group 1. If group 1 has reached a dimming level of 100 %, the dimming level of group 2 will stop rising because otherwise the offset would be reduced to less than the defined group 2 offset value.
group 2 offset value	0 to 95 % (30 %)	Adjustable brightness difference between group 2 and group 1

4.5 Possible push button configuration

Short Press	Long Press	Double Press
Automatic mode	Dimming up	Set target value
Recall max. level	Dimming down	No function
Off	Dimming up / dimming down	
Recall max. level / off	No function	
On with fade		
Off with fade		
Automatic mode / off with fade		
No function		

5. Miscellaneous

5.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM ILD G2 5DPI

Compact control module with ambient light sensor and motion sensor

basicDIM ILD G2 SFI 20 5DPI WH

basicDIM ILD G2 SFI 20 5DPI BK

basicDIM ILD G2 SRC 20 5DPI WH

Product description

_ For up to 64 DALI drivers, expandable with DALI-2 Input Devices (see data sheet 3.1 Wiring)
_ Integrated application controller
_ Flexible configuration via companionSUITE
_ 2 DALI groups with adjustable offset
_ Monitoring of ambient light and motion detection
_ Infrared remote control for configuration and operation
_ Power supply via DALI line
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ For luminaires of protection class I and protection class II
_ Wide range of accessories allowing extended application range
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

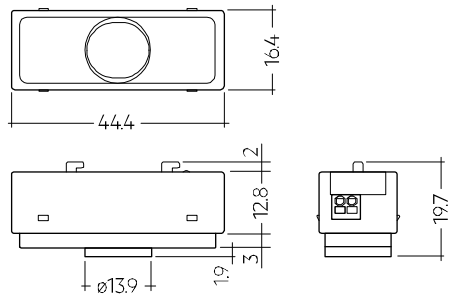
_ Casing: polycarbonate, black or white
_ Type of protection IP20

Website

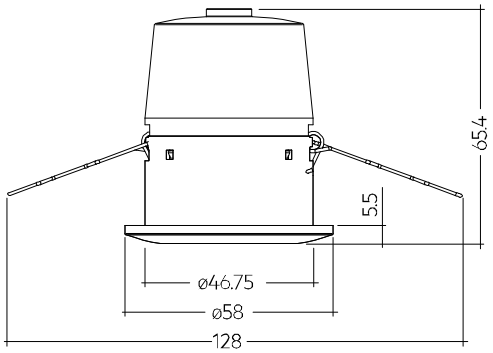
http://www.tridonic.com/28003389

basicDIM ILD G2 5DPI

Compact control module with ambient light sensor and motion sensor



basicDIM ILD G2 SFI 20 5DPI WH/BK



basicDIM ILD G2 SRC 20 5DPI WH

Ordering data

Type	Article number	Suitable for	Colour	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM ILD G2 SFI 20 5DPI WH	**28003389**	Luminaire installation	White	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.010 kg
basicDIM ILD G2 SFI 20 5DPI BK	**28003390**	Luminaire installation	Black	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.010 kg
basicDIM ILD G2 SRC 20 5DPI WH	**28003391**	Ceiling installation	White	58.0 x 58.0 x 65.4 mm	10 pc(s).	0.037 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	11.5 – 20.5 V
Current consumption (no LED)	max. 11 mA
Current consumption (with LED)	max. 12 mA
Mounting height	5 m
Mounting hole diameter	14.1 mm
Detection angle for PIR detection	84°
Detection angle for light measurement	30°
Detection range for light measurement ②	2 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9010)
Housing colour lens	White
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, IEC 60929

① 14 – 20.5 V if use PBI1. Uin according to IEC 62386-101.
② The measured value at the sensor head corresponds to approx. 10 to 10,000 lux on the surface measured.

REMOTECONTROL IR6

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

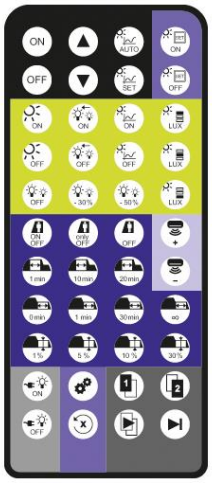
Website
http://www.tridonic.com/28000647

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

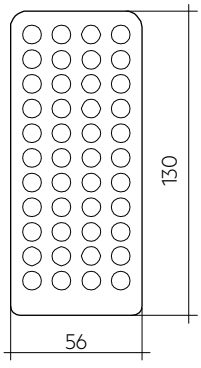
basicDIM ILD G2 Programmer

Accessory



Product description
_ Optional infra-red programming unit for basicDIM ILD G2
_ Setting of predefined parameter values
_ Programmable functions such as light level, time delay, P.I.R., bright-out, power up and grouping
_ IR range up to 20 m

Website
http://www.tridonic.com/28003484



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 PROGRAMMER	**28003484**	150 pc(s).	0.04 kg

Approval marks

5DPI 14f Mounting Kit

Accessory

Product description

_ Mounting frame for attaching all 5DP 14f sensor directly to the luminaire housing
_ Optional shutter to prevent presence detection in a specific direction (for PIR sensors)
_ Glow wire test with 750 °C according to EN 61347-1

Website
http://www.tridonic.com/28001558

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
5DPI 14f mounting kit	**28001558**	100 pc(s).	0.004 kg
5DPI 14f mounting kit black	**28001575**	100 pc(s).	0.004 kg

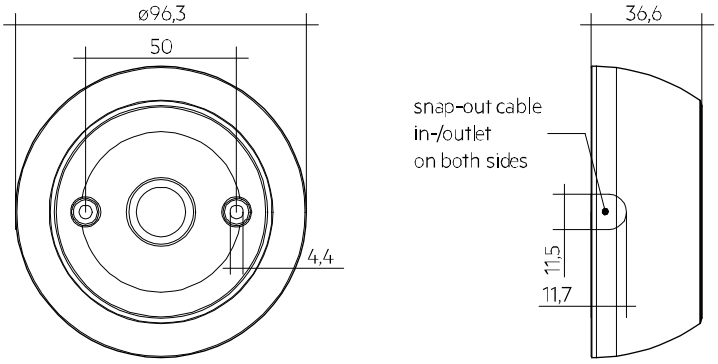
ACU Sensor Housing 14rs IP20

Accessory

Product description

_ Mounting frame for wired 5DP 14f sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: plastic, white
_ UV stabilized plastic
_ DALI MSensor 5DPI 14 is powered via DALI circuit, basicDIM DGC Sensor 5DPI 14f powered via control unit
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Glow wire test with 750 °C according to EN 61347-1
_ Sensor not included

Website
http://www.tridonic.com/28001872

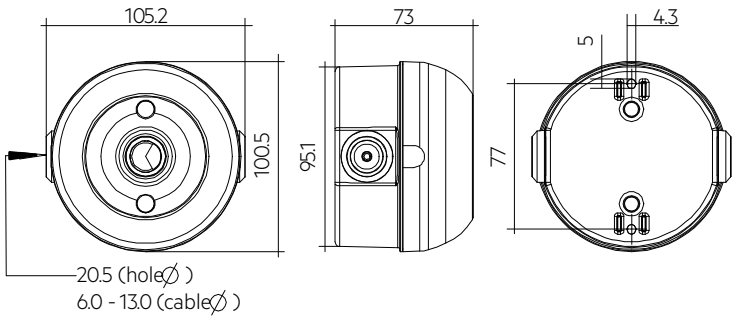

ø96,3
50
4,4
36,6
snap-out cable
in-/outlet
on both sides
11,5
11,7

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU Sensor Housing 14rs IP20	**28001872**	81 pc(s).	0.054 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website

http://www.tridonic.com/28005945

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

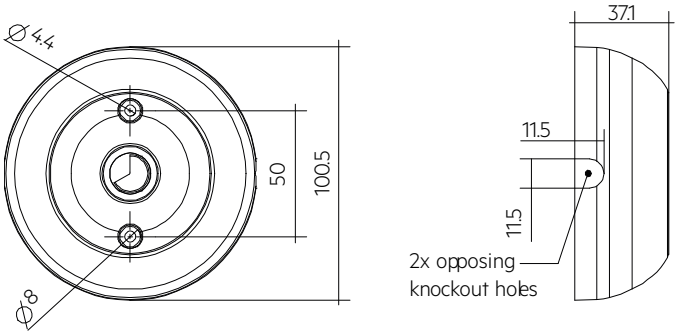
Sensor Housing ACU 035 5DPI IP20

Accessory

Product description

_ Mounting frame for wired 5DPI sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005943

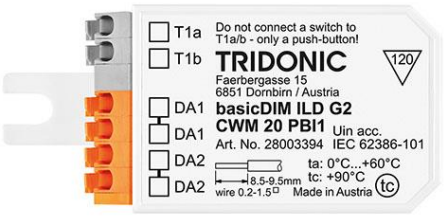


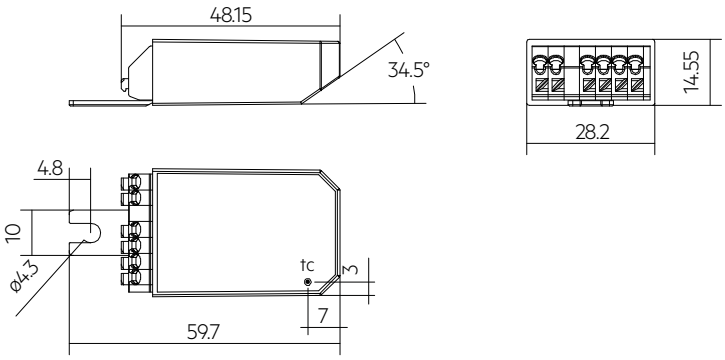
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor Housing ACU 035 5DPI IP20 WH	**28005943**	57 pc(s).	0.052 kg

basicDIM ILD G2 CWM 20 PBI1

Accessory





Product description

- Push Button Interface (PBI) for ILD G2 and ILD G2 FSL system
- Flexible configuration via the ILD G2 and ILD G2 FSL in combination with the companionSUITE
- Short push button action: automatic / fade off (factory default)
- Long push button action: dim up / dim down (factory default)
- Double push button action: set new target value for light regulation (factory default)
- Through-wiring DA1 / DA2 possible
- Detachable mounting flaps, allow installation in flush-mounted boxes and luminaires

Note

- A permanent short circuit between T1a and T1b results in limited function
- Only push buttons can be used

Website

http://www.tridonic.com/28003394

Ordering data

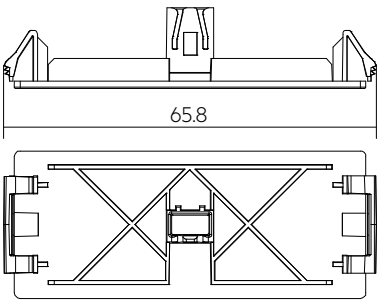
Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 CWM 20 PBI1	**28003394**	15 pc(s).	0.012 kg

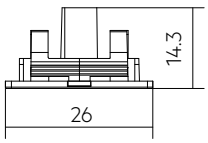
Approval marks

RoHS

ACU BLIND COVER 60x22mm

Accessory





Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005056

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 040 60x22 WH	28005056	10 pc(s).	100 pc(s).	0.004 kg
ACU BLIND COVER 040 60x22 BK	28005057	10 pc(s).	100 pc(s).	0.004 kg

ACU BLIND COVER 040 60x22 LED

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

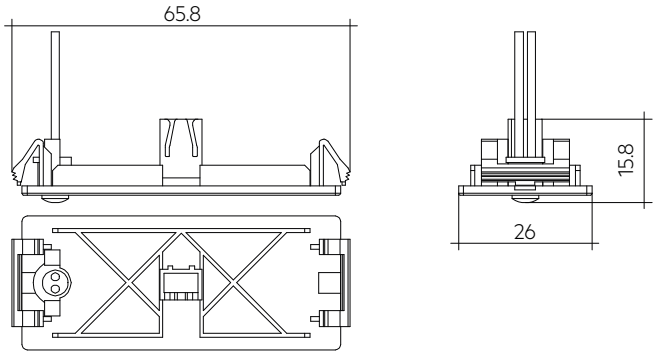
Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website
http://www.tridonic.com/28005935

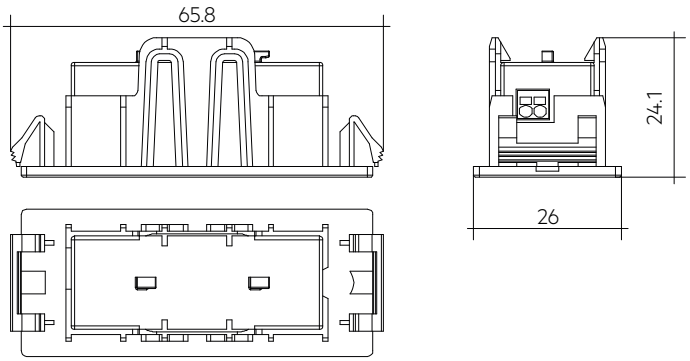


Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 60x22 LED 1.3 WH	**28005935**	10 pc(s).	100 pc(s).	0.005 kg
ACU BLIND COVER 60x22 LED 1.3 BK	**28005936**	10 pc(s).	100 pc(s).	0.005 kg

ACU MOUNTING ADAPTER 040 60x22 CON

Accessory



Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005939

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAPTER 60x22 CON 1.3 WH	**28005939**	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAPTER 60x22 CON 1.3 BK	**28005940**	10 pc(s).	100 pc(s).	0.006 kg

ACU MOUNTING ADAPTER 040 60x22 CON LED

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

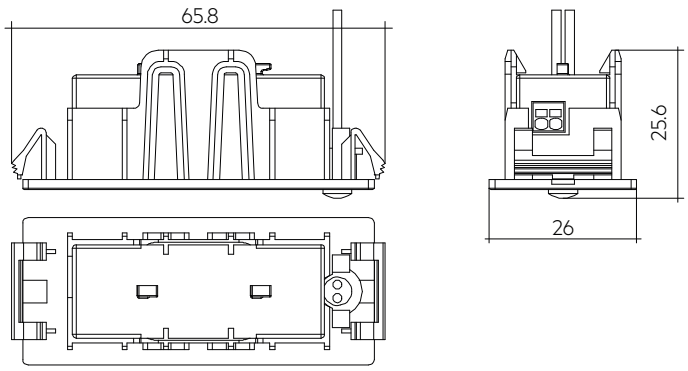
Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website
http://www.tridonic.com/28005941



Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 WH	**28005941**	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 BK	**28005942**	10 pc(s).	100 pc(s).	0.006 kg

1. Standards

EN/IEC 61347-2-11:2001
EN 55015:2013
EN 61000-3-2:2014 Part 3-2
EN 61000-3-3:2013 Part 3-3
EN 61547:2009

1.1 DALI standard

The basicDIM ILD G2 is designed to control control gear with DALI standard IEC 60929 (DALI V0), IEC 62386 (DALI V1/DALI-2).

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

The basicDIM ILD G2 provides the basis for an easy-to-use and cost-effective lighting system with motion detection.
When the sensor detects movement it triggers a individual adjustable motion detection profile in the control unit.
As the amount of natural ambient light changes the illuminance from the artificial lighting system is adjusted.
The connected luminaires can be switched on and off via momentary-action switch or remote control possible.
IR is always active.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a LED output for signalisation.
basicDIM ILD G2 is created for following main applications:
Low height buildings such as

- Corridors, passages und Garages
- Office buildings and educational institutions

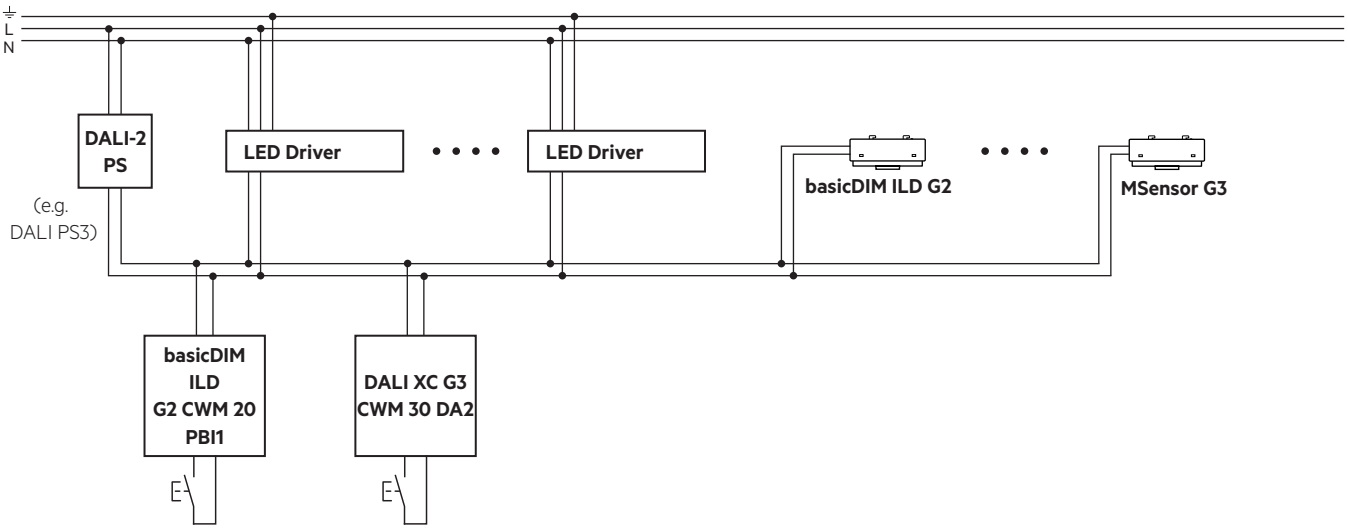
The basicDIM ILD G2 was developed and tested exclusively for Tridonic MSensor G3, XC G3 and PBI1. The use of other sensors and push button modules can lead to errors.

3. Installation

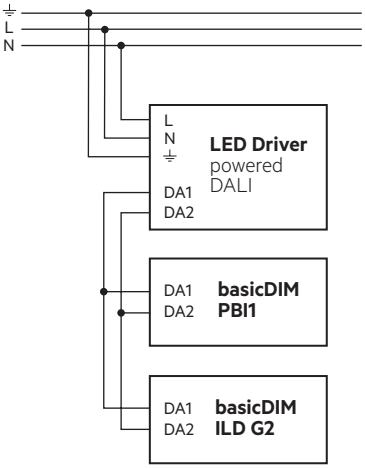
- The basicDIM ILD G2 must not be connected to the mains. It is supplied directly via the DALI power supply.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not overlap. This may have influence to the lighting control.
- When installed at a height other than the recommended installation height, the presence sensor might show different characteristics.
  When mounted at a higher level, its sensitivity is reduced.
  If mounted at a lower level, its range is reduced.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect presence detection.
- Avoid direct illumination of the light source on the sensor including housing.
- Additional IR sources can disturb the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button.
  Commissioning must be carried out again.
- Additional IR sources can interfere with the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button (basicDIM ILD G2 Programmer). The commissioning must be carried out again.

3.1 Wiring

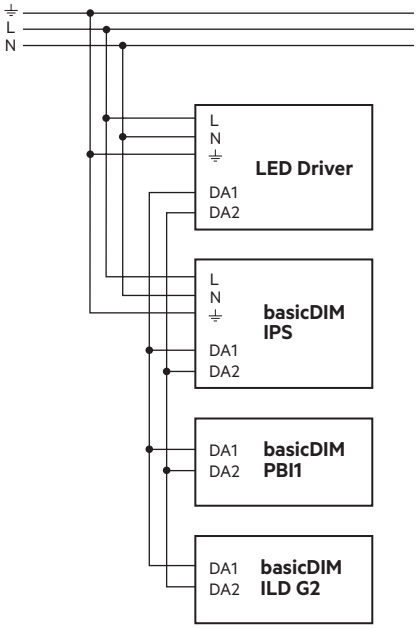
Room application:



Single / free-standing luminaires, driver with integrated power supply (DALI):



Single / free-standing luminaires, driver with separate power supply (DALI):



Maximum number of connected devices:

Devices	Number
ILD G2	1 pc.
DALI PS	2 pc. (max. 250 mA)
LED driver	64 pcs.
Input devices (MSensor G3, XC G3)	8 pcs.
PBI1	4 pcs.

DALI repeater must not be used.

Compatible accessories:

- MSensor G3 as additional, slave motion detector
- XC G3 as multi channel push button interface

Factory settings for DALI XC G3:

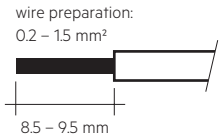
Button	Action	Factory settings
T1	Short press	Automtic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)
T2	Short press	Automatic
	Long press	not used
	Double click	not used
T3	Short press	not used
	Long press	Dim up / Dim down
	Double click	not used
T4	Short press	Automatic (switch luminaire on or change to automatic mode)
	Long press	not used
	Double click	SET (store new value for constant light control)

Factory settings for PBI1:

Button	Action	Factory settings
T1	Short press	Automtic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)

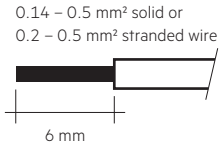
3.2 Wiring type and cross section for rc version

For wiring use stranded wire with ferrules or solid wire from 0.2 to 1.5 mm².



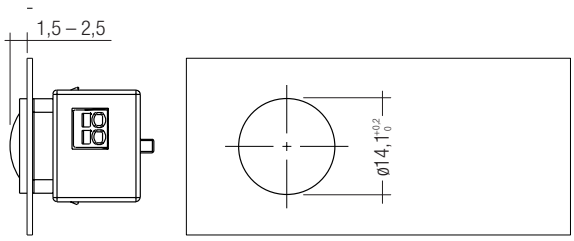
3.3 Wiring type and cross section for f version

For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².

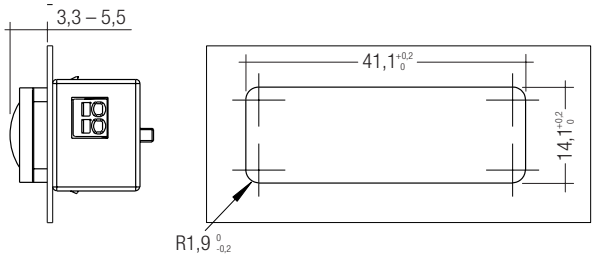


3.4 Mounting variants luminaire installation sensor:

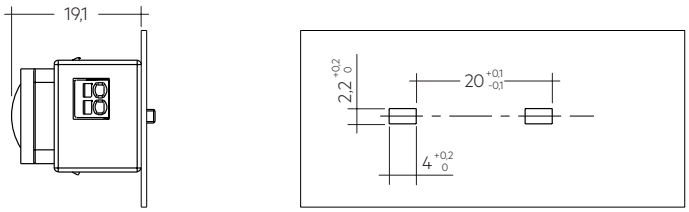
Variant 1:
Size of the sheet: 0.8 – 1.8 mm



Variant 2:
Size of the sheet: 0.8 – 3.0 mm



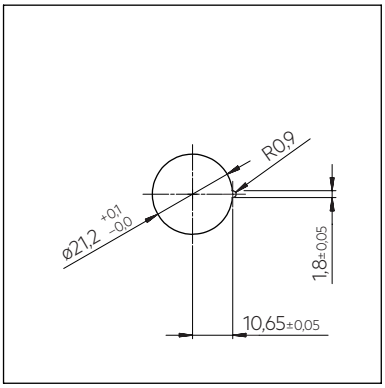
Variant 3:
Size of the sheet: 0.6 – 0.8 mm

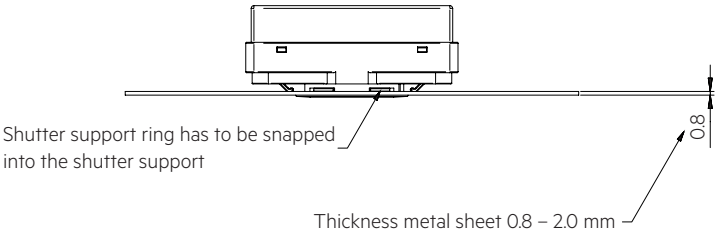


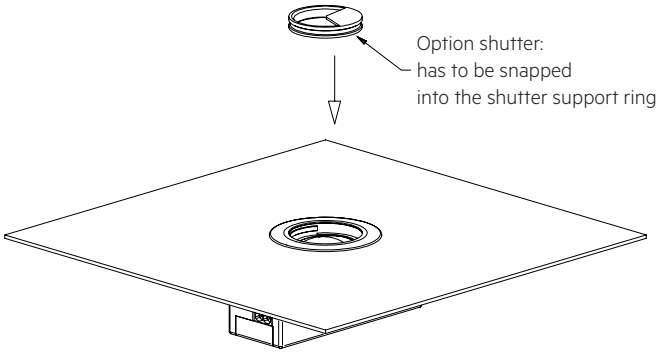
3.5 Mounting in luminaire housing with Mounting Kit:

Size of the sheet: 0.8 – 2.0 mm

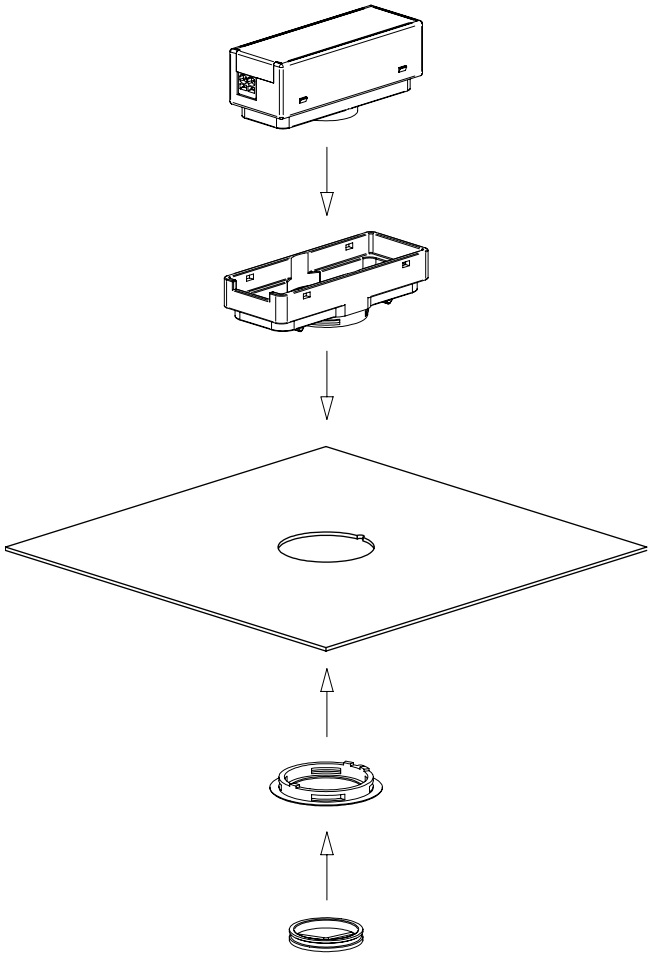
Dimension drawing for needed mounting opening





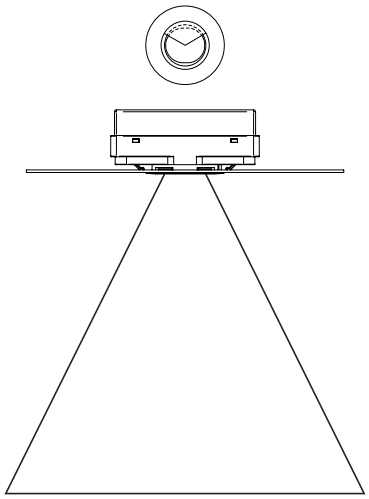


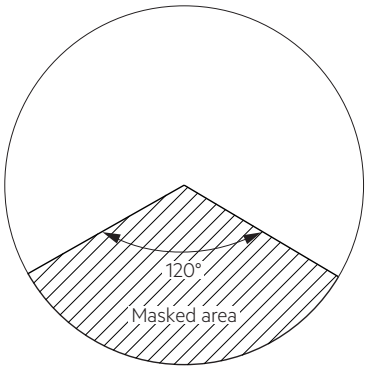
3.6 Mounting Kit mounting



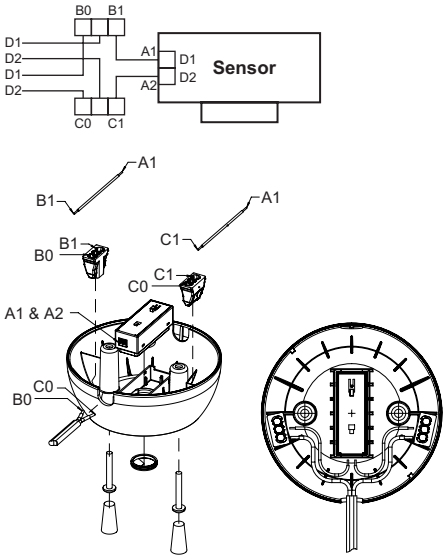
3.7 Mounting Kit Shutter

Area which is masked by the shutter.



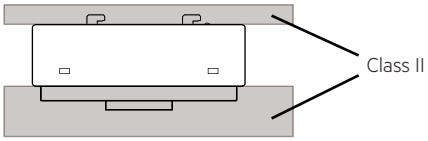


3.8 Wiring and mounting ACU Sensor Housing 14rs IP20



3.9 Mounting in class II luminaire

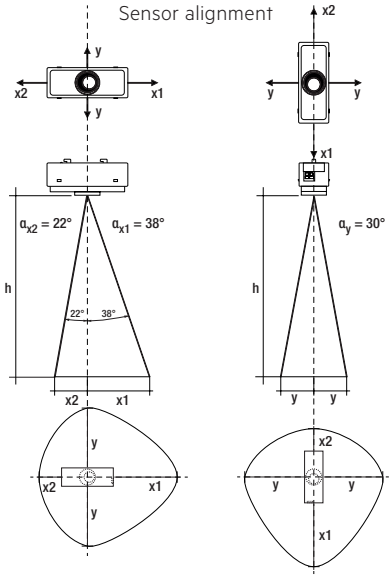
The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the front and the back of the sensor is tested to fulfill the class II requirements for double or reinforced insulation.



4. Light level recognition area

The measurement range is between 2 and 2,000 lx.
Measured at the sensor head.

Sensor alignment



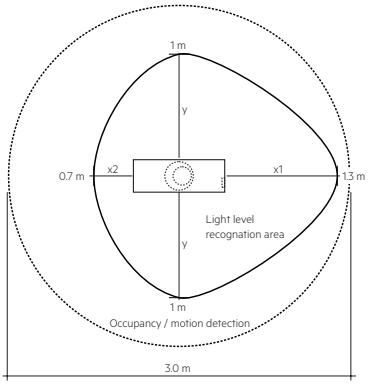
h *	x1	x2	y	d
1.7 m	1.3 m	0.7 m	1.0 m	3.0 m
2.0 m	1.6 m	0.8 m	1.2 m	3.6 m
2.3 m	1.8 m	0.9 m	1.3 m	4.1 m
2.5 m	2.0 m	1.0 m	1.4 m	4.5 m
2.7 m	2.1 m	1.1 m	1.6 m	4.9 m
3.0 m	2.3 m	1.2 m	1.7 m	5.4 m
3.5 m	2.7 m	1.4 m	2.0 m	6.3 m
4.0 m	3.1 m	1.6 m	2.3 m	7.2 m

* The recommended maximum room height for office applications is 3 m and for corridor applications for example 4 m. Up to 2 m mounting height presence is detected and over 2 m motion is detected.

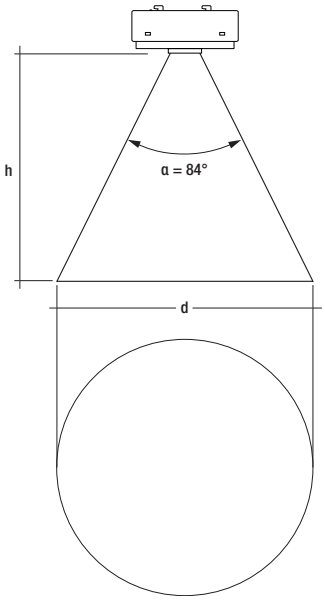
Calculation of the diameter (light area):
$x1 = \tan(\alpha_{x1}) \times h$
$x2 = \tan(\alpha_{x2}) \times h$
$y = \tan(\alpha_y) \times h$

Calculation of the diameter (motion area):
$d = 2 \times \tan(0{,}5 \times \alpha) \times h$

Example for light and motion detection area at height of 1.7 m:



4.1 Presence / motion detection



4.2 Motion detection

For motion detection PIR technology is used. PIR Lens is made to detect moving people in working areas such as corridors, passages, garages, office buildings or educational institutions with the following performance criteria:

- Ceiling height from up to 5 m
- Movement of human body:
  - up to 2 m mounting height: detection of slight motion.
  - above 2 m mounting height: no slight motion (no sitting person) detection.
- Movement ≥1.0 m/s for mounting heights up to 5 m

4.3 Status LED's

The status LED is deactivated by default.
There is a LED built in to indicate different status information to the user.
This LED is controlled from the sensor itself.

To not have any influence from LED to the light measurement, LED is disabled while light sensor is measuring by default.

Status	Pattern	Incident
–	–	Normal operation
Single red flash	0.2 s on. all 6 s	Motion has been detected
Permanent red flashing	0.2 s on. all 1 s	System error: - Second basicDIM ILD G2 available - Stuck button time out
Long green flashing	1 s on. all 6 s	Bright-out active
Orange flashing	0.5 s on. all 0.5 s	Start-up, Grouping, Test mode, Reset active application controller deactivated
Short blue flashing	0.2 s	Receive infrared command from basicDIM ILD G2 Programmer or IR6

4.4 User-definable parameters

Parameter	Range (Factory Settings)	Description
power-up behavior	on / off (on)	If the parameter is set to “on”, the luminaire switches on after a mains break. If the parameter is set to “off”, the luminaire does not switch on after a mains break.
Presence lux level	Absence level / 1,000 lux (500 lux)	Value used by the light sensor to regulate the presence level of the luminaire. On account of the room conditions and the installation height, the illuminance in the workspace may, however, be three to four times higher.
presence level	1 to 100 % (100 %)	Brightness value that the ILD G2 occupies as soon as presence has been detected.
absence level	1 to 100 % (1 %)	Brightness value that the ILD G2 occupies while the switch-off delay is running.
fade-in time	0 to 15 (1)	Period of time starting as soon as presence is detected. During fade-in time, the luminous intensity fades to the presence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
fade time	0 to 15 (8)	Period of time during which the luminous intensity fades from the presence value to the absence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
run-on time	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected. After the run-on time the fade-off time is started. If another presence is detected in the room during run-on time, the run-on time is started again.
switch-off delay	off / 15 s to 60 min / never OFF (off)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).
fade-off time	0 to 15 (2)	Period of time starting after the run-on time. During the fade-off time, the luminous intensity fades to off. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s| 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
constant light control	on / off (on)	Enables or disables the constant light control
bright-out	on / off (on)	If the parameter is set to “on”, the luminaire switches off as soon as the light level exceeds the bright-out threshold of the set point for longer than 10 minutes. This could be the case if, for instance, the room is adequately illuminated by sunlight. If the bright-out threshold falls below 100 % of the set point, the luminaire switches back on again.
bright-out threshold	110 to 400 % (150 %)	Bright-out threshold used by the bright-out function
bright-out-off delay time	0 to 3,600 s (600 s)	Period of time that the light level must exceed the bright-out threshold to activate bright-out.
group 2 offset mode	fixed / converging (converging)	This parameter specifies how the group 2 offset value behaves if the light is dimmed up. If the parameter is set to “converging”, the dimming level of group 2 will keep on rising even if group 1 has already reached a dimming level of 100 %. The brightness difference will be gradually reduced up to the point where both group 1 and group 2 reach the same dimming level of 100 % which effectively reduces the group 2 offset value to zero. This way, the offset will “converge”. If the parameter is set to “fixed”, the offset is “fixed”. The brightness difference between group 1 and group 2 will stay at the value defined for the group 2 offset value. If the group 2 offset value was set to e.g. 30 %, the group 2 dimming level will always stay 30 % below the dimming level of group 1. If group 1 has reached a dimming level of 100 %, the dimming level of group 2 will stop rising because otherwise the offset would be reduced to less than the defined group 2 offset value.
group 2 offset value	0 to 95 % (30 %)	Adjustable brightness difference between group 2 and group 1

4.5 Possible push button configuration

Short Press	Long Press	Double Press
Automatic mode	Dimming up	Set target value
Recall max. level	Dimming down	No function
Off	Dimming up / dimming down	
Recall max. level / off	No function	
On with fade		
Off with fade		
Automatic mode / off with fade		
No function		

5. Miscellaneous

5.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM ILD G2 10DPI WH

Compact control module with ambient light sensor and motion sensor

Product description

_ For up to 64 DALI drivers, expandable with DALI-2 Input Devices (see data sheet 3.1 Wiring)
_ Integrated application controller
_ Flexible configuration via companionSUITE
_ 2 DALI groups with adjustable offset
_ Monitoring of ambient light and motion detection
_ Infrared remote control for configuration and operation
_ Power supply via DALI line
_ Shutter for preventing occupancy detection in one direction included
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ For luminaires of protection class I and protection class II
_ Wide range of accessories allowing extended application range
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

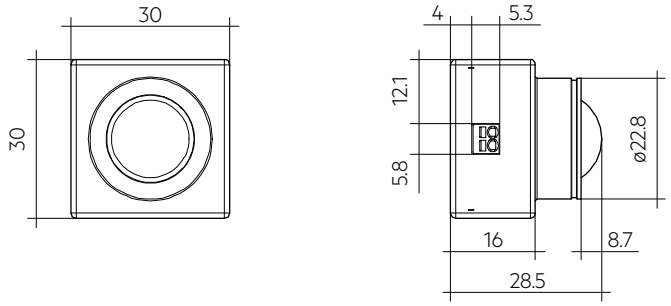
_ Casing: polycarbonate, white
_ Type of protection up to IP66

Website

http://www.tridonic.com/28003392

basicDIM ILD G2 10DPI WH

Compact control module with ambient light sensor and motion sensor



Ordering data

Type	Article number	Suitable for	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM ILD G2 SFI 20 10DPI WH	**28003392**	Luminaire installation	30 x 30 x 28.5 mm	15 pc(s).	0.013 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	11.5 – 20.5 V
Current consumption (no LED)	max. 11 mA
Current consumption (with LED)	max. 12 mA
Mounting height	5 – 10 m
Mounting hole diameter	23 mm
Detection angle for PIR detection (tagential / radial)	72° / 44°
Detection angle for light measurement	30° – 40°
Detection range for light measurement ②	0.5 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9010)
Housing colour lens	White
Type of protection ③	Up to IP66
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, IEC 60929

① 14 – 20.5 V if use PBI1. Uin according to IEC 62386-101.
② The measured value at the sensor head corresponds to approx. 2.5 to 10,000 lux on the surface measured.
③ Depending on the installation type up to IP66 for more details see data sheet chapter 3.7.

Sensor mounting kit ACU 033 IP66 WH

Accessory

Product description

_ Easy to mount circlip lockring, compatible with industry standard circlip pliers (size 19 – 60 mm)
_ Corrosion resistant circlip made from stainless steel
_ Appealing plastic cover ring, allowing to mount the sensor in luminaires in an easy and visual attractive way
_ Fulfills the impact energy requirements of freestanding luminaires of 0.5 J
_ Includes 2 gaskets offering flexible installation in luminaries
_ Plastic cover passed glow wire test with 750 °C in according to EN 61347-1
_ In combination with the DALI MSensor G3 SFI 30 PIR 4DPI WDA WH, a maximum of IP54 is possible
_ In combination with the basicDIM ILD G2 4DPI WDA, a maximum of IP54 is possible

Website

http://www.tridonic.com/28006311

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor mounting kit ACU 033 IP66 WH	**28006311**	15 pc(s).	0.007 kg

REMOTECONTROL IR6

Accessory

Product description

_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

Website

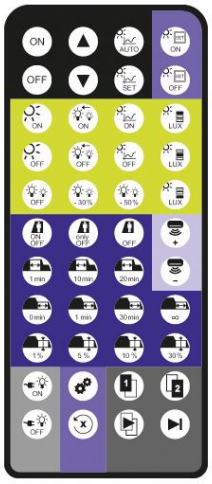
http://www.tridonic.com/28000647

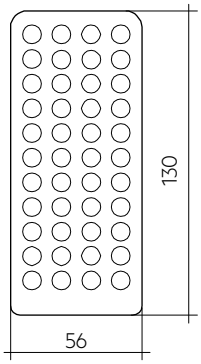
Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

basicDIM ILD G2 Programmer

Accessory





Product description

_ Optional infra-red programming unit for basicDIM ILD G2
_ Setting of predefined parameter values
_ Programmable functions such as light level, time delay, P.I.R., bright-out, power up and grouping
_ IR range up to 20 m

Website

http://www.tridonic.com/28003484

Ordering data

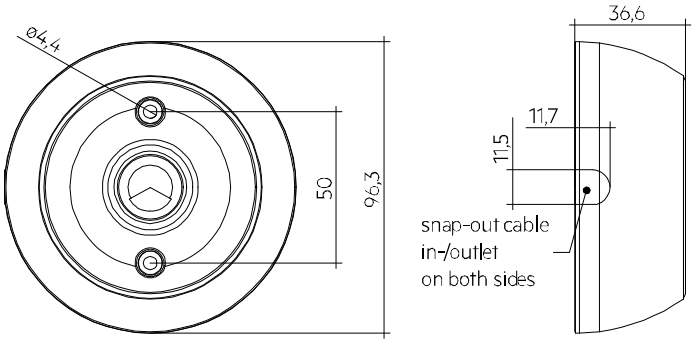
Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 PROGRAMMER	**28003484**	150 pc(s).	0.04 kg

Approval marks

RoHS

Sensor housing ACU 031 IP20 WH

Accessory



Product description

_ Mounting frame for wired DALI MSensor G3 SFI 30 PIR 10DPI WH sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ DALI MSensor G3 SFI 30 PIR 10DPI WH is powered via DALI circui
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Including gasket for ideal IP protection
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ Sensor not included

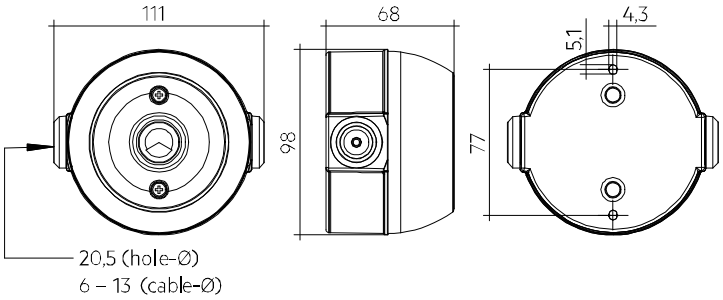
Website
http://www.tridonic.com/28001874

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 031 IP20 WH	**28001874**	81 pc(s).	0.054 kg

Sensor housing ACU 032 IP66 WH

Accessory



Product description

_ Mounting frame for wired DALI MSensor G3 SFI 30 PIR 10DPI WH sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Housing provides IP 66, but in combination with the DALI MSensor G3 SFI 30 PIR 4DPI WDA WH a maximum of IP54 is possible
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ DALI MSensor G3 SFI 30 PIR 10DPI WH is powered via DALI circui
_ Optional shutter for reduction of occupancy detection area allowing to decrease the occupancy detection area from 360° to 240°
_ Mounting kit with screws and decorative plugs
_ Including gasket for ideal IP protection
_ Casing passed glow wire test with 850 °C according to EN 61347-1

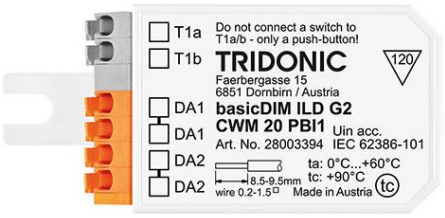
Website
http://www.tridonic.com/28001873

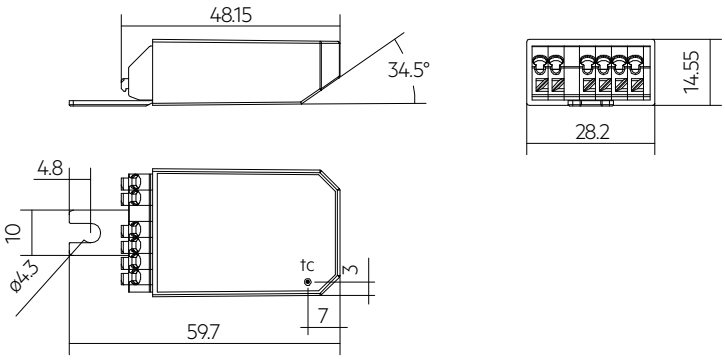
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 032 IP66 WH	**28001873**	45 pc(s).	0.105 kg

basicDIM ILD G2 CWM 20 PBI1

Accessory





Product description

_ Push Button Interface (PBI) for ILD G2 and ILD G2 FSL system
_ Flexible configuration via the ILD G2 and ILD G2 FSL in combination with the companionSUITE
_ Short push button action: automatic / fade off (factory default)
_ Long push button action: dim up / dim down (factory default)
_ Double push button action: set new target value for light regulation (factory default)
_ Through-wiring DA1 / DA2 possible
_ Detachable mounting flaps, allow installation in flush-mounted boxes and luminaires

Note

_ A permanent short circuit between T1a and T1b results in limited function
_ Only push buttons can be used

Website

http://www.tridonic.com/28003394

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 CWM 20 PBI1	**28003394**	15 pc(s).	0.012 kg

Approval marks

RoHS

ACU 034 Z20 LEX-MR 150mm

Accessory

Product description

_ LEX-MR is optional accessory suporting the Zhaga 20 standard
_ Responding luminaire plug LEX-LP available from Amphenol Benelux to be specified by lighting OEM's depending on specific fixture design:
_ FLM-S23-00, FLM-S23-W0
_ P-FLM-S21-00, P-FLM-S21-W0
_ Further information:
https://www.zhagastandard.org/products.html, product (zhagastandard.org) and supplier information:
https://www.amphenol-cs.com/product-series/zhaga-book-20-compliant-flm.html

Interfaces

_ Supplies Zhaga Book 20

Website

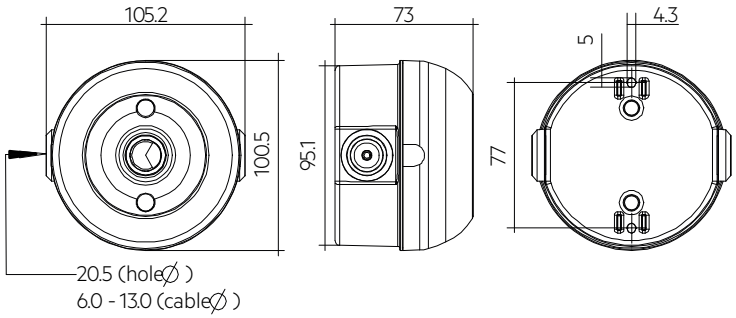
http://www.tridonic.com/28004616

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU 034 Z20 LEX-MR 150mm	**28004616**	100 pc(s).	2,000 pc(s).	0.002 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website

http://www.tridonic.com/28005945

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

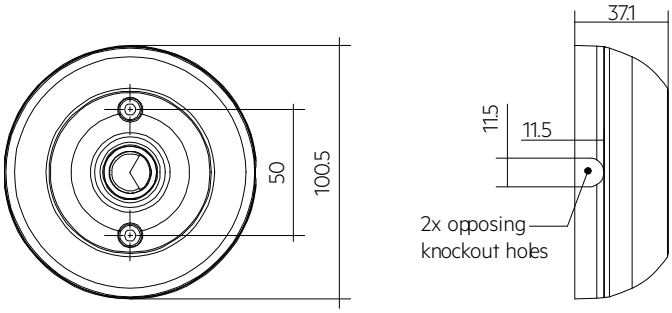
Sensor housing ACU 036 10DPI/WDA IP20 WH

Accessory

Product description

_ Mounting frame for wired 10DPI/WDA sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Including gasket for ideal IP protection
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005944



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 036 10DPI/WDA IP20 WH	**28005944**	57 pc(s).	0.051 kg

1. Standards

EN/IEC 61347-2-11:2001
EN 55015:2013
EN 61000-3-2:2014 Part 3-2
EN 61000-3-3:2013 Part 3-3
EN 61547:2009

1.1 DALI standard

The basicDIM ILD G2 is designed to control control gear with DALI standard IEC 60929 (DALI V0), IEC 62386 (DALI V1/DALI-2).

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

The basicDIM ILD G2 provides the basis for an easy-to-use and cost-effective
lighting system with motion detection.
When the sensor detects movement it triggers a individual adjustable motion detection profile in the control unit.
As the amount of natural ambient light changes the illuminance from the artificial lighting system is adjusted.
The connected luminaires can be switched on and off via momentary-action switch or remote control possible.
IR is always active.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a status LED.
basicDIM ILD G2 is created for following main applications:
Medium height buildings such as

- Factory buildings
- Storage buildings and warehouses
- Corridors, passages und Garages
- In covered outdoor areas

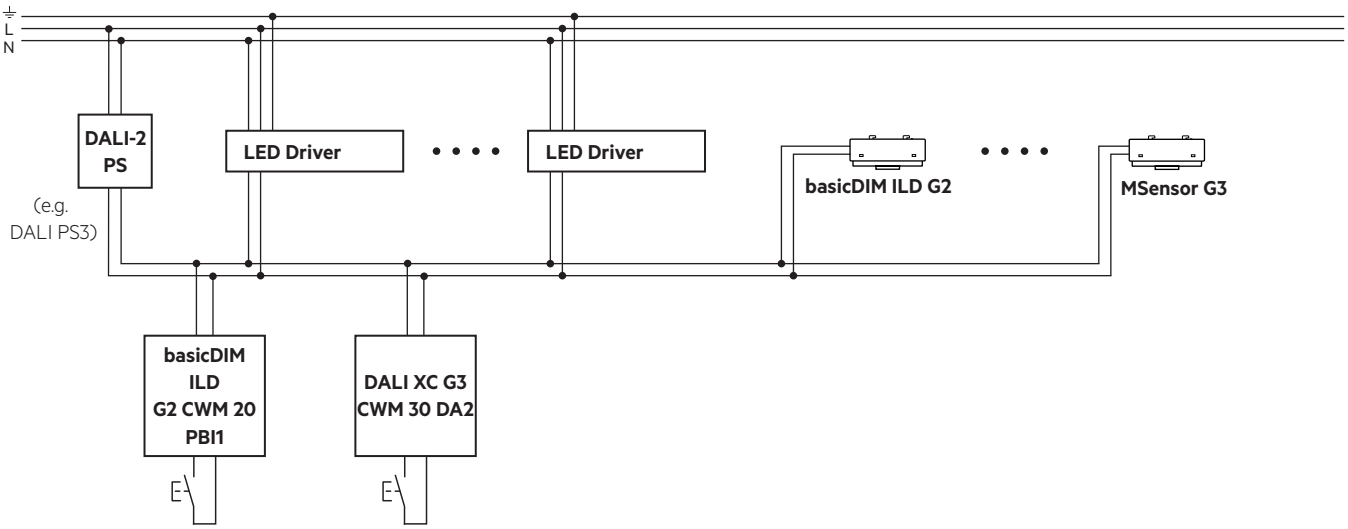
The basicDIM ILD G2 was developed and tested exclusively for Tridonic MSensor G3, XC G3 and PBI1. The use of other sensors and push button modules can lead to errors.

3. Installation

- The basicDIM ILD G2 must not be connected to the mains. It is supplied directly via the DALI power supply.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not overlap. This may have influence to the lighting control.
- When installed at a height other than the recommended installation height, the presence sensor might show different characteristics.
  When mounted at a higher level, its sensitivity is reduced.
  If mounted at a lower level, its range is reduced.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect presence detection.
- Avoid direct illumination of the light source on the sensor including housing.
- Additional IR sources can disturb the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button.
  Commissioning must be carried out again.
- Additional IR sources can interfere with the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button (basicDIM ILD G2 Programmer). The commissioning must be carried out again.

3.1 Wiring

Room application:



Maximum number of connected devices:

Devices	Number
ILD G2	1 pc.
DALI PS	2 pc. (max. 250 mA)
LED driver	64 pcs.
Input devices (MSensor G3, XC G3)	8 pcs.
PBI1	4 pcs.

DALI repeater must not be used.

Compatible accessories:

- MSensor G3 as additional, slave motion detector
- XC G3 as multi channel push button interface

Factory settings for DALI XC G3:

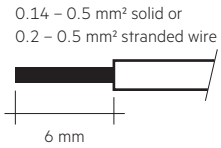
Button	Action	Factory settings
T1	Short press	Automatic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)
T2	Short press	Automatic
	Long press	not used
	Double click	not used
T3	Short press	not used
	Long press	Dim up / Dim down
	Double click	not used
T4	Short press	Automatic (switch luminaire on or change to automatic mode)
	Long press	not used
	Double click	SET (store new value for constant light control)

Factory settings for PBI1:

Button	Action	Factory settings
T1	Short press	Automatic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)

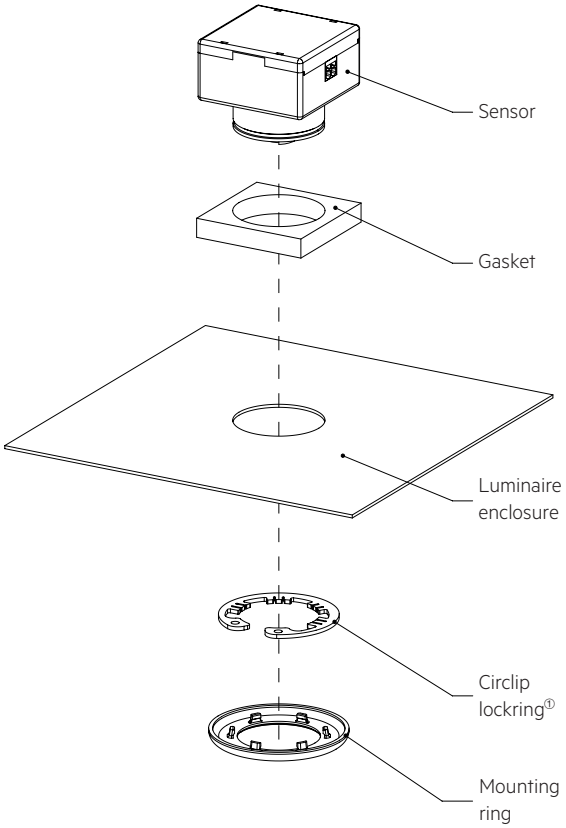
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².



3.3 Mounting variants luminaire installation sensor:

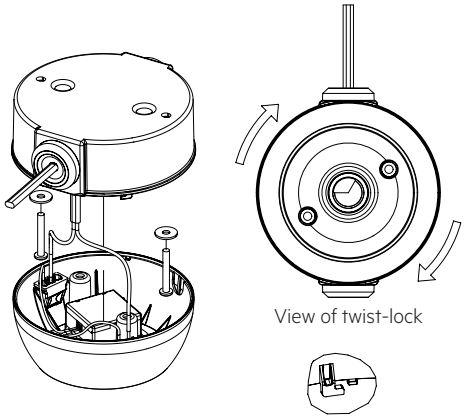
3.3.1 Installation in luminaire
To ensure the right IP protection please read chapter 3.6 Gasket.



① Not included in kit ACU 030.

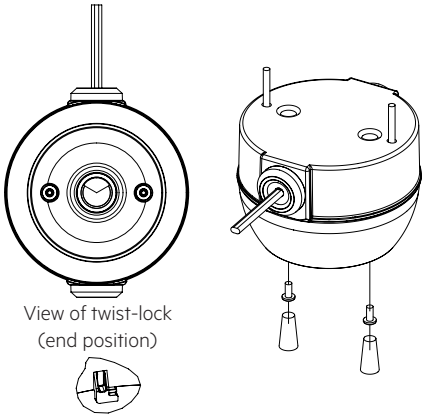
3.3.2 Installation in Sensor housing ACU 032 IP66 WH
To ensure the right IP protection please read chapter 3.6 Gasket.

Step 1: Cover placed on base plate



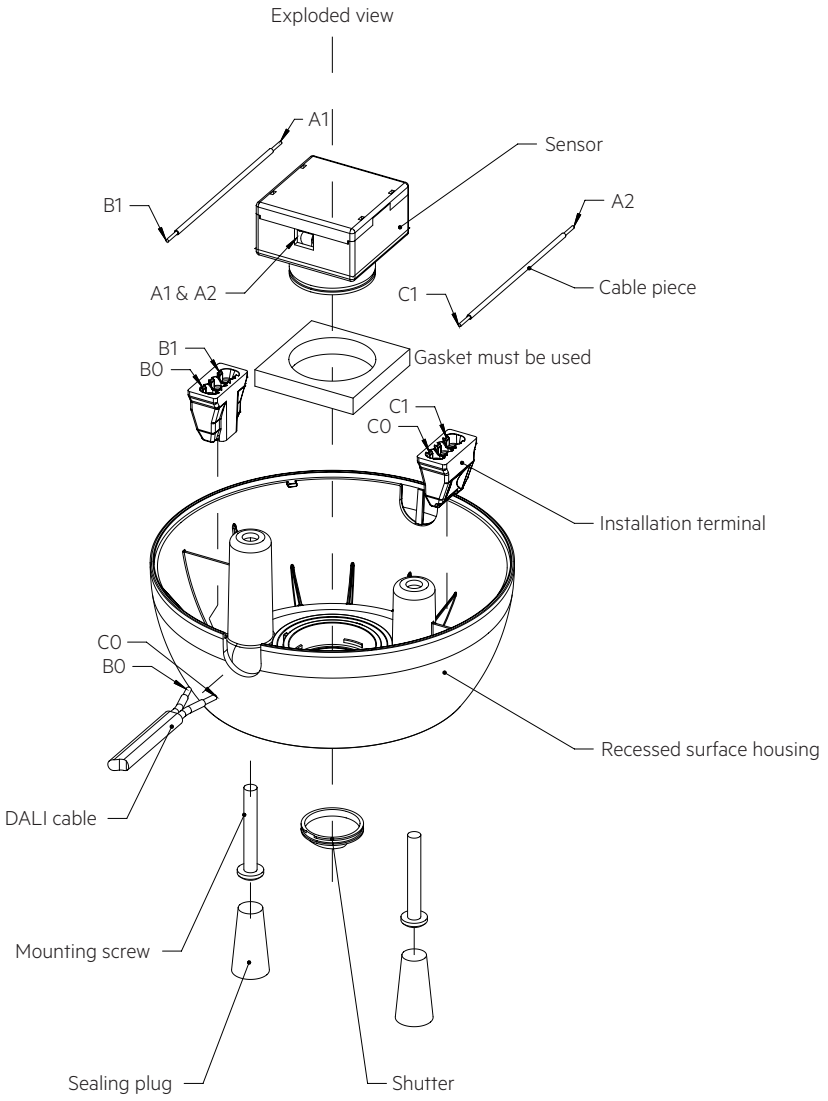
Mount base plate. Feed cable (cable diameter: 6 – 13 mm) of the lateral grommets into the installation terminals.

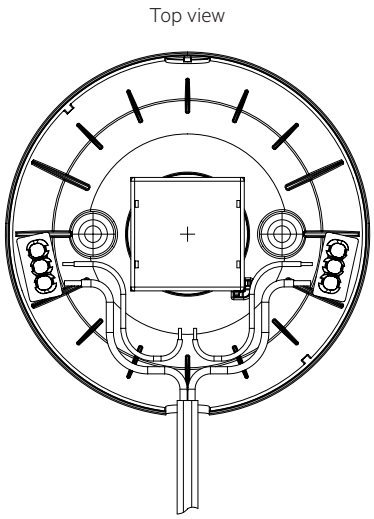
Step 2: Cover locked



After the cover is loosely mounted on the base plate, insert and tighten the 2 screws.
In the last step insert in the sealing plugs.

3.3.3 Installation in Sensor housing ACU 031 IP20 WH
To ensure the right IP protection please read chapter 3.6 Gasket.

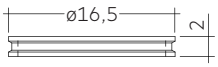


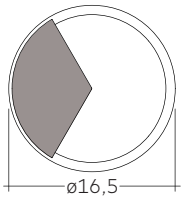


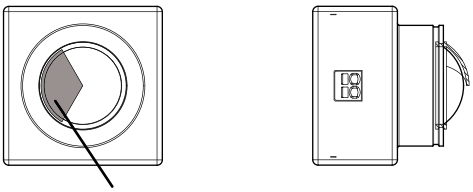
3.4 Detection area covers

Included in each Sensor 10DPI 23f there are two detection area covers. Each of these cover can be attached to the front of the sensor.
The 120° cover offers the possibility to reduce the detection area of PIR Sensor by 120° or 1/3 of its detection area.
There is no influence of detection area of light measurement or IR receiver by this cover.
0° cover is made only for aesthetical reasons to give the sensor a flush surface. It is not needed for proper operation of the sensor.

Type of material:	PC polycarbonate
Colour:	transparent
Surface finish:	polished

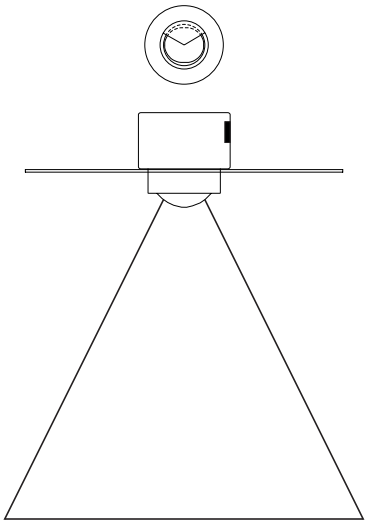


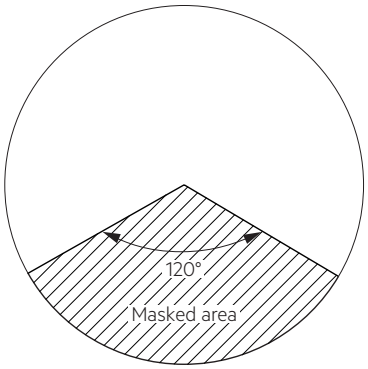




Attach the detection area cover to the sensor by inserting it into the corresponding groove at the front of the sensor.

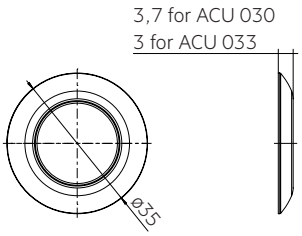
Area which is masked by the shutter:





3.5 Mounting ring

Included in each Sensor mounting kit ACU 030 IP66 WH and kit ACU 033 IP66 WH is a mounting ring. This Ring allows to mount the sensor into a luminaire in an easy and visual attractive way.



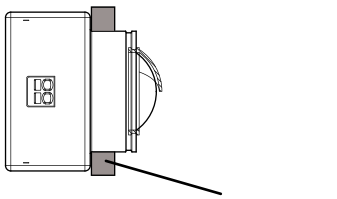
3.6 Gasket

To fulfill ingress protection different gaskets are included in the Mounting Kit.
The gaskets are necessary to ensure ingress protection as well as proper mounting of the sensor in luminaire.

Sensor can be inserted into luminaires with a sheet thickness from 0.75 up to 4.0 mm.

According to the size of luminaire cover in certain application, one of the gaskets must be used and mounted between the front of the sensor and the luminaire housing.
It is not allowed to use a combination of e.g. two gaskets, because this will not provide the right amount of sealing and you may run in to a risk to not reach the IP66 requirements.

Use maximum possible size for your application to ensure a proper fit and protection.



Gasket (size 3, 5 or 8 mm)

Sensor mounting kit ACU 030 IP66 WH

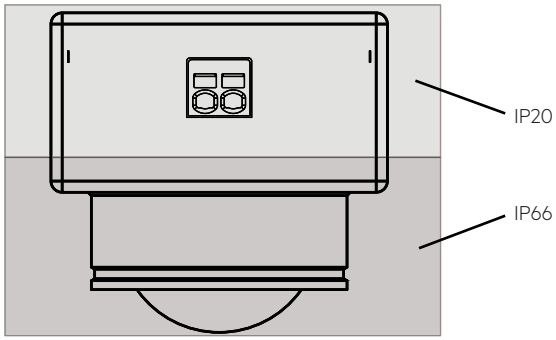
Distance between Sensor and luminare	Final size of gasket after assembly	Use gasket
2.0 – 2.4 mm	2.0 – 2.4 mm	3 mm
2.5 – 4.0 mm	2.5 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

Sensor mounting kit ACU 033 IP66 WH

Distance between Sensor and luminare	Final size of gasket after assembly	Use gasket
2.7 – 4.0 mm	2.7 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

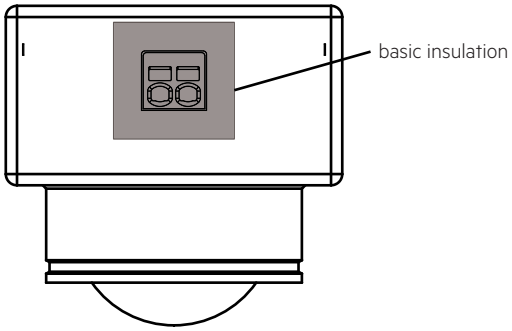
3.7 IP protection

This device contains IP-protection to use it also in applications with the need of protection against dust and water ingress. IP66 protection applies to the front of the sensor whereas the back of the sensor is IP20 rated.



3.8 Mounting in class II luminaire

The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the most part of the sensor is tested to fulfil the class II requirements for double or reinforced insulation. Basic insulation is illustrated in the graphic below and covers an area 2,5 mm around the terminal.
The rest of the sensor fulfils class II requirements.



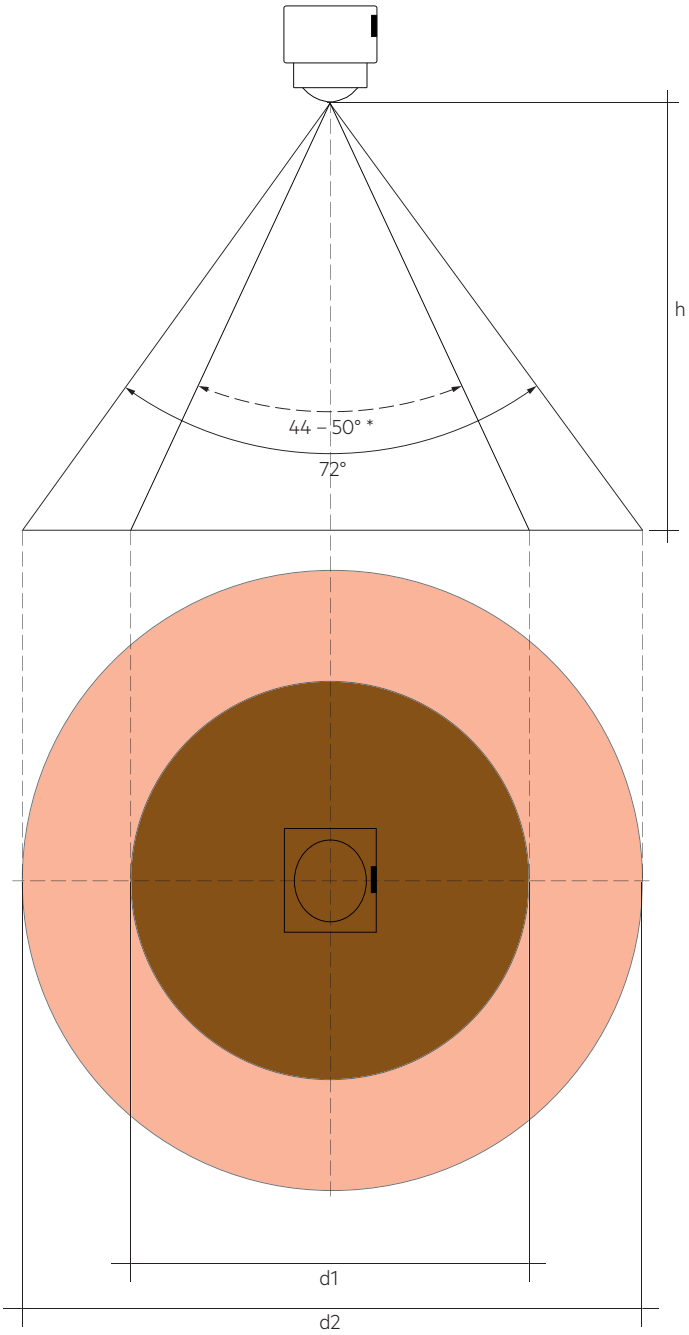
4. Sensor function

4.1 Motion detection

For motion detection PIR technology is used. PIR Lens is made to detect moving people in working areas such as warehouses, storage buildings and similar working areas with the following performance criteria:

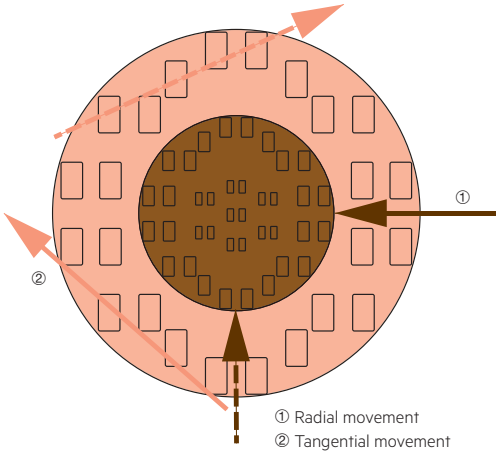
- Ceiling height from 5 up to 10 m
- Movement of human body (increment ≥ 1.5 m), no slight motion (no sitting person)
- Movement ≥1.0 m/s for mounting heights up to 7.5 m
- Movement ≥1.5 m/s for mounting heights up to 10.0 m

4.2 Detection area



h = Height	d1 = Radial	Radial detection angle	d2 = Tangential (72°)
5 m	4.6 m	50°	7.0 m
6 m	5.6 m	50°	8.4 m
7 m	6.6 m	50°	9.8 m
8 m	7.4 m	50°	11.2 m
9 m	7.2 m	44°	12.6 m
10 m	8.0 m	44°	14.0 m

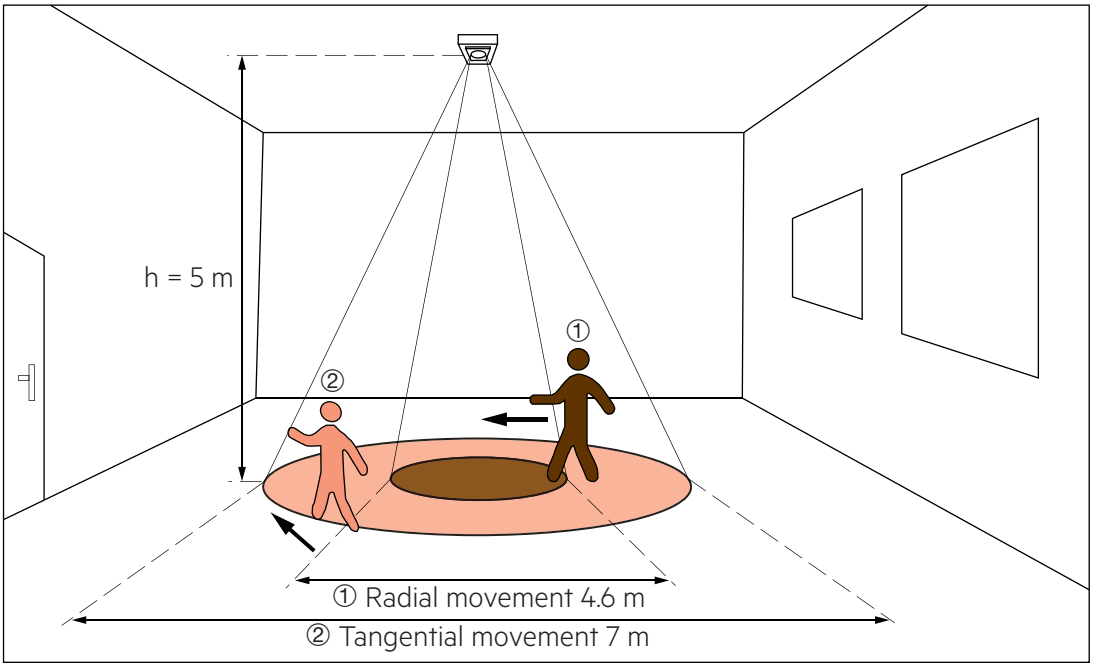
Schematic illustration of radial / tangential movements:



* The detection angle for the radial movement varies with the different mounting height between 44 and 50°.

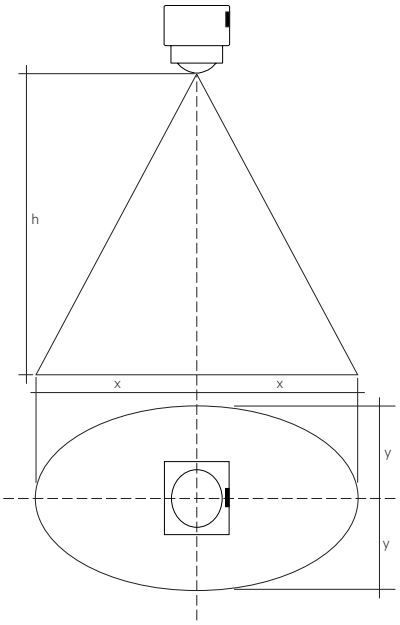
The point at which the light responds must therefore not be equated with the outer detection range.

Detection example at 5 m mounting height:



4.3 Light measurement

The light measurement has a cone-shaped detection area with a half angle of approximately 20° in x-direction and 15° in y-direction.



h	dx	dy
5.0 m	3.6 m	2.7 m
7.5 m	5.5 m	4.0 m
10.0 m	7.2 m	5.4 m

The measurement range is between 0.5 and 2000 lx.
Measured at the sensor head.

4.4 Status LED's

The status LED is deactivated by default.
There is a LED built in to indicate different status information to the user.
This LED is controlled from the sensor itself.

To not have any influence from LED to the light measurement, LED is disabled while light sensor is measuring by default.

Status	Pattern	Incident
–	–	Normal operation
Single red flash	0.2 s on. all 6 s	Motion has been detected
Permanent red flashing	0.2 s on. all 1 s	System error: - Second basicDIM ILD G2 available - Stuck button time out
Long green flashing	1 s on. all 6 s	Bright-out active
Orange flashing	0.5 s on. all 0.5 s	Start-up, Grouping, Test mode, Reset active application controller deactivated
Short blue flashing	0.2 s	Receive infrared command from basicDIM ILD G2 Programmer or IR6

4.5 User-definable parameters

Parameter	Range (Factory Settings)	Description
power-up behavior	on / off (on)	If the parameter is set to "on", the luminaire switches on after a mains break. If the parameter is set to "off", the luminaire does not switch on after a mains break.
Presence lux level	Absence level / 1,000 lux (500 lux)	Value used by the light sensor to regulate the presence level of the luminaire. On account of the room conditions and the installation height, the illuminance in the workspace may, however, be three to four times higher.
presence level	1 to 100 % (100 %)	Brightness value that the ILD G2 occupies as soon as presence has been detected.
absence level	1 to 100 % (1 %)	Brightness value that the ILD G2 occupies while the switch-off delay is running.
fade-in time	0 to 15 (1)	Period of time starting as soon as presence is detected. During fade-in time, the luminous intensity fades to the presence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
fade time	0 to 15 (8)	Period of time during which the luminous intensity fades from the presence value to the absence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
run-on time	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected. After the run-on time the fade-off time is started. If another presence is detected in the room during run-on time, the run-on time is started again.
switch-off delay	off / 15 s to 60 min / never OFF (off)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).
fade-off time	0 to 15 (2)	Period of time starting after the run-on time. During the fade-off time, the luminous intensity fades to off. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s| 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
constant light control	on / off (on)	Enables or disables the constant light control
bright-out	on / off (on)	If the parameter is set to "on", the luminaire switches off as soon as the light level exceeds the bright-out threshold of the set point for longer than 10 minutes. This could be the case if, for instance, the room is adequately illuminated by sunlight. If the bright-out threshold falls below 100 % of the set point, the luminaire switches back on again.
bright-out threshold	110 to 400 % (150 %)	Bright-out threshold used by the bright-out function
bright-out-off delay time	0 to 3,600 s (600 s)	Period of time that the light level must exceed the bright-out threshold to activate bright-out.
group 2 offset mode	fixed / converging (converging)	This parameter specifies how the group 2 offset value behaves if the light is dimmed up. If the parameter is set to "converging", the dimming level of group 2 will keep on rising even if group 1 has already reached a dimming level of 100 %. The brightness difference will be gradually reduced up to the point where both group 1 and group 2 reach the same dimming level of 100 % which effectively reduces the group 2 offset value to zero. This way, the offset will "converge". If the parameter is set to "fixed", the offset is "fixed". The brightness difference between group 1 and group 2 will stay at the value defined for the group 2 offset value. If the group 2 offset value was set to e.g. 30 %, the group 2 dimming level will always stay 30 % below the dimming level of group 1. If group 1 has reached a dimming level of 100 %, the dimming level of group 2 will stop rising because otherwise the offset would be reduced to less than the defined group 2 offset value.
group 2 offset value	0 to 95 % (30 %)	Adjustable brightness difference between group 2 and group 1

4.6 Possible push button configuration

Short Press	Long Press	Double Press
Automatic mode	Dimming up	Set target value
Recall max. level	Dimming down	No function
Off	Dimming up / dimming down	
Recall max. level / off	No function	
On with fade		
Off with fade		
Automatic mode / off with fade		
No function		

5. Miscellaneous

5.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM ILD G2 16DPI WH

Compact control module with ambient light sensor and motion sensor

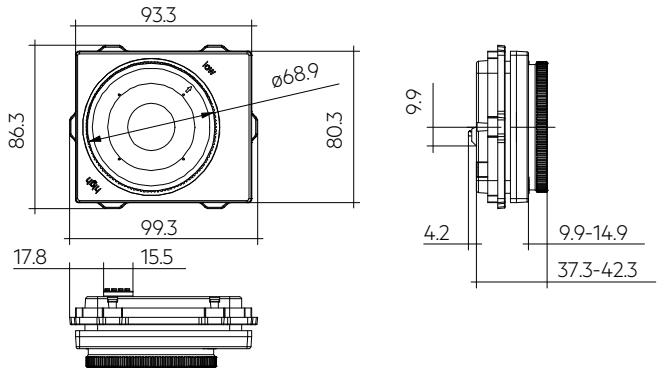
Product description
_ For up to 64 DALI drivers, expandable with DALI-2 Input Devices (see data sheet 3.1 Wiring)
_ Integrated application controller
_ Flexible configuration via companionSUITE
_ 2 DALI groups with adjustable offset
_ Monitoring of ambient light and motion detection
_ Infrared remote control for configuration and operation
_ Individual adjustment of the parameters
_ Power supply via DALI line
_ Mounting ring and gasket included to reach IP65 protection
_ For luminaires of protection class I and protection class II
_ Wide range of accessories allowing extended application range
_ Built-in sensor with double insulation
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, white
_ Type of protection up to IP65

Website
http://www.tridonic.com/28003393

basicDIM ILD G2 16DPI WH

Compact control module with ambient light sensor and motion sensor



Ordering data

Type	Article number	Suitable for	Packaging, carton	Weight per pc.
basicDIM ILD G2 SFI 20 16DPI WH	**28003393**	Luminaire installation	10 pc(s).	0.105 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	9.5 – 22.5 V
Current consumption (no LED)	max. 11 mA
Current consumption (with LED)	max. 12 mA
Mounting height ②	8 – 18 m
Adjustment range position “low”	8 – 12 m
Adjustment range position “high” ②	12 – 18 m
Mounting opening	70 x 83 mm
Housing thickness of the luminaire	0.75 – 4 mm
Detection angle for PIR detection angle “low”	72°
Detection angle for PIR detection angle “high”	60°
Detection range for light measurement ③	1 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Dimensions L x W x H	99.3 x 86.3 x 46.5 mm
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9016)
Housing colour lens	White
Type of protection ④	Up to IP65
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2-11, EN 61347-1, EN 61547, EN 55015, EN 62386-101, EN 62386-103, EN 62386-301, EN 62386-303, EN 62386-304

① 14 – 20.5 V if use PBI1. Uin according to IEC 62386-101.
② For mounting height higher than 16 m it is recommended to use several sensors grouped together in one occupancy group. As the sensitivity for the detection diameter can not be guaranteed for high over 16 m.
③ The measured value at the sensor head corresponds to approx. 5 to 10,000 lux on the surface measured.
④ Depending on the installation type up to IP 65 for more details see data sheet.

REMOTECONTROL IR6

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

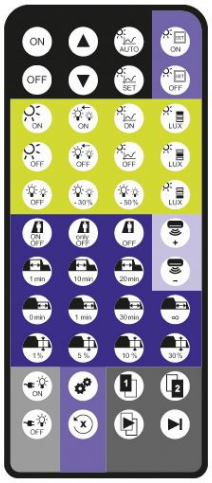
Website
http://www.tridonic.com/28000647

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

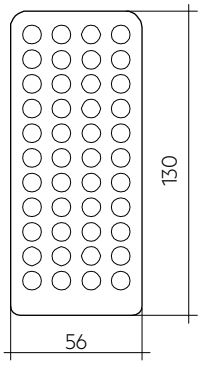
basicDIM ILD G2 Programmer

Accessory



Product description
_ Optional infra-red programming unit for basicDIM ILD G2
_ Setting of predefined parameter values
_ Programmable functions such as light level, time delay, P.I.R., bright-out, power up and grouping
_ IR range up to 20 m

Website
http://www.tridonic.com/28003484



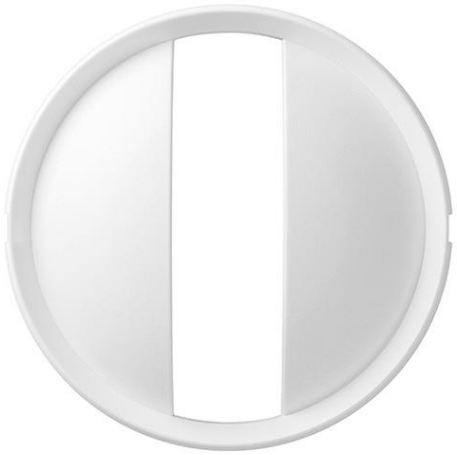
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 PROGRAMMER	**28003484**	150 pc(s).	0.04 kg

Approval marks

Shading Set

Accessory

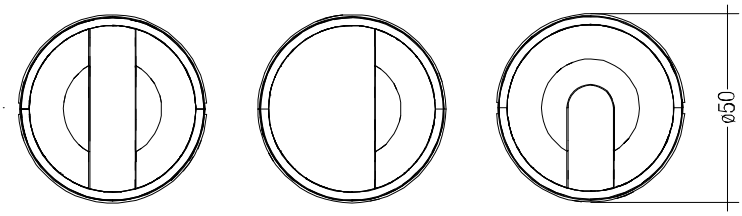


Product description

- Three different covers for the DALI MSensor G3 SFI 30 PIR 16DPI WH, basicDIM ILD G2 and basicDIM ILD give the ability to reduce the detection area in aisle applications
- These covers can be attached or removed from/to the front of the sensor at any time without the need of opening the luminaire
- To have a maximum of flexibility these covers can be attached in every direction of 0°, 90°, 180° and 270°

Website

http://www.tridonic.com/28001658



Ordering data

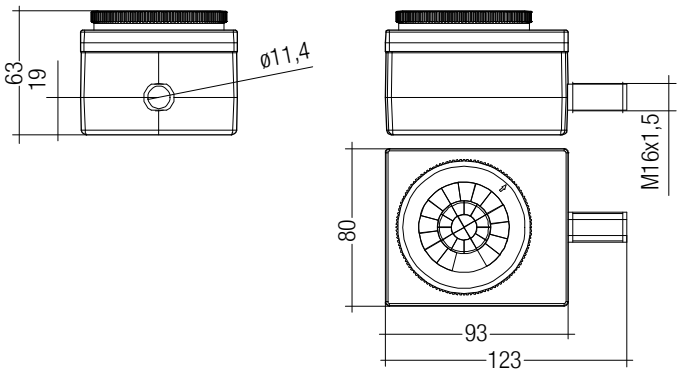
Type	Article number	Packaging, carton	Weight per pc.
ACU SHADING AISLE 16DPI highbay	**28001658**	500 pc(s).	0.002 kg
ACU SHADING HALF 16DPI highbay	**28001660**	500 pc(s).	0.002 kg
ACU SHADING ENTRY 16DPI highbay	**28001659**	500 pc(s).	0.003 kg

Mounting box 16DPI

Accessory

ACU MOUNTING BOX 16DPI HIGHBAY

ACU MOUNTING BOX 16DPI HIGHBAY with sensor



Product description

_ Easy adaptation of suspended lighting fixtures to a sensor solution, just by adding one additional hole
_ Side entry screw connection in combination with rubber gasket gives a true IP65 protection for industrial applications
_ Easy remote commissioning with IR interface while sensor is still protected
_ Tightening torque = 0.6 Nm

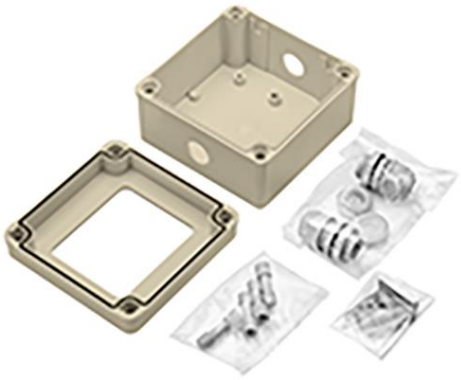
Website
http://www.tridonic.com/28001568

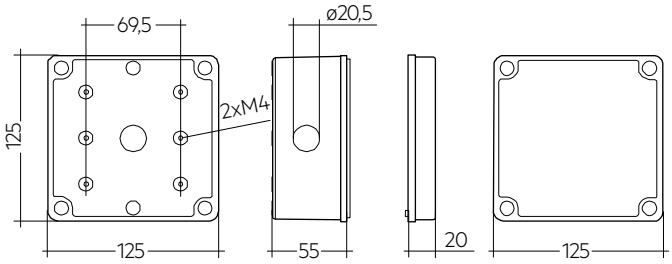
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU MOUNTING BOX 16DPI HIGHBAY	**28001568**	64 pc(s).	0.105 kg

Sensor housing ACU 033 IP65 WH

Accessory





Product description

_ IP65 protection box
_ Mounting box for DALI MSensor G3 SFI 30 PIR 16DPI WH sensors allowing direct mounting to the ceiling
_ Easy “Click In” installation of the sensor to the top part of the box
_ Casing: ABS, white RAL 9010
_ UV stabilized plastic
_ Full mounting kit with screws and dowels, allowing hassle free mount of the box to the ceiling
_ Including 2 cable glands and 2 grommets for ideal IP protection of inserted cables with a diameter of 6 – 12 mm
_ Casing passed glow wire test with 850 °C according to EN 61347-1

Website

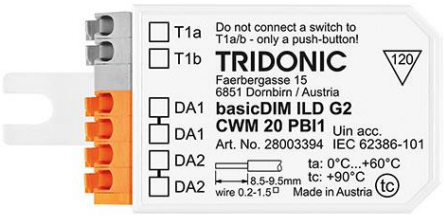
http://www.tridonic.com/28003866

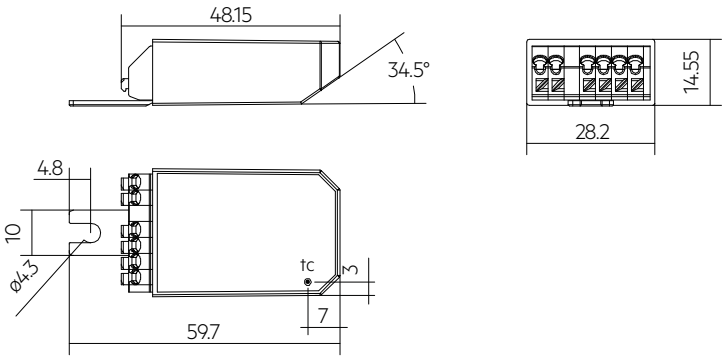
Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Sensor housing ACU 033 IP65 WH	**28003866**	1 pc(s).	48 pc(s).	0.24 kg

basicDIM ILD G2 CWM 20 PBI1

Accessory





Product description

- Push Button Interface (PBI) for ILD G2 and ILD G2 FSL system
- Flexible configuration via the ILD G2 and ILD G2 FSL in combination with the companionSUITE
- Short push button action: automatic / fade off (factory default)
- Long push button action: dim up / dim down (factory default)
- Double push button action: set new target value for light regulation (factory default)
- Through-wiring DA1 / DA2 possible
- Detachable mounting flaps, allow installation in flush-mounted boxes and luminaires

Note

- A permanent short circuit between T1a and T1b results in limited function
- Only push buttons can be used

Website

http://www.tridonic.com/28003394

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 CWM 20 PBI1	**28003394**	15 pc(s).	0.012 kg

Approval marks

EAC CE UKCA RoHS

1. Standards

EN 61347-2-11
EN 61347-1
EN 61547
EN 55015
EN 62386-101
EN 62386-103
EN 62386-301
EN 62386-303
EN 62386-304

1.1 DALI standard

The basicDIM ILD is designed to control control gear with DALI standard IEC 60929 (DALI V0), IEC 62386 (DALI V1/DALI-2).

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 750°C.

2. Common

The basicDIM ILD G2 provides the basis for an easy-to-use and cost-effective lighting system with motion detection.
When the sensor detects movement it triggers a individual adjustable motion detection profile in the control unit.
As the amount of natural ambient light changes the illuminance from the artificial lighting system is adjusted.
The connected luminaires can be switched on and off via momentary-action switch or remote control possible.
IR is always active.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a LED output for signalization.
basicDIM ILD G2 is created for following main applications:
For buildings with mid to high ceiling heights such as:

- Factory buildings
- Storage buildings and warehouses
- Corridors, passages und Garages

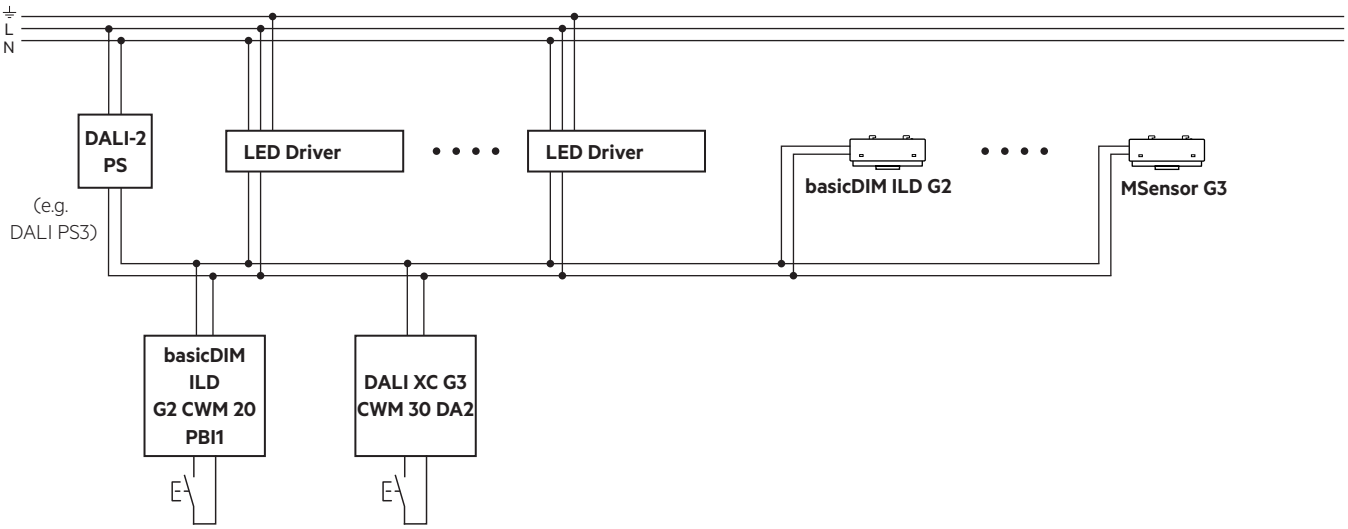
The basicDIM ILD G2 was developed and tested exclusively for Tridonic MSensor G3, XC G3 and PBI1. The use of other sensors and push button modules can lead to errors.

3. Installation

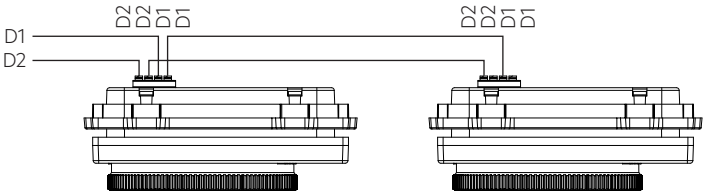
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- The basicDIM ILD G2 is supplied directly via the DALI lines and must not be connected to the mains.
- The maximum cable length of the DALI control signal must not be exceeded.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not overlap. This may have influence to the lighting control.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect presence detection.
- Surface temperature is detected by the sensor.
  Clothing or covers which reduce the surface temperature affect the detection.
- To avoid false readings, the sensor should be installed so there is no direct light from the lamp in the detection zone. Reflections can disturb the measurement results as well (e.g. high-bay warehouse of metal shelfs).
- To avoid false measurements caused by the light from other luminaires we recommend that the sensor should be located centrally in the luminaire.
- By repeatedly adjusting the zoom (> 10), the IP protection may be impaired.
- Sensor must be installed according to the installation instructions to ensure the IP protection.
- Sensor head is not UV resistant.
- In case of pollution or mechanical damage of the lens, the functionality of the sensor may be limited.
- Avoid direct illumination of the light source on the sensor including housing.
- Additional IR sources can disturb the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button. Commissioning must be carried out again.
- Additional IR sources can interfere with the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- When using pre-addressed DALI components, double addressing may occur. This error can be corrected by pressing the reset button (basicDIM ILD G2 Programmer). The commissioning must be carried out again.

3.1 Wiring

Room application:



Through wiring:



Maximum number of connected devices:

Devices	Number
ILD G2	1 pc.
DALI PS	2 pc. (max. 250 mA)
LED driver	64 pcs.
Input devices (MSensor G3, XC G3)	8 pcs.
PBI1	4 pcs.

DALI repeater must not be used.

Compatible accessories:

- MSensor G3 as additional, slave motion detector
- XC G3 as multi channel push button interface

Factory settings for DALI XC G3:

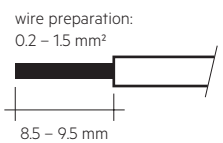
Button	Action	Factory settings
T1	Short press	Automatic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)
T2	Short press	Automatic
	Long press	not used
	Double click	not used
T3	Short press	not used
	Long press	Dim up / Dim down
	Double click	not used
T4	Short press	Automatic (switch luminaire on or change to automatic mode)
	Long press	not used
	Double click	SET (store new value for constant light control)

Factory settings for PBI1:

Button	Action	Factory settings
T1	Short press	Automatic / Fade off
	Long press	Dim up / Dim down
	Double click	SET (store new value for constant light control)

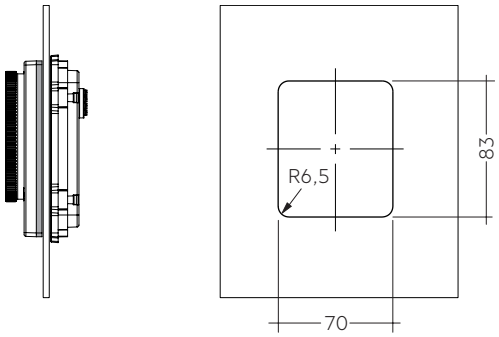
3.2 Cable types and cable cross-sections

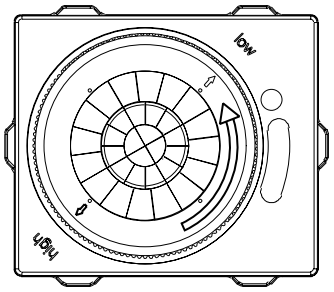
For wiring use solid wire from 0.2 to 1.5 mm².



3.3 Mounting variant luminaire housing:

Sheet thickness: 1 – 4 mm

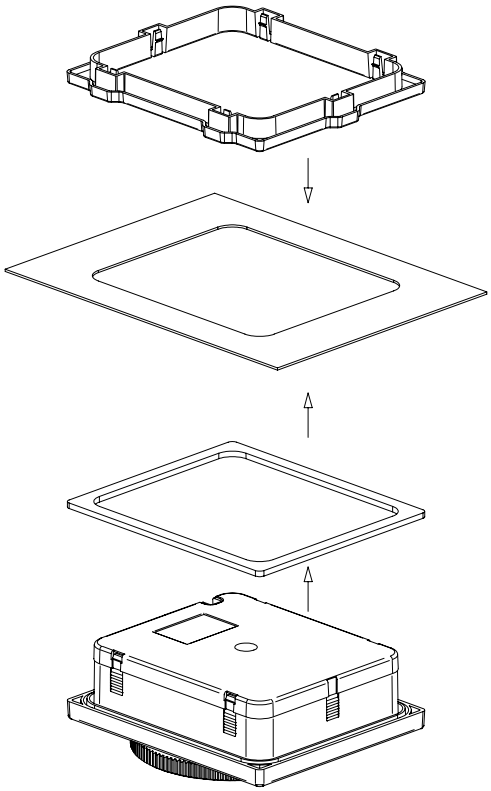


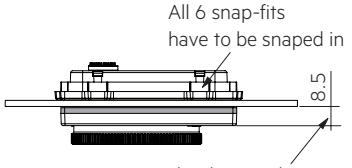


To change from position Low to High rotate lens in arrow direction until it stops at High!

- Arrow shows the zoom position.
- To change the zoom rotate the lens until it stops at High or Low position.
- Positions in between High and Low are not allowed.
- See installation notes!

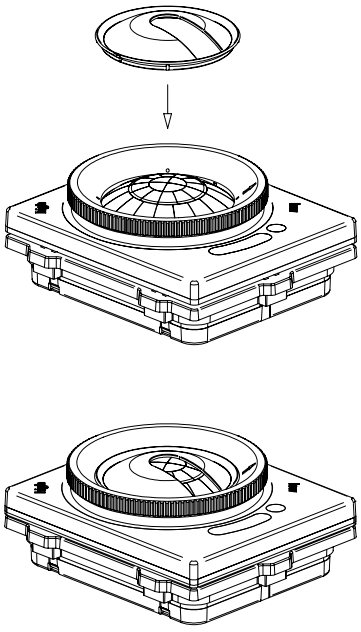
3.4 Sensor mounting





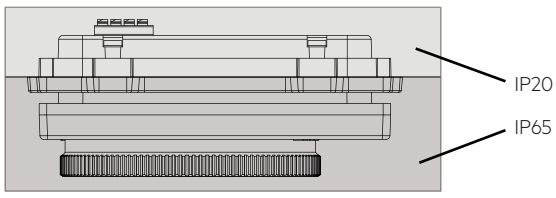
To gurantee IP65 the distance between sensor surface and luminaire surface must be less than 8.5 mm

3.5 Shader mounting



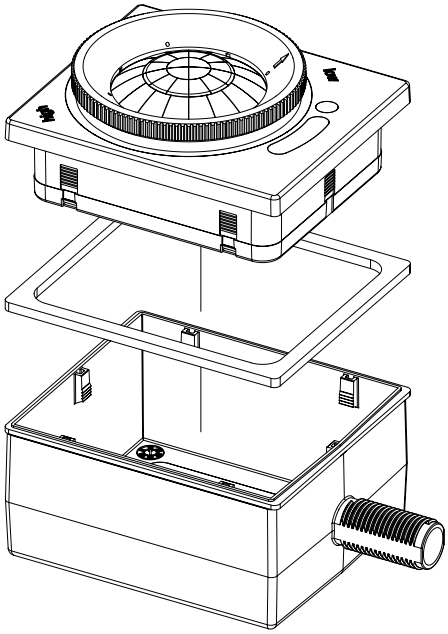
3.6 Ingress protection

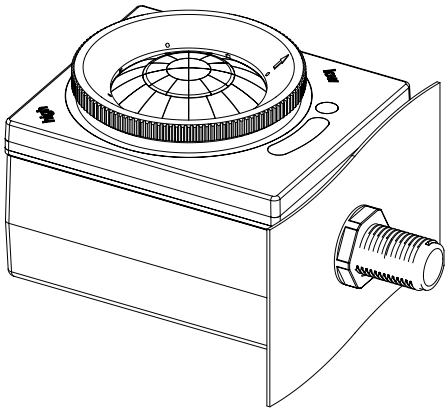
This device contains IP-protection to use it also in applications with the need of protection against dust and water ingress. IP65 protection applies to the front of the sensor whereas the back of the sensor is IP20 rated.



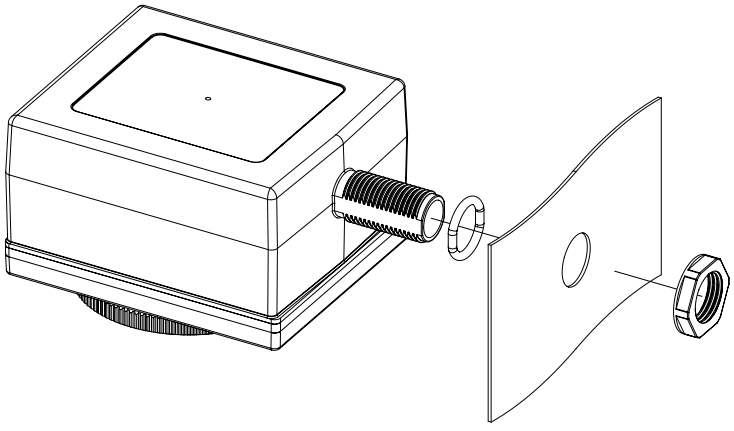
3.7 Mounting box mounting

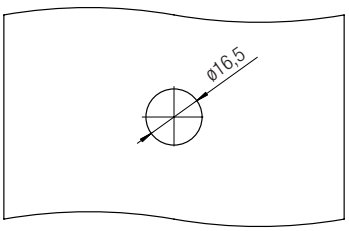
- The sensor can be installed only once in the mounting box (Sensor snap in permanent)!
- Insert the cable of the sensor before installing.
- There are 2 installation variants possible for the sensor. The sensor can be turned through 180°.





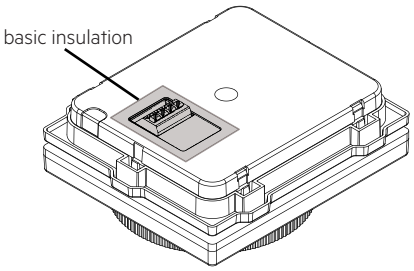
3.8 Mounting box in luminaire housing:





3.9 Mounting in class II luminaire

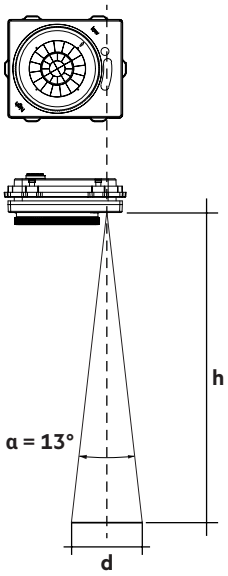
The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the most part of the sensor is tested to fulfil the class II requirements for double or reinforced insulation. Basic insulation is illustrated in the graphic below and covers an area 2,5 mm around the terminal.
The rest of the sensor fulfils class II requirements.



4. Sensor functions

4.1 Light level recognition area

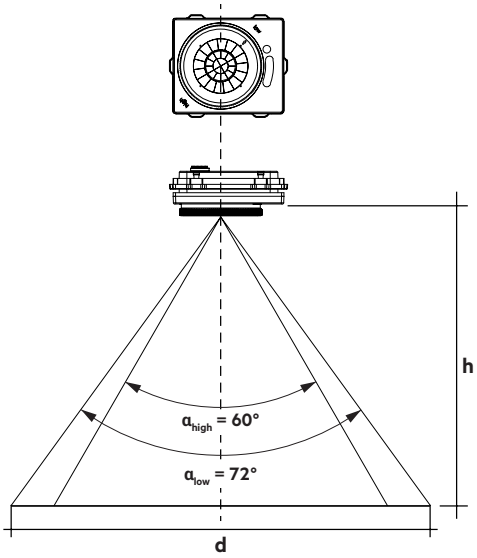
The light measurement has a cone-shaped detection area with a half angle of approximately 6.5°.



h	d
8 m	1.8 m
10 m	2.3 m
12 m	2.7 m
14 m	3.2 m
16 m	3.7 m
18 m*	4.2 m

The measurement range is between 1 and 2,000 lx.
Measured at the sensor head.

4.2 Presence / motion detection



h	Zoom	d
8 m	low	12.0 m
9 m	low	13.5 m
10 m	low	15.0 m
11 m	low	16.5 m
12 m	low	18.0 m
12 m	high	14.0 m
13 m	high	15.2 m
14 m	high	16.4 m
15 m	high	17.6 m
16 m	high	18.8 m
17 m	high	19.8 m
18 m*	high	21.0 m

* For mounting heights over 16 m it is recommended to use several sensors grouped together in one presence group. As the sensitivity for the detection diameter can not be guaranteed for heights over 16 m.

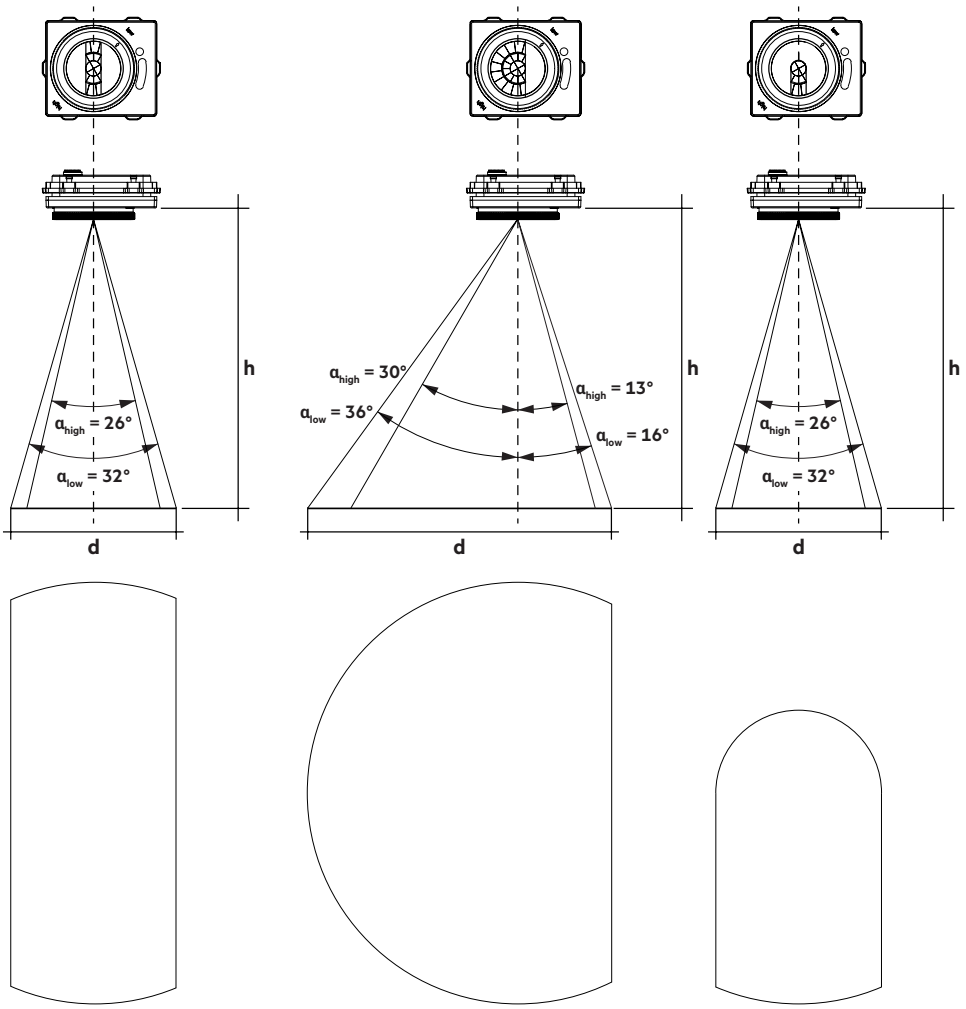
4.3 Status LED's

The status LED is deactivated by default.
There is a LED built in to indicate different status information to the user.
This LED is controlled from the sensor itself.

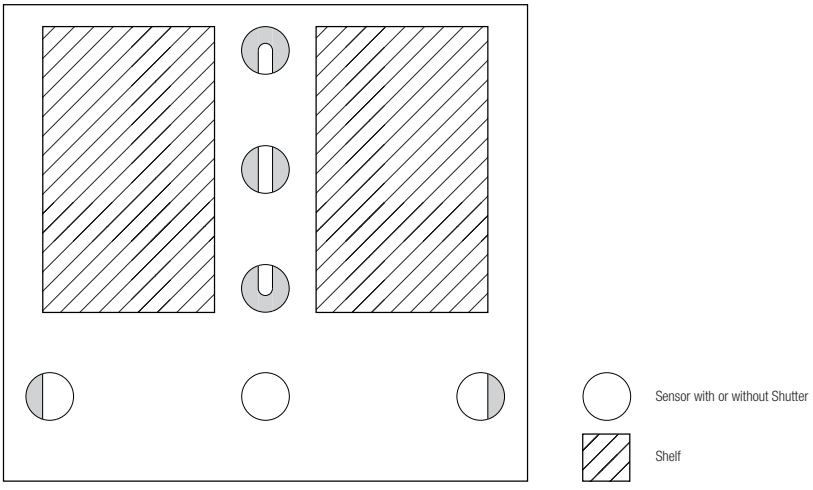
To not have any influence from LED to the light measurement, LED is disabled while light sensor is measuring by default.

Status	Pattern	Incident
–	–	Normal operation
Single red flash	0.2 s on. all 6 s	Motion has been detected
Permanent red flashing	0.2 s on. all 1 s	System error: - Second basicDIM ILD G2 available - Stuck button time out
Long green flashing	1 s on. all 6 s	Bright-out active
Orange flashing	0.5 s on. all 0.5 s	Start-up, Grouping, Test mode, Reset active application controller deactivated
Short blue flashing	0.2 s	Receive infrared command from basicDIM ILD G2 Programmer or IR6

4.4 Presence / motion detection with shader



4.5 Application



4.6 User-definable parameters

Parameter	Range (Factory Settings)	Description
power-up behavior	on / off (on)	If the parameter is set to “on”, the luminaire switches on after a mains break. If the parameter is set to “off”, the luminaire does not switch on after a mains break.
Presence lux level	Absence level / 1,000 lux (500 lux)	Value used by the light sensor to regulate the presence level of the luminaire. On account of the room conditions and the installation height, the illuminance in the workspace may, however, be three to four times higher.
presence level	1 to 100 % (100 %)	Brightness value that the ILD G2 occupies as soon as presence has been detected.
absence level	1 to 100 % (1 %)	Brightness value that the ILD G2 occupies while the switch-off delay is running.
fade-in time	0 to 15 (1)	Period of time starting as soon as presence is detected. During fade-in time, the luminous intensity fades to the presence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
fade time	0 to 15 (8)	Period of time during which the luminous intensity fades from the presence value to the absence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
run-on time	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected. After the run-on time the fade-off time is started. If another presence is detected in the room during run-on time, the run-on time is started again.
switch-off delay	off / 15 s to 60 min / never OFF (off)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).
fade-off time	0 to 15 (2)	Period of time starting after the run-on time. During the fade-off time, the luminous intensity fades to off. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s| 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
constant light control	on / off (on)	Enables or disables the constant light control
bright-out	on / off (on)	If the parameter is set to “on”, the luminaire switches off as soon as the light level exceeds the bright-out threshold of the set point for longer than 10 minutes. This could be the case if, for instance, the room is adequately illuminated by sunlight. If the bright-out threshold falls below 100 % of the set point, the luminaire switches back on again.
bright-out threshold	110 to 400 % (150 %)	Bright-out threshold used by the bright-out function
bright-out-off delay time	0 to 3,600 s (600 s)	Period of time that the light level must exceed the bright-out threshold to activate bright-out.
group 2 offset mode	fixed / converging (converging)	This parameter specifies how the group 2 offset value behaves if the light is dimmed up. If the parameter is set to “converging”, the dimming level of group 2 will keep on rising even if group 1 has already reached a dimming level of 100 %. The brightness difference will be gradually reduced up to the point where both group 1 and group 2 reach the same dimming level of 100 % which effectively reduces the group 2 offset value to zero. This way, the offset will “converge”. If the parameter is set to “fixed”, the offset is “fixed”. The brightness difference between group 1 and group 2 will stay at the value defined for the group 2 offset value. If the group 2 offset value was set to e.g. 30 %, the group 2 dimming level will always stay 30 % below the dimming level of group 1. If group 1 has reached a dimming level of 100 %, the dimming level of group 2 will stop rising because otherwise the offset would be reduced to less than the defined group 2 offset value.
group 2 offset value	0 to 95 % (30 %)	Adjustable brightness difference between group 2 and group 1

4.7 Possible push button configuration

Short Press	Long Press	Double Press
Automatic mode	Dimming up	Set target value
Recall max. level	Dimming down	No function
Off	Dimming up / dimming down	
Recall max. level / off	No function	
On with fade		
Off with fade		
Automatic mode / off with fade		
No function		

5. Miscellaneous

5.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

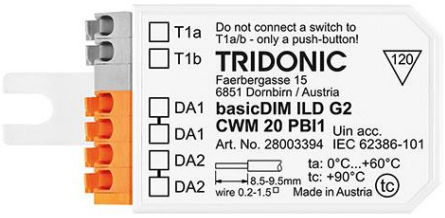
Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM ILD G2 CWM 20 PBI1

Push Button Interface (PBI) for ILD G2 system



Product description

- Push Button Interface (PBI) for ILD G2 and ILD G2 FSL system
- Flexible configuration via the ILD G2 and ILD G2 FSL in combination with the companionSUITE
- Short push button action: automatic / fade off (factory default)
- Long push button action: dim up / dim down (factory default)
- Double push button action: set new target value for light regulation (factory default)
- Through-wiring DA1 / DA2 possible
- Detachable mounting flaps, allow installation in flush-mounted boxes and luminaires

Note

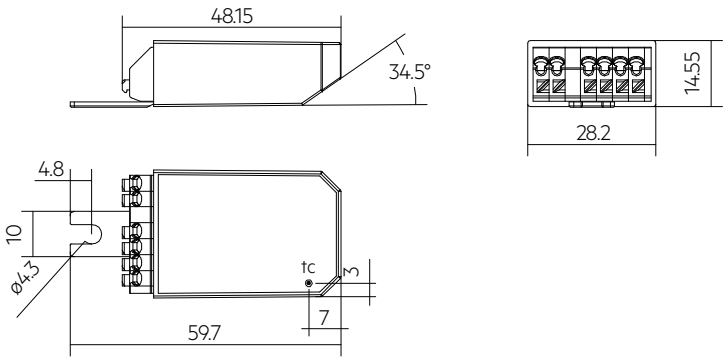
- A permanent short circuit between T1a and T1b results in limited function
- Only push buttons can be used

Website

http://www.tridonic.com/28003394

basicDIM ILD G2 CWM 20 PBI1

Push Button Interface (PBI) for ILD G2 system



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 CWM 20 PBI1	**28003394**	15 pc(s).	0.012 kg

Technical data

Supply via	DALI PS
Supply voltage	14 – 20.5 V
Current draw active ①	max. 250 mA
Current draw passive	0 mA
Input	1 momentary-action switch
Ambient temperature ta	0 … +60 °C
tc point	90 °C
Storage temperature ts	-25 … +60 °C
Humidity	20 … 90 % not condensed
Starting time	≤ 1 s
Type of protection	IP20
Type of installation	Mounting box 60 x 61 (ø x d)
Housing material body	Polycarbonate
Housing colour body	White
Dimensions L x W x H	59.7 x 28.2 x 14.55 mm
Lifetime	up to 50,000 h

Approval marks

RoHS

Standards

EN 55015, EN 61347-2-11, EN 61547

① The max. current consumption is depending on used power supply.

1. Standards

EN 55015: 2013
EN 61347-2-11
EN 61547: 2009

1.1 Glow wire test

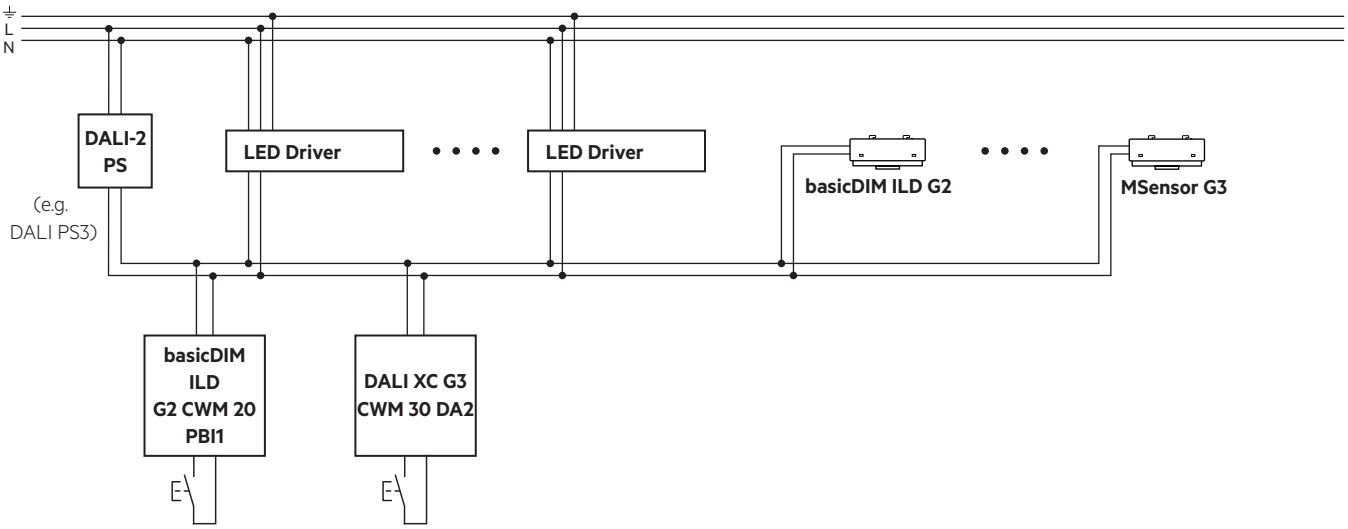
according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Installation

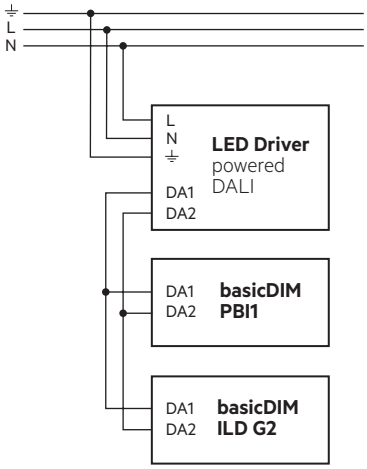
- Device can be inserted into the mounting box for the momentary switch.
- Device must not be connected to the mains. It is supplied directly via the DALI signal line.
- The momentary switch is connected directly to the device (potential free contacts) and must not be connected to the mains.
- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.
- Only one momentary switch each device input.

2.1 Connection diagrams

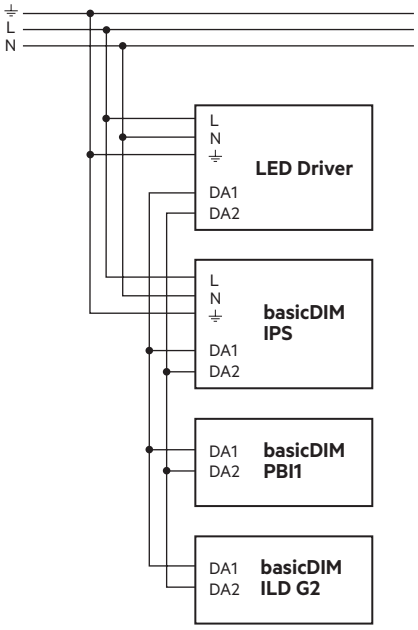
Room application:

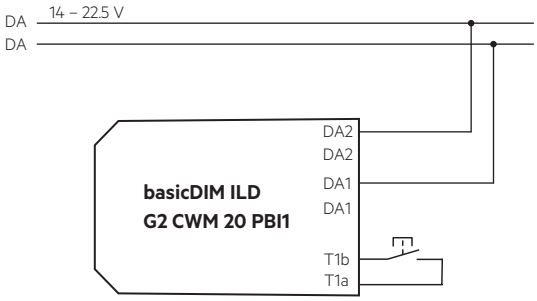


Single / free-standing luminaires, driver with integrated power supply (DALI):



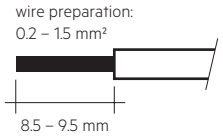
Single / free-standing luminaires, driver with separate power supply (DALI):





2.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2 to 1.5 mm².
Maximum cable length between momentary switch and device is 100 cm at 1.5 mm².
Maximum cable length DALI is 100 m at 1.5 mm².
The maximum cable length between PBI, ILD G2 and DALI power supply must not exceed 15 meters.



2.3 Terminals

Orange = DALI D1 and D2
Grey = Push button input T1a – T1b

3. Possible push button configuration

Short Press	Long Press	Double Press
Automatic mode	Dimming up	Set target value
Recall max. level	Dimming down	No function
Off	Dimming up / dimming down	
Recall max. level / off	No function	
On with fade		
Off with fade		
Automatic mode / off with fade		
No function		

4. Miscellaneous

4.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

4.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM ILD G2 FSL 5DPI

Compact control module with ambient light sensor and motion sensor

Product description

_ For up to 20 DALI drivers, expandable with DALI-2 Input Devices (see data sheet 3.1 Wiring)
_ Integrated application controller
_ Flexible configuration via companionSUITE
_ 2 independently controllable DALI groups
_ Supports Tunable White and SWARM module
_ Monitoring of ambient light and motion detection
_ Infrared remote control for configuration and operation
_ Power supply via DALI line
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ For luminaires of protection class I and protection class II
_ Wide range of accessories allowing extended application range
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

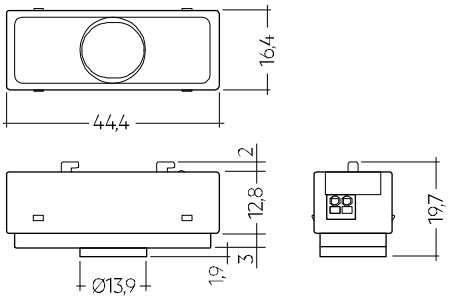
Website

http://www.tridonic.com/28004413

TRIDONIC

basicDIM ILD G2 FSL 5DPI

Compact control module with ambient light sensor and motion sensor



Ordering data

Type	Article number	Suitable for	Colour	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM ILD G2 FSL SFI 30 5DPI WH	**28004413**	Luminaire installation	White	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.01 kg
basicDIM ILD G2 FSL SFI 30 5DPI BK	**28004414**	Luminaire installation	Black	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.01 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	11.5 – 20.5 V
Current consumption (no LED)	max. 11 mA
Current consumption (with LED)	max. 12 mA
Mounting height	5 m
Mounting hole diameter	14.1 mm
Detection angle for PIR detection	84°
Detection angle for light measurement	30°
Detection range for light measurement ②	2 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc	60 °C
Storage temperature ts	-25 … +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9010)
Housing colour lens	White
Type of protection	IP20
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

DALI 2 · RoHS

Standards

EN 61347-2-11, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547

① 14 – 20.5 V if use PBI1.
② The measured value at the sensor head corresponds to approx. 10 to 10,000 lux on the surface measured.

REMOTECONTROL IR6+

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button for group 1 and 2)
_ Dimming (Up/Down button for group 1 and 2)
_ Tunable White (warmer or colder) and Sensor pairing
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range typical 5 m

Website
http://www.tridonic.com/28004415

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6+	**28004415**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.018 kg

basicDIM ILD G2 FSL Programmer

Accessory

Product description
_ Optional infra-red programming unit for basicDIM ILD G2 FSL
_ Setting of predefined parameter values
_ Programmable functions such as light level, time delay, P.I.R., bright-out, power up, grouping and swarm function
_ IR range up to 20 m

Website
http://www.tridonic.com/28004416

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM ILD G2 FSL PROGRAMMER	**28004416**	130 x 56 x 15 mm	150 pc(s).	0.042 kg

5DPI 14f Mounting Kit

Accessory

Product description

_ Mounting frame for attaching all 5DP 14f sensor directly to the luminaire housing
_ Optional shutter to prevent presence detection in a specific direction (for PIR sensors)
_ Glow wire test with 750 °C according to EN 61347-1

Website

http://www.tridonic.com/28001558

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
5DPI 14f mounting kit	**28001558**	100 pc(s).	0.004 kg
5DPI 14f mounting kit black	**28001575**	100 pc(s).	0.004 kg

ACU Sensor Housing 14rs IP20

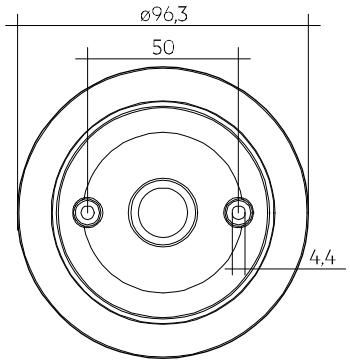
Accessory

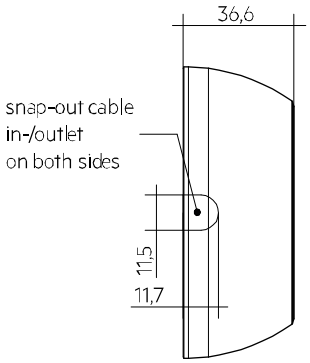
Product description

_ Mounting frame for wired 5DP 14f sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: plastic, white
_ UV stabilized plastic
_ DALI MSensor 5DPI 14 is powered via DALI circuit, basicDIM DGC Sensor 5DPI 14f powered via control unit
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Glow wire test with 750 °C according to EN 61347-1
_ Sensor not included

Website

http://www.tridonic.com/28001872



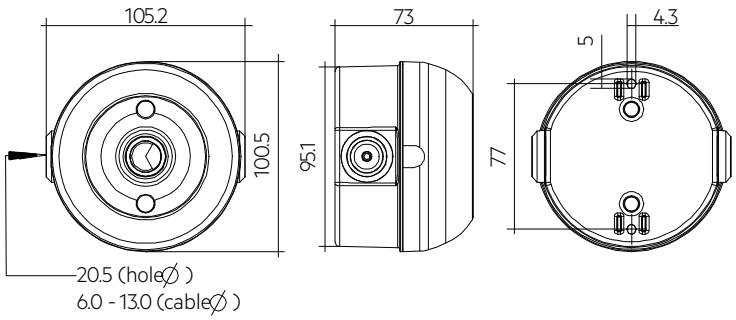


Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU Sensor Housing 14rs IP20	**28001872**	81 pc(s).	0.054 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website

http://www.tridonic.com/28005945

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

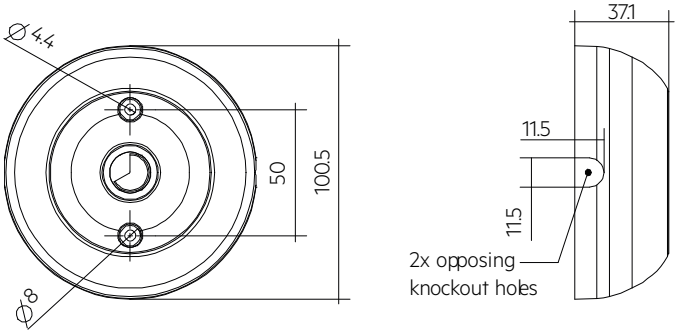
Sensor Housing ACU 035 5DPI IP20

Accessory

Product description

_ Mounting frame for wired 5DPI sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005943

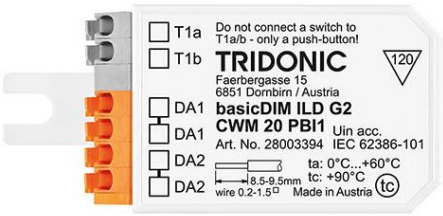


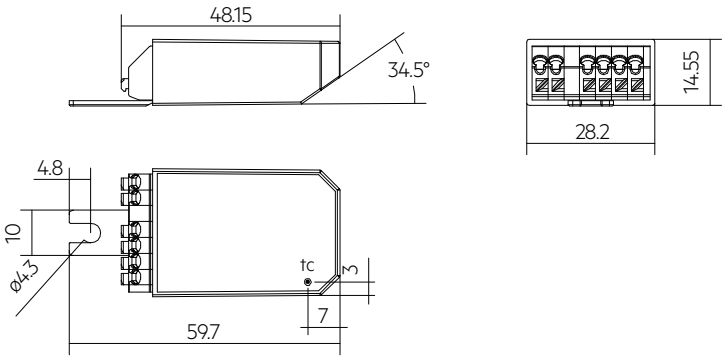
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor Housing ACU 035 5DPI IP20 WH	**28005943**	57 pc(s).	0.052 kg

basicDIM ILD G2 CWM 20 PBI1

Accessory





Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 CWM 20 PBI1	**28003394**	15 pc(s).	0.012 kg

Approval marks

EAC CE UKCA RoHS

Product description

_ Push Button Interface (PBI) for ILD G2 and ILD G2 FSL system
_ Flexible configuration via the ILD G2 and ILD G2 FSL in combination with the companionSUITE
_ Short push button action: automatic / fade off (factory default)
_ Long push button action: dim up / dim down (factory default)
_ Double push button action: set new target value for light regulation (factory default)
_ Through-wiring DA1 / DA2 possible
_ Detachable mounting flaps, allow installation in flush-mounted boxes and luminaires

Note

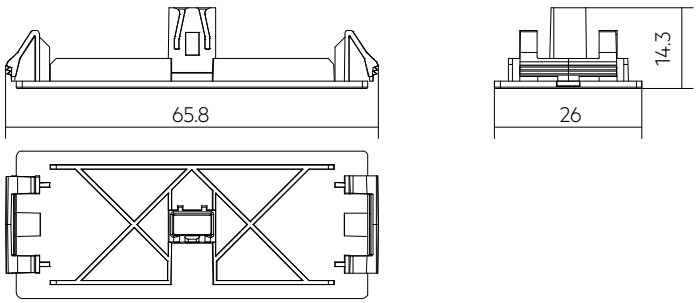
_ A permanent short circuit between T1a and T1b results in limited function
_ Only push buttons can be used

Website

http://www.tridonic.com/28003394

ACU BLIND COVER 60x22mm

Accessory



Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005056

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 040 60x22 WH	**28005056**	10 pc(s).	100 pc(s).	0.004 kg
ACU BLIND COVER 040 60x22 BK	**28005057**	10 pc(s).	100 pc(s).	0.004 kg

ACU BLIND COVER 040 60x22 LED

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

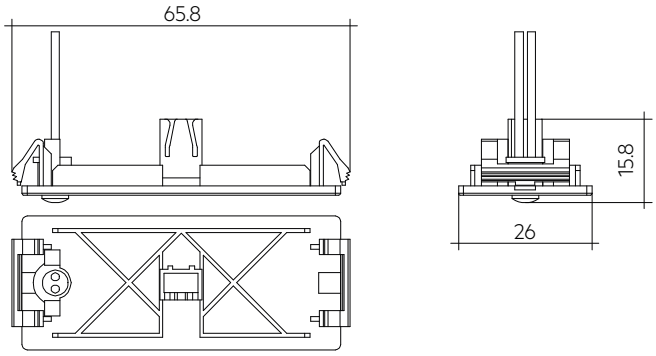
Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website
http://www.tridonic.com/28005935



Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 60x22 LED 1.3 WH	**28005935**	10 pc(s).	100 pc(s).	0.005 kg
ACU BLIND COVER 60x22 LED 1.3 BK	**28005936**	10 pc(s).	100 pc(s).	0.005 kg

ACU MOUNTING ADAPTER 040 60x22 CON

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

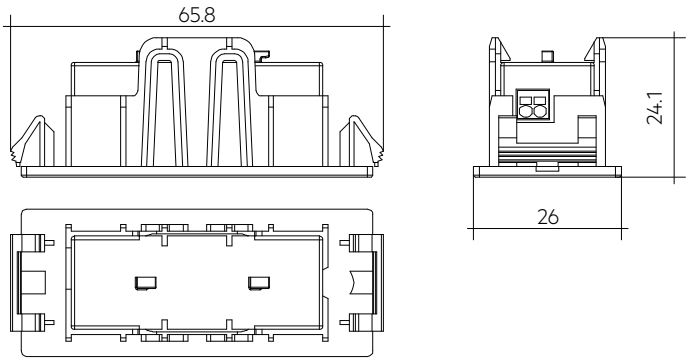
_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005939



Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAPTER 60x22 CON 1.3 WH	28005939	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAPTER 60x22 CON 1.3 BK	28005940	10 pc(s).	100 pc(s).	0.006 kg

ACU MOUNTING ADAPTER 040 60x22 CON LED

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

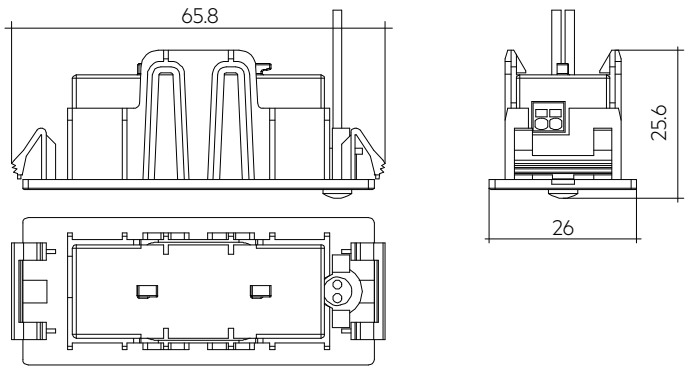
Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website
http://www.tridonic.com/28005941



Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 WH	**28005941**	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 BK	**28005942**	10 pc(s).	100 pc(s).	0.006 kg

1. Standards

EN/IEC 61347-2-11
EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547

1.1 DALI standard

The basicDIM ILD G2 FSL is designed to control control gear with DALI standard IEC 60929 (DALI V0), IEC 62386 (DALI V1/DALI-2).

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

The basicDIM ILD G2 FSL provides the basis for an easy-to-use and cost-effective lighting system with motion detection.
When the sensor detects movement it triggers a individual adjustable motion detection profile in the control unit.
As the amount of natural ambient light changes the illuminance from the artificial lighting system is adjusted.
The connected luminaires can be switched on and off via momentary-action switch or remote control possible.
Color control commands are always sent as broadcast commands and are only supported for manual control.
IR is always active.

SWARM control enables the FSL luminaires to communicate with each other wirelessly via IR, for this functionality a SWARM module is required.
If a luminaire detects presence, it assumes the role of a Detecting FSL in the SWARM system and sends IR commands to the surrounding neighbour luminaires. Depending on the distance from the detecting FSL luminaire, the neighbour luminaires can assume 2 distinct roles: Direct or indirect neighbours and the luminaires switch on with a reduced light level according to their role.
The SWARM control system is plug and play (no configuration required) it just has to be activated with the basicDIM ILD G2 FSL Programmer.
SWARM function does not support color control.

Detecting FSL:
The detecting FSL is the free standing luminaire that detects presence, goes to presence light level and sends a presence event to the surrounding luminaires (direct neighbour FSL). If presence is no longer detected the luminaire will slowly dim to the direct neighbour level than to the absence level before it turns off.

Direct neighbour FSL:
The direct neighbour free standing luminaires are the luminaires that get a IR signal directly from the detecting FSL. The luminaire will go to the direct neighbour level and send a presence event to surrounding luminaires, if a luminaire already received a presence event from the detecting FSL the event will be ignored. If presence is no longer detected the luminaire will slowly dim to the absence level before it turns off.

Indirect neighbour FSL: The indirect neighbour free standing luminaires are the luminaires that only get an IR signal from the direct neighbour luminaire and haven't received a signal before. These luminaires will go to the absence level. If presence is no longer detected the luminaire will slowly dim to off.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a LED output for signalisation.
basicDIM ILD G2 FSL is created for following main applications:
- Free standing luminaires

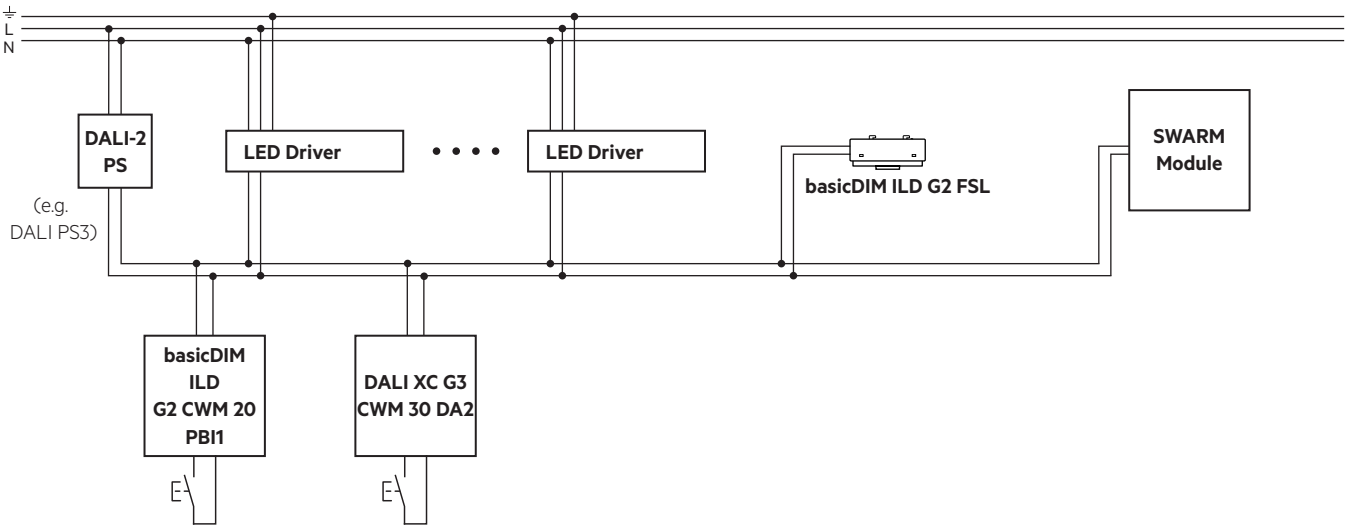
The basicDIM ILD G2 FSL was developed and tested exclusively for Tridonic SWARM Module, XC G3 and PBI1. The use of other sensors and push button modules can lead to errors.

3. Installation

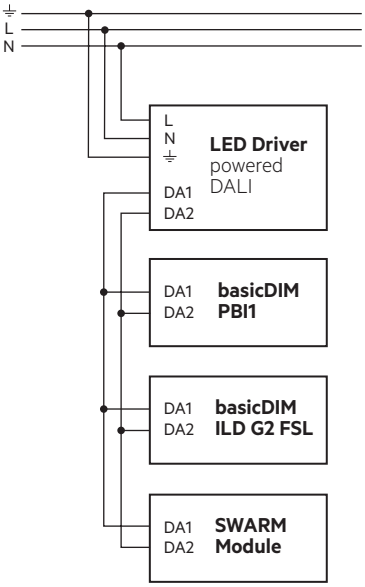
- The basicDIM ILD G2 FSL must not be connected to the mains.
  It is supplied directly via the DALI power supply.
- basicDIM ILD FSL is intended for 1-head luminaires only.
- When using a luminaire with direct / indirect lighting, the system has to be commissioned. Group 1 is intended for the direct lighting only and Group 2 for the indirect lighting.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- The detection range of the sensor must be within the lighting range of the controlled luminaires.
- The detection range of the sensor must be within the lighting area of the controlled luminaires.
- To avoid deviating characteristics, install the presence detector at the recommended height. If the installation is higher than recommended, the sensitivity is reduced. If the installation is lower than recommended, the detection range is reduced.
- Incorrect presence detection occurs if heaters, fans, printers or copiers are in the detection area.
- Avoid direct illumination of the light source (luminaires) on the sensor including housing.
- Additional IR sources can disturb the sensor.
- The maximum permissible current consumption of all components on the bus must not exceed the maximum permissible current of the connected DALI Power Supply.
- Double addressing is possible with pre-addressed DALI components. Press the reset button on the basicDIM ILD G2 FSL programmer to correct the error. Be sure to carry out the commissioning again.

3.1 Wiring

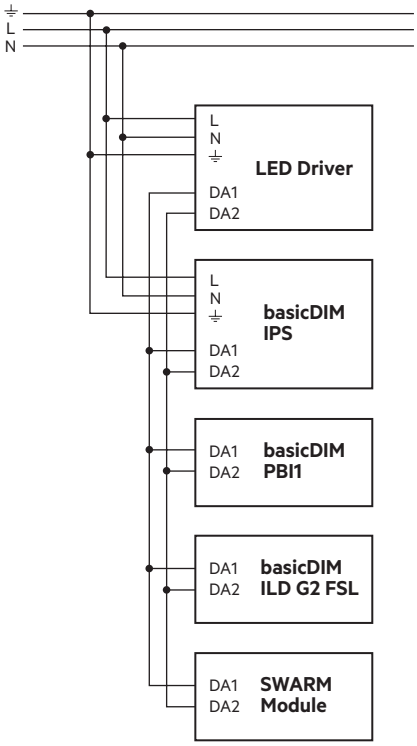
Room application:



Single / free-standing luminaires, driver with integrated power supply (DALI):



Single / free-standing luminaires, driver with separate power supply (DALI):



Maximum number of connected devices:

Devices	Number
ILD G2	1 pc.
DALI PS	2 pc. (max. 250 mA)
LED driver	20 pcs.
Input devices (XC G3)	4 pcs.
Input devices (SWARM Module)	1 pcs.
PBI1	4 pcs.

DALI repeater must not be used.

Compatible accessories:

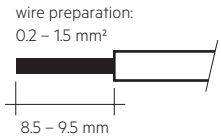
- XC G3 as multi channel push button interface

Factory settings for DALI XC G3:

Button	Action	Factory settings
PBI	Short press	Automatic / Fade off (Broadcast)
	Long press	Dim up / Dim down (Broadcast)
	Double click	SET (Broadcast)
T1	Short press	Automtic / Fade off (Broadcast)
	Long press	Dim up / Dim down (G1)
	Double click	SET (Broadcast)
T2	Short press	Automtic / Fade off (Broadcast)
	Long press	Dim up / Dim down (G2)
	Double click	not used
T3	Short press	Automtic / Fade off (Broadcast)
	Long press	Tune warm / cool (Broadcast)
	Double click	not used
T4	Short press	Automatic (Broadcast)
	Long press	not used

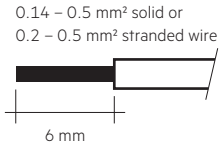
3.2 Wiring type and cross section for rc version

For wiring use stranded wire with ferrules or solid wire from 0.2 to 1.5 mm².



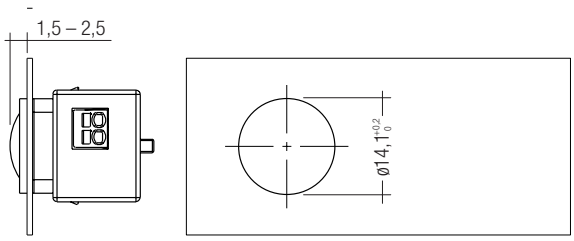
3.3 Wiring type and cross section for f version

For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².

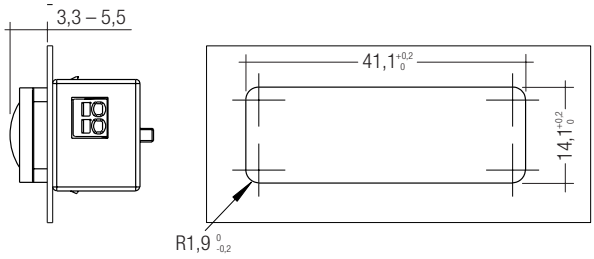


3.4 Mounting variants luminaire installation sensor:

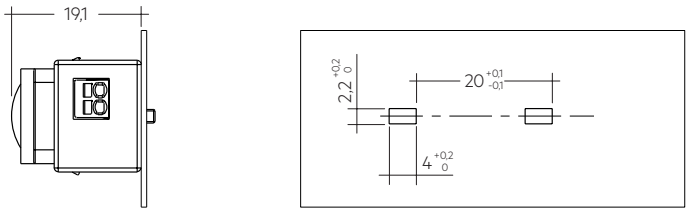
Variant 1:
Size of the sheet: 0.8 – 1.8 mm



Variant 2:
Size of the sheet: 0.8 – 3.0 mm



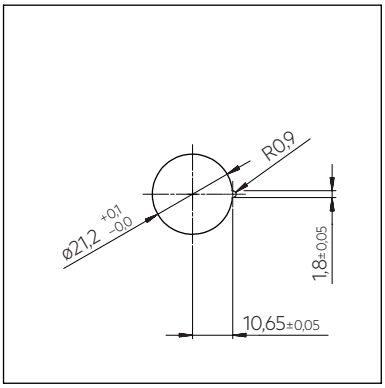
Variant 3:
Size of the sheet: 0.6 – 0.8 mm

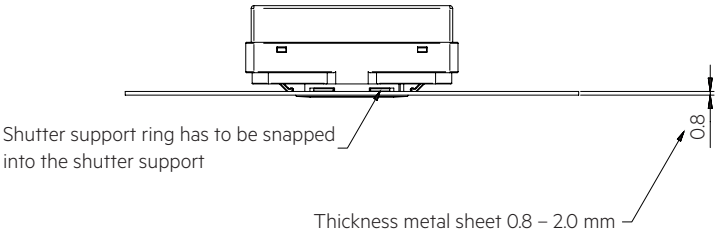


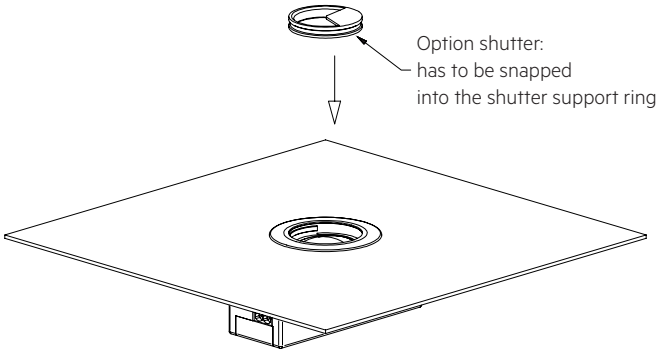
3.5 Mounting in luminaire housing with Mounting Kit:

Size of the sheet: 0.8 – 2.0 mm

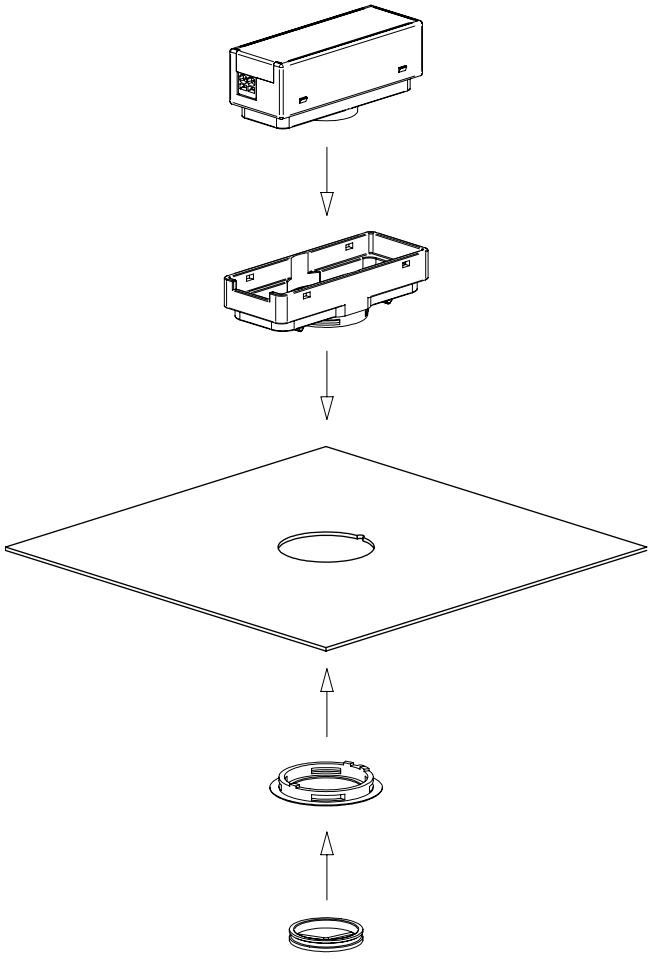
Dimension drawing for needed mounting opening





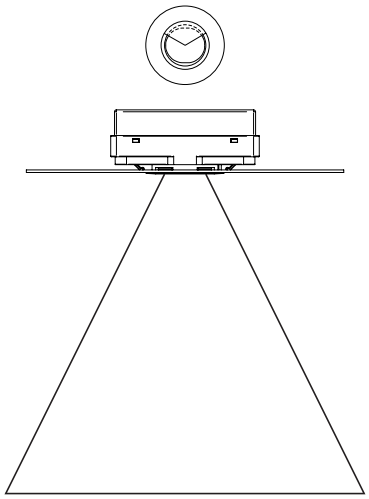


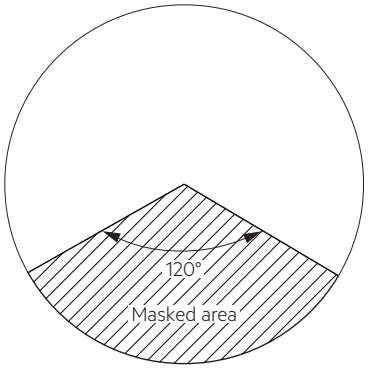
3.6 Mounting Kit mounting



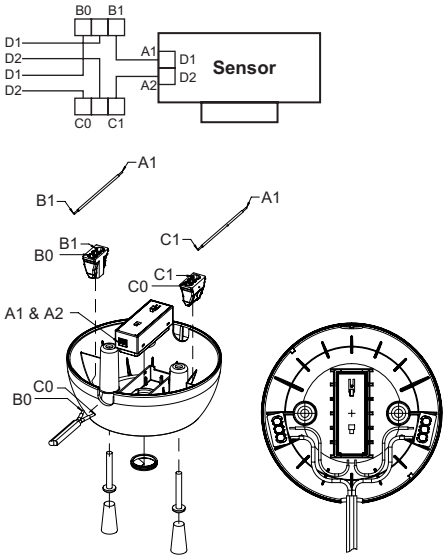
3.7 Mounting Kit Shutter

Area which is masked by the shutter.



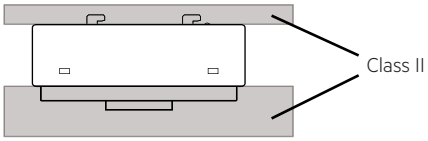


3.8 Wiring and mounting ACU Sensor Housing 14rs IP20



3.9 Mounting in class II luminaire

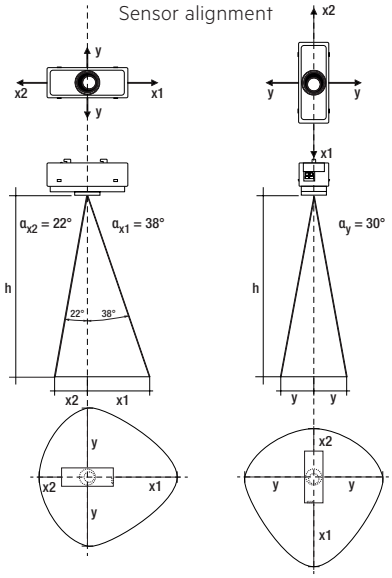
The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the front and the back of the sensor is tested to fulfill the class II requirements for double or reinforced insulation.



4. Light level recognition area

The measurement range is between 2 and 2,000 lx.
Measured at the sensor head.

Sensor alignment



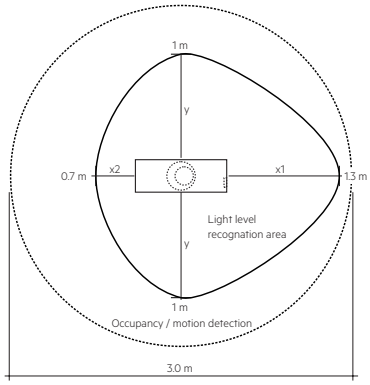
h *	x1	x2	y	d
1.7 m	1.3 m	0.7 m	1.0 m	3.0 m
2.0 m	1.6 m	0.8 m	1.2 m	3.6 m
2.3 m	1.8 m	0.9 m	1.3 m	4.1 m
2.5 m	2.0 m	1.0 m	1.4 m	4.5 m
2.7 m	2.1 m	1.1 m	1.6 m	4.9 m
3.0 m	2.3 m	1.2 m	1.7 m	5.4 m
3.5 m	2.7 m	1.4 m	2.0 m	6.3 m
4.0 m	3.1 m	1.6 m	2.3 m	7.2 m

* The recommended maximum room height for office applications is 3 m and for corridor applications for example 4 m. Up to 2 m mounting height presence is detected and over 2 m motion is detected.

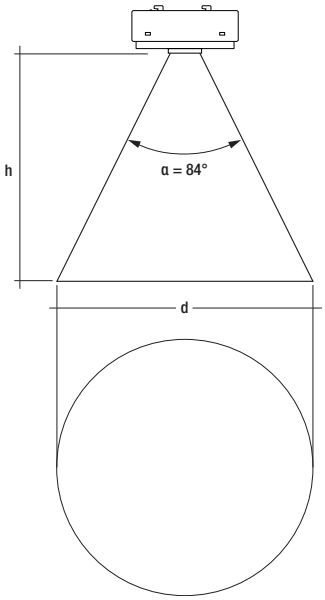
Calculation of the diameter (light area):
$x1 = \tan(\alpha_{x1}) \times h$
$x2 = \tan(\alpha_{x2}) \times h$
$y = \tan(\alpha_y) \times h$

Calculation of the diameter (motion area):
$d = 2 \times \tan(0{,}5 \times \alpha) \times h$

Example for light and motion detection area at height of 1.7 m:



4.1 Presence / motion detection



4.2 Motion detection

For motion detection PIR technology is used. PIR Lens is made to detect moving people in working areas such as corridors, passages, garages, office buildings or educational institutions with the following performance criteria:

- Ceiling height from up to 5 m
- Movement of human body:
  - up to 2 m mounting height: detection of slight motion.
  - above 2 m mounting height: no slight motion (no sitting person) detection.
- Movement ≥1.0 m/s for mounting heights up to 5 m

4.3 Status LED's

The status LED is deactivated by default.
There is a LED built in to indicate different status information to the user.
This LED is controlled from the sensor itself.

To avoid any influence from status LED to the light measurement, LED is disabled while light sensor is measuring by default.

Status	Pattern	Incident
–	–	Normal operation
Single red flash	0.2 s on. all 6 s	Motion has been detected
Permanent red flashing	0.2 s on. all 1 s	System error: - Second basicDIM ILD G2 FSL available - Stuck button time out
Long green flashing	1 s on. all 6 s	Bright-out active
Orange flashing	0.5 s on. all 0.5 s	Start-up, Grouping, Test mode, Reset active
Short blue flashing	0.2 s	Receive infrared command from basicDIM ILD G2 FSL Programmer or IR6

4.4 User-definable parameters

Parameter (Multi parameter)	Range (Factory Settings)	Description
power-up behavior	on / off (on)	If the parameter is set to "on", the luminaire switches on after a mains break. If the parameter is set to "off", the luminaire does not switch on after a mains break.
presence level (G1, G2, SWARM)	1 to 100 % (100 %)	Brightness value that the ILD G2 FSL occupies as soon as presence has been detected.
absence level (G1, G2, SWARM)	1 to 100 % (1 %)	Brightness value that the ILD G2 FSL occupies while the switch-off delay is running.
fade-in time (G1, G2)	0 to 15 (1)	Period of time starting as soon as presence is detected. During fade-in time, the luminous intensity fades to the presence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
fade time (G1, G2)	0 to 15 (8)	Period of time during which the luminous intensity fades from the presence value to the absence value. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s | 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
run-on time (G1, G2)	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected. After the run-on time the fade-off time is started. If another presence is detected in the room during run-on time, the run-on time is started again.
switch-off delay (G1, G2)	off / 15 s to 60 min / never OFF (off)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).
fade-off time (G1, G2)	0 to 15 (2)	Period of time starting after the run-on time. During the fade-off time, the luminous intensity fades to off. 1 = 0.7 s | 2 = 1 s | 3 = 1.4 s | 4 = 2 s| 5 = 2.8 s | 6 = 4 s | 7 = 5.7 s | 8 = 8 s | 9 = 11.3 s | 10 = 16 s | 11 = 22.6 s | 12 = 32 s | 13 = 45.3 s | 14 = 64 s | 15 = 90.5 s
constant light control	enabled (G1+G2) / enabled (only G1) / disabled (enabled (G1+G2))	Enables or disables the constant light control
bright-out	on / off (on)	If the parameter is set to "on", the luminaire switches off as soon as the light level exceeds the bright-out threshold of the set point for longer than 10 minutes. This could be the case if, for instance, the room is adequately illuminated by sunlight. If the bright-out threshold falls below 100 % of the set point, the luminaire switches back on again.
bright-out threshold	110 to 400 % (150 %)	Bright-out threshold used by the bright-out function
bright-out-off delay time	0 to 3,600 s (600 s)	Period of time that the light level must exceed the bright-out threshold to activate bright-out.
PIR mode	off / only off / on and off (on and off)	off = In this mode movement detection is deactivated. only off = The movement sensor (local or SWARM) only switches Off the light automatically. In this mode the light can only be switched On manually, which then starts the automation according the configured profile settings in presence state. on and off = The movement sensor (local or SWARM) switches On and Off the light automatically according the configured profile settings.
motion sequence selector	0 to 3 (0)	0 = automatic detection (SWARM profile will be applied if SWARM event is recived). 1 = standard profile (disable SWARM function). 2 = SWARM profile with direct neighbor level (SWARM function enabled). 3 = SWARM profile without direct neighbor level (SWARM function enabled).
direct neighbour level	1 to 100 % (50 %)	Brightness value that the ILD G2 FSL occupies as a direct neighbor.
SWARM run-on time	15 s to 60 min (20 min)	Time that begins to run from the last moment that presence was detected by a neighbouring basicDIM ILD FSL.
SWARM switch-off delay	15 s to 60 min / never off (10 min)	Time in which the absence value is held. After expiration, the luminaire is either switched off or the absence value is held (never OFF).

The following parameters are shared between Group 1 and the SWARM profile:

- presence level
- absence level
- fade-in time
- fade time

4.5 Possible push button configuration

Short Press	Long Press	Double Press
Automatic mode	Dimming up	Set target value
Recall max. level	Dimming down	No function
Off	Dimming up / dimming down	
Recall max. level / off	No function	
On with fade	Increase colour temperature	
Off with fade	Decrease colour temperature	
Automatic mode / off with fade	Increase / decrease colour temperature	
No function		

All buttons can be configured to target only Group 1 or only Group 2, or target both Groups at the same time (broadcast).

5. Miscellaneous

5.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

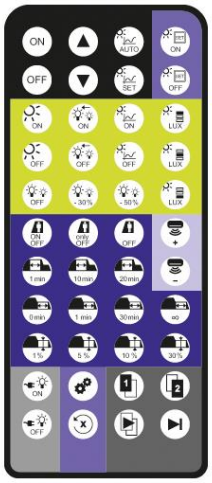
Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM ILD G2 Programmer

Optional infra-red programming unit for basicDIM ILD G2



Product description

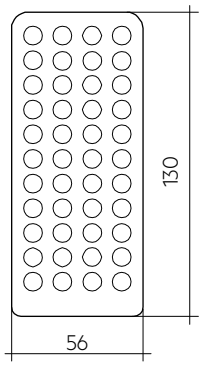
_ Optional infra-red programming unit for basicDIM ILD G2
_ Setting of predefined parameter values
_ Programmable functions such as light level, time delay, P.I.R., bright-out, power up and grouping
_ IR range up to 20 m

Website

http://www.tridonic.com/28003484

basicDIM ILD G2 Programmer

Optional infra-red programming unit for basicDIM ILD G2



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM ILD G2 PROGRAMMER	**28003484**	150 pc(s).	0.04 kg

Technical data

Ambient temperature ta	-10 … +50 °C
Storage temperature ts	-20 … +60 °C
Dimensions L x W x H	130 x 56 x 15 mm

Approval marks

EAC CE UKCA RoHS

1. Functions

1.1 Basis functions

Icon	Designation	Description
	ON	Switch luminaires on to max. level. -> Constant light control is deactivated.
	OFF	Switch luminaires off.
	Dim up	Increase current dimming level.
	Dim down	Decrease current dimming level.
	Automatic	Switch luminaire on or change to automatic mode. -> Constant light control enabled: Sensor goes to presence target value. -> Constant light control disabled: Sensor goes to fixed presence level.
	Set current light level	Store the brightness level currently measured by the sensor as target value for constant light control.

1.2 Push button functions

Icon	Designation	Description
	SET ON	Enable the possibility to set the target value via push button with PBI1 or DALI XC G3.
	SET OFF	Disable the possibility to set the target value via push button with PBI1 or DALI XC G3.

1.3 Constant light control settings

Icon	Designation	Description
	Bright-out ON	Switch on bright-out: If the measured light level exceeds 150 % of the target level for more than 10 minutes, the light is switched off. If the measured light level falls below 100 % of the target level, the light will be switched back on again.
	Bright-out OFF	Switch off bright-out: The light remains switched on at all times, irrespective of the light level measured.
	Convergence ON	Both groups can reach max. level. Group 2 converges to max. level.
	Convergence OFF	Group 2 never reaches max. level. The offset stays at all light levels.
	Constant light control ON	Constant light control is enabled.
	Constant light control OFF	Constant light control is disabled.
	Group offset OFF	Set the difference in brightness between the two groups to 0 %. Group 2 is the same brightness as group 1.
	Group offset -30 %	Group 2 is 30 % less bright than group 1.
	Group offset -50 %	Group 2 is 50 % less bright than group 1.
	Set target value to high (approx. 500 lx)	Set constant light control to a level of approx. 500 lx. Notice: If constant light control is disabled, this button changes the fixed presence level to 100 %.
	Set target value to middle (approx. 300 lx)	Set constant light control to a level of approx. 300 lx. Notice: If constant light control is disabled, this button changes the fixed presence level to 75 %.
	Set target value to low (approx. 150 lx)	Set constant light control to a level of 150 lx. Notice: If constant light control is disabled, this button changes the fixed presence level to 50 %.

1.4 Presence detection profile settings

Icon	Designation	Description
	Presence detection (ON / OFF, run-on time: 20 min)	Enable presence detection. -> Light is switched on and off automatically based on the presence/absence of a person.
	Presence detection (only OFF, run-on time: 20 min)	Presence detection responds only to absence -> Light must be switched on manually (push button, remote control). -> If no person is detected, light is switched off automatically.
	Presence detection (OFF, run-on time: never OFF)	Disable presence detection. Run-on time is automatically set to never off.
	Run-on time 1 min	Set run-on time to 1 minute. -> Time that begins to run from the last moment that presence was detected in the room is set to 1 minute.
	Run-on time 10 min	Set run-on time to 10 minutes. -> Time that begins to run from the last moment that presence was detected in the room is set to 10 minutes.
	Run-on time 20 min	Set run-on time to 20 minutes. ->Time that begins to run from the last moment that presence was detected in the room is set to 20 minutes.
	Switch-off delay 0 min	Set switch-off delay to 0 minutes. -> Light is switched off immediately after run-on time has expired.
	Switch-off delay 1 min	Set switch-off delay to 1 minute. -> Light is switched off 1 minute after run-on time has expired.
	Switch-off delay 30 min	Set switch-off delay to 30 minute. -> Light is switched off 30 minutes after run-on time has expired.
	Switch-off delay never OFF	Set switch-off delay to never off. -> Light is never switched off (keeps the absence level until presence is detected again).
	Absence level 1 %	Set the Absence level to 1 %. -> Dimming level to which the light is dimmed to after the run-on time has expired; applies only if switch-off delay is unequal to 0 minutes.
	Absence level 5 %	Set the absence level to 5 % -> Dimming level to which the light is dimmed to after the run-on time has expired; applies only if switch-off delay is unequal to 0 minutes.
	Absence level 10 %	Set the absence level to 10 %. -> dimming level to which the light is dimmed to after the run-on time has expired; applies only if switch-off delay is unequal to 0 minutes.
	Absence level 30 %	Set the absence level to 30 %. -> Dimming level to which the light is dimmed to after the run-on time has expired; applies only if switch-off delay is unequal to 0 minutes.
	Reserved for future use.	–
	Reserved for future use.	–

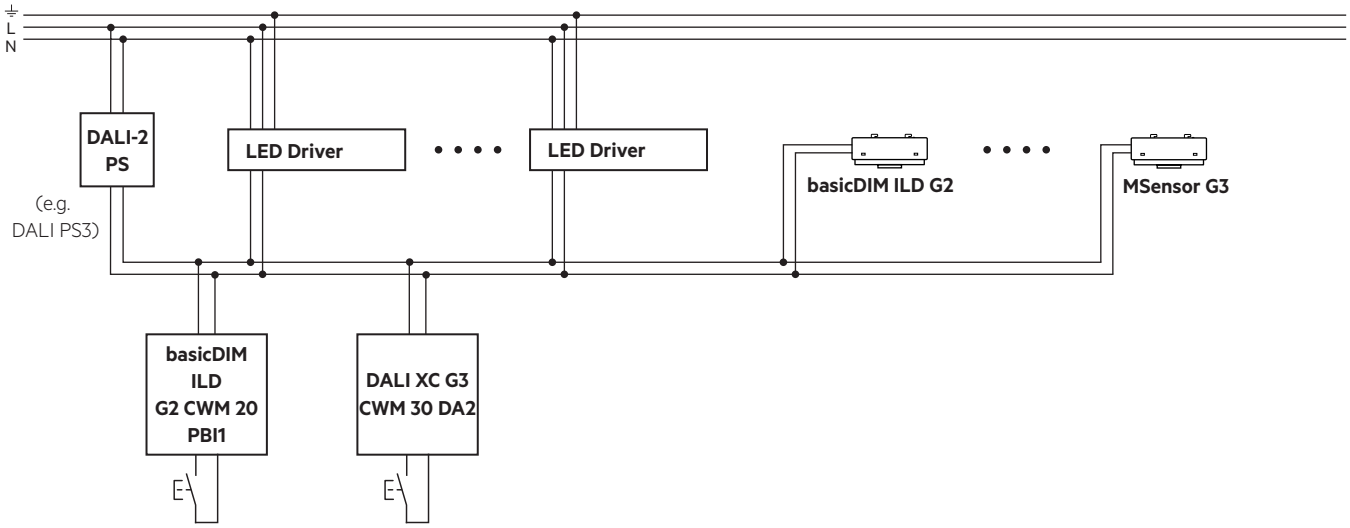
1.5 Programming settings

Icon	Designation	Description
	Power up ON	Light is switched on again after a mains break.
	Power up OFF	Light is not switched on again after a mains break until motion is detected.
	Activate test mode	During test mode the system behaves as follows: • Run-on time = 15 s • Switch-off delay = 0 s • Bright-out = Disabled • Group offset = -70 % • Constant light control = Disabled Test mode is terminated by one of the following actions: • Pressing AUTO button on the ILD G2 Programmer • Power cycling the controller • Waiting for one hour • Another press on test mode button
	RESET	To start the reset process, the button has to be pressed 5 times in 4 seconds.
	Start the grouping	Start the grouping process. All luminaries will blink two times and go to the minimum level. One luminaire will go to the maximum level and can then be added to group 1 or 2 with the respective button. To finish grouping, press this button again or wait for 10 minutes, then it stops automatically.
	Select next luminaire	Select the next luminaire during the grouping process. The selected luminaire will go to the maximum level.
	Add to group 1, remove from group 2	Add the currently selected luminaire to group 1 and remove it from group 2. After that, the next luminaire will be automatically selected.
	Add to group 2, remove from group 1	Add the currently selected luminaire to group 2 and remove it from group 1. After that, the next luminaire will be automatically selected.

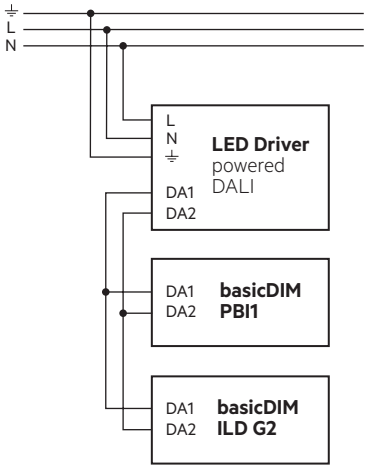
2. Installation basicDIM ILD G2 system

2.1 Connection diagrams

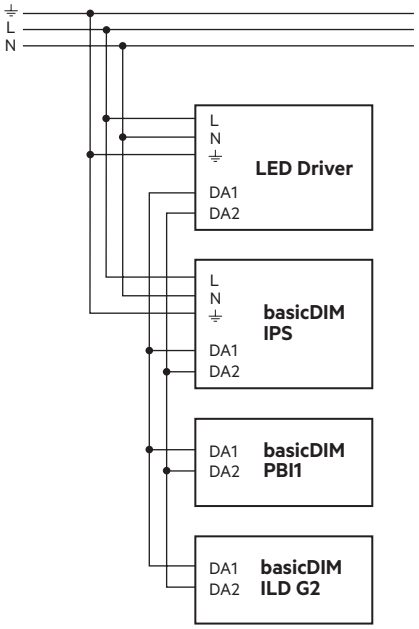
Room application:



Single / free-standing luminaires, driver with integrated power supply (DALI):



Single / free-standing luminaires, driver with separate power supply (DALI):



4. Miscellaneous

4.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

4.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM IPS

SELV power supply

Product description

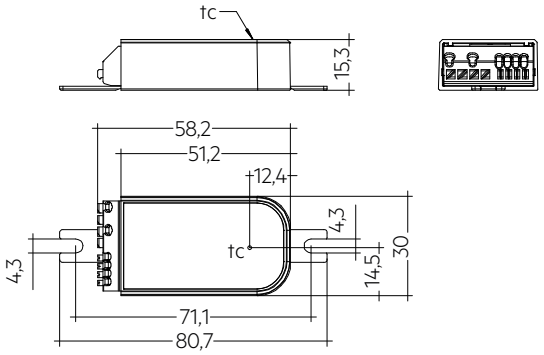
- First Tridonic product providing SELV for control applications
- Applicable for powering sensors, wireless controllers and other communication interfaces with up to 70 mA
- Compact form factor combined with detachable mounting flaps allowing high installation flexibility, e.g. in luminaire
- Excellent scalability allowing to connect up to 2 IPS in one circuit
- 4 control terminals allowing flexible connection of additional control devices
- Up to 100,000 guaranteed operating hours enable outstanding lifetime of the entire lighting system
- 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website

http://www.tridonic.com/87500872

basicDIM IPS

SELV power supply



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM IPS	**87500872**	60 pc(s).	0.02 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. current ①	0.0172 A
Power consumption ①	1.75 W
Typ. power consumption on stand-by ②	0.31 W
Output DC	16 V
Output power ①	1.2 W
Max. level voltage DC, SELV	18.4 V
Min. level voltage DC, SELV	13.6 V
Typ. level voltage DC, SELV	16 V
Guaranteed output current, SELV	70 mA
Max. output current, SELV	105 mA
Ambient temperature ta	-20 … +65 °C
tc point	65 °C
Type of protection	IP20
Dimensions L x W x H	80.7 x 30 x 15.3 mm
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

SELV RoHS

Standards

EN 61347-2-11, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 62386-101

① Test condition at 230 V, 50 Hz and full load.
② No DALI traffic at the interface.

1. Standards

EN/IEC 61347-2-11: 2001
EN 55015: 2013
EN 61000-3-2: 2014 Part 3-2
EN 61000-3-3: 2013 Part 3-3
EN 61547: 2009
EN 62386-101 Ed.2.1

1.1 Glow-wire test

according to EN 61347-2-11 passed for temperatures up to 850 °C.

2. Common

2.1 Functional description

basicDIM IPS is a SELV power supply, rated at 16 V DC and providing 70 mA for SELV control applications.

The IPS can also be connected to standard non SELV DALI installations and used as standard DALI power supply.

If the IPS is connected to standard DALI controls which do not provide DALI SELV terminals the whole installation will be non SELV. Conditions for mains voltage have to be fulfilled.

With the provided 70 mA current up to 35 loads can be connected.

Standard DALI loads are specified to consume max. 2 mA.
Some DALI control devices may consume more than 2 mA (e.g. MSensor G3). If such devices are connected to the IPS the amount of possible connected devices will be reduced. This has to be considered during the application design.

Up to 2 IPS can be connected in parallel to provide up to 140 mA.

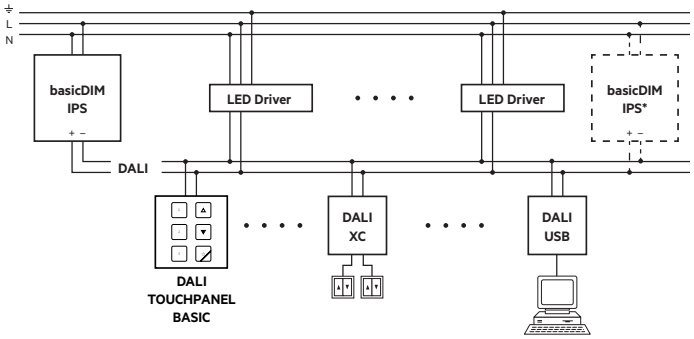
Additional IPS must be connected in parallel and the polarity has to be considered. Do not connect more than 2 IPS in one installation. This may cause damage to the device and all other devices connected to the control wires.

The housing provides mounting flaps (manually removable) which can be used for easy installation inside a luminaire.

3. Installation

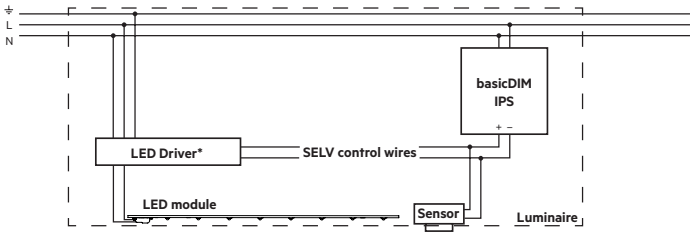
- For SELV Application the SELV installation regulation do apply.
- For non SELV e.g. standard DALI applications, standard mains voltage regulation do apply.
- The maximum cable length of the output wires must not drop more than 2 V on the signal line voltage.

3.1 Wiring



* Possible connection of additional basicDIM IPS

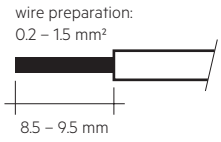
Wiring for SELV applications:



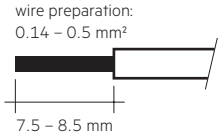
* DALI output of LED driver must be SELV

3.2 Wire types and cross sections

Mains supply wires
For wiring use stranded wire or solid wire from 0.2–1.5 mm².
Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



Secondary wires DALI terminals
For wiring use stranded wire with ferrules or solid wire from 0.14–0.5 mm².
Strip 7.5–8.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



When loosing the wiring, always use the push-button handle and never pull on the wire until the letch is released.

3.3 Max. output cable length

Material	Cross-section	Max. cable length		
		25 °C	50 °C	75 °C
Copper	0.14 mm²	31 m	29 m	26 m
	0.20 mm²	45 m	41 m	37 m
	0.50 mm²	112 m	102 m	93 m
Aluminium	0.14 mm²	19 m	17 m	16 m
	0.20 mm²	27 m	25 m	23 m
	0.50 mm²	68 m	62 m	57 m

3.4 Output short circuit conditions

The IPS output is short circuit proof. Short circuit behavior has no delay, retry and restart period of shutdown mechanism.
The IPS keeps working even output is short with limited max. output current.

4. Thermal details and lifetime

4.1 Expected lifetime

Expected lifetime				
Type	ta	40 °C	50 °C	65 °C
basicDIM IPS	tc	55 °C	65 °C	75 °C
	Lifetime	>100,000 h	100,000 h	65,000 h

The device is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

5. Miscellaneous

5.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM Wireless module G2

Casambi Ready wireless modules

Product description

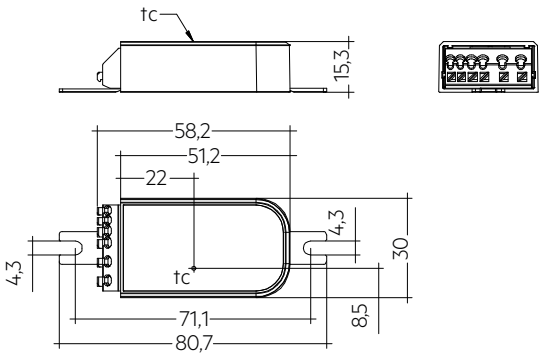
_ Can be integrated in Casambi systems (Casambi Ready)
_ Wireless controllable with an Android / iOS smart device
_ No need for an external gateway device
_ Forms automatically a wireless communication network with up to 250 nodes ①
_ Small form factor for luminaire installation
_ Digital output: Standalone DALI (compatible)
_ One independent push-button input
_ Easily implemented RGB and colour temperature controls
_ Device firmware can be updated over-the-air
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ We will provide security updates for the next five years after the date of purchase of this product

① Assignment of max. 4 single / group addresses, depending on the device profile.

Website
http://www.tridonic.com/28003540

basicDIM Wireless module G2

Casambi Ready wireless modules



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM Wireless G2	**28003540**	60 pc(s).	0.02 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Max. mains current	10 mA
Typ. power consumption on stand-by	< 0.4 W
Input	1 momentary-action switch
Max. cable length push button	5 m bei 0,14-0,5 mm²
Radio transceiver operating frequencies	2.4 – 2.483 GHz
Max. output power radio transceiver (E.I. R.P.) ②	< + 20 dBm
Radio protocol	Bluetooth 4.0 or 5.0 Low Energy (BLE)
Capable for mesh network	Up to 250 nodes / Standard networks and Long Range
Output	DALI (compatible)
Number of DALI addresses ①	4
Guaranteed output current, DALI ③	10 mA
Max. output current, DALI	250 mA
Max. DALI wiring length	5 m at 1 mm²
Max. casing temperature tc	80 °C
Ambient temperature ta	-20 … +70 °C
Storage temperature ts	-25 … +75 °C
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H ④	80.7 x 30 x 15.3 mm
Type of protection	IP20

Approval marks

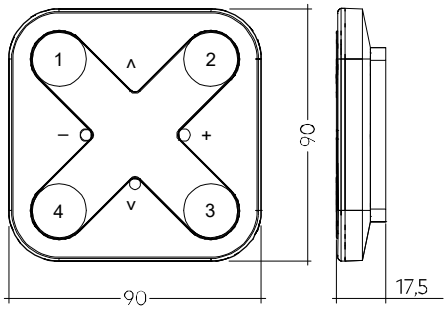
Standards

EN 55015, EN 55022, EN 55032, EN 61347-1, EN 61347-2-11, EN 61547, ETSI EN 300 328, ETSI EN 301 489-1, ETSI EN 301 489-17

① Assignment of max. 4 single / group addresses, depending on the device profile.
② E.I.R.P.: Equivalent Isotropically Radiated Power.
③ Max. 5 loads.
④ Screw fixings can be removed.

basicDIM Wireless User Interface LR

Accessory



Product description

_ Can be integrated in Casambi systems (Casambi Ready)
_ Battery powered, wireless wall switch
_ Forms automatically a wireless communication network with up to 250 nodes
_ Controls all types of basicDIM Wireless devices
_ 4 scenes
_ Dim up / down
_ Colour temperature control
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ We will provide security updates for the next five years after the date of purchase of this product

Website
http://www.tridonic.com/28005548

Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
basicDIM Wireless UI BK	**28005548**	Black	50 pc(s).	0.087 kg
basicDIM Wireless UI WH	**28005549**	White	50 pc(s).	0.087 kg

Approval marks

RoHS

1. Standards

EN 55015
EN 55022
EN 55032
EN 61347-1
EN 61347-2-11
EN 61547
ETSI EN 300 328
ETSI EN 301 489-1
ETSI EN 301 489-17

1.1 Glow wire test

according to EN 61347-2-11 with increased temperature of 850 °C passed.

2. Common

2.1 Description

The basicDIM Wireless G2 is a bluetooth DALI controller with a freely configurable push-button input and has an integrated DALI power supply. Therefore no external DALI supply is needed.

The module can be connected to one or more DALI drivers or one DALI XC G3 / Tridonic DALI MSensor for easy integration of push-buttons / daylight control and motion detection.

All basicDIM Wireless devices can be controlled with the Tridonic app “4remote BT“. The app can be downloaded free of charge from the Apple App Store and Google Play Store.

2.2 Operation

The basicDIM Wireless G2 is fully compatible with networks which support up to 250 nodes (Evolution networks). If the module is used with different types of basicDIM Wireless devices in an Evolution network, their compatibility has to be checked before.

Multiple devices automatically form a mesh network that can be controlled from any point. These networks communicate wirelessly directly with the smartphone or tablet. Therefore, an external gateway or wireless LAN network is not needed.

basicDIM Wireless devices have an integrated 2.4 GHz antenna.
For optimum RF-performance, a special attention will have to be given when the device is integrated into a luminaire.
See chapter 5.3 Placement for further instructions.

basicDIM Wireless devices can be used very flexible for different use cases. The operating modes (profiles) can be changed in the 4remote BT app.

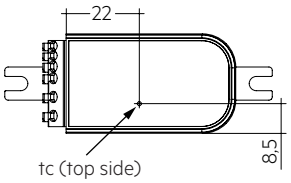
3. Thermal details and lifetime

3.1 Expected lifetime

Expected lifetime

Type	**ta**	**75 °C**	**70 °C**	**60 °C**
basicDIM Wireless	tc	80 °C	76 °C	66 °C
	Lifetime	40,000 h	50,000 h	100,000 h

The device is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.



4. Interfaces / communication

4.1 DALI output

The basicDIM Wireless G2 has an integrated DALI power supply.
A maximum of 5 drivers can be connected to this interface.

Before connecting the basicDIM Wireless G2 to a DALI line, please make sure that no other DALI power supply (including drivers with integrated PS) is powering the bus.

If the bus is already being powered, it is possible to manually switch off the internal DALI power supply of the basicDIM Wireless G2, so that it can be used in the already existing DALI bus (dependent on the used profile).

4.2 Push-button input

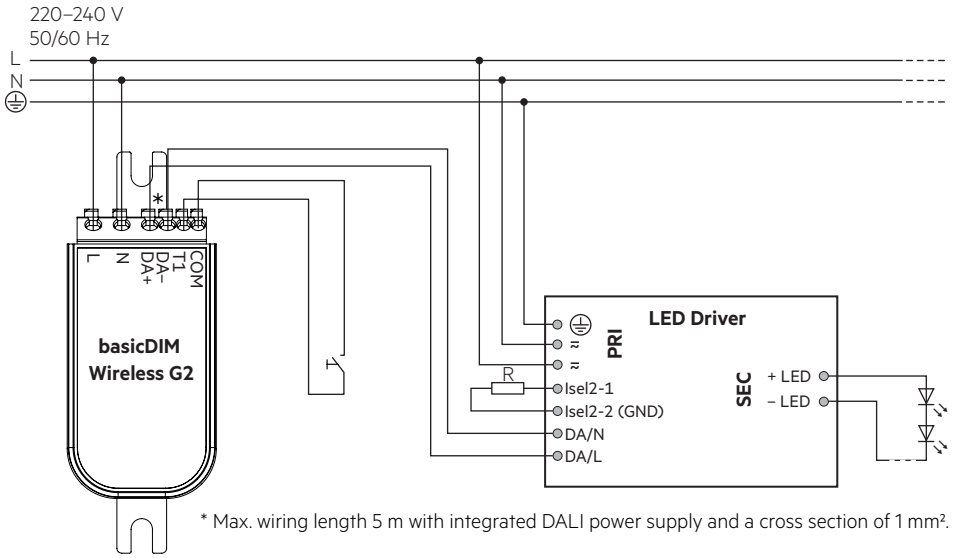
An independent push-button can be connected to the input terminals of the basicDIM Wireless G2.
The max. cable length between push-button and terminal is 5 m.

With the push-button interface, it is possible to control e.g. individual luminaires of a basicDIM Wireless network or even the whole network.

Please make sure that the correct profile has been uploaded to the basicDIM Wireless device, otherwise push-button presses cannot be recognized and also configuration of the inputs in the 4remote BT app is not available.

5. Installation / wiring

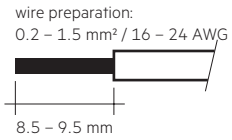
5.1 Wiring diagram DALI



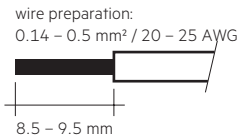
* Max. wiring length 5 m with integrated DALI power supply and a cross section of 1 mm².

5.2 Wiring type and cross section

Mains supply / DALI wires:
For wiring use stranded wire with ferrules or solid wire from 0.2–1.5 mm² (16–24 AWG).
Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



Push-button input wires:
For wiring use stranded wire with ferrules or solid wire from 0.14–0.5 mm² (20–25 AWG).
Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



5.3 Placement

basicDIM Wireless has an integrated antenna for easy integration. In order to maximize the range in every direction some design guidelines should be taken into consideration when mounting the device.
The antenna is located at the end of the enclosure.
When the device is mounted on a metal plate (e.g. frame of a luminaire), it may efficiently block the radio frequency signal. In this case, a cut-out underneath the antenna may be needed for the RF signal to exit the structure. The cut-out area should be as large as possible. Also the device should be placed as far away from any vertical metal structures as possible.

■ Antenna location

The range of the communication signal is depending on the environment e.g. luminaire, construction of the building, furnitures or humans and needs to be tested and approved in the installation.

To ensure a good radio connection, do not cover the basicDIM Wireless completely with metal!

5.4 Installation note

Max. torque at screw fixing: 0.4 Nm / M3.

6. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

6.2 Conditions of use and storage

Environmental conditions:	5 % up to max. 85 %, not condensed
Storage temperature:	-25 °C up to max. +75 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

6.3 Additional information

The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by Zumtobel Group AG is under license.
Tridonic GmbH & Co. KG is a subsidiary of Zumtobel Group AG.

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM Wireless passive MP

Casambi Ready wireless modules

Product description

_ Can be integrated in Casambi systems (Casambi Ready)
_ Wireless controllable with an Android / iOS smart device
_ No need for an external gateway device
_ Forms automatically a wireless communication network with up to 250 nodes
_ Digital output to control IEC 62386 compatible drivers
_ Supplied via IEC 62386 compatible power supply
_ Support for Tridonic PSensor and DALI MSensor
_ Device firmware can be updated over-the-air
_ Can be used as repeater to extend the coverage of the wireless signal
_ 350 mm long fixed connection cable
_ Lifetime up to 100,000 h at tc = 72 °C
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ We will provide security updates for the next five years after the date of purchase of this product

Housing properties

_ Casing: plastic, white
_ Type of protection IP20
_ Impact protection degree IK03

Typical applications

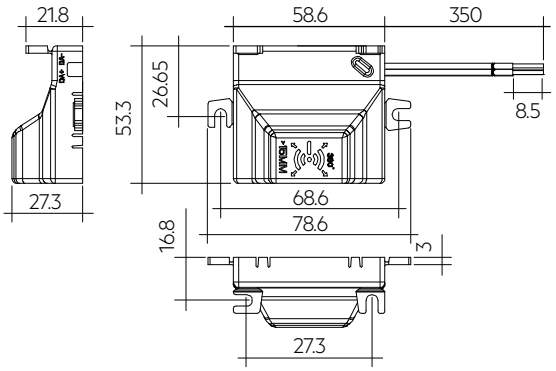
_ Indoor luminaire in-built
_ Outdoor luminaire installation for luminaires without Zhaga interface (e.g. decorative luminaires, bollard lights)
_ Can be used as a DALI gateway

Website

http://www.tridonic.com/28005689

basicDIM Wireless passive MP

Casambi Ready wireless modules



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
basicDIM Wireless passive MP	**28005689**	18 pc(s).	0.03 kg

Technical data

Supply voltage ①	9.5 – 22.5 V
Current draw	13 mA (30 mA at start)
Typ. power consumption ②	0.16 W
Connection cable ③	Yes
Radio transceiver operating frequencies	2.4 – 2.483 GHz
Max. output power radio transceiver (E.I. R.P.) ④	< + 20 dBm
Max. radio range ⑤	150 m
Radio protocol	Bluetooth 4.0 or 5.0 Low Energy (BLE)
Capable for mesh network	Up to 250 nodes / Standard networks and Long Range
Interface	Digital interface according to IEC 62386
Ambient temperature ta	-40 … +70 °C
tc point	72 °C
Storage temperature ts	-40 … +75 °C
Vent humidity range	0 – 90 %
Dimensions L x W x H	78.6 x 53.3 x 27.3 mm
Housing material body	PA polyamid
Type of protection	IP20
Impact protection degree	IK03
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

CE UKCA RoHS

Standards

EN 55015, EN 61347-1, EN 61347-2-11, EN 61547, EN 62479, EN 62493, ETSI EN 300 328, ETSI EN 301 489-1, ETSI EN 301 489-17

① Use only IEC 62386 compatible power supply.
② At 16 V supply voltage.
③ 350 mm rigid cable with 0.5 mm².
④ E.I.R.P.: Equivalent Isotropically Radiated Power.
⑤ With line of sight and mounting height > 4 m.

1. Standards

EN 55015
EN 61347-1
EN 61347-2-11
EN 61547
EN 62479
EN 62493
ETSI EN 300 328
ETSI EN 301 489-1
ETSI EN 301 489-17

1.1 Glow wire test

according to EN 61347-2-11 with increased temperature of 850 °C passed.

2. Common

2.1 Description

The basicDIM Wireless passive MP is a Casambi Ready Bluetooth device.
The module is powered by a IEC 62386 compatible power supply.

The module is connected to one or more compatible drivers.
A combination with a Tridonic push-button interface (DALI XC G3) or the Tridonic MSensor for simple integration of daylight control and motion detection is possible.

All basicDIM Wireless devices can be controlled with the Tridonic app “4remote BT“. The app can be downloaded free of charge from the Apple App Store and Google Play Store.

2.2 Operation

The basicDIM Wireless passive MP module is fully compatible with networks which support up to 250 nodes (Evolution networks).
If the module is used with different types of basicDIM Wireless devices in an Evolution network, their compatibility has to be checked before.

Multiple devices automatically form a mesh network that can be controlled from any point. These networks communicate wirelessly directly with the smartphone or tablet. Therefore, an external gateway or wireless LAN network is not needed.

basicDIM Wireless devices have an integrated 2.4 GHz antenna.
For optimum RF-performance, a special attention will have to be given when the device is integrated into a luminaire.
See chapter 6. Installation basicDIM Wireless passive MP.

basicDIM Wireless devices can be used very flexible for different use cases.
The operating modes (profiles) can be changed in the 4remote BT app.

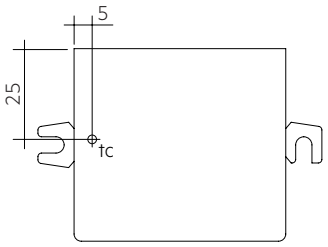
3. Thermal details and lifetime

3.1 Expected lifetime

Expected lifetime

Type	**ta**	**70 °C**
basicDIM Wireless passive MP	tc	72 °C
	Lifetime	>100,000 h

The device is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.



4. Interfaces / communication

4.1 Digital output

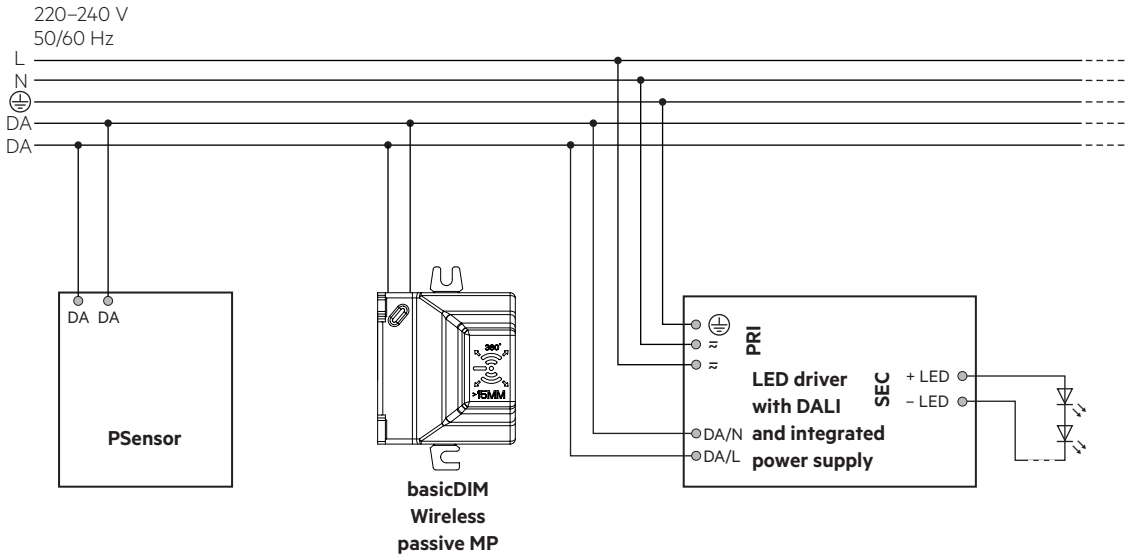
The basicDIM Wireless passive MP module draws its operating power directly from the bus. Ensure the supply of the external bus with a IEC 62386 compatible power supply.

4.2 Status LED

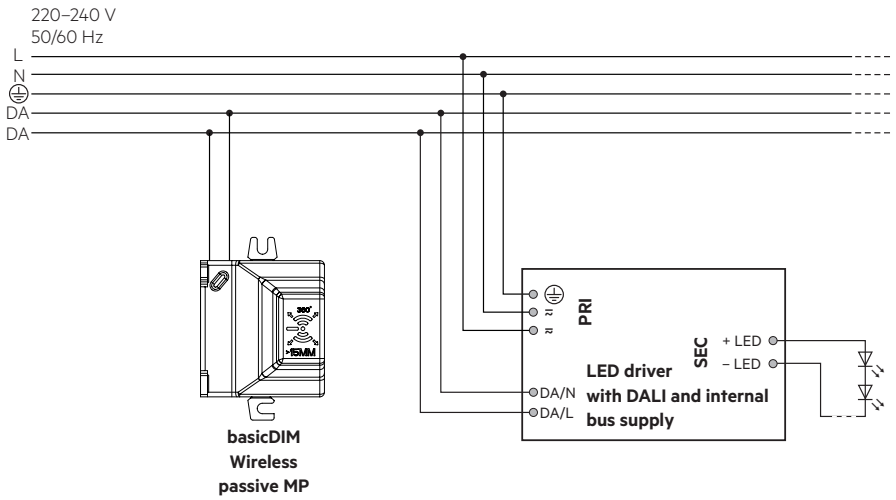
Orange LED lights permanently during operation.
Green LED flashes when „Identify“ is activated in the Tridonic app “4remote BT“.

5. Installation / wiring

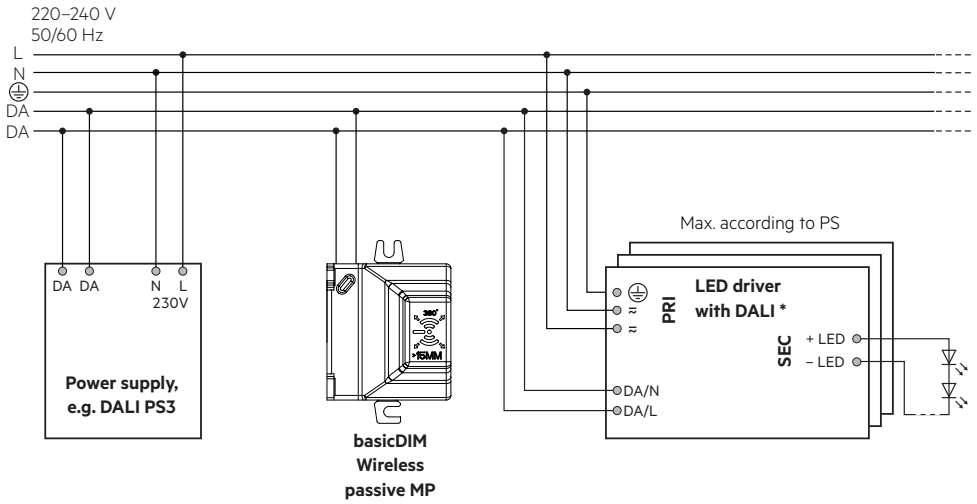
5.1 Wiring diagram with PSensor and internal bus supply



5.2 Wiring diagram with an internal bus supply



5.3 Wiring diagram with an external bus supply



* Max. 4 single / group addresses (A0 … A3 / G0 … G3) controllable, depending on the device profile of the basicDIM Wireless module. The rest of the connected drivers can be controlled via broadcast – depending on the device profile.

5.4 Wiring type and cross section

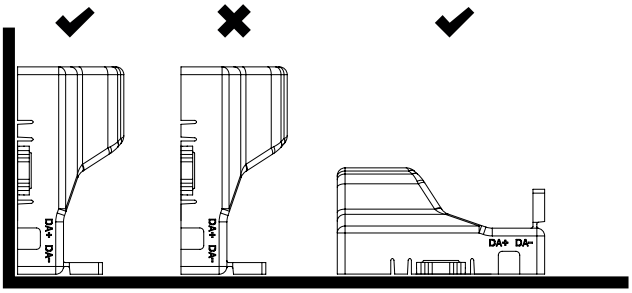
Rigid cable: 2 x 0.5 mm²
Cable length: 350 mm
Stripping length: 8.5 mm ±1 mm

6. Installation basicDIM Wireless passive MP

It is supplied directly via the bus.

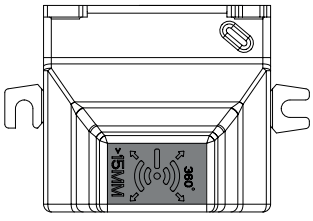
- The digital interface is not SELV.
  The installation instructions for mains voltage therefore apply.
- For a correct basicDIM Wireless passive MP operation use the device only within the ta window.
- Ensure correct assembly and locking of the basicDIM Wireless passive MP.
- Other RF signals may cause disturbances to the basicDIM Wireless passive MP communication.
- Fastening straps can be easily removed.

6.1 Mounting



6.2 Placement

basicDIM Wireless passive MP devices have an integrated antenna for easy integration. In order to maximize the range in every direction some design guidelines should be taken into consideration when mounting the device. The antenna is located at the end of the enclosure.
When the device is mounted on a metal plate (e.g. frame of a luminaire), it may efficiently block the radio frequency signal. In this case, a cut-out underneath the antenna may be needed for the RF signal to exit the structure. The cut-out area should be as large as possible. Also the device should be placed as far away from any vertical metal structures as possible.



■ Antenna location

The range of the communication signal is depending on the environment e.g. luminaire, construction of the building, furnitures or humans and needs to be tested and approved in the installation.

To ensure a good radio connection, do not cover the basicDIM Wireless module completely with metal!

6.3 Installation note

Max. torque at screw fixing: 0.4 Nm / M4.

7. Miscellaneous

7.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

7.2 Conditions of use and storage

Humidity:	0 % up to max. 90 %, not condensed
Storage temperature:	-40 °C up to max. +75 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

7.3 Additional information

Tridonic GmbH & Co. KG is a subsidiary of Zumtobel Group AG.

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM Wireless Sensor 5DP 38rc

Casambi Ready wireless sensor

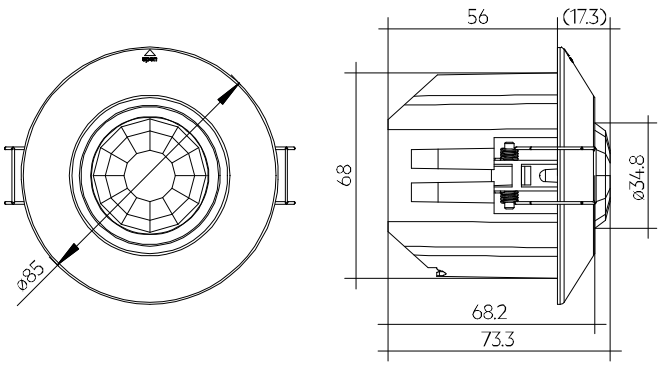
Product description

_ Can be integrated in Casambi systems (Casambi Ready)
_ Ambient light dependent control and presence detection
_ Wireless controllable with an Android / iOS smart device
_ Forms automatically a wireless communication network with up to 250 nodes
_ Power supply via mains
_ Mounting variants for suspended ceilings and solid ceilings available
_ Passive Infrared sensor technology
_ Shutters included to optimize sensor detection
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ We will provide security updates for the next five years after the date of purchase of this product

Website
http://www.tridonic.com/28002801

basicDIM Wireless Sensor 5DP 38rc

Casambi Ready wireless sensor



Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
basicDIM Wireless Sensor 5DP 38rc	**28002801**	85 x 85 x 73.3 mm	24 pc(s).	0.09 kg

Technical data

Sensor type	PIR sensor
Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. power consumption	0.17 W
Max. power consumption	< 0.5 W
Typ. power consumption on stand-by	0.15 W
Mounting height	max. 4 m
Detection range, mounted at height of 3 m	ø 8 m
Detection angle	53°
Light measurement at sensor head	1 – 2,000 lx (± 20 %)
Radio transceiver operating frequencies	2.4 – 2.483 GHz
Max. output power radio transceiver (E.I. R.P.) ①	< + 20 dBm
Radio protocol	Bluetooth 4.0 or 5.0 Low Energy (BLE)
Capable for mesh network	Up to 250 nodes / Standard networks and Long Range
Housing colour body	White (RAL9010)
Ambient temperature ta	0 … +50 °C
Storage temperature ts	-40 … +85 °C
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

RoHS

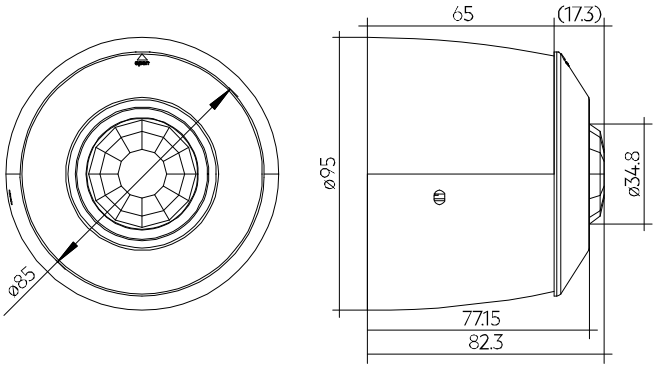
Standards

EN 60669-1, EN 60669-2-1, EN 55015, EN 61547, EN 61000-3-2, EN 61000-3-3, EN 300 328, EN 301 489-1, EN 301 489-17, EN 62479, EN 62493, AS/NZ 4268, FCC PART 15, UL 773A

① E.I.R.P.: Equivalent Isotropically Radiated Power.

Sensor housing bDW rs

Accessory



Product description

- Housing accessory for installations with solid ceiling
- Quick and easy installation
- Optimized mechanical concept to fix the basicDIM Wireless sensor with the accessory housing (patent pending)
- Release of the sensor from the housing can easily be done with a screwdriver or pen
- For a black sensor, order the standard white version with the matching black accessories—based on RS or RC type and box inclusion. Check compatibility before ordering.

Website
http://www.tridonic.com/28002802

Ordering data

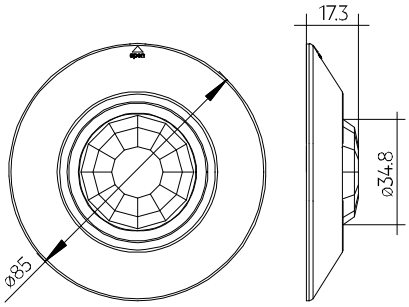
Type	Article number	Colour	Packaging, carton	Weight per pc.
Sensor housing bDW rs	**28002802**	White	18 pc(s).	0.083 kg
Sensor housing bDW rs BK	**28006132**	Black	18 pc(s).	0.083 kg

Front cover bDW rs BK

Accessory

Product description
_ Black front cover for bDW sensor

Website
http://www.tridonic.com/28006131



Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
Front cover bDW rs BK	**28006131**	Black	150 pc(s).	0.016 kg

1. Standards

EN 60669-1,EN60669-2-1
EN 55015
EN 61547
EN 61000-3-2
EN 61000-3-3
EN 300 328
EN 301 489-1
EN 301 489-17
EN 62479
EN 62493
AS/NZS 4268
FCC complied: FCC/VOC: Part 15 C, FCC-ID: 2AMXZ-0004
UL Standard: UL773A

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

1.1 Glow wire test

according to EN 61347-2-11 with increased temperature of 750 °C passed.

2. Common

2.1 Description

The basicDIM Wireless Sensor 5DP 38rc is the ideal addition to the basicDIM Wireless series of products as it offers daylight-dependent lighting control and presence detection.
It has been designed for the following principal applications:

- Individual offices
- Open-plan offices
- Training / presentation rooms
- Corridors, passageways and garages

The basicDIM Wireless Sensor 5DP 38rc supports presence detection and daylight control and is designed that it can be used together with basicDIM Wireless components (e.g. basicDIM Wireless Module).

The basicDIM Wireless Sensor 5DP 38rc is fully compatible with networks which support up to 250 nodes (Evolution networks). If the sensor is used with different types of basicDIM Wireless devices in an Evolution network, their compatiblity has to checked before. If a device is not compatible with Evolution networks, it can be only used in networks which support up to max. of 127 devices (Classic networks).

basicDIM Wireless devices are controlled and configured wirelessly by a smartphone or tablet with 4remote BT-App. Devices form automatically a secure wireless mesh network so that a large number of fixtures can be controlled from any point. No external gateway module is needed.

The settings and modes can be configured using the 4remote BT-App available in the App Store and Google Play Store. Made configurations are automatically stored in the Tridonic cloud service. This way the same settings are available for everyone who is connected to the network.
For further information please refer to the 4remote BT-App – Product documentation on:
www.tridonic.com.

3. Thermal details and lifetime

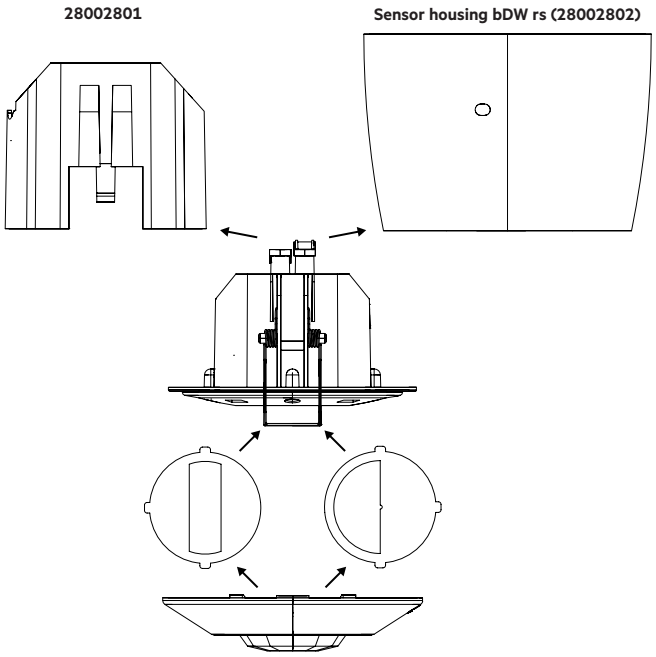
3.1 Expected lifetime

Expected lifetime		
Type	**ta**	**50 °C**
basicDIM Wireless Sensor 5DP 38rc	Lifetime	100,000 h

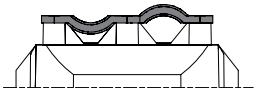
The device is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

4. Installation / wiring

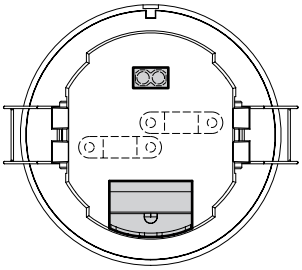
4.1 Combinations



4.2 Mounting possibilities strain relief

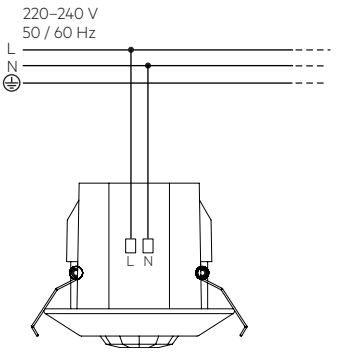


4.3 Installation rear cover (28002801)



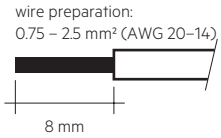
When using the supplied rear cover of the sensor, make sure that it is installed correctly. It must be mounted so that the cable cutout is on the opposite side of the connection clamp.

4.4 Wiring diagram



4.5 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.75 – 2.5 mm² (20–14 AWG).
Strip 8 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



4.6 Placement

The range of the communication signal is depending on the environment e.g. luminaire, construction of the building, furnitures or humans and needs to be tested and approved in the installation.

To ensure a good radio connection, do not cover the basicDIM Wireless Sensor completely with metal!

4.7 Installation note

Max. torque at the clamping screw: 0.4 Nm / M3.

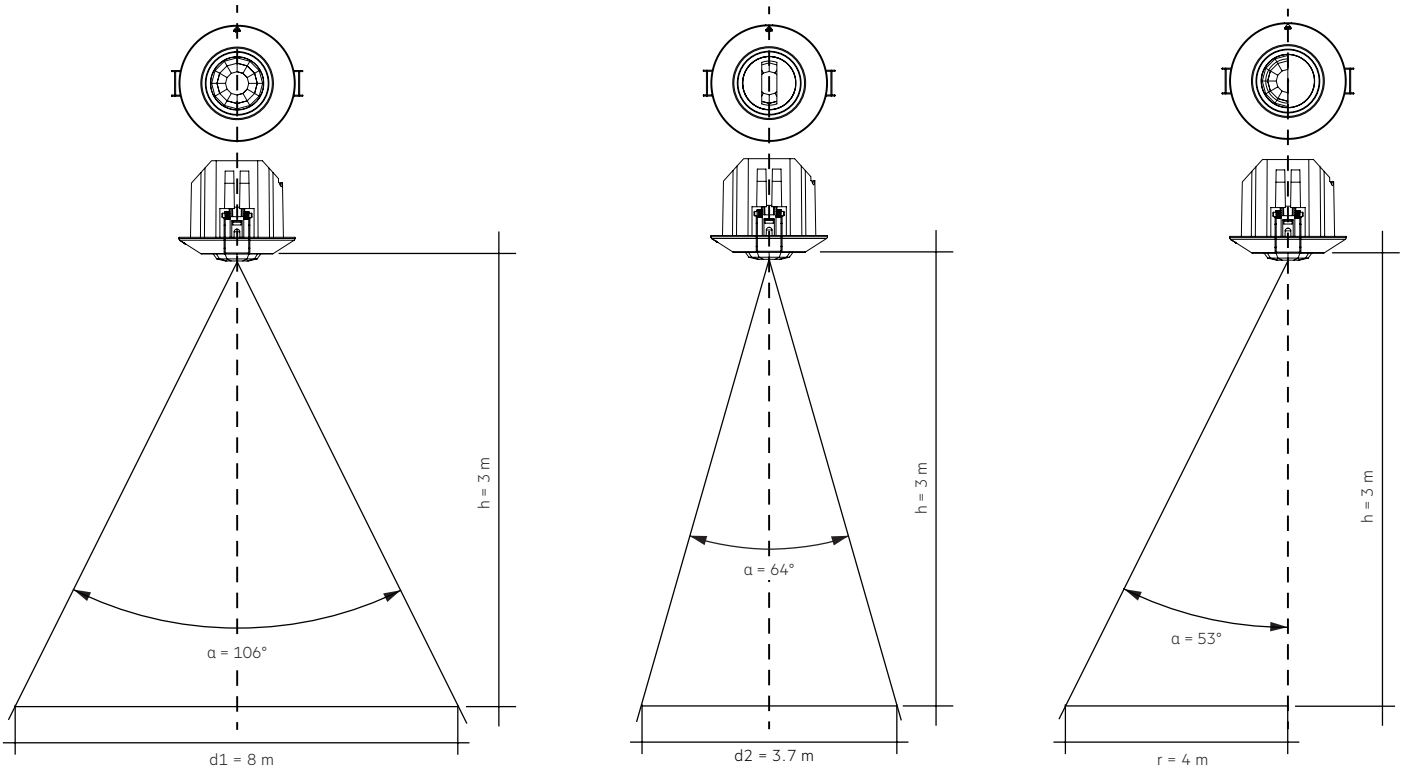
When you use the RS housing push back the springs of the sensor. Insert the sensor into the RS housing and turn him clockwise until you hear it snap.
To uninstall him, push a flat head screw driver (size 1) into the hole of the side of the RS housing to unlock the spring and turn him counterclockwise. You can then remove the sensor from the RS housing.

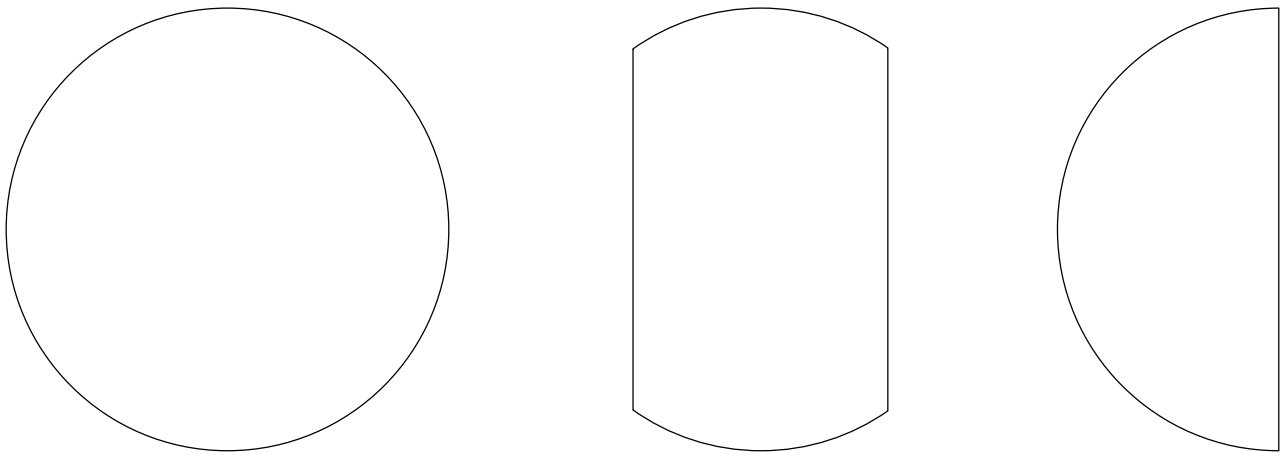
ATTENTION: The retaining springs can spring back when the sensor is removed, which can lead to injuries. So be careful when handling the sensor.

- The power supply must be disconnected before installation.
- Avoid direct illumination of the light source on the sensor including housing.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect presence detection.
- To avoid false readings, the sensor should be installed so there is no direct light from the lamp in the detection zone.
- Make sure that the basicDIM Wireless Sensor is not surrounded by metal. This can significantly reduce the wireless range of the sensor.
- When installed at a height other than the recommended installation height, the presence sensor might show different characteristics. When mounted at a higher level, its sensitivity is reduced.
- When using the supplied rear cover of the sensor, make sure that it is installed correctly. It must be mounted so that the cable cutout is on the opposite side of the connection clamp.

5. Sensor functions

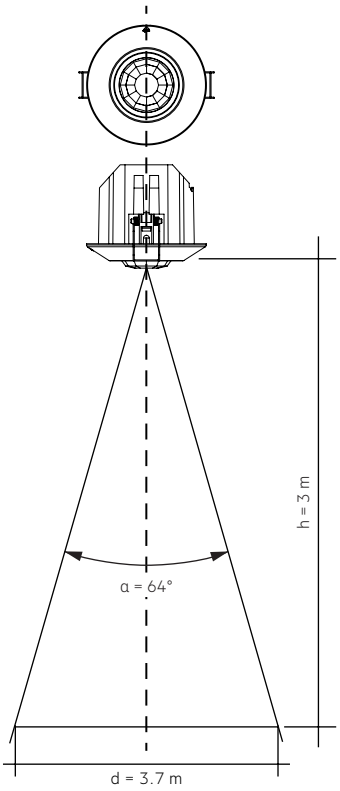
5.1 Presence / motion detection





h	d1	d2	r
2.0 m	5.3 m	2.5 m	2.7 m
2.5 m	6.6 m	3.1 m	3.3 m
3.0 m	8.0 m	3.7 m	4.0 m
3.5 m	9.3 m	4.4 m	4.6 m
4.0 m	10.6 m	5.0 m	5.3 m

5.2 Light level recognition area



h	d
2.0 m	2.5 m
2.5 m	3.1 m
3.0 m	3.7 m
3.5 m	4.4 m
4.0 m	5.0 m

6. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

6.2 Conditions of use and storage

Environmental conditions: 5 % up to max. 95 %, not condensed

Storage temperature: -40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

6.3 Additional information

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Tridonic GmbH & Co. KG is a subsidiary of Zumtobel Group AG.

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM Wireless UI EnOcean

Casambi Ready wireless user interface

basicDIM Wireless UI EnOcean Single

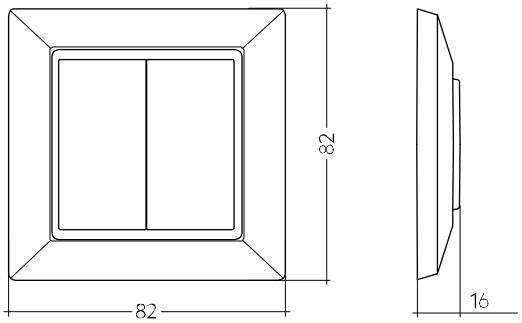
basicDIM Wireless UI EnOcean Double

Product description
_ Can be integrated in Casambi systems (Casambi Ready)
_ Battery free wireless wall switch
_ Single or double rocker
_ Maintenance free
_ Wireless communications via Bluetooth
_ Controls all types of basicDIM Wireless devices
_ Scenes
_ Dim up / down

Website
http://www.tridonic.com/28005093

basicDIM Wireless UI EnOcean

Casambi Ready wireless user interface



Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
basicDIM Wireless UI EnOcean EWSSB	**28005093**	White	10 pc(s).	0.06 kg
basicDIM Wireless UI EnOcean EWSDB	**28005094**	White	10 pc(s).	0.06 kg

Technical data

Radio transceiver operating frequencies	2.4 – 2.48 GHz
Max. output power radio transceiver (E.I. R.P.) ①	+ 4 dBm
Wireless range, in open air	up to 10 m
Mounting	via gluing or screwing
Ambient temperature ta	-25 … +65 °C
Storage temperature ts	-25 … +65 °C
Humidity	0 … 95 % (non-condensing)
Guarantee (conditions at www.tridonic.com)	1 Year(s)
Dimensions L x W x H	82 x 82 x 16 mm

Approval marks

RoHS

① E.I.R.P.: Equivalent Isotropically Radiated Power.

1. Common

1.1 Description

basicDIM Wireless UI EnOcean (EWSSB, EWSDB) are universal energy harvesting wireless switches in the European 55 x 55 mm form factor.
EWSSB and EWSDB are transmitting the button status based on the 2.4 GHz Bluetooth Low Energy (BLE) radio standard.
The user interface contains an electro-dynamic energy transducer which is actuated by the rocker movement (battery-free).

Whenever a rocker is pushed down or released, electrical energy is created and a set of BLE advertising frames is transmitted identifying the rocker status (pushed or released).
„Long" or „Short" rocker press (the time between pushing and releasing the rocker) can be calculated by the receiver.
This user interface enables switching and dimming control.

2. Lifetime

Expected lifetime		
basicDIM Wireless UI EnOcean	switching cycles	> 50,000

Switching cycles (actuations) according to EN 60669 / VDE 0632.

3. Functions

The functions can be configured via the 4remoteBT app.

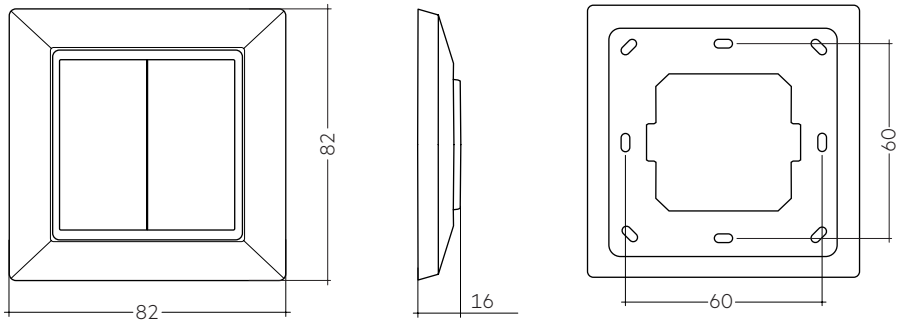
3.1 Basic functions

Basic functions are switch-on / switch-off, dim-up / dim-down and scene recalls.

4. Installation

4.1 Placement

basicDIM Wireless UI EnOcean is equipped with double-sided mounting film to glue it on the wall. Optional it is possible to screw it on the wall, screws are not included.



5. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Conditions of use and storage

Environmental conditions: 0 % up to max. 95 %, not condensed

Storage temperature: -25 °C up to max. +65 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

5.3 Additional information

The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by Zumtobel Group AG is under license.
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Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

basicDIM Wireless User Interface LR

Casambi Ready wireless user interface

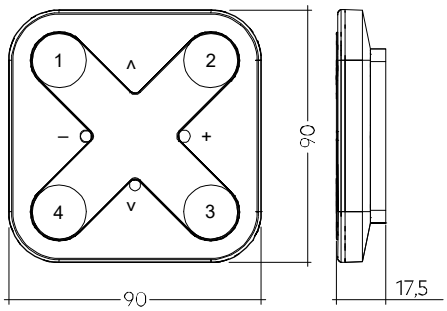
Product description

_ Can be integrated in Casambi systems (Casambi Ready)
_ Battery powered, wireless wall switch
_ Forms automatically a wireless communication network with up to 250 nodes
_ Controls all types of basicDIM Wireless devices
_ 4 scenes
_ Dim up / down
_ Colour temperature control
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ We will provide security updates for the next five years after the date of purchase of this product

Website
http://www.tridonic.com/28005548

basicDIM Wireless User Interface LR

Casambi Ready wireless user interface



Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
basicDIM Wireless UI BK	**28005548**	Black	50 pc(s).	0.087 kg
basicDIM Wireless UI WH	**28005549**	White	50 pc(s).	0.087 kg

Technical data

Battery Lithium-ion	CR 2430
Battery life	2 – 5 years, depending on usage
Radio transceiver operating frequencies	2.4 – 2.483 GHz
Max. output power radio transceiver (E.I. R.P.) ①	< + 20 dBm
Radio protocol	Bluetooth 4.0 or 5.0 Low Energy (BLE)
Capable for mesh network	Up to 250 nodes / Standard networks and Long Range
Wireless range, in open air	≤ 60 m
Ambient temperature ta	0 … +40 °C
Lifetime	50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	90 x 90 x 12 mm
Type of protection	IP20

Approval marks

RoHS

① E.I.R.P.: Equivalent Isotropically Radiated Power.

1. Common

1.1 Description

basicDIM Wireless User Interface is a wireless user interface that brings huge flexibility to interior design as furniture can be replaced or even walls can be rebuilt without having to take wiring of switches or switch placement into account. The switch can be kept wherever the user needs it and it gives direct access to all the important Tridonic lighting control functionalities.

From production number #2917 on or higher, the basicDIM Wireless User Interface is fully compatible with networks which support up to 250 nodes (Evolution networks). Devices with a lower production number are only compatible with networks which support up to max. 127 devices (Classic networks). The production number can be found on the battery tray of the device.

If the basicDIM Wireless User Interface is used with different types of basicDIM Wireless devices in an Evolution network, their compatibility has to be checked before. If a device is not compatible with Evolution networks, it can be only used in Classic networks.

Multiple devices automatically form a mesh network that can be controlled from any point. These networks communicate wirelessly directly with the smartphone or tablet. Therefore, an external gateway or wireless LAN network is not required.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime		
Type	**ta**	**40 °C**
basicDIM Wireless UI	tc	40 °C
	Lifetime	50,000 h

The device is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The battery lifetime is depending on the usage.
The battery is not included in the standard guarantee.

3. Functions

3.1 Basic functions

The preset buttons of basicDIM Wireless Interface can be configured via the control app.
A light indicates the selected preset.

Dim up, Dim down:
• Smooth dimming of last chosen preset

Multipurpose buttons:
• Change of colour temperature in steps of 25 Kelvin
• Change of the indirect/direct ratio

Preset Buttons:
• Individual luminaire control
• Group control
• Control of all lamps
• Recall scenes
• Recall animations

3.2 Smart functions

3.2.1 Dimming
Hold the Dim down or Dim up button:
• Smooth dimming of last chosen preset, cycle takes 5 seconds

Tap the Dim down button:
• Chosen preset goes to 0 %

Tap the Dim up button:
• Chosen preset goes to 100 %

3.2.2 Preset buttons
Tap:
• The chosen preset (lamp control, group control, all lamps, scene recall or animation recall) will turn on

Tap again:
• The chosen preset (lamp control, group control, all lamps, scene recall or animation recall) will turn off

3.2.3 Colour Temperature
Hold the Multipurpose button:
• Changes colour temperature smoothly, cycle takes 5 seconds

Tap the upper Multipurpose button:
• Changes to the warmest colour temperature

Tap the lower Multipurpose button:
• Changes to the coldest colour temperature

3.2.4 Indirect/Direct Ratio (sum of indirect/direct in all cases 100 %)
Hold the upper Multipurpose button:
• Dims up smoothly the indirect lighting, cycle takes 5 seconds

Hold the lower Multipurpose button:
• Dims up smoothly the direct lighting, cycle takes 5 seconds

Tap the upper Multipurpose button:
• The indirect part goes to max level

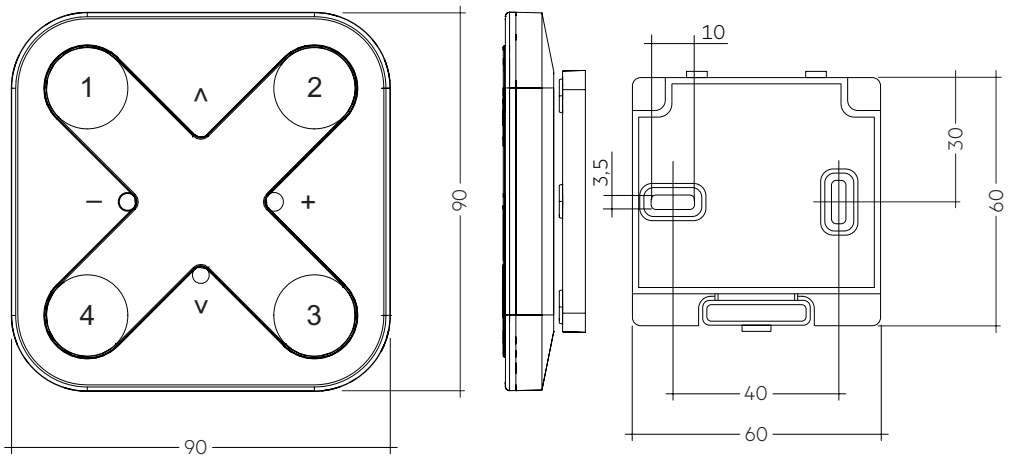
Tap the lower Multipurpose button:
• The direct part goes to max level

3.2.5 Turn Off
Press the Dim down and Dim up button for more than 1 second:
• Turns all lights off in selected network

4. Installation

4.1 Placement

basicDIM Wireless User Interface is equipped with magnets for easy attachment to a mounting bracket.
The mounting bracket is included.



4.2 Installation note

Max. torque at the clamping screw: 0.5 Nm with screws (max. ø 3 mm).

4.3 Battery

Remove the locking screw located on the battery lid cover using a cross-head screwdriver. Slide the cover downwards and replace the old battery. The battery type is CR2430. Always replace the battery with the same type. Reinstall the battery lid cover and tighten the screw. Properly dispose of the old battery at your nearest hazardous waste collection site.

Battery Type: CR2430 Lithium Coin Cell

Warning for Australia:
Contains a button cell battery (also referred to as a coin cell battery), which is hazardous if swallowed – see instructions. The battery can cause severe or fatal injuries in 2 hours or less if swallowed or placed inside any part of the body.

If you suspect your child has ingested a button cell battery, call the Poisons Information Centre (24/7) immediately on 131126 from anywhere in Australia. Medical attention shall be sought immediately if it is suspected the battery has been swallowed or placed inside any part of the body.

Properly dispose of button cell batteries immediately in an outside bin, out of reach of children, and recycle them at your nearest hazardous waste collection site.

5. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Conditions of use and storage

Environmental conditions: 0 % up to max. 80 %, not condensed

Storage temperature: -25 °C up to max. +70 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

5.3 Additional information

The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by Zumtobel Group AG is under license.
Tridonic GmbH & Co. KG is a subsidiary of Zumtobel Group AG.

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

battenSENSE PROGRAMMER

Accessory for battenSENSE

Product description

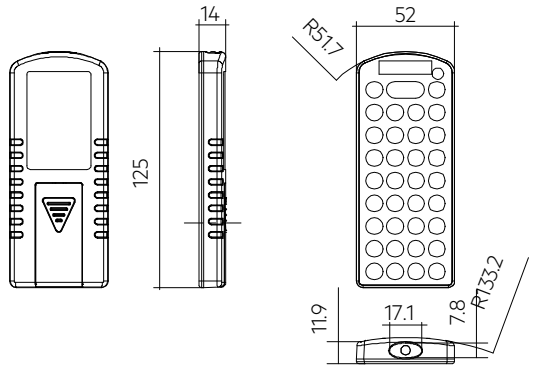
- Optional infrared programming unit for 28006399 - battenSENSE SFI 20 PIR 12DPI WH
- Setting of predefined discrete parameter values
- Programmable functions such as light level, time delay, P.I.R., bright-out, power-up
- Requires 2 AAA 1.5 V batteries (not included)

Website

http://www.tridonic.com/28006400

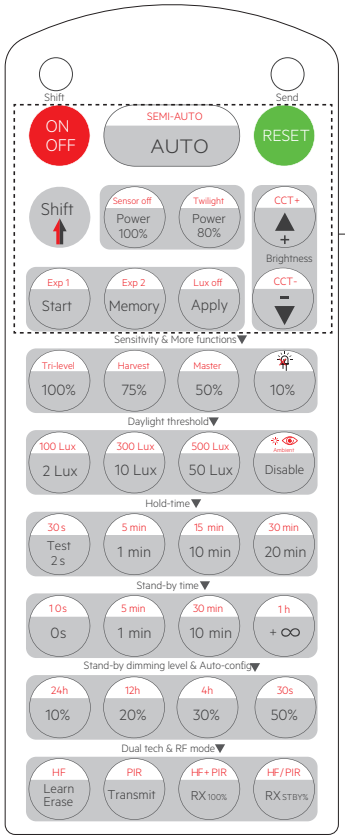
battenSENSE PROGRAMMER

Accessory for battenSENSE

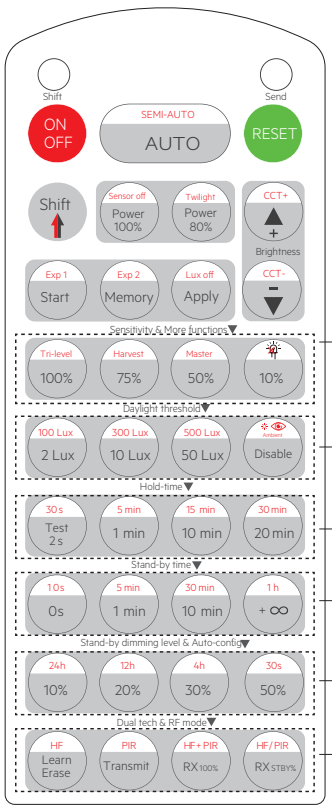


Ordering data

Type	Article number	Packaging, carton	Weight per pc.
battenSENSE PROGRAMMER	**28006400**	14 pc(s).	0.05 kg



ON OFF	Press button "ON/OFF" to select permanent ON or permanent OFF mode. * Press button "AUTO"/ "RESET" to exit this mode.
RESET	Press the "RESET" button to recall the default settings. The default settings are: Auto mode; DALI Master mode; Detection range 100%; Hold-time 5 min; Standby time 10 min; Standby dimming level 20%; Lux off activated.
Shift	Press button "Shift", the LED on the top left corner is on to indicate mode selection. All values / settings in RED are valid for 20 seconds.
AUTO	Press button "AUTO" to initiate automatic mode. The sensor starts working and all settings remain as before the light is switched ON/OFF;
SEMI-AUTO	This key is not applicable on this product.
Power 100% 80%	Press buttons in zone "Power out" to select the light output at 80% (at initial 10,000 hours) or 100%.
Sensor off	This key is not applicable on this product.
Twilight	1. Press button "Shift", the red LED on. Press button "Twilight", the function of movement detection is disabled, but the function of photocell is still working, and the product becomes a pure dusk/ dawn daylight sensor. To exit from "Twilight" mode, press button "AUTO".
	Press these two buttons to adjust the light output brightness and set a new target lux level. The daylight sensor can measure ambient daylight level and ignore the LED light, so as to calculate how much artificial light is needed to maintain the target lux level.
CCT+ CCT-	These keys are not applicable on this product.
Start Memory Apply	1. Press button "Start" to program. 2. Select the buttons in "Detection range", "Daylight threshold", "Hold-time", "Stand-by time", "Stand-by dimming level" to set all parameters. 3. Press button "Memory" to save all the settings programmed in the remote control. 4. Press button "Apply" to set the settings to each sensor unit(s). For example, to set detection range 100%, daylight threshold Disable, hold-time 5min, stand-by time + ∞, stand-by dimming level 30%, the steps should be: Press button "Start", button "100%", "Disable", "Shift", "5min", "Shift", "+ ∞ ", "30%", "Memory". By pointing to the sensor unit(s) and pressing "Apply", all settings are passed on the sensor(s).
Lux off	The "Lux off" function is activated as default. When the ambient lux level exceeds the target level continuously for more than 5 minutes, the lights will be turned off. In AUTO /Twilight modes, to disable "Lux off": 1. Press "Shift" button first, the red LED on. 2. Press "Lux off" button, the "Lux Off" function will be deactivated. The lights will not turn off even when the ambient lux level exceeds the target lux level but will dim down the brightness to the stand-by time level. For Sensor LED indicator references: 1. Fast flash 1s, "Lux off" function activated. 2. Remains on 2s, "Lux off" function deactivated.
Exp 1 Exp 2	These keys are not applicable on this product.



Sensitivity & More functions	
100% 75% 50% 10%	In AUTO modes, press buttons in zone "Detection range" to set detection range at 100%/75%/50%/10%.
Tri-level Harvest	1.Press button "Shift", the red LED on. 2. Press buttons "Tri-level" or "Daylight harvest" to shift between Tri-level control mode and Daylight harvest mode.
Master	This key is not applicable on this product.
Daylight threshold	
2Lux 100Lux 10Lux 300Lux 50Lux 500Lux Disable	Press buttons in zone "Daylight threshold" to set daylight sensor at 2Lux/ 10Lux / 50Lux / 100Lux / 300Lux/500Lux / Disable. Note: To set daylight sensor at 100Lux / 300Lux / 500Lux, press "Shift" button first.
Ambient	1. Press button "Shift", the red LED on. 2. Press button "Ambient", the surrounding lux level is sampled and set as daylight threshold / target Lux level.
Hold-time mode	
Test 2 s 30s 1min 5min 10 min 15min 20min 30min	In AUTO mode, press buttons in zone "hold-time" to set the hold-time at 2s / 30s / 1min / 5min / 10min / 15min / 20min / 30min. Note: 1. To set hold-time at 30s / 5min / 15min / 30min, press "Shift" button first. 2. 2s is for testing purpose only, stand-by period and daylight sensor settings are disabled in this mode. *To exit from Test mode, press button "RESET" or any button in "Hold-time".
Stand-by time mode	
0 s 10s 1min 5 min 10min 30min + ∞ 1h	Press buttons in zone "stand-by time" to set the stand-by period at 0s / 10s / 1min / 5min / 10min / 30min / 1h / + ∞. Note: 1. To set stand-by-time at 10s / 5min / 30min / 1h, press "Shift" button first. 2. "0s" means on/off control; 3. "+ ∞" means bi-level control, the fixture is 100% on when there is motion detected, and remains at the stand-by dimming level when no presence after motion hold-time. Only when the stand-by time is set in "+ ∞" and the ambient lux level is below the target lux level, the lux will auto-on.
Stand-by dimming level & Auto-config.	
10% 20% 30% 50%	Press the button in zone "stand-by dimming level" to set the stand-by dimming level at 10% / 20% / 30% / 50%.
24h 12h 4h 30s	1.Press button "Shift", the red LED on. 2.Select a time period and the sensor will do light level measurement and determine/save the lowest light level (commission line) with 100% light on, so as to set the target lux level automatically. Note: 1. Make sure the light level measurement covers the night time. 2. The fixture will go into sensor mode after the measurement, all sensor setting remain unchanged.
Dual tech & RF mode	
Learn Erase Transmit	These keys is not applicable on this product.
RX 100% RX STBY%	These keys is not applicable on this product.
HF PIR HF+PIR HF/PIR	These keys is not applicable on this product.

TRIDONIC

DALI-2 Touchpanel 8P DA2

Operating and control unit

DALI Touchpanel 8P DA2 WH

Product description

- Capacitive DALI-2 Touchpanel with 8 freely programmable touch buttons
- Suitable for integration and in combination with DALI-2 compliant central control units (e.g.: Tridonic products sceneCOM evo and sceneCOM S)
- Multi-master compatible: Multiple control modules are possible in a DALI system
- Power supply via DALI line
- Two colour variants available: black (28004783) and white (28004782)
- 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

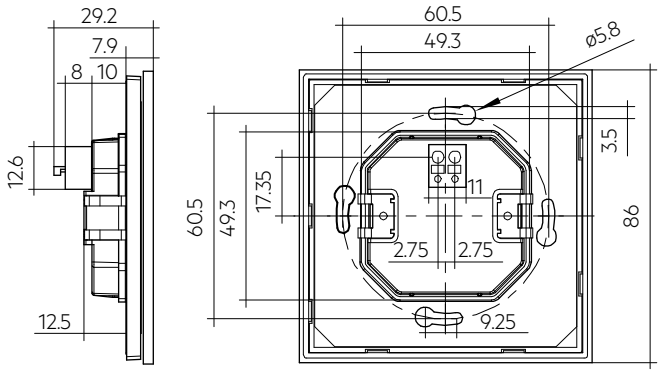
DALI Touchpanel 8P DA2 WH

DALI Touchpanel 8P DA2 BK

Website
http://www.tridonic.com/28004782

DALI-2 Touchpanel 8P DA2

Operating and control unit



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Touchpanel 8P DA2 WH	**28004782**	36 pc(s).	0.12 kg
Touchpanel 8P DA2 BK	**28004783**	36 pc(s).	0.12 kg

Technical data

Supply via	DALI cable
Supply voltage ①	9.5 – 22.5 V
Current draw ②	2 mA
Interface	DALI
Starting time	< 150 ms
Ambient temperature ta	-20 … +50 °C
Max. casing temperature tc	60 °C
Storage temperature ts	-20 … +50 °C
Humidity	5 … max. 85 % (non-condensing)
Type of protection	IP20
Housing material	PC
Housing colour	RAL 9010 (weiß) / RAL 9005 (schwarz)
Mounting	Mounting box 60 x 40 mm (ø x d)
Dimensions L x W x H	86 x 86 x 29.2 mm
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

DALI 2 CE UKCA RoHS

Standards

EN 55015, EN 61347-1, EN 61347-2-11, EN 61547, EN 62386-101, EN 62386-103, EN 62386-301

① Uin acc. IEC 62386-101.
② Max. current draw is 10 mA.

1. Standards

EN 55015
EN 61347-1
EN 61347-2-11
EN 61547
EN 62386-101 Ed.2.0
EN 62386-103 Ed.2.0
EN 62386-301 Ed.2.0

1.1 DALI note

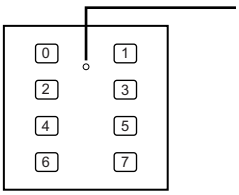
Device is developed according to DALI Standard EN 62386-101 Ed.2, also known as DALI-2.
To be able to use the device in such installation, an application controller is necessary.

Following table shows the instances and which values they provide.

DALI instances	
Instance number①	**Explanation**
0 – 7	Push button DALI Part 301

① The order of the instances is visible in the wiring diagram.

Behind every instance 2 feedback LED's are located.
The LEDs can be switched on or off if the Application controller supports this feature.



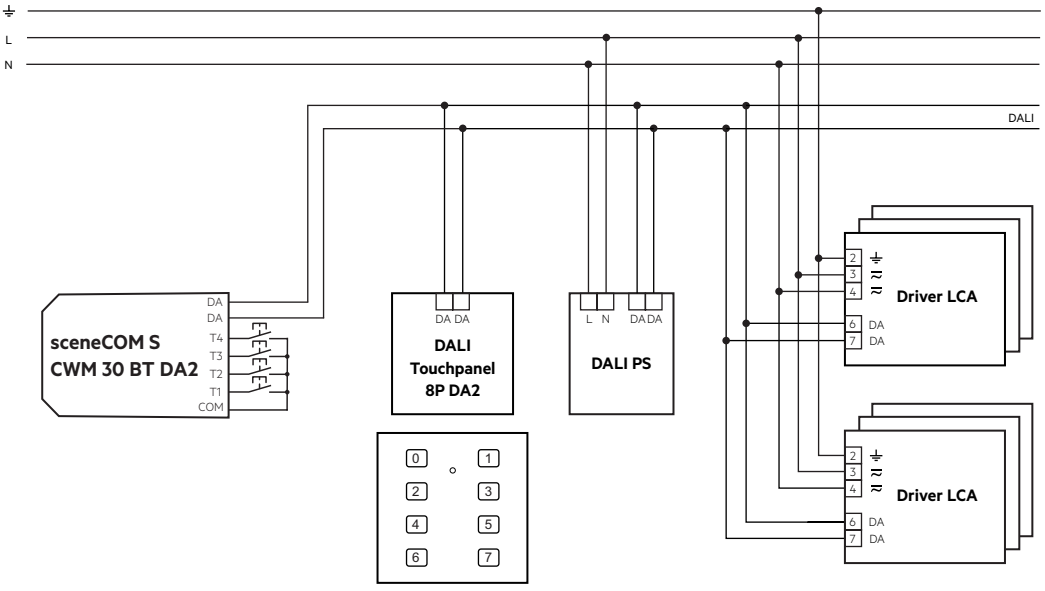
In addition a feedback LED is build in in the top middle. This LED lights up red briefly when a button is pressed. So the user gets an optical feedback every time he pushes a button.

1.2 Glow wire test

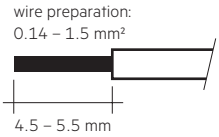
according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Installation / wiring

2.1 Wiring diagram



2.2 Wiring type and cross section



For wiring use stranded wire with ferrules or solid wire from 0.14 to 1.5 mm².

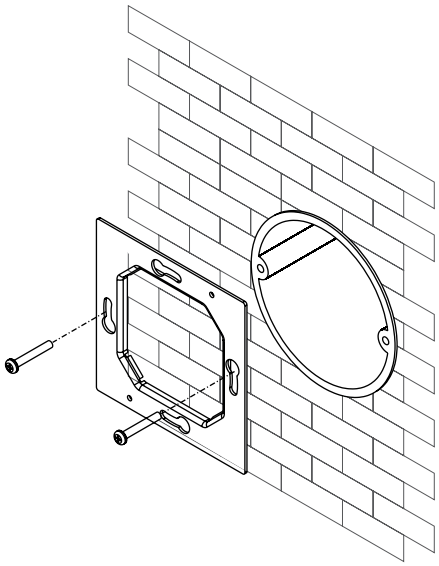
2.3 Safety instructions:

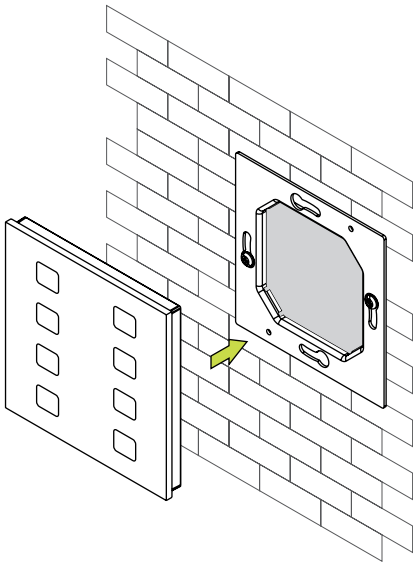
- **DALI is not SELV.** Apply the installation instructions for mains voltage.
- Installation: fixed only, in a clean and dry environment.
- Supply: via DALI control line only; no mains voltage allowed.
- DALI control line: use standard installation material for low-voltage systems (< 1000 V); only tree, linear and star topologies permitted; cores may be reverse connected.
- Terminals D1/D2: do not connect with mains line.
- Terminals: when using solid conductors, connect only one per terminal.
- Handle with care, the glass may be damaged if dropped, burned, punctured or crushed.
- Static electricity, sweat, oil and other impurities on your hand or on the touch panel may result in a not responsive touchscreen. If this happens please make sure to clean the touch panel and your hands.
- The device may only be used for the application area specified.
- Relevant health and safety regulations must be observed.
- While assembling and installing the device, the voltage supply must be disconnected.
- Only qualified personnel may assemble, install and commission the device.
- If an error occurs, dangerous voltage levels may be present at the DALI terminals and on the DALI control line.

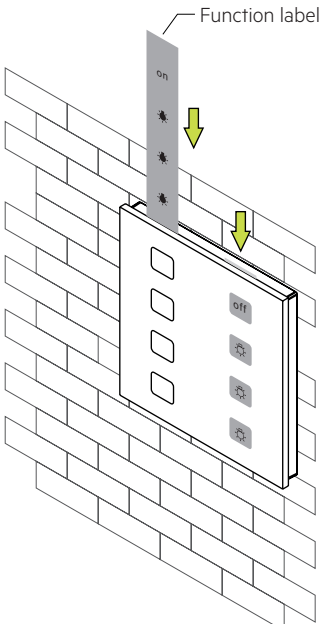
There is a risk of electric shock when touching these terminals in case of failure.
Note: In some countries basic insulated control terminals are to be marked with this symbol.

2.4 Installation:

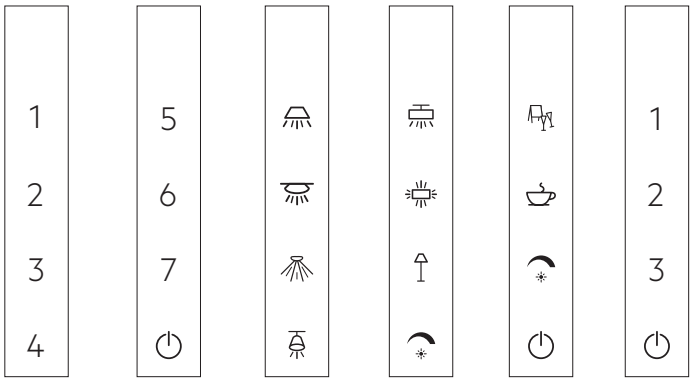
Push button function label can be printed and customized, to better indicate whatever functions configured to the push buttons.
Following illustration visualizes the installation:







Examples labels:



3. Miscellaneous

3.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

3.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI MSensor G3 PIR 4DPI WDA WH

DALI-2 multi-sensor

DALI MSensor G3 SFI 30 PIR 4DPI WDA WH

DALI MSensor G3 SSM 30 PIR 4DPI WDA WH

DALI MSensor G3 SSM 30 PIR 4DPI WDA BK

Product description

_ Sensor developed to work with the latest DALI specification
_ Wide detection angle of up to 125° covering an area of up to 141 m²
_ Monitoring of ambient light and occupancy detection
_ Remote control interface allowing infrared remote control interaction
_ Individual adjustment of the parameters with configuration software
_ Power supply via DALI line
_ Wide range of accessories allowing extended application range
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ SSM version (28004637) = pre-configured bundle of SFI sensor (28003808) and ACU IP20 housing (28001874)
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection up to IP54

Note

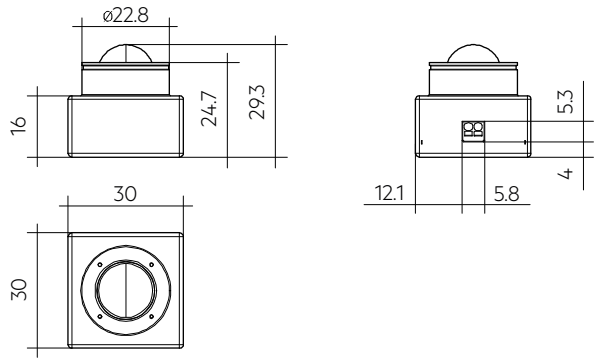
_ Tridonic DALI MSensor G3 family sensors are developed according to DALI Standard EN 62386-101 Ed.2, also known as DALI-2. To be able to use the sensor in such installation, an application controller is necessary.
_ List of approved application controller can be found on our WEB page in “Downloads” in document “Application_controllers_MSensor_G3.pdf”.

Website

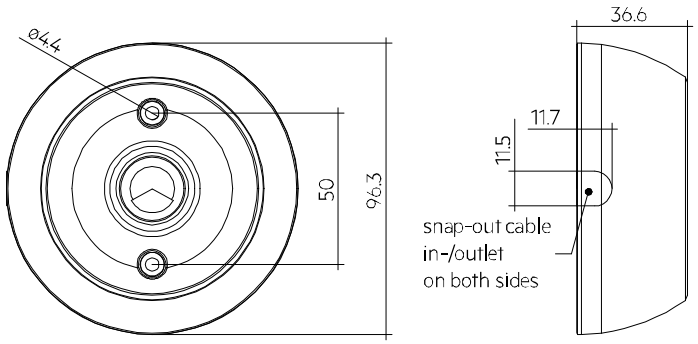
http://www.tridonic.com/28003808

DALI MSensor G3 PIR 4DPI WDA WH

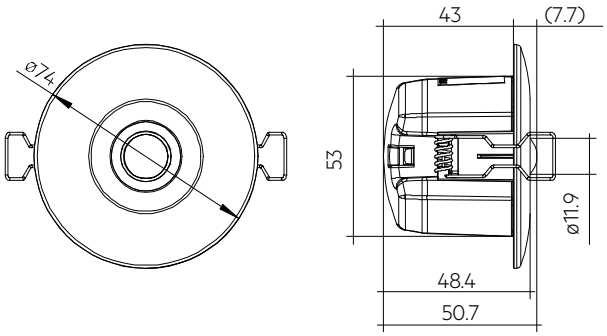
DALI-2 multi-sensor



DALI MSensor G3 SFI 30 PIR 4DPI WDA WH



DALI MSensor G3 SSM 30 PIR 4DPI WDA WH



DALI MSensor G3 SRC 30 PIR 4DPI WDA WH

Ordering data

Type	Article number	Suitable for	Colour	Dimensions L x W x H	Packaging, carton	Weight per pc.
MSensor G3 SFI 30 PIR 4DPI WDA WH	**28003808**	Luminaire installation	White	30.0 x 30.0 x 29.3 mm	15 pc(s).	0.013 kg
MSensor G3 SSM 30 4DPI WDA WH	**28004637**	Remote installation	White	96.3 x 96.3 x 36.6 mm	30 pc(s).	0.060 kg
MSensor G3 SSM 30 4DPI WDA BK	**28005772**	Remote installation	Black	96.3 x 96.3 x 36.6 mm	30 pc(s).	0.060 kg
MSensor G3 SRC 30 4DPI WDA WH	**28004638**	Ceiling installation	White	52.3 x 54.7 x 51.5 mm	10 pc(s).	0.058 kg
MSensor G3 SRC 30 4DPI WDA BK	**28005774**	Ceiling installation	Black	52.3 x 54.7 x 51.5 mm	10 pc(s).	0.058 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	9.5 – 22.5 V
Current consumption (no LED)	max. 8 mA
Current consumption (with LED)	max. 9 mA
Starting time ②	≤ 30 s
Supported operating modes	0 or 128 (default)
Mounting height	2 – 4 m
Mounting hole diameter	23 mm
Housing thickness of the luminaire	0.75 – 4 mm
Detection angle for PIR detection ③	125°
Detection angle for light measurement ④	80° – 150°
Detection range for light measurement ⑤	0.5 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9010)
Housing colour lens	White
Type of protection ⑥	Up to IP54
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2-11, IEC 61347-2-11, EN 55015, EN 61547, EN 62386-101, EN 62386-103, EN 62386-301, EN 62386-303, EN 62386-304

① Uin acc. IEC 62386-101.
② Starting time is the time until the PIR element of the sensor is ready and delivers correct values.
③ For details see chapter detection area in data sheet.
④ For details see chapter light measurement in data sheet.
⑤ The measured value at the sensor head corresponds to approx. 3 to 6,300 lux on the surface measured.
⑥ Depending on the installation type up to IP54 for more details see chapter 3.7.

Sensor mounting kit ACU 033 IP66 WH

Accessory

Product description
_ Easy to mount circlip lockring, compatible with industry standard circlip pliers (size 19 – 60 mm)
_ Corrosion resistant circlip made from stainless steel
_ Appealing plastic cover ring, allowing to mount the sensor in luminaires in an easy and visual attractive way
_ Fulfills the impact energy requirements of freestanding luminaires of 0.5 J
_ Includes 2 gaskets offering flexible installation in luminaries
_ Plastic cover passed glow wire test with 750 °C in according to EN 61347-1
_ In combination with the DALI MSensor G3 SFI 30 PIR 4DPI WDA WH, a maximum of IP54 is possible
_ In combination with the basicDIM ILD G2 4DPI WDA, a maximum of IP54 is possible

Website
http://www.tridonic.com/28006311

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor mounting kit ACU 033 IP66 WH	**28006311**	15 pc(s).	0.007 kg

REMOTECONTROL IR6

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

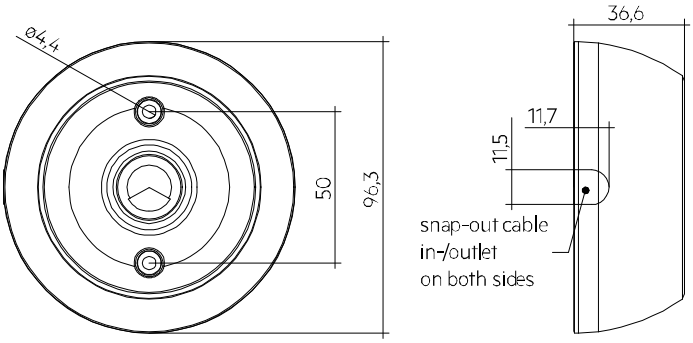
Website
http://www.tridonic.com/28000647

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

Sensor housing ACU 031 IP20 WH

Accessory



Product description

_ Mounting frame for wired DALI MSensor G3 SFI 30 PIR 10DPI WH sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ DALI MSensor G3 SFI 30 PIR 10DPI WH is powered via DALI circui
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Including gasket for ideal IP protection
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ Sensor not included

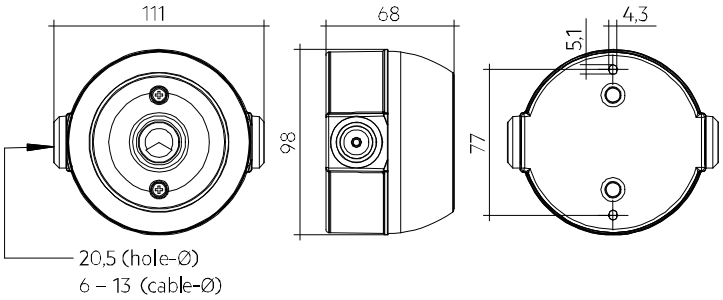
Website
http://www.tridonic.com/28001874

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 031 IP20 WH	**28001874**	81 pc(s).	0.054 kg

Sensor housing ACU 032 IP66 WH

Accessory



Product description

_ Mounting frame for wired DALI MSensor G3 SFI 30 PIR 10DPI WH sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Housing provides IP 66, but in combination with the DALI MSensor G3 SFI 30 PIR 4DPI WDA WH a maximum of IP54 is possible
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ DALI MSensor G3 SFI 30 PIR 10DPI WH is powered via DALI circui
_ Optional shutter for reduction of occupancy detection area allowing to decrease the occupancy detection area from 360° to 240°
_ Mounting kit with screws and decorative plugs
_ Including gasket for ideal IP protection
_ Casing passed glow wire test with 850 °C according to EN 61347-1

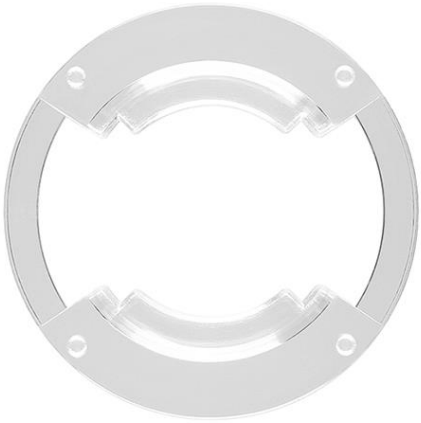
Website
http://www.tridonic.com/28001873

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 032 IP66 WH	**28001873**	45 pc(s).	0.105 kg

Shading Set 4DPI WDA

Accessory



Corridor

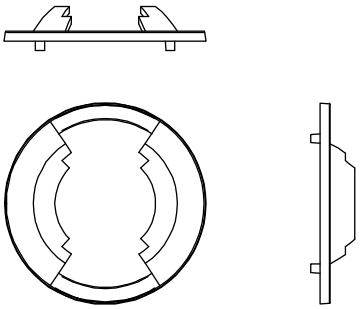
90° shutter

180° shutter

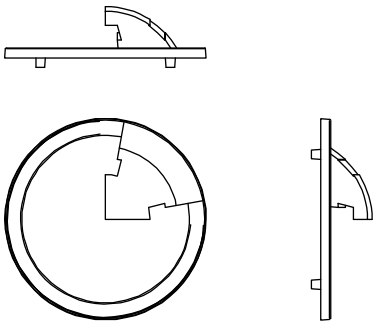
Product description

_ Shading set consisting of 3 different types of lenses: Corridor, 90° and 180° shutter
_ Shutters mountable directly to the front of the sensor in 4 different positions 0°, 90°, 180° and 270° angle relative to the sensor device
_ No disturbance of light measurement or IR receiver signals
_ Material transparent Lexan 923 with polished surface finish
_ Shutters made for one time use, once installed removal may damage the shutter and sensor lens!

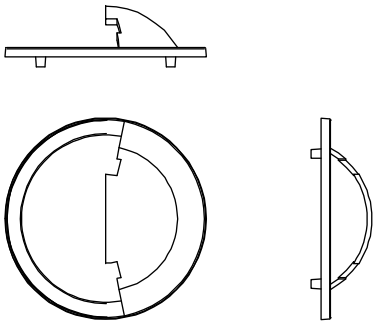
Website
http://www.tridonic.com/28003867



Corridor



90° shutter



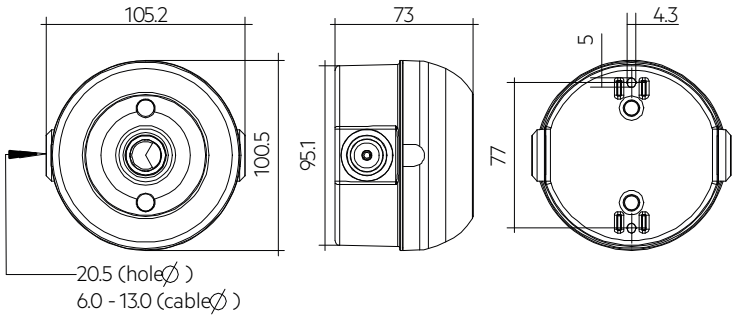
180° shutter

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU SHADING SET 034 4DPI WDA	**28003867**	20 pc(s).	0.001 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website
http://www.tridonic.com/28005945

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

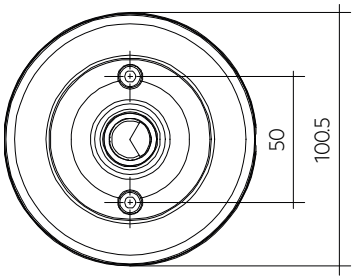
Sensor housing ACU 036 10DPI/WDA IP20 WH

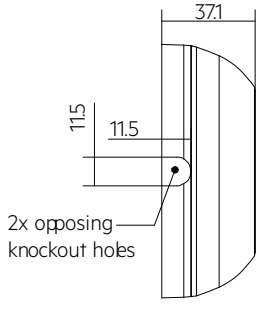
Accessory

Product description

_ Mounting frame for wired 10DPI/WDA sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Including gasket for ideal IP protection
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005944





Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 036 10DPI/WDA IP20 WH	**28005944**	57 pc(s).	0.051 kg

1. Standards

EN 61347-2-11:2001 + A1:2017
IEC 61347-2-11:2001, AMD1:2017
EN IEC 55015:2019 + A11:2020
CISPR15
EN 61547:2009
EN 62386-101 Ed.2
EN 62386-103 Ed.1
EN 62386-301
EN 62386-303
EN 62386-304
EN 62386-351

1.1 DALI note

Sensor is only applicable for DALI-2 installations according to EN 62386-101 Ed.2.
List of approved application controller can be found on our WEB page „Application_controllers_MSensor_G3.pdf“

Following table shows the instances and which values they provide.

DALI instances	
Instance number	**Explanation**
0	Occupancy sensor DALI Part 303
1	Light sensor DALI Part 304
2 – 19[①]	Push button DALI Part 301

[①] Sensors produced before 25.07.23 do provide 13 instances and do not support Tridonic IR6+ remote control.

1.2 D4i note

D4i luminaire-mounted control devices (part 351) = Type B

1.3 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

DALI MSensor G3 SFI 30 PIR 4DPI WDA WH is one of the new generation of Tridonic sensors.
With this Sensor, the customer gets a small sized sensor for low height applications and a protection against environmental influence up to IP54.

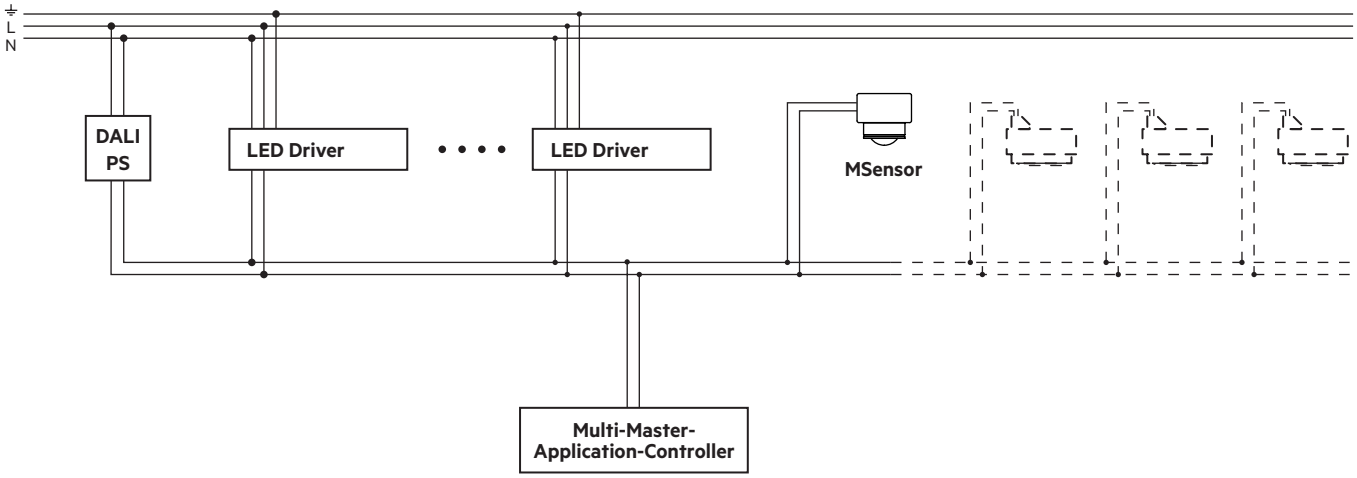
This sensor provides measurement of ambient light, occupancy detection via PIR sensor and IR remote control input as well as a LED output for signalisation.
DALI MSensor G3 SFI 30 PIR 4DPI WDA WH is created for following main applications:
Low height buildings such as

- Office applications
- Factory buildings
- Storage buildings and warehouses
- Corridors, passages and Garages

3. Installation

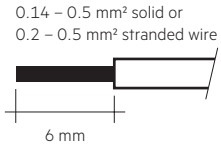
- The DALI MSensor must not be connected to the mains. It is supplied directly via the DALI power supply.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not overlap. This may have influence to the lighting control.
- When installed at a height other than the recommended installation height, the sensor might show different characteristics.
  When mounted at a higher level, its sensitivity is reduced.
  If mounted at a lower level, its range is reduced.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect occupancy detection.
- Avoid direct illumination of the light source on the sensor including housing.
- If shutters are used it is important to keep in mind that shutters are made for one time use, once installed removal may damage the shutter and sensor lens!
- Do not use aggressive detergents to clean the e.g. sensor lens. Always make sure that the used detergent does not harm the sensor materials.

3.1 Wiring



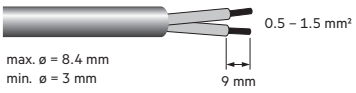
3.2 Wiring type and cross section

SFI version:
For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².



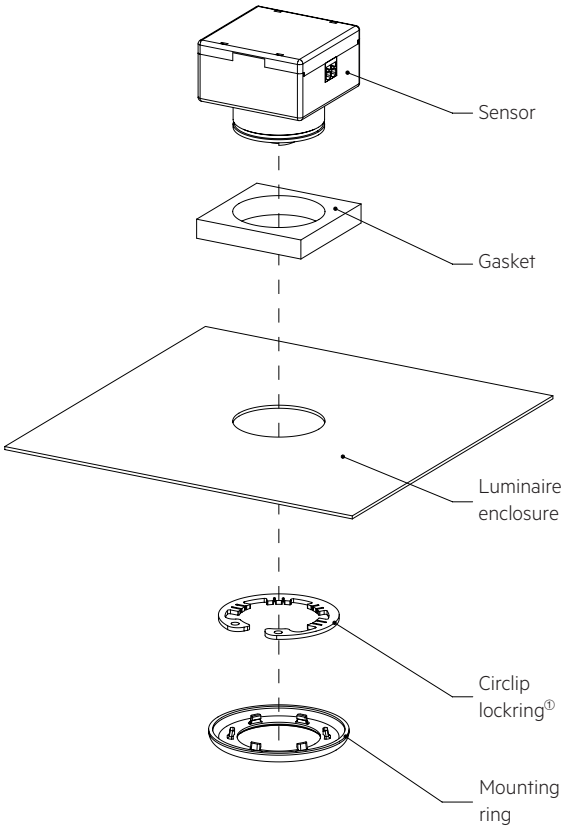
SRC version:
For wiring use stranded wire with ferrules or solid wire from 0.5–1.5 mm².
Strip 9 mm of insulation from the cables to ensure perfect operation of the push terminals.
Use one wire for each terminal connector only.
Use the strain relief for one cable only.

SSM version:
For wiring use solid wire from 0.5–1.5 mm².
Strip 9 mm of insulation from the cables to ensure perfect operation of the push terminals.
Use one wire for each terminal connector only.



3.3 Mounting variants luminaire installation sensor:

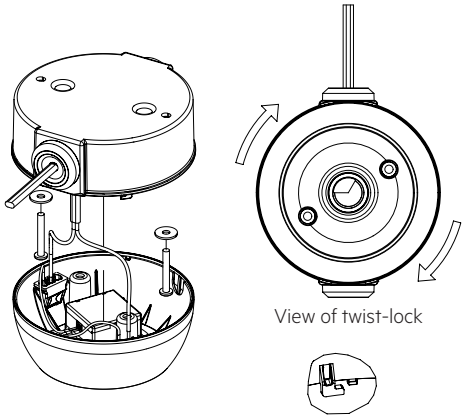
3.3.1 Installation in luminaire
To ensure the right IP protection please read chapter 3.6 Gasket.



① Not included in kit ACU 030.

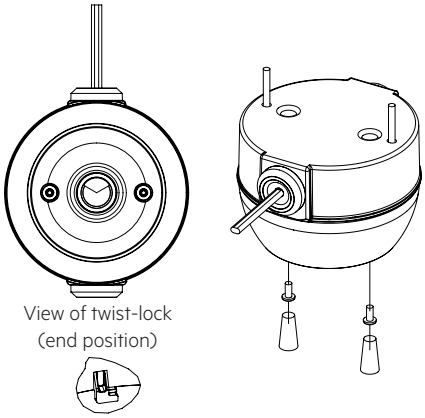
3.3.2 Installation in Sensor housing ACU 032 IP66 WH
To ensure the right IP protection please read chapter 3.6 Gasket.

Step 1: Cover placed on base plate



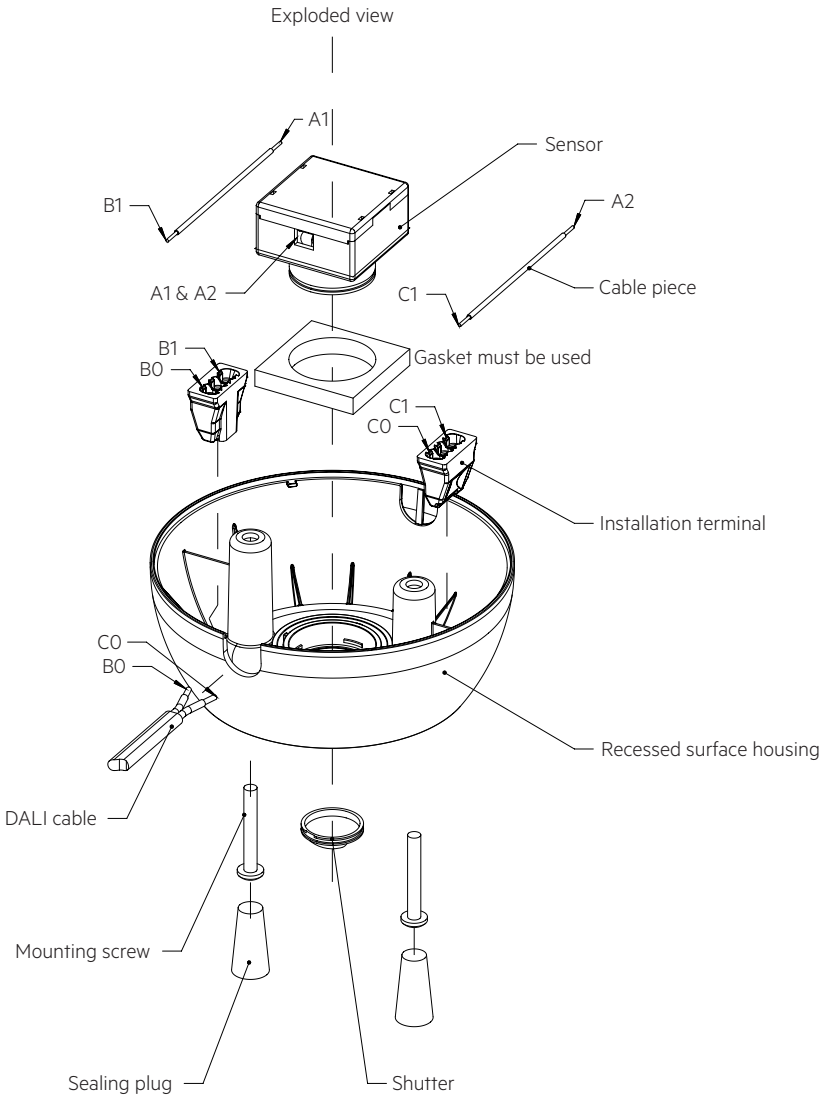
Mount base plate. Feed cable (cable diameter: 6 – 13 mm) of the lateral grommets into the installation terminals.

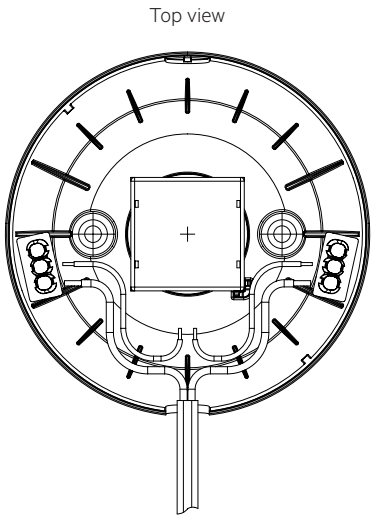
Step 2: Cover locked



After the cover is loosely mounted on the base plate, insert and tighten the 2 screws.
In the last step insert in the sealing plugs.

3.3.3 Installation in Sensor housing ACU 031 IP20 WH
To ensure the right IP protection please read chapter 3.6 Gasket.

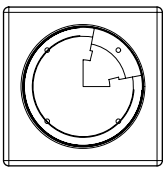


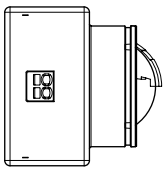


3.4 Detection area covers

Included in each ACU SHADING SET 034 4DPI WDA there are 3 detection area covers included.

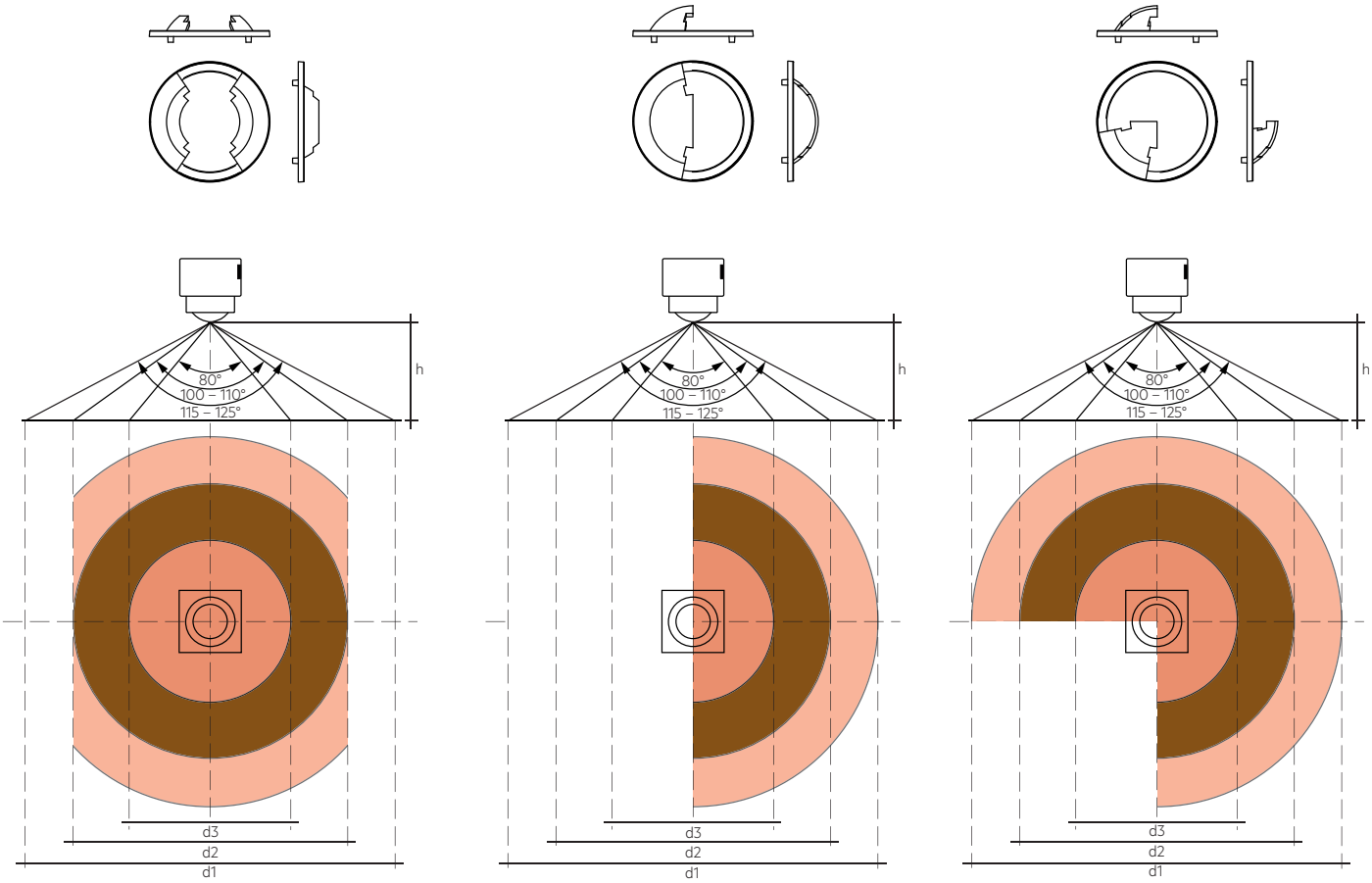
Type of material:	Lexan 923
Colour:	transparent
Surface finish:	polished





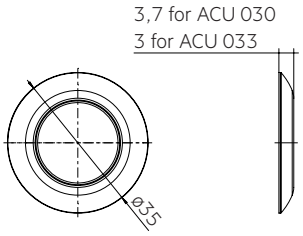
Attach the detection area cover to the sensor by inserting it into the corresponding groove at the front of the sensor.
Shutters made for one time use, once installed removal may damage the shutter and sensor lens!
If you install a damaged shutter to the sensor the risk is high that the shutter falls off!

Area which is masked by the shutter:



3.5 Mounting ring

Included in each Sensor mounting kit ACU 030 IP66 WH and kit ACU 033 IP66 WH is a mounting ring. This ring allows to mount the sensor into a luminaire in an easy and visual attractive way.



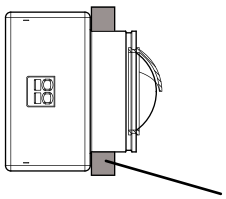
3.6 Gasket

To fulfill ingress protection different gaskets are included in the Mounting Kit.
The gaskets are necessary to ensure ingress protection as well as proper mounting of the sensor in luminaire.

Sensor can be inserted into luminaires with a cover size from 0.75 up to 4.0 mm.

According to the size of luminaire cover in certain application, one of the gaskets must be used and mounted between the front of the sensor and the luminaire housing.
It is not allowed to use a combination of e.g. two gaskets, because this will not provide the right amount of sealing and you may run in to a risk to not reach the IP54 requirements.

Use maximum possible size for your application to ensure a proper fit and protection.



Gasket (size 3, 5 or 8 mm)

Sensor mounting kit ACU 030 IP66 WH

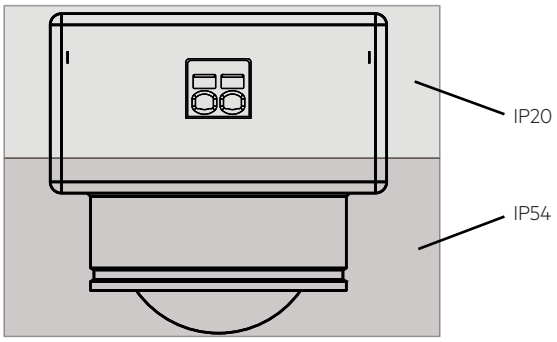
Distance between Sensor and luminare	Final size of gasket after assembly	Use gasket
2.0 – 2.4 mm	2.0 – 2.4 mm	3 mm
2.5 – 4.0 mm	2.5 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

Sensor mounting kit ACU 033 IP66 WH

Distance between Sensor and luminare	Final size of gasket after assembly	Use gasket
2.7 – 4.0 mm	2.7 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

3.7 Ingress protection

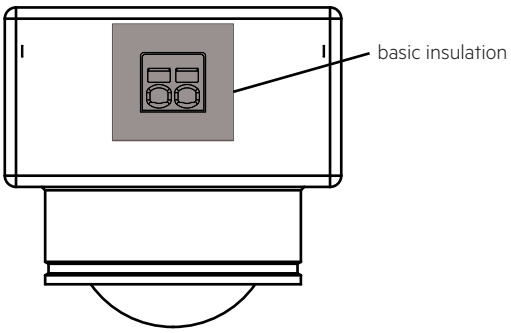
This device contains IP-protection to use it also in applications with the need of protection against dust and water ingress. IP54 protection applies to the front of the sensor whereas the back of the sensor is IP20 rated.



Only valide for SFI version.
SSM and SRC version are only IP20 protected.

3.8 Mounting in class II luminaire

The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the most part of the sensor is tested to fulfil the class II requirements for double or reinforced insulation. Basic insulation is illustrated in the graphic below and covers an area 2,5 mm around the terminal.
The rest of the sensor fulfils class II requirements.



4. Sensor function

4.1 Occupancy / motion detection

For occupancy detection PIR technology is used. The PIR Lens is made to detect moving people in areas such as office, open space or corridors with the following performance criteria:

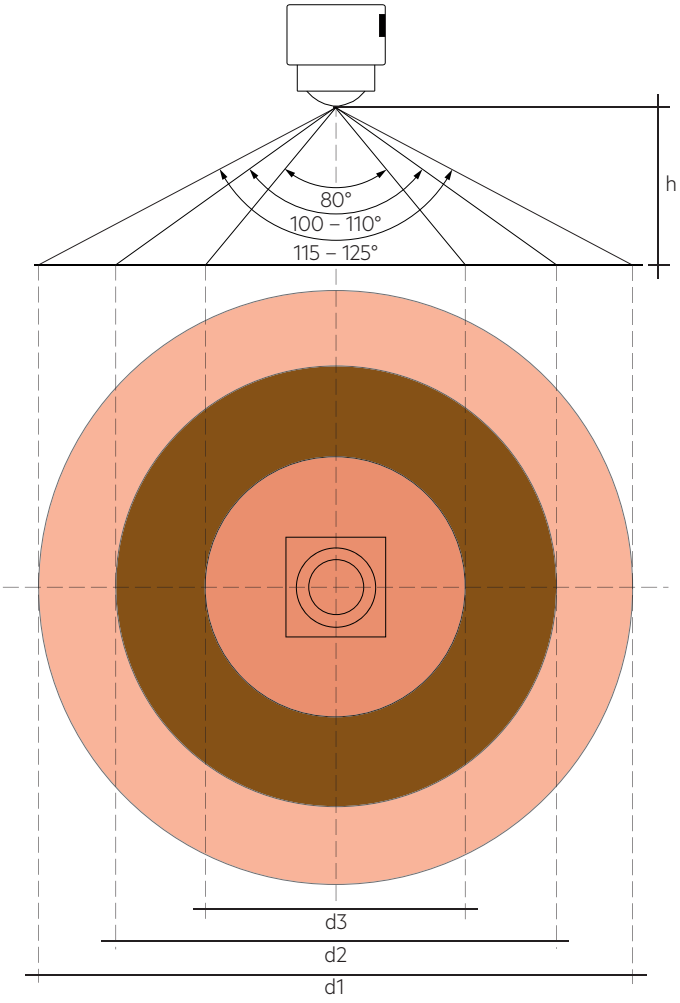
- Ceiling height from 2 up to 4 m
- Movement of human body
- Center area with increased sensitivity to detect small movements with speed ≥ 0.5 m/s for mounting heights up to 3 m (80° full angle)
- Movement speed ≥ 1.0 m/s for mounting heights up to 4 m

Reaction time of the sensor (time between occupancy detected and event information send to DALI Bus) is ≤ 25 ms.

The reaction time of the system can be extended by factors such as the amount of data on the bus, the number of connected devices or the control device used (Application Controller).

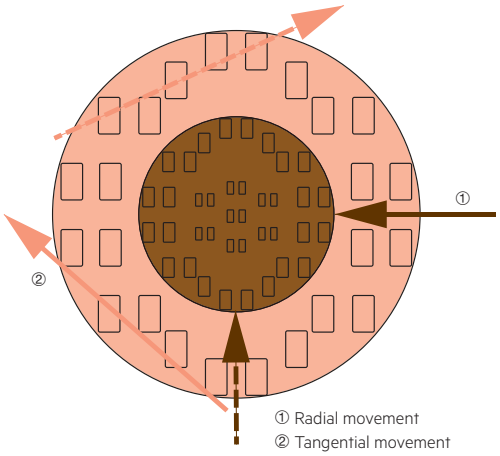
The point at which the light responds must therefore not be equated with the outer detection range.

4.2 Detection area

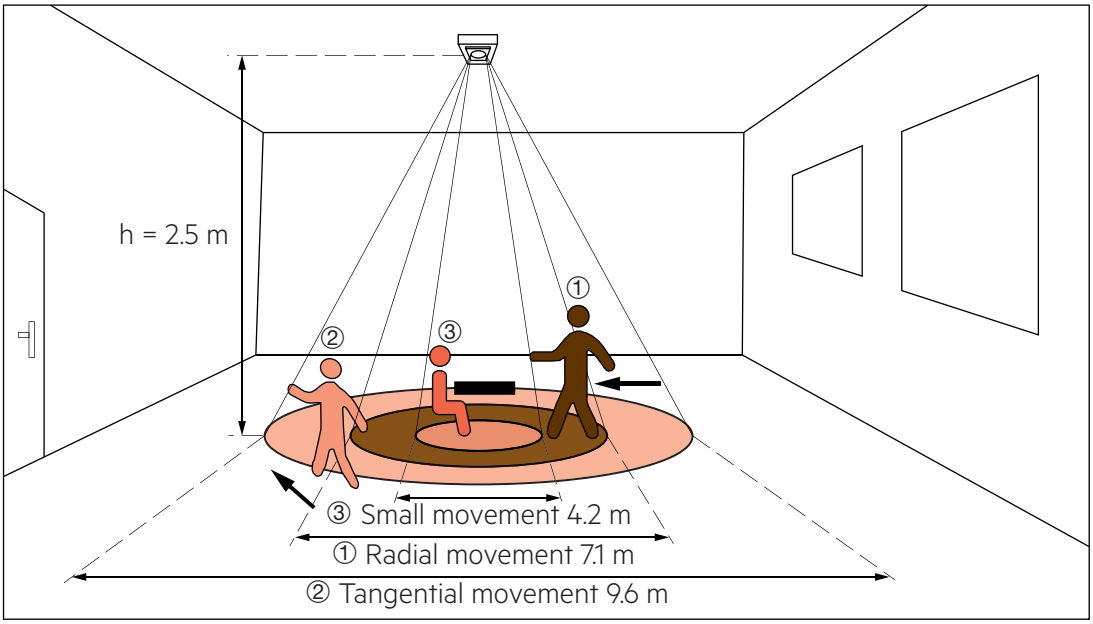


h = Height	d1 = Tangential movements		d2 = Radial movements		d3 = Small movements	
	Full angle	Diameter	Full angle	Diameter	Full angle	Diameter
2.0 m	125°	7.7 m	110°	5.7 m	80°	3.4 m
2.5 m	125°	9.6 m	110°	7.1 m	80°	4.2 m
3.0 m	125°	11.5 m	110°	8.6 m	80°	5.0 m
3.5 m	125°	13.4 m	110°	10.0 m	–	–
4.0 m	115°	12.6 m	100°	9.5 m	–	–

Schematic illustration of radial / tangential movements:

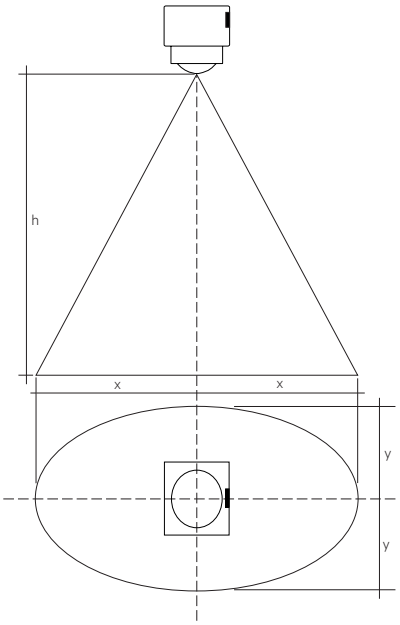


Detection example at 2.5 m mounting height:



4.3 Light measurement

The light measurement has a cone-shaped detection area with a half angle of approximately 75° in x-direction and 40° in y-direction.
Pay attention on the position of the sensor!
The detection area is asymmetrical and the position of the sensor makes a difference which area reflection is used for the light measurement.
The terminal of the sensor is visualized in the graphic and can be used for orientation of the direction.



h	dx	dy
2 m	3.0 m	1.5 m
3 m	4.6 m	2.2 m
4 m	6.1 m	2.9 m

4.3.1 Light value format

The default operating mode is 128.
In this mode the user is able to choose from fixed point and floating point values for the light measurement. The default setting are floating point values.
In addition to operation mode 128 also operating mode 0 is implemented.
In operating mode 0 the fixed point values are supported for the light measurement values.
Resolution for fixed point and floating point = 1/64 Lux

The measurement range is between 0.5 and 2000 lx.
Measured at the sensor head.

To be able to measure values < 5 lx in an accurate way it is needed to change integration time of light sensor to 800 ms.
Integration time of light sensor is set to 100 ms by default.
For values > 5 lx there is no difference in between these measurements.

4.4 Status LED's

There is a LED built in to indicate different status information to the user.

Event	Blinking sequence	LED Color
DALI command „identify device"	500 ms on / 500 ms off for 10 s	Red
Motion detection①	Default deactivated but can be activated by the application controller. If active, 1,000 ms on every time Motion is detected.	Red
IR-Signal received①	Double blinking (150 ms on / 150 ms off) on every received IR-command.	Red

Light measurement priority
① By default, these blinking patterns are interrupted by the light measurement, because the light measurement has a higher priority.
This behavior can be changed via the application controller, i.e. it can be configured that the blinking patterns are carried out, regardless of an ongoing light measurement. Consequently, the accuracy of the light measurement will become worse, because the brightness of the LED distorts the measurement.

5. Configuration

Optimized for the operation in conjunction with the Tridonic application controller sceneCOM S.

For commissioning and configuration the App „sCS commissioning“ (sceneCOM S) is provided by Tridonic. App can be installed on iOS and Android devices. Compatible with Android 6.0 / iOS 10 or later, devices with a min. screen size of 20 cm diagonal and a min. resolution of 1024 x 768 pixels.

Android:

iOS:

6. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

6.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI MSensor G3 PIR 5DPI

DALI-2 multi-sensor

DALI MSensor G3 SFI 30 PIR 5DPI WH

DALI MSensor G3 SFI 30 PIR 5DPI BK

DALI MSensor G3 SRC 30 PIR 5DPI WH

Product description

_ Sensor developed to work with the latest DALI specification
_ Monitoring of ambient light and occupancy detection
_ Remote control interface allowing infrared remote control interaction
_ Individual adjustment of the parameters with configuration software
_ Power supply via DALI line
_ Shutter for preventing occupancy detection in one direction included
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ Wide range of accessories allowing extended application range
_ 28002878: bundle incl. 28002384 and 28001872.
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Note

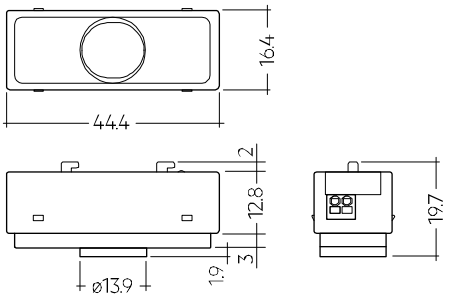
_ Tridonic DALI MSensor G3 family sensors are developed according to DALI Standard EN 62386-101 Ed.2, also known as DALI-2. To be able to use the sensor in such installation, an application controller is necessary.
_ List of approved application controller can be found on our WEB page in “Downloads” in document “Application_controllers_MSensor_G3.pdf”.

Website

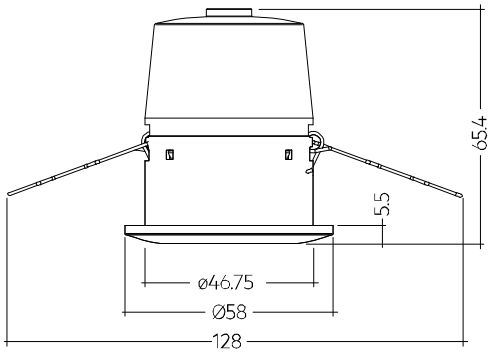
http://www.tridonic.com/28002384

DALI MSensor G3 PIR 5DPI

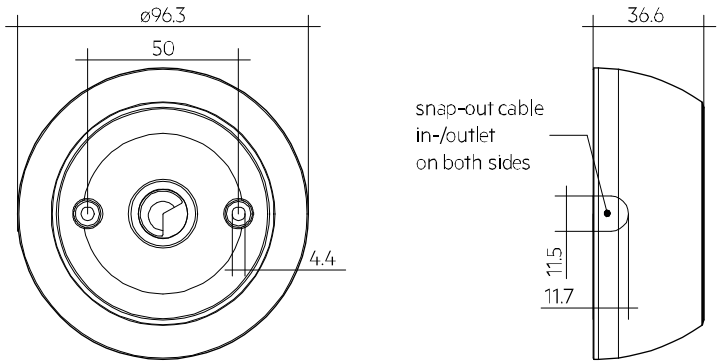
DALI-2 multi-sensor



DALI MSensor G3 SFI 30 PIR 5DPI WH + DALI MSensor G3 SFI 30 PIR 5DPI BK



DALI MSensor G3 SRC 30 PIR 5DPI WH



DALI MSensor G3 SSM 30 5DPI WH

Ordering data

Type	Article number	Suitable for	Colour	Dimensions L x W x H	Packaging, carton	Weight per pc.
MSensor G3 SFI 30 PIR 5DPI WH Luminaire installation	**28002384**	Luminaire installation	White	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.010 kg
MSensor G3 SFI 30 PIR 5DPI BK Luminaire installation	**28002385**	Luminaire installation	Black	44.4 x 16.4 x 19.7 mm	15 pc(s).	0.010 kg
MSensor G3 SRC 30 PIR 5DPI WH Remote ceiling installation	**28002386**	Ceiling installation	White	58.0 x 58.0 x 65.4 mm	10 pc(s).	0.037 kg
MSensor G3 SRC 30 PIR 5DPI BK Remote ceiling installation	**28005773**	Ceiling installation	Black	58.0 x 58.0 x 65.4 mm	10 pc(s).	0.037 kg
MSensor G3 SSM 30 5DPI WH Ceiling surface installation (bundle)	**28002878**	Remote installation	White	96.3 x 96.3 x 36.6 mm	30 pc(s).	0.074 kg
MSensor G3 SSM 30 5DPI WH BK Ceiling surface installation (bundle)	**28005771**	Remote installation	Black	96.3 x 96.3 x 36.6 mm	30 pc(s).	0.074 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	9.5 – 22.5 V
Current consumption (no LED)	≤ 8 mA
Current consumption (with LED)	≤ 9 mA
Supported operating modes	0 or 128 (default)
Mounting height	5 m
Mounting hole diameter	14.1 mm
Detection angle for PIR detection	84°
Detection angle for light measurement	30° – 60°
Detection range for light measurement ②	0.5 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Type of protection	IP20
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

RoHS

Standards

EN 61347-2-11, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 62386-101, EN 62386-103, EN 62386-301, EN 62386-303, EN 62386-304, EN 62386-332

① Uin acc. IEC 62386-101.
② The measured value at the sensor head corresponds to approx. 3 to 6,300 lux on the surface measured.

REMOTECONTROL IR6

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

Website
http://www.tridonic.com/28000647

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

5DPI 14f Mounting Kit

Accessory

Product description
_ Mounting frame for attaching all 5DP 14f sensor directly to the luminaire housing
_ Optional shutter to prevent presence detection in a specific direction (for PIR sensors)
_ Glow wire test with 750 °C according to EN 61347-1

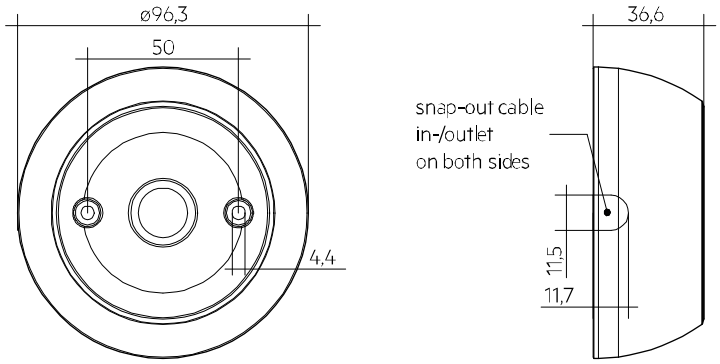
Website
http://www.tridonic.com/28001558

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
5DPI 14f mounting kit	**28001558**	100 pc(s).	0.004 kg
5DPI 14f mounting kit black	**28001575**	100 pc(s).	0.004 kg

ACU Sensor Housing 14rs IP20

Accessory



Product description

_ Mounting frame for wired 5DP 14f sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: plastic, white
_ UV stabilized plastic
_ DALI MSensor 5DPI 14 is powered via DALI circuit, basicDIM DGC Sensor 5DPI 14f powered via control unit
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Glow wire test with 750 °C according to EN 61347-1
_ Sensor not included

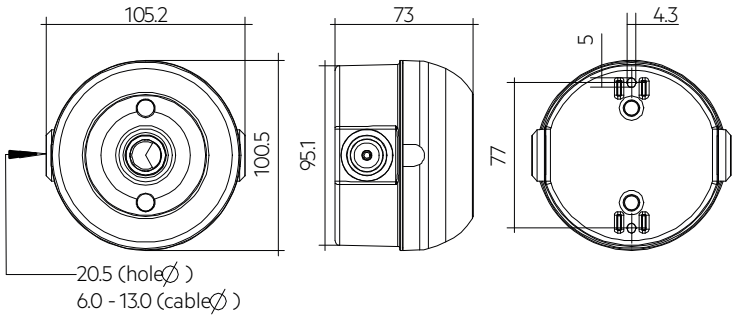
Website
http://www.tridonic.com/28001872

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU Sensor Housing 14rs IP20	**28001872**	81 pc(s).	0.054 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website
http://www.tridonic.com/28005945

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

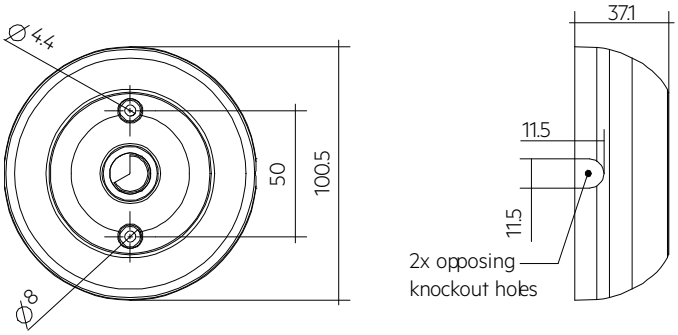
Sensor Housing ACU 035 5DPI IP20

Accessory

Product description

_ Mounting frame for wired 5DPI sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005943

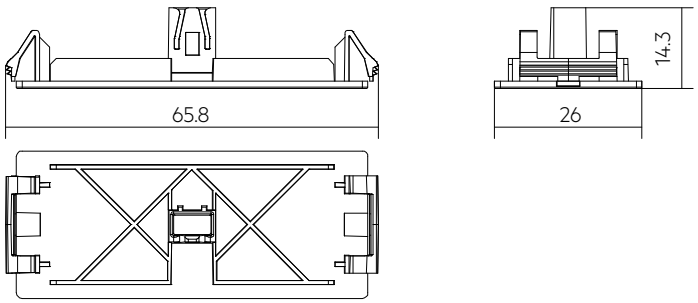


Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor Housing ACU 035 5DPI IP20 WH	**28005943**	57 pc(s).	0.052 kg

ACU BLIND COVER 60x22mm

Accessory



Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005056

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 040 60x22 WH	**28005056**	10 pc(s).	100 pc(s).	0.004 kg
ACU BLIND COVER 040 60x22 BK	**28005057**	10 pc(s).	100 pc(s).	0.004 kg

ACU BLIND COVER 040 60x22 LED

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

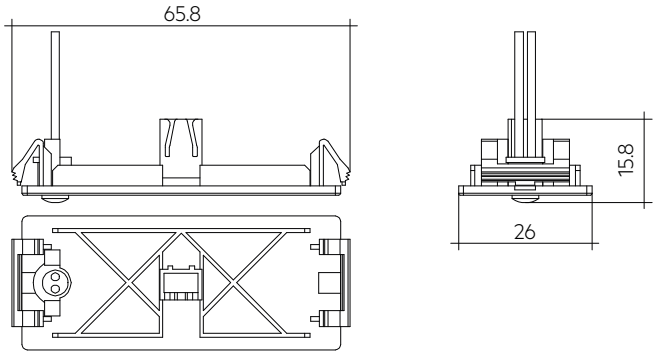
Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website
http://www.tridonic.com/28005935

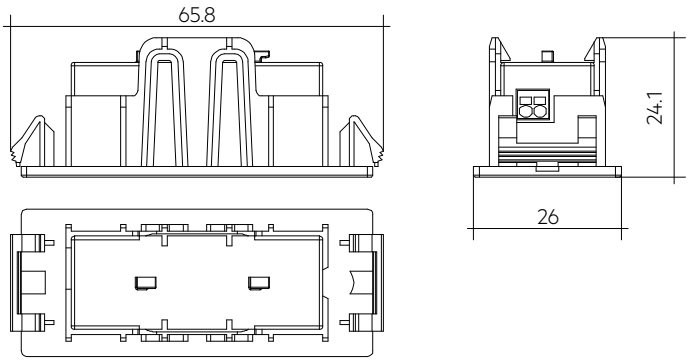


Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU BLIND COVER 60x22 LED 1.3 WH	**28005935**	10 pc(s).	100 pc(s).	0.005 kg
ACU BLIND COVER 60x22 LED 1.3 BK	**28005936**	10 pc(s).	100 pc(s).	0.005 kg

ACU MOUNTING ADAPTER 040 60x22 CON

Accessory



Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website

http://www.tridonic.com/28005939

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAPTER 60x22 CON 1.3 WH	**28005939**	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAPTER 60x22 CON 1.3 BK	**28005940**	10 pc(s).	100 pc(s).	0.006 kg

ACU MOUNTING ADAPTER 040 60x22 CON LED

Accessory

Interfaces

_ Plastic mounting accessories in white and black color: BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm
_ Fit to 60 x 22 mm Zhaga Book 20 cut out
_ With hole for emergency light status LED (EM LED is not included and must be ordered separately - 28005763 & 28005769)
_ Special mounting bracket for EM LED fixation is included in the packaging
_ The BLIND COVER has a holder for luminaire plug connector LEX-LP according to Zhaga Book 20 standard
_ MOUNTING ADAPTER 60 x 22 mm establish possibility to install a shutter for preventing occupancy detection

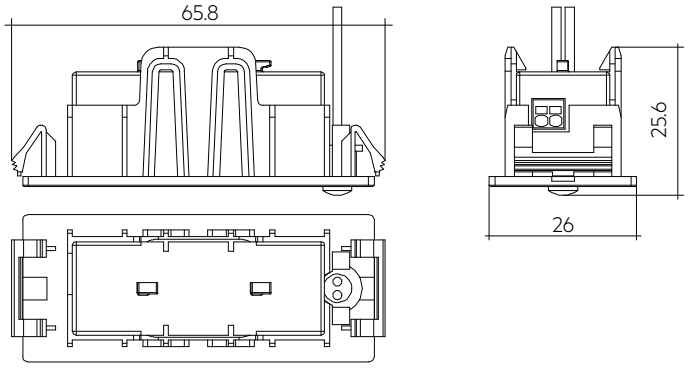
Housing properties

_ Casing: polycarbonate, black or white
_ Type of protection IP20

Benefits

_ Used for sensor integration to any lighting fixture which comply with Zhaga Book 20 standard
_ Simple retrofitting thanks to the option of mounting the sensor in the luminaire from the outside (not possible for 28001538 smartSWITCH 5DP 14f there the lighting fixture must be opened)
_ No tools required for installation
_ Possibility to remove BLIND COVER 60 x 22 mm and MOUNTING ADAPTER 60 x 22 mm without opening of the lighting fixture

Website
http://www.tridonic.com/28005941



Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 WH	**28005941**	10 pc(s).	100 pc(s).	0.006 kg
ACU MOUNTING ADAP-R 60x22 CON LED 1.3 BK	**28005942**	10 pc(s).	100 pc(s).	0.006 kg

1. Standards

EN/IEC 61347-2-11:2001
EN 55015:2013
EN 61000-3-2:2014 Part 3-2
EN 61000-3-3:2013 Part 3-3
EN 61547:2009
EN 62386-101 Ed.2
EN 62386-103 Ed.1
EN 62386-301
EN 62386-303
EN 62386-304
EN 62386-351

1.1 DALI note

Sensor is only applicable for DALI-2 installations according to EN 62386-101 Ed.2.
List of approved application controller can be found on our WEB page „Application_controllers_MSensor_G3.pdf“

Following table shows the instances and which values they provide.

DALI instances	
Instance number	**Explanation**
0	Occupancy sensor DALI Part 303
1	Light sensor DALI Part 304
2 – 19[1]	Push button DALI Part 301

[1] Sensors produced before 25.07.23 do provide 13 instances and do not support Tridonic IR6+ remote control.

1.2 D4i note

D4i luminaire-mounted control devices (part 351) = Type B

1.3 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

DALI MSensor G3 SFI 30 PIR 5DPI WH/BK is one of the new generation of Tridonic sensors.
With this Sensor, the customer gets a small sized sensor for low height applications and a protection against environmental influence up to IP20.

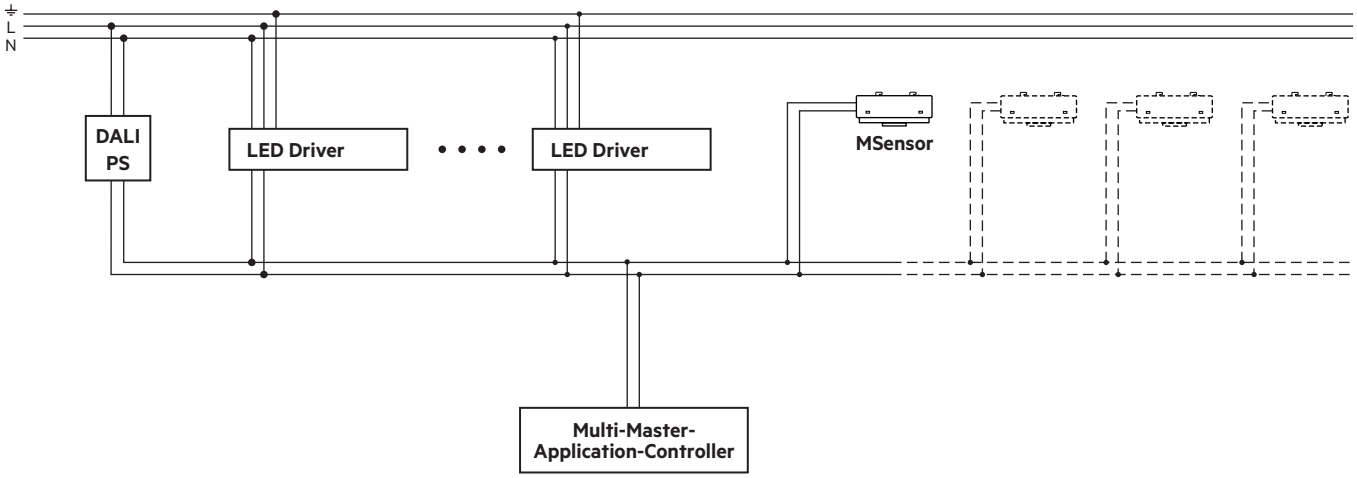
This sensor provides measurement of ambient light, occupancy detection via PIR sensor and IR remote control input as well as a LED output for signalisation.
DALI MSensor G3 SFI 30 PIR 5DPI WH/BK is created for following main applications:
Low height buildings such as

- Corridors, passages und Garages
- Office buildings

3. Installation

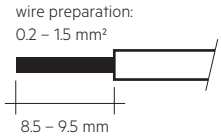
- The DALI MSensor must not be connected to the mains. It is supplied directly via the DALI power supply.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not overlap. This may have influence to the lighting control.
- When installed at a height other than the recommended installation height, the sensor might show different characteristics.
  When mounted at a higher level, its sensitivity is reduced.
  If mounted at a lower level, its range is reduced.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect occupancy detection.
- Avoid direct illumination of the light source on the sensor including housing.

3.1 Wiring



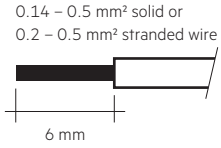
3.2 Wiring type and cross section for rc version

For wiring use stranded wire or solid wire from 0.2 to 1.5 mm².



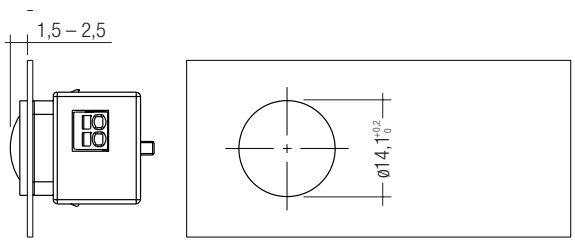
3.3 Wiring type and cross section for f version

For wiring use stranded wire from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².

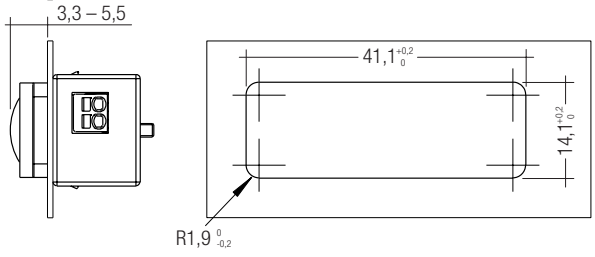


3.4 Mounting variants luminaire installation sensor:

Variant 1:
Size of the sheet: 0.8 – 1.8 mm

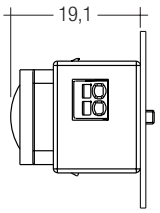


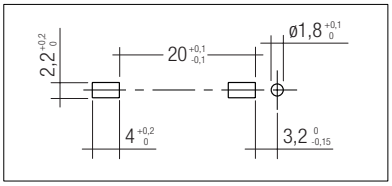
Variant 2:
Size of the sheet: 0.8 – 3.0 mm



Variant 3:
Size of the sheet: 0.6 – 0.8 mm

Mounting on a touchable metal sheet on the rear side in protection class II luminaires is not permitted in variant 3. In order to allow this type of mounting, the sheet must be additionally insulated in a protection class II application or connected to a protective earth in a protection class I application.

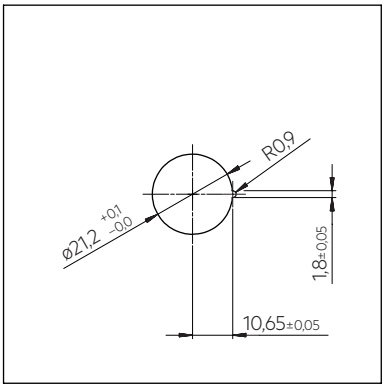


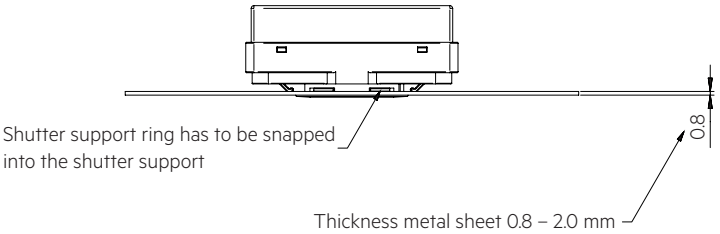


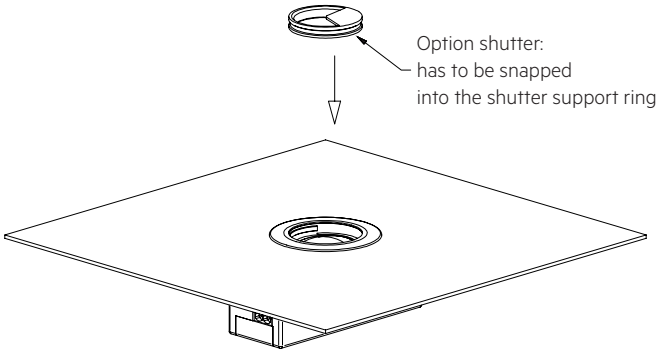
3.5 Mounting in luminaire housing with Mounting Kit:

Size of the sheet: 0.8 – 2.0 mm

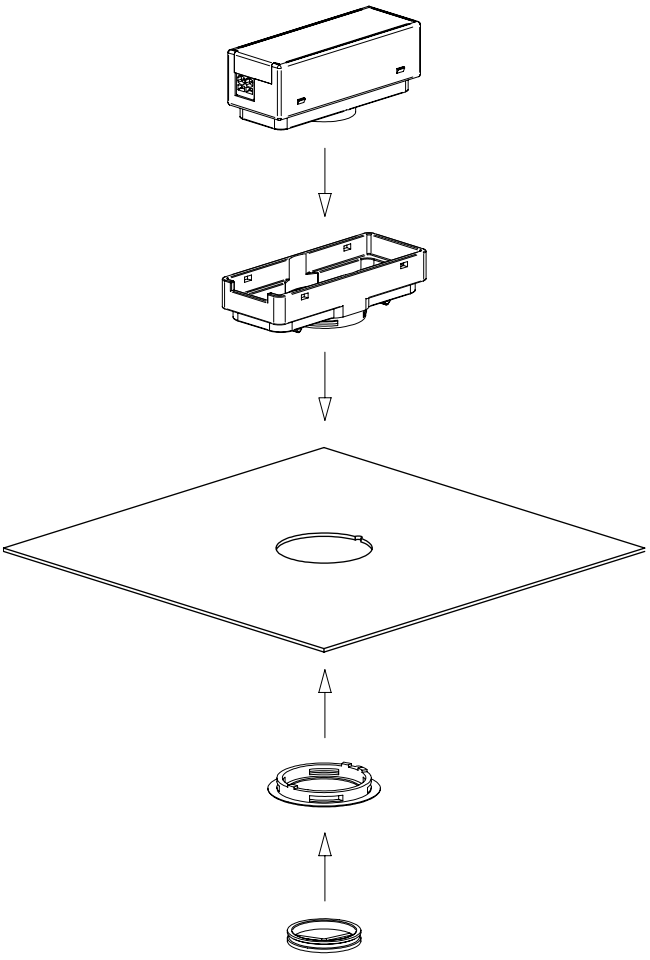
Dimension drawing for needed mounting opening







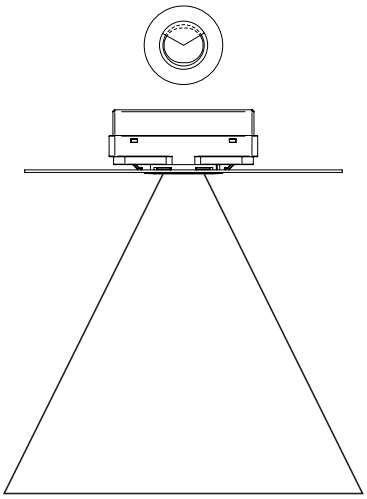
3.6 Mounting Kit mounting

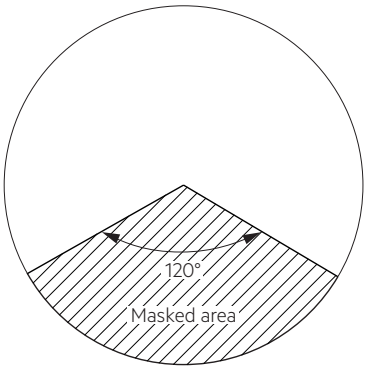


3.7 Mounting Kit Shutter

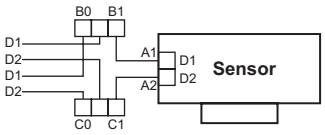
SRC Version does not support the Shutter. If you need a shutter please use one of the other versions.

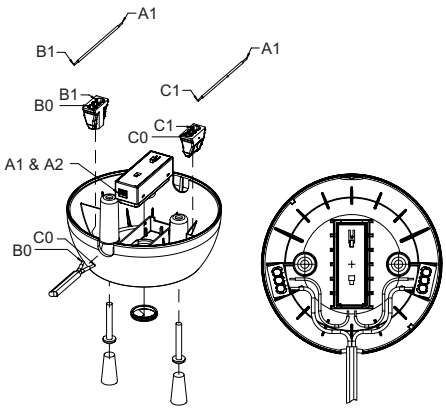
Area which is masked by the shutter.





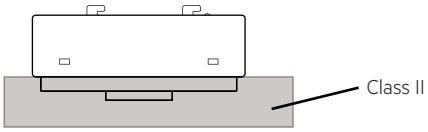
3.8 Wiring and mounting ACU Sensor Housing 14rs IP20





3.9 Mounting in class II luminaire

The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the front of the sensor is tested to fulfill the class II requirements for double or reinforced insulation.



4. Light level recognition area

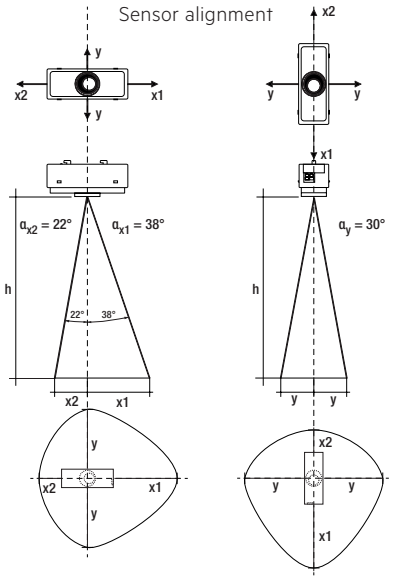
4.1 Light value format

The default operating mode is 128.
In this mode the user is able to choose from fixed point and floating point values for the light measurement. The default setting are floating point values.
In addition to operation mode 128 also operating mode 0 is implemented.
In operating mode 0 the fixed point values are supported for the light measurement values.
Resolution for fixed point and floating point = 1/64 Lux

The measurement range is between 0.5 and 2000 lx.
Measured at the sensor head.

To be able to measure values < 5 lx in an accurate way it is needed to change integration time of light sensor to 800 ms.
Integration time of light sensor is set to 100 ms by default.
For values > 5 lx there is no difference in between these measurements.

Sensor alignment



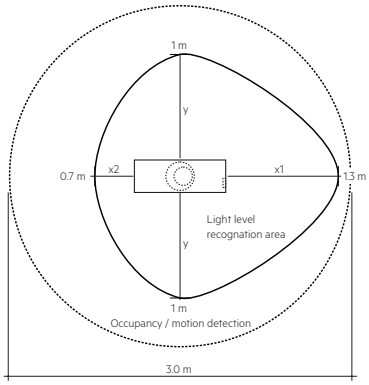
h *	x1	x2	y	d
1.7 m	1.3 m	0.7 m	1.0 m	3.0 m
2.0 m	1.6 m	0.8 m	1.2 m	3.6 m
2.3 m	1.8 m	0.9 m	1.3 m	4.1 m
2.5 m	2.0 m	1.0 m	1.4 m	4.5 m
2.7 m	2.1 m	1.1 m	1.6 m	4.9 m
3.0 m	2.3 m	1.2 m	1.7 m	5.4 m
3.5 m	2.7 m	1.4 m	2.0 m	6.3 m
4.0 m	3.1 m	1.6 m	2.3 m	7.2 m

* The recommended maximum room height for office applications is 3 m and for corridor applications for example 4 m. Detection of slight movements up to 2 m mounting height and bigger movements from 2 m.

Calculation of the diameter (light area):
$x1 = \tan(\alpha_{x1}) \times h$
$x2 = \tan(\alpha_{x2}) \times h$
$y = \tan(\alpha_y) \times h$

Calculation of the diameter (occupancy area):
$d = 2 \times \tan(0{,}5 \times \alpha) \times h$

Example for light and occupancy detection area at height of 1.7 m:



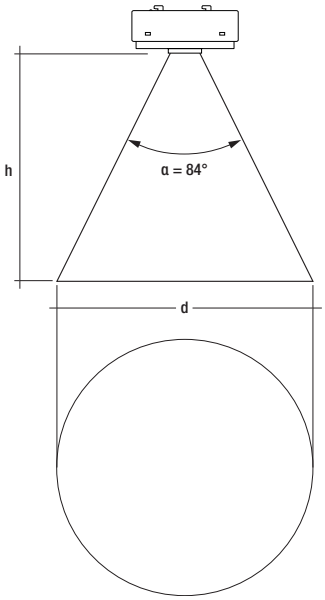
4.2 Status LED's

There is a LED built in to indicate different status information to the user.

Event	Blinking sequence	LED Color
DALI command „identify device"	500 ms on / 500 ms off for 10 s	Red
Motion detection①	Default deactivated but can be activated by the application controller. If active, 1,000 ms on every time Motion is detected.	Red
IR-Signal received①	Double blinking (150 ms on / 150 ms off) on every received IR-command.	Red

Light measurement priority
① By default, these blinking patterns are interrupted by the light measurement, because the light measurement has a higher priority.
This behavior can be changed via the application controller, i.e. it can be configured that the blinking patterns are carried out, regardless of an ongoing light measurement. Consequently, the accuracy of the light measurement will become worse, because the brightness of the LED distorts the measurement.

5. Occupancy / motion detection



5.1 Occupancy detection

For occupancy detection PIR technology is used. PIR Lens is made to detect moving people in working areas such as warehouses, storage buildings and similar working areas with the following performance criteria:

- Ceiling height from up to 5 m
- Movement of human body:
  - up to 2 m mounting height: detection of slight motion.
  - above 2 m mounting height: detection of bigger movements.
- Movement ≥1.0 m/s for mounting heights up to 5 m

6. Configuration

Optimized for the operation in conjunction with the Tridonic application controller sceneCOM S.

For commissioning and configuration the App „sCS commissioning" (sceneCOM S) is provided by Tridonic. App can be installed on iOS and Android devices. Compatible with Android 6.0 / iOS 10 or later, devices with a min. screen size of 20 cm diagonal and a min. resolution of 1024 x 768 pixels.

Android:

iOS:

7. Miscellaneous

7.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

7.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI MSensor G3 PIR 10DPI WH

DALI-2 multi-sensor

DALI MSensor G3 SFI 30 PIR 10DPI WH

DALI MSensor G3 SSM 30 10DPI WH

Product description

_ Sensor developed to work with the latest DALI specification
_ Monitoring of ambient light and occupancy detection
_ Remote control interface allowing infrared remote control interaction
_ Individual adjustment of the parameters with configuration software
_ Power supply via DALI line
_ Shutter for preventing occupancy detection in one direction included
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ Wide range of accessories allowing extended application range
_ SSM version (28002879) = pre-configured bundle of SFI sensor (28002119) and ACU IP20 housing (28001874)
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

_ Casing: polycarbonate, white
_ Type of protection up to IP66

Note

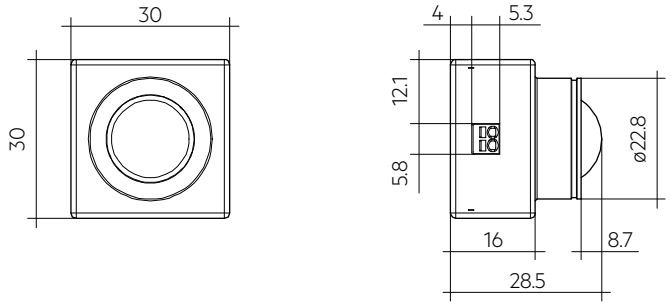
_ Tridonic DALI MSensor G3 family sensors are developed according to DALI Standard EN 62386-101 Ed.2, also known as DALI-2. To be able to use the sensor in such installation, an application controller is necessary.
_ List of approved application controller can be found on our WEB page in “Downloads” in document “Application_controllers_MSensor_G3.pdf”.

Website

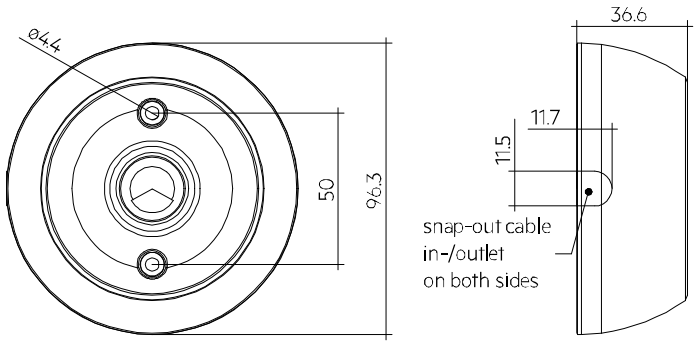
http://www.tridonic.com/28002119

DALI MSensor G3 PIR 10DPI WH

DALI-2 multi-sensor



DALI MSensor G3 SFI 30 PIR 10DPI WH



DALI MSensor G3 SSM 30 10DPI WH

Ordering data

Type	Article number	Suitable for	Dimensions L x W x H	Packaging, carton	Weight per pc.
MSensor G3 SFI 30 PIR 10DPI WH	**28002119**	Luminaire installation	30.0 x 30.0 x 28.5 mm	15 pc(s).	0.013 kg
MSensor G3 SSM 30 10DPI WH	**28002879**	Remote installation	96.3 x 96.3 x 36.6 mm	30 pc(s).	0.077 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	9.5 – 22.5 V
Current consumption (no LED)	≤ 8 mA
Current consumption (with LED)	≤ 9 mA
Supported operating modes	0 or 128 (default)
Mounting height	5 – 10 m
Mounting hole diameter	23 mm
Housing thickness of the luminaire	0.75 – 4 mm
Detection angle for PIR detection (tagential / radial)	72° / 44°
Detection angle for light measurement	30° – 40°
Detection range for light measurement ②	0.5 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9016)
Housing colour lens	White
Type of protection ③	Up to IP66
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2-11, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 62386-101, EN 62386-103, EN 62386-301, EN 62386-303, EN 62386-304, EN 62386-332

① Uin acc. IEC 62386-101.
② The measured value at the sensor head corresponds to approx. 3 to 6,300 lux on the surface measured.
③ Depending on the installation type up to IP66 for more details see data sheet chapter 3.7.

Sensor mounting kit ACU 033 IP66 WH

Accessory

Product description
_ Easy to mount circlip lockring, compatible with industry standard circlip pliers (size 19 – 60 mm)
_ Corrosion resistant circlip made from stainless steel
_ Appealing plastic cover ring, allowing to mount the sensor in luminaires in an easy and visual attractive way
_ Fulfills the impact energy requirements of freestanding luminaires of 0.5 J
_ Includes 2 gaskets offering flexible installation in luminaries
_ Plastic cover passed glow wire test with 750 °C in according to EN 61347-1
_ In combination with the DALI MSensor G3 SFI 30 PIR 4DPI WDA WH, a maximum of IP54 is possible
_ In combination with the basicDIM ILD G2 4DPI WDA, a maximum of IP54 is possible

Website
http://www.tridonic.com/28006311

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor mounting kit ACU 033 IP66 WH	**28006311**	15 pc(s).	0.007 kg

REMOTECONTROL IR6

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

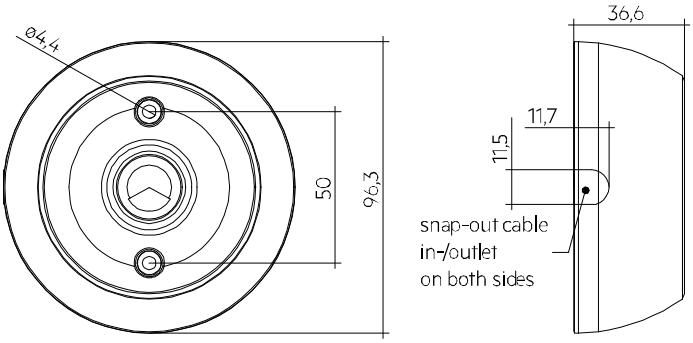
Website
http://www.tridonic.com/28000647

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

Sensor housing ACU 031 IP20 WH

Accessory



Product description

_ Mounting frame for wired DALI MSensor G3 SFI 30 PIR 10DPI WH sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ DALI MSensor G3 SFI 30 PIR 10DPI WH is powered via DALI circui
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Including gasket for ideal IP protection
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ Sensor not included

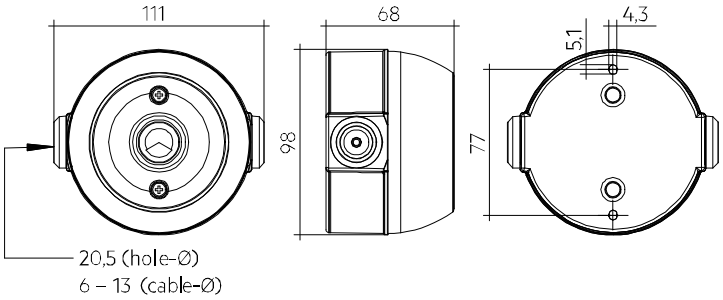
Website
http://www.tridonic.com/28001874

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 031 IP20 WH	**28001874**	81 pc(s).	0.054 kg

Sensor housing ACU 032 IP66 WH

Accessory



Product description

_ Mounting frame for wired DALI MSensor G3 SFI 30 PIR 10DPI WH sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Housing provides IP 66, but in combination with the DALI MSensor G3 SFI 30 PIR 4DPI WDA WH a maximum of IP54 is possible
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ DALI MSensor G3 SFI 30 PIR 10DPI WH is powered via DALI circui
_ Optional shutter for reduction of occupancy detection area allowing to decrease the occupancy detection area from 360° to 240°
_ Mounting kit with screws and decorative plugs
_ Including gasket for ideal IP protection
_ Casing passed glow wire test with 850 °C according to EN 61347-1

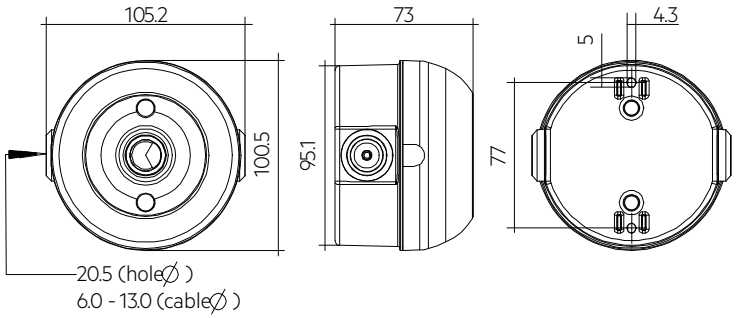
Website
http://www.tridonic.com/28001873

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 032 IP66 WH	**28001873**	45 pc(s).	0.105 kg

Housing base ACU 037 IP20 WH

Accessory



Product description

- Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
- 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
- Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
- Housing provides IP 66, depending on the used Sensor and housing it can be less
- Casing: polycarbonate, white
- UV stabilized plastic
- Mounting kit with screws
- Casing passed glow wire test with 850 °C according to EN 61347-1
- compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
- The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
- System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
- Sensor not included

Website
http://www.tridonic.com/28005945

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

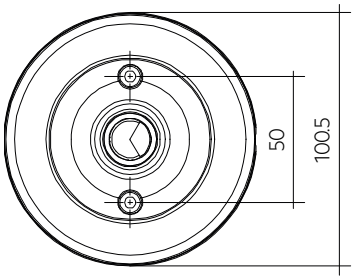
Sensor housing ACU 036 10DPI/WDA IP20 WH

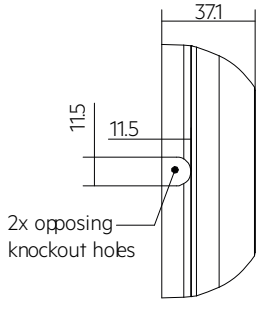
Accessory

Product description

_ Mounting frame for wired 10DPI/WDA sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Including gasket for ideal IP protection
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005944





Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 036 10DPI/WDA IP20 WH	**28005944**	57 pc(s).	0.051 kg

1. Standards

EN/IEC 61347-2-11:2001
EN 55015:2013
EN 61000-3-2:2014 Part 3-2
EN 61000-3-3:2013 Part 3-3
EN 61547:2009
EN 62386-101 Ed.2
EN 62386-103 Ed.1
EN 62386-301
EN 62386-303
EN 62386-304
EN 62386-351

1.1 DALI note

Sensor is only applicable for DALI-2 installations according to EN 62386-101 Ed.2.
List of approved application controller can be found on our WEB page „Application_controllers_MSensor_G3.pdf“

Following table shows the instances and which values they provide.

DALI instances	
Instance number	**Explanation**
0	Occupancy sensor DALI Part 303
1	Light sensor DALI Part 304
2 – 19[①]	Push button DALI Part 301

① Sensors produced before 25.07.23 do provide 13 instances and do not support Tridonic IR6+ remote control.

1.2 D4i note

D4i luminaire-mounted control devices (part 351) = Type B

1.3 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 750°C.

2. Common

DALI MSensor G3 SFI 30 PIR 10DPI WH is one of the new generation of Tridonic sensors.
With this Sensor, the customer gets a small sized sensor for medium height applications and a protection against environmental influence up to IP66.

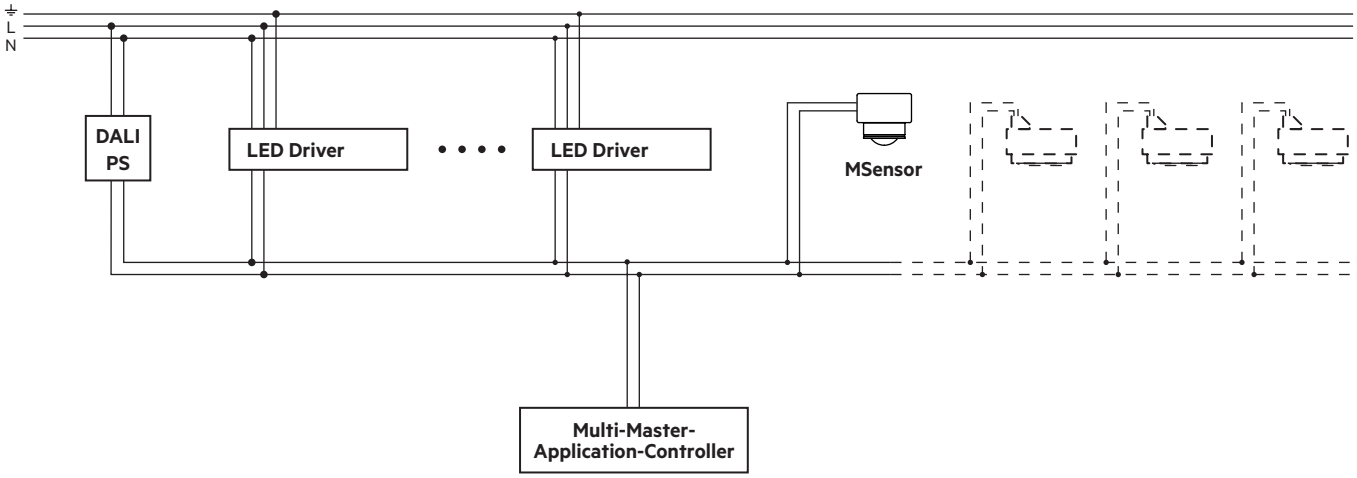
This sensor provides measurement of ambient light, occupancy detection via PIR sensor and IR remote control input as well as a LED output for signalisation.
DALI MSensor G3 SFI 30 PIR 10DPI WH is created for following main applications:
Medium height buildings such as

- Factory buildings
- Storage buildings and warehouses
- Corridors, passages und Garages
- Outdoor applications

3. Installation

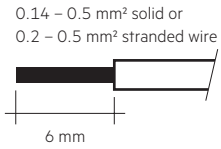
- The DALI MSensor must not be connected to the mains. It is supplied directly via the DALI power supply.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not overlap. This may have influence to the lighting control.
- When installed at a height other than the recommended installation height, the sensor might show different characteristics.
  When mounted at a higher level, its sensitivity is reduced.
  If mounted at a lower level, its range is reduced.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect occupancy detection.
- Avoid direct illumination of the light source on the sensor including housing.

3.1 Wiring



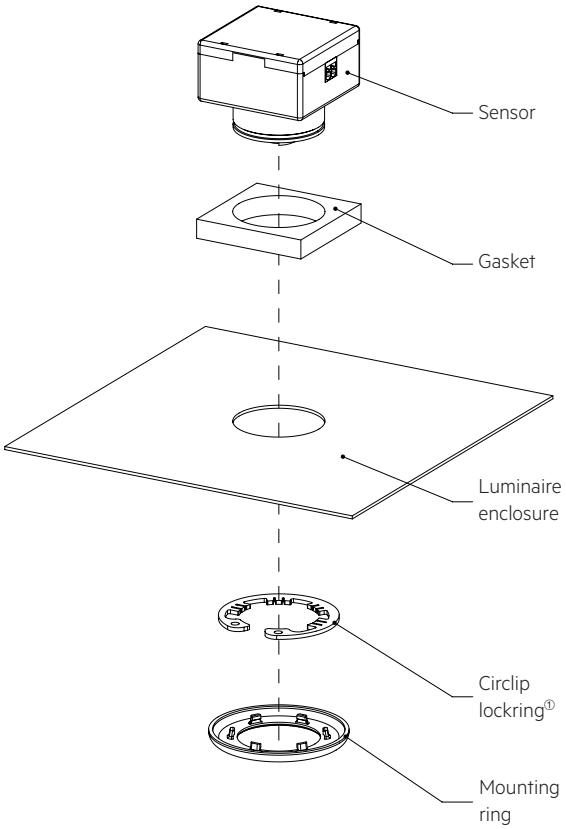
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².



3.3 Mounting variants luminaire installation sensor:

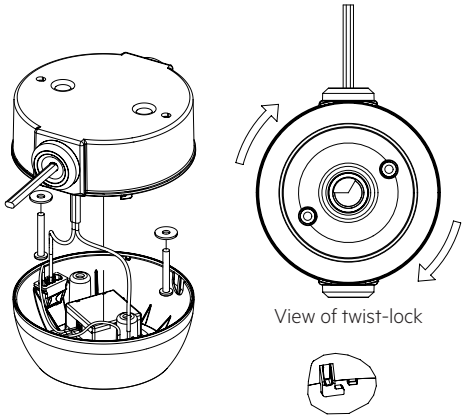
3.3.1 Installation in luminaire
To ensure the right IP protection please read chapter 3.6 Gasket.



① Not included in kit ACU 030.

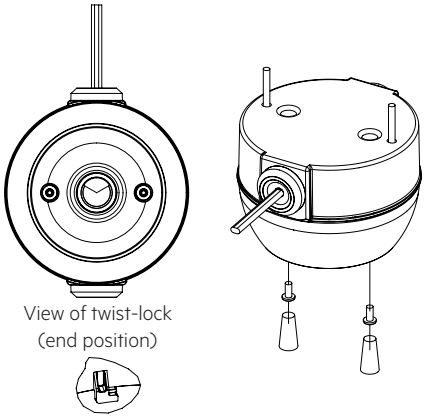
3.3.2 Installation in Sensor housing ACU 032 IP66 WH
To ensure the right IP protection please read chapter 3.6 Gasket.

Step 1: Cover placed on base plate



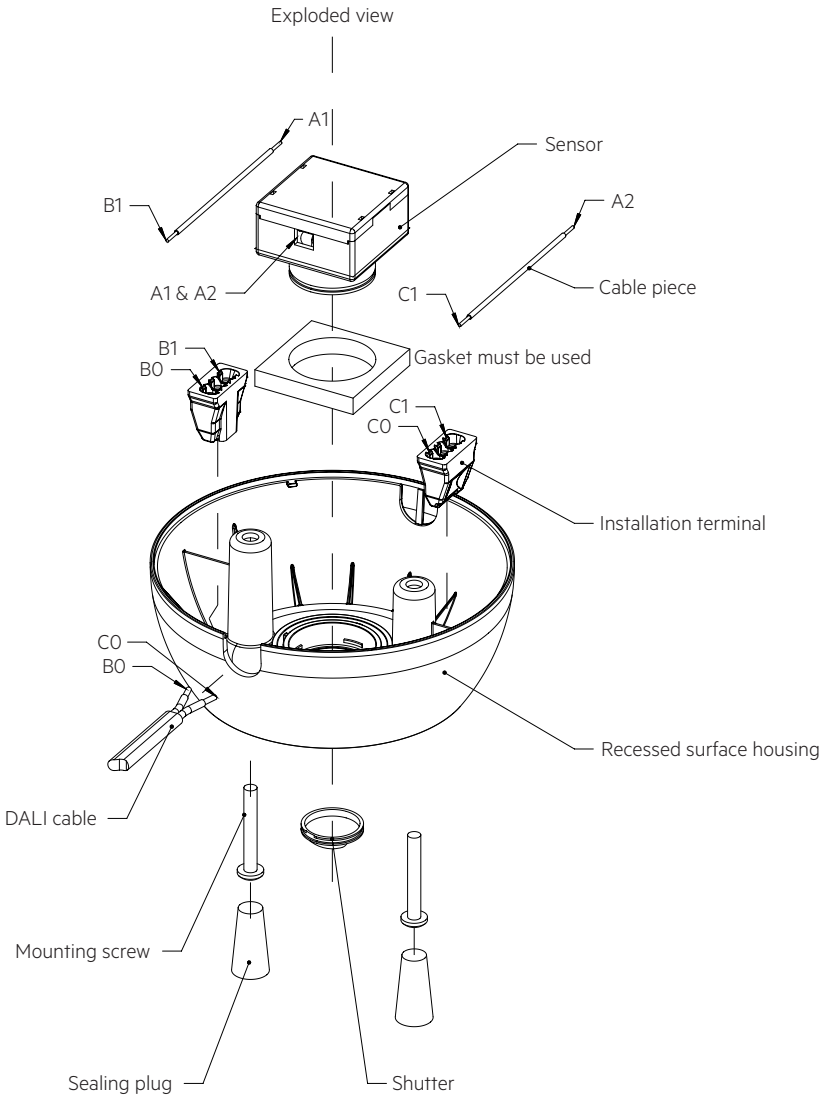
Mount base plate. Feed cable (cable diameter: 6 – 13 mm) of the lateral grommets into the installation terminals.

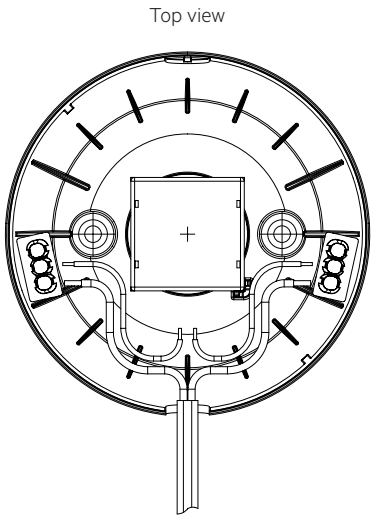
Step 2: Cover locked



After the cover is loosely mounted on the base plate, insert and tighten the 2 screws.
In the last step insert in the sealing plugs.

3.3.3 Installation in Sensor housing ACU 031 IP20 WH
To ensure the right IP protection please read chapter 3.6 Gasket.

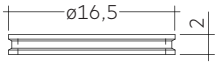


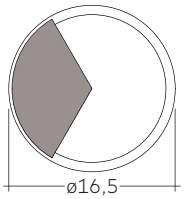


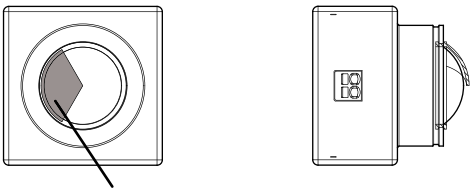
3.4 Detection area covers

Included in each Sensor 10DPI 23f there are two detection area covers. Each of these cover can be attached to the front of the sensor.
The 120° cover offers the possibility to reduce the detection area of PIR Sensor by 120° or 1/3 of its detection area.
There is no influence of detection area of light measurement or IR receiver by this cover.
0° cover is made only for aesthetical reasons to give the sensor a flush surface. It is not needed for proper operation of the sensor.

Type of material:	PC polycarbonate
Colour:	transparent
Surface finish:	polished

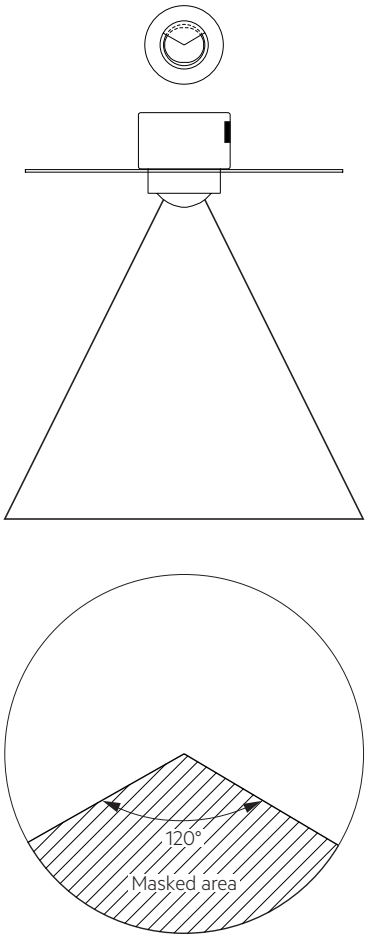






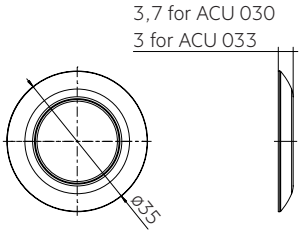
Attach the detection area cover to the sensor by inserting it into the corresponding groove at the front of the sensor.

Area which is masked by the shutter:



3.5 Mounting ring

Included in each Sensor mounting kit ACU 030 IP66 WH and kit ACU 033 IP66 WH is a mounting ring. This Ring allows to mount the sensor into a luminaire in an easy and visual attractive way.



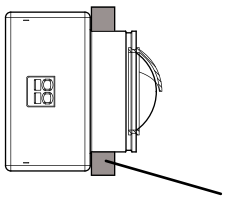
3.6 Gasket

To fulfill ingress protection different gaskets are included in the Mounting Kit.
The gaskets are necessary to ensure ingress protection as well as proper mounting of the sensor in luminaire.

Sensor can be inserted into luminaires with a cover size from 0.75 up to 4.0 mm.

According to the size of luminaire cover in certain application, one of the gaskets must be used and mounted between the front of the sensor and the luminaire housing.
It is not allowed to use a combination of e.g. two gaskets, because this will not provide the right amount of sealing and you may run in to a risk to not reach the IP66 requirements.

Use maximum possible size for your application to ensure a proper fit and protection.



Gasket (size 3, 5 or 8 mm)

Sensor mounting kit ACU 030 IP66 WH

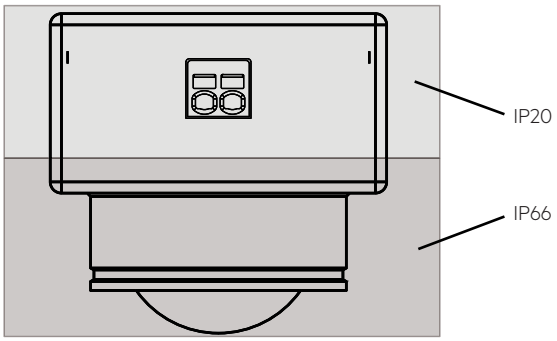
Distance between Sensor and luminare	Final size of gasket after assembly	Use gasket
2.0 – 2.4 mm	2.0 – 2.4 mm	3 mm
2.5 – 4.0 mm	2.5 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

Sensor mounting kit ACU 033 IP66 WH

Distance between Sensor and luminare	Final size of gasket after assembly	Use gasket
2.7 – 4.0 mm	2.7 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

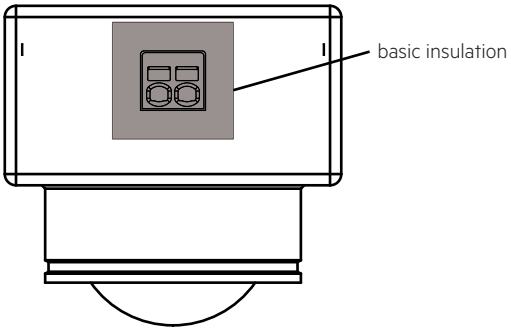
3.7 Ingress protection

This device contains IP-protection to use it also in applications with the need of protection against dust and water ingress. IP66 protection applies to the front of the sensor whereas the back of the sensor is IP20 rated.



3.8 Mounting in class II luminaire

The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the most part of the sensor is tested to fulfil the class II requirements for double or reinforced insulation. Basic insulation is illustrated in the graphic below and covers an area 2,5 mm around the terminal.
The rest of the sensor fulfils class II requirements.



4. Sensor function

4.1 Occupancy / motion detection

For occupancy detection PIR technology is used. PIR Lens is made to detect moving people in working areas such as warehouses, storage buildings and similar working areas with the following performance criteria:

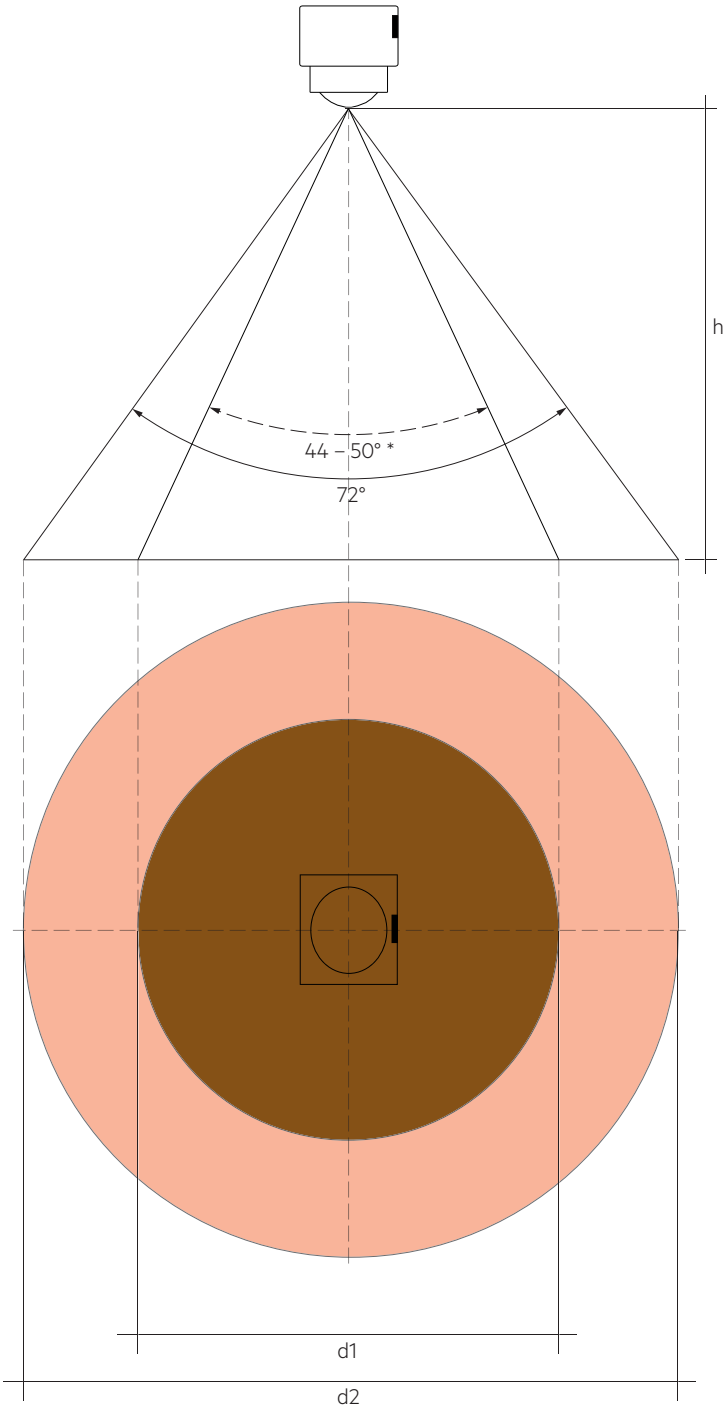
- Ceiling height from 5 up to 10 m
- Movement of human body (increment ≥ 1.5 m), no slight motion (no sitting person)
- Movement ≥1.0 m/s for mounting heights up to 7.5 m
- Movement ≥1.5 m/s for mounting heights up to 10.0 m

Reaction time of the sensor (time between occupancy detected and event information send to DALI Bus) is ≤ 25 ms.

The reaction time of the system can be extended by factors such as the amount of data on the bus, the number of connected devices or the control device used (Application Controller).

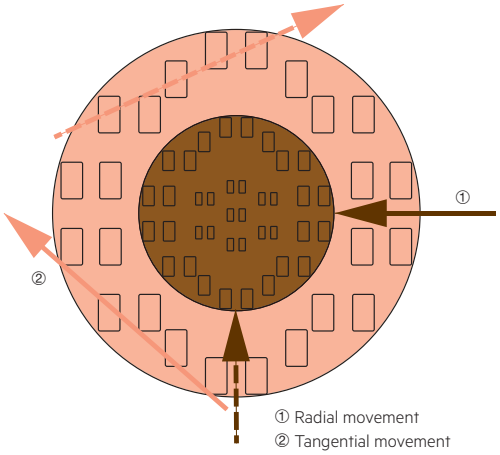
The point at which the light responds must therefore not be equated with the outer detection range.

4.2 Detection area



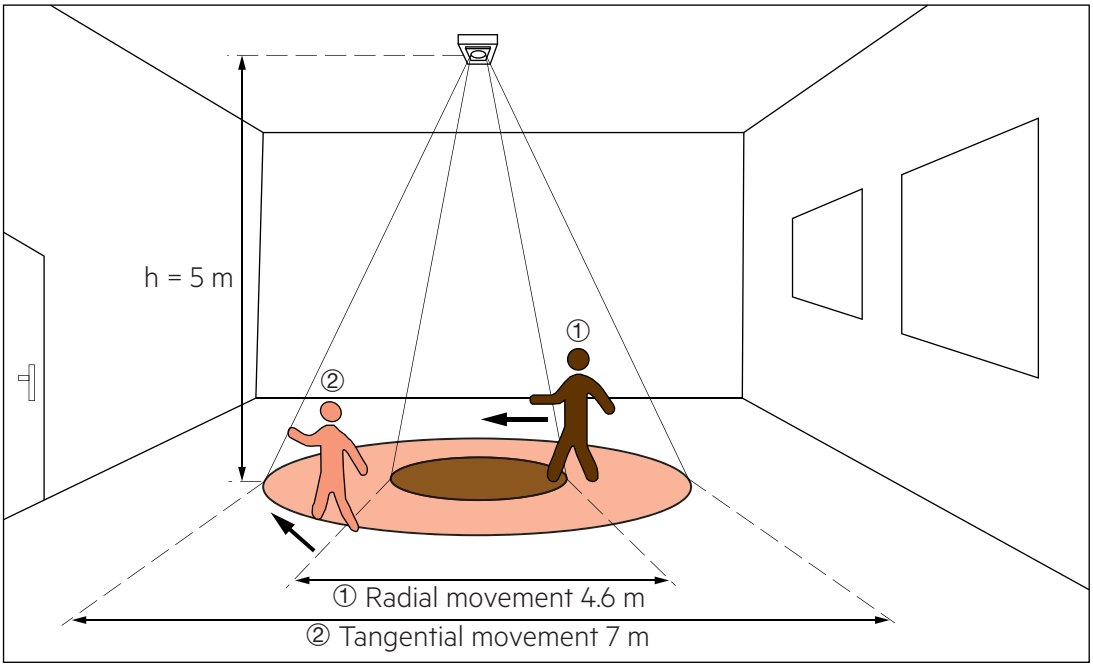
h = Height	d1 = Radial	Radial detection angle	d2 = Tangential (72°)
5 m	4.6 m	50°	7.0 m
6 m	5.6 m	50°	8.4 m
7 m	6.6 m	50°	9.8 m
8 m	7.4 m	50°	11.2 m
9 m	7.2 m	44°	12.6 m
10 m	8.0 m	44°	14.0 m

Schematic illustration of radial / tangential movements:



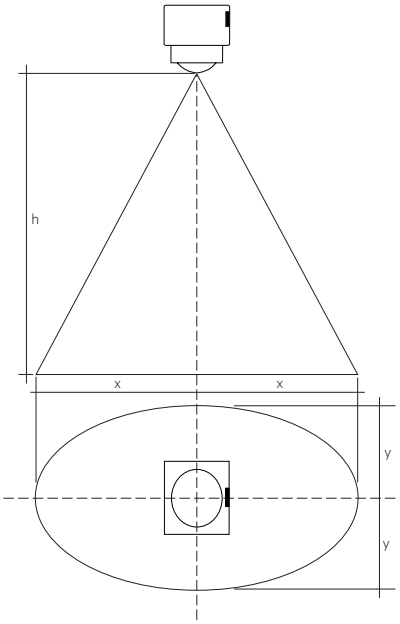
* The detection angle for the radial movement varies with the different mounting height between 44 and 50°.

Detection example at 5 m mounting height:



4.3 Light measurement

The light measurement has a cone-shaped detection area with a half angle of approximately 20° in x-direction and 15° in y-direction.



h	dx	dy
5.0 m	3.6 m	2.7 m
7.5 m	5.5 m	4.0 m
10.0 m	7.2 m	5.4 m

The measurement range is between 0.5 and 2000 lx.
Measured at the sensor head.

To be able to measure values < 5 lx in an accurate way it is needed to change integration time of light sensor to 800 ms. Integration time of light sensor is set to 100 ms by default. For values > 5 lx there is no difference in between these measurements.

4.3.1 Light value format

The default operating mode is 128.
In this mode the user is able to choose from fixed point and floating point values for the light measurement. The default setting are floating point values.
In addition to operation mode 128 also operating mode 0 is implemented.
In operating mode 0 the fixed point values are supported for the light measurement values.
Resolution for fixed point and floating point = 1/64 Lux

4.4 Status LED's

There is a LED built in to indicate different status information to the user.

Event	Blinking sequence	LED Color
DALI command „identify device"	500 ms on / 500 ms off for 10 s	Red
Motion detection①	Default deactivated but can be activated by the application controller. If active, 1,000 ms on every time Motion is detected.	Red
IR-Signal received①	Double blinking (150 ms on / 150 ms off) on every received IR-command.	Red

Light measurement priority
① By default, these blinking patterns are interrupted by the light measurement, because the light measurement has a higher priority.
This behavior can be changed via the application controller, i.e. it can be configured that the blinking patterns are carried out, regardless of an ongoing light measurement. Consequently, the accuracy of the light measurement will become worse, because the brightness of the LED distorts the measurement.

5. Configuration

Optimized for the operation in conjunction with the Tridonic application controller sceneCOM S.

For commissioning and configuration the App „sCS commissioning“ (sceneCOM S) is provided by Tridonic. App can be installed on iOS and Android devices. Compatible with Android 6.0 / iOS 10 or later, devices with a min. screen size of 20 cm diagonal and a min. resolution of 1024 x 768 pixels.

Android:

iOS:

6. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

6.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI MSensor G3 PIR 16DPI WH

DALI-2 multi-sensor

Product description
_ Sensor developed to work with the latest DALI specification
_ Monitoring of ambient light and occupancy detection
_ Remote control interface allowing infrared remote control interaction
_ Individual adjustment of the parameters
_ Power supply via DALI line
_ Mounting ring and gasket included to reach IP65 protection
_ Built-in sensor with double insulation
_ Wide range of accessories allowing extended application range
_ Double terminals for through wiring
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

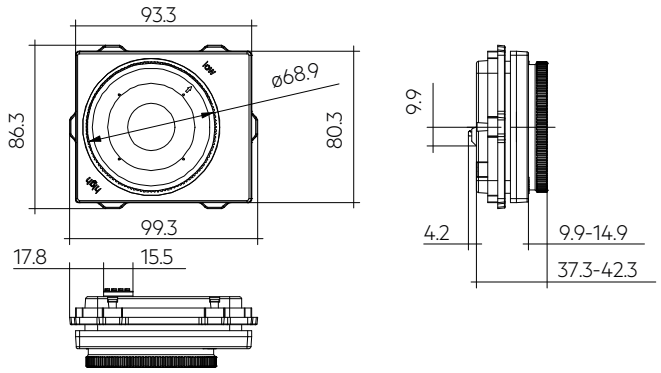
Housing properties
_ Casing: polycarbonate, white
_ Type of protection up to IP65

Note
_ Tridonic DALI MSensor G3 family sensors are developed according to DALI Standard EN 62386-101 Ed.2, also known as DALI-2. To be able to use the sensor in such installation, an application controller is necessary.
_ List of approved application controller can be found on our WEB page in “Downloads” in document “Application_controllers_MSensor_G3.pdf”.

Website
http://www.tridonic.com/28002234

DALI MSensor G3 PIR 16DPI WH

DALI-2 multi-sensor



Ordering data

Type	Article number	Suitable for	Packaging, carton	Weight per pc.
MSensor G3 SFI 30 PIR 16DPI WH	**28002234**	Luminaire installation	10 pc(s).	0.105 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	9.5 – 22.5 V
Current consumption (no LED)	≤ 8 mA
Current consumption (with LED)	≤ 9 mA
Supported operating modes	0 or 128 (default)
Mounting height ②	8 – 18 m
Adjustment range position “low”	8 – 12 m
Adjustment range position “high” ②	12 – 18 m
Mounting opening	70 x 83 mm
Housing thickness of the luminaire	0.75 – 4 mm
Detection angle for PIR detection angle “low”	72°
Detection angle for PIR detection angle “high”	60°
Detection angle for light measurement	13°
Detection range for light measurement ③	0.5 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Dimensions L x W x H	99.3 x 86.3 x 46.5 mm
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9016)
Housing colour lens	White
Type of protection ④	Up to IP65
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2-11, EN 61347-1, EN 61547, EN 55015, EN 62386-101, EN 62386-103, EN 62386-301, EN 62386-303, EN 62386-304, EN 62386-351

① Uin acc. IEC 62386-101.
② For mounting height higher than 16 m it is recommended to use several sensors grouped together in one occupancy group. As the sensitivity for the detection diameter can not be guaranteed for high over 16 m.
③ The measured value at the sensor head corresponds to approx. 3 to 6,300 lux on the surface measured.
④ Depending on the installation type up to IP 65 for more details see data sheet.

REMOTECONTROL IR6

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

Website
http://www.tridonic.com/28000647

Ordering data

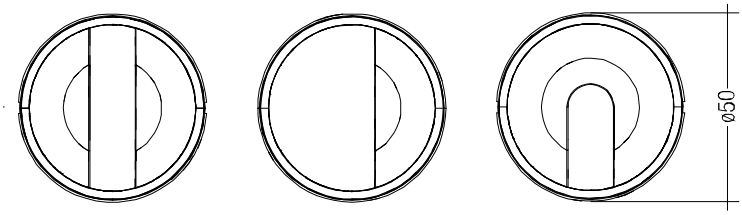
Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

Shading Set

Accessory

Product description
_ Three different covers for the DALI MSensor G3 SFI 30 PIR 16DPI WH, basicDIM ILD G2 and basicDIM ILD give the ability to reduce the detection area in aisle applications
_ These covers can be attached or removed from/to the front of the sensor at any time without the need of opening the luminaire
_ To have a maximum of flexibility these covers can be attached in every direction of 0°, 90°, 180° and 270°

Website
http://www.tridonic.com/28001658



Ordering data

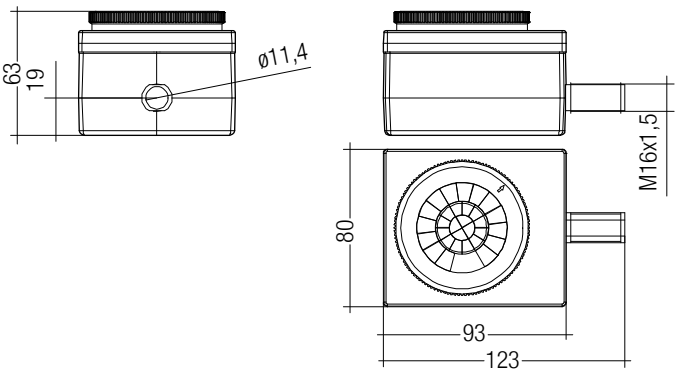
Type	Article number	Packaging, carton	Weight per pc.
ACU SHADING AISLE 16DPI highbay	**28001658**	500 pc(s).	0.002 kg
ACU SHADING HALF 16DPI highbay	**28001660**	500 pc(s).	0.002 kg
ACU SHADING ENTRY 16DPI highbay	**28001659**	500 pc(s).	0.003 kg

Mounting box 16DPI

Accessory

ACU MOUNTING BOX 16DPI HIGHBAY

ACU MOUNTING BOX 16DPI HIGHBAY with sensor



Product description

_ Easy adaptation of suspended lighting fixtures to a sensor solution, just by adding one additional hole
_ Side entry screw connection in combination with rubber gasket gives a true IP65 protection for industrial applications
_ Easy remote commissioning with IR interface while sensor is still protected
_ Tightening torque = 0.6 Nm

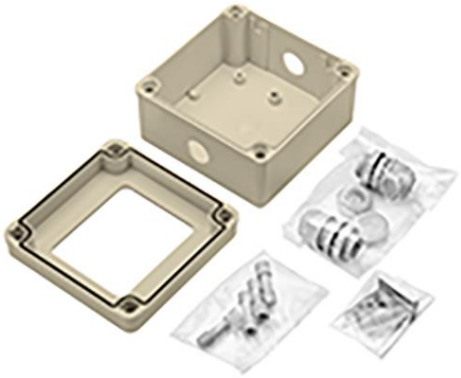
Website
http://www.tridonic.com/28001568

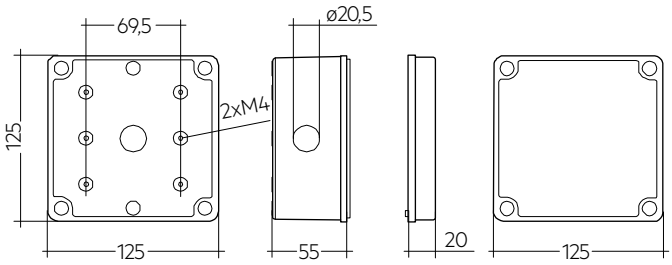
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU MOUNTING BOX 16DPI HIGHBAY	**28001568**	64 pc(s).	0.105 kg

Sensor housing ACU 033 IP65 WH

Accessory





Product description

_ IP65 protection box
_ Mounting box for DALI MSensor G3 SFI 30 PIR 16DPI WH sensors allowing direct mounting to the ceiling
_ Easy “Click In” installation of the sensor to the top part of the box
_ Casing: ABS, white RAL 9010
_ UV stabilized plastic
_ Full mounting kit with screws and dowels, allowing hassle free mount of the box to the ceiling
_ Including 2 cable glands and 2 grommets for ideal IP protection of inserted cables with a diameter of 6 – 12 mm
_ Casing passed glow wire test with 850 °C according to EN 61347-1

Website

http://www.tridonic.com/28003866

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Sensor housing ACU 033 IP65 WH	**28003866**	1 pc(s).	48 pc(s).	0.24 kg

1. Standards

EN 61347-2-11
EN 61347-1
EN 61547
EN 55015
EN 62386-101
EN 62386-103
EN 62386-301
EN 62386-303
EN 62386-304
EN 62386-351

1.1 DALI note

Sensor is only applicable for DALI-2 installations according to EN 62386-101 Ed.2.
List of approved application controller can be found on our WEB page „Application_controllers_MSensor_G3.pdf“

Following table shows the instances and which values they provide.

DALI instances	
Instance number	**Explanation**
0	Occupancy sensor DALI Part 303
1	Light sensor DALI Part 304
2 – 13	Push button DALI Part 301

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 750 °C.

2. Common

DALI MSensor G3 SFI 30 PIR 16DPI WH is one of the new generation of Tridonic sensors.
With this Sensor, the customer gets a sensor for height applications from 8 up to 18 m and a protection against environmental influence up to IP65.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a LED output for signalization.
DALI MSensor G3 SFI 30 PIR 16DPI WH is created for following main applications:
For buildings with mid to high ceiling heights such as:

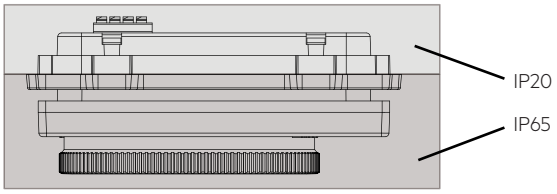
- Factory buildings
- Storage buildings and warehouses
- Corridors, passages und Garages

3. Installation

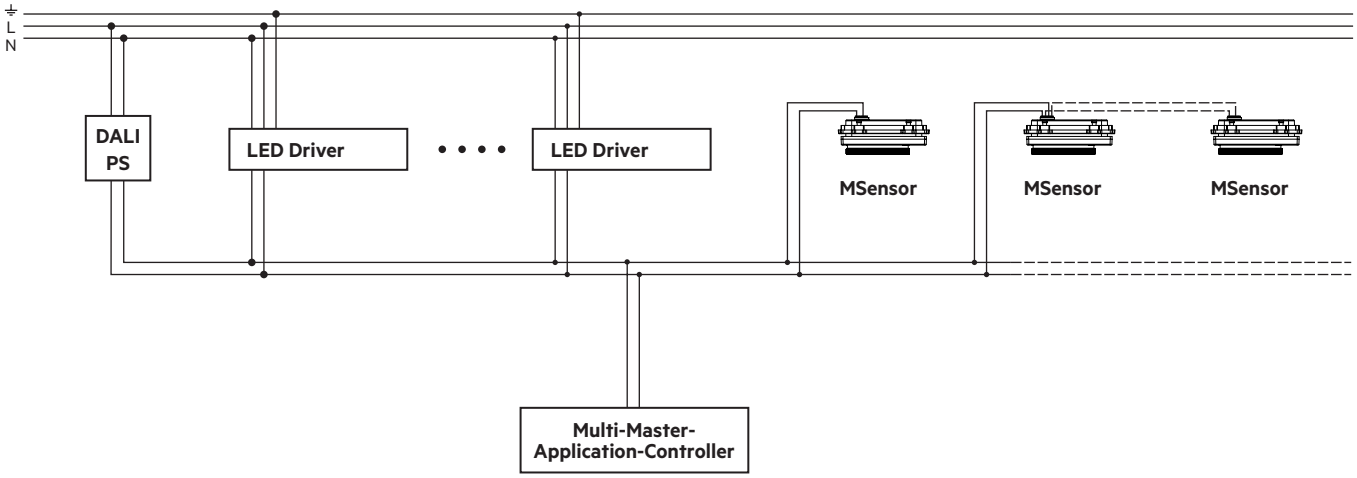
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- The maximum cable length of the DALI control signal must not be exceeded.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not unnecessarily overlap. This may have influence to the lighting control.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect presence detection.
- Surface temperature is detected by the sensor.
  Clothing or covers which reduce the surface temperature affect the detection.
- To avoid false readings, the sensor should be installed so there is no direct light from the lamp in the detection zone. Reflections can disturb the measurement results as well (e.g. high-bay warehouse of metal shelfs).
- To avoid false measurements caused by the light from other luminaires we recommend that the sensor should be located centrally in the luminaire.
- By repeatedly adjusting the zoom (> 10), the IP protection may be impaired.
- Sensor must be installed according to the installation instructions to ensure the IP protection.
- Sensor head is not UV resistant.
- In case of pollution or mechanical damage of the lens, the functionality of the sensor may be limited.
- When installed at a height other than the recommended installation height, the presence sensor might show different characteristics.
  When mounted at a higher level, its sensitivity is reduced.
  If mounted at a lower level, its range is reduced.
- Avoid direct illumination of the light source on the sensor including housing.

3.1 Ingress protection

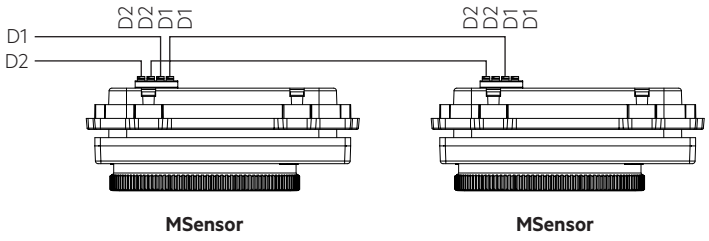
This device contains IP-protection to use it also in applications with the need of protection against dust and water ingress. IP65 protection applies to the front of the sensor whereas the back of the sensor is IP20 rated.



3.2 Wiring

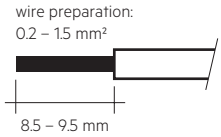


Through wiring:



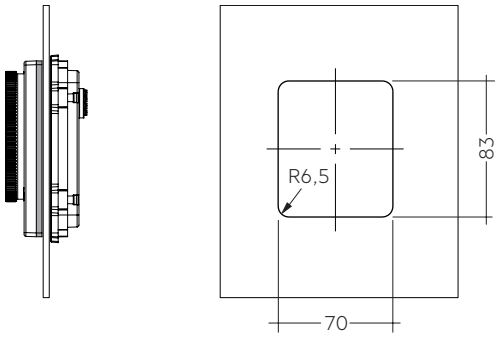
3.3 Cable types and cable cross-sections

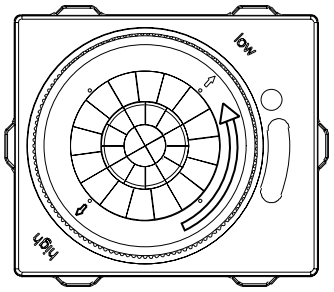
For wiring use solid wire from 0.2 to 1.5 mm².



3.4 Mounting variant luminaire housing:

Sheet thickness: 1 – 4 mm

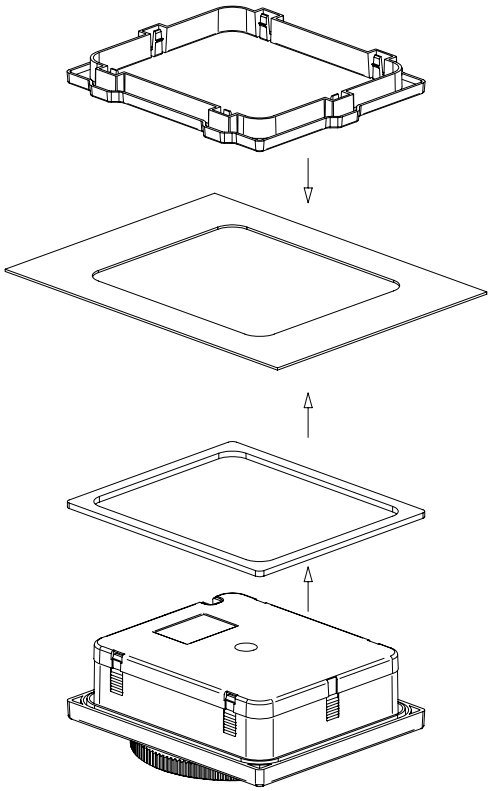


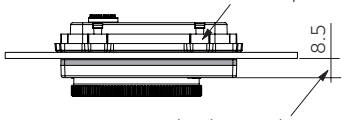


To change from position Low to High rotate lens in arrow direction until it stops at High!

- Arrow shows the zoom position.
- To change the zoom rotate the lens until it stops at High or Low position.
- Positions in between High and Low are not allowed.
- See installation notes!

3.5 Sensor mounting

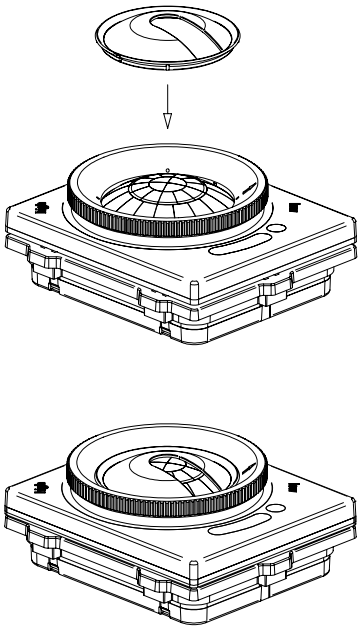




All 6 snap-fits have to be snaped in

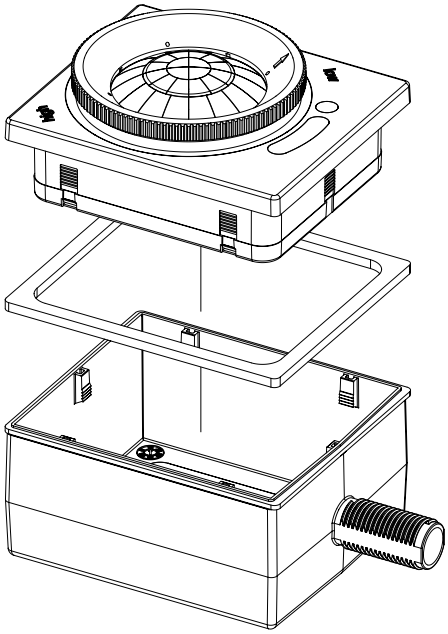
To gurantee IP65 the distance between sensor surface and luminaire surface must be less than 8.5 mm

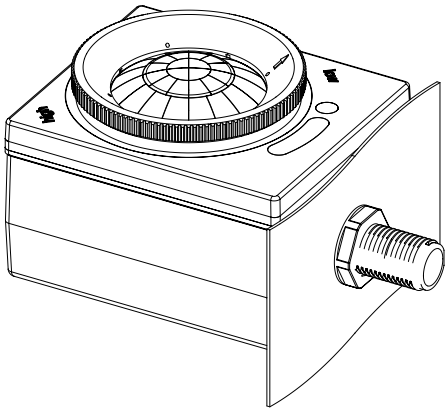
3.6 Shader mounting



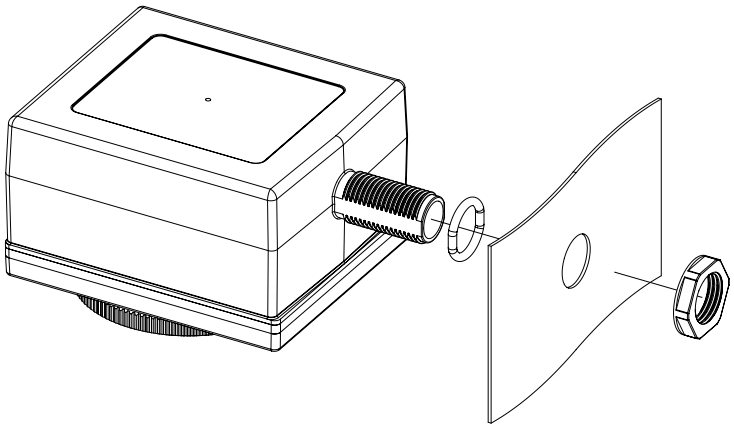
3.7 Mounting box mounting

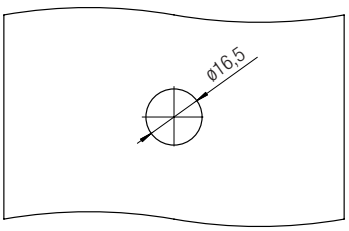
- The sensor can be installed only once in the mounting box (Sensor snap in permanent)!
- Insert the cable of the sensor before installing.
- There are 2 installation variants possible for the sensor. The sensor can be turned through 180°.





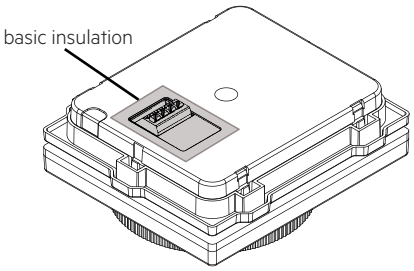
3.8 Mounting box in luminaire housing:





3.9 Mounting in class II luminaire

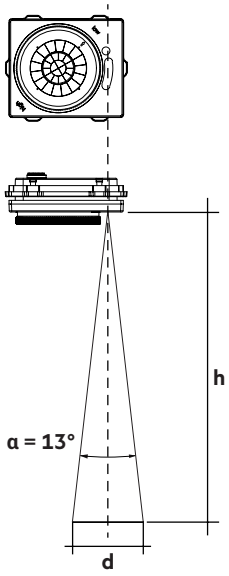
The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the most part of the sensor is tested to fulfil the class II requirements for double or reinforced insulation. Basic insulation is illustrated in the graphic below and covers an area 2,5 mm around the terminal.
The rest of the sensor fulfils class II requirements.



4. Sensor functions

4.1 Light level recognition area

The light measurement has a cone-shaped detection area with a half angle of approximately 6.5°.

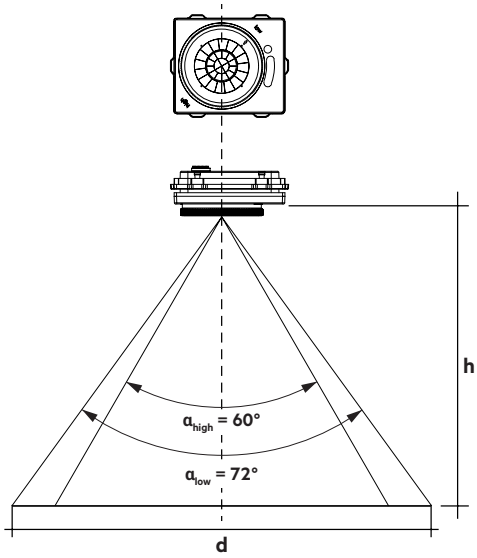


h	d
8 m	1.8 m
10 m	2.3 m
12 m	2.7 m
14 m	3.2 m
16 m	3.7 m
18 m*	4.2 m

The measurement range is between 1 and 2,000 lx.
Measured at the sensor head.

To be able to measure values < 5 lx in an accurate way it is needed to change integration time of light sensor to 800 ms. Integration time of light sensor is set to 100 ms by default. For values > 5 lx there is no difference in between these measurements.

4.2 Presence / motion detection



h	Zoom	d
8 m	low	12.0 m
9 m	low	13.5 m
10 m	low	15.0 m
11 m	low	16.5 m
12 m	low	18.0 m
12 m	high	14.0 m
13 m	high	15.2 m
14 m	high	16.4 m
15 m	high	17.6 m
16 m	high	18.8 m
17 m	high	19.8 m
18 m*	high	21.0 m

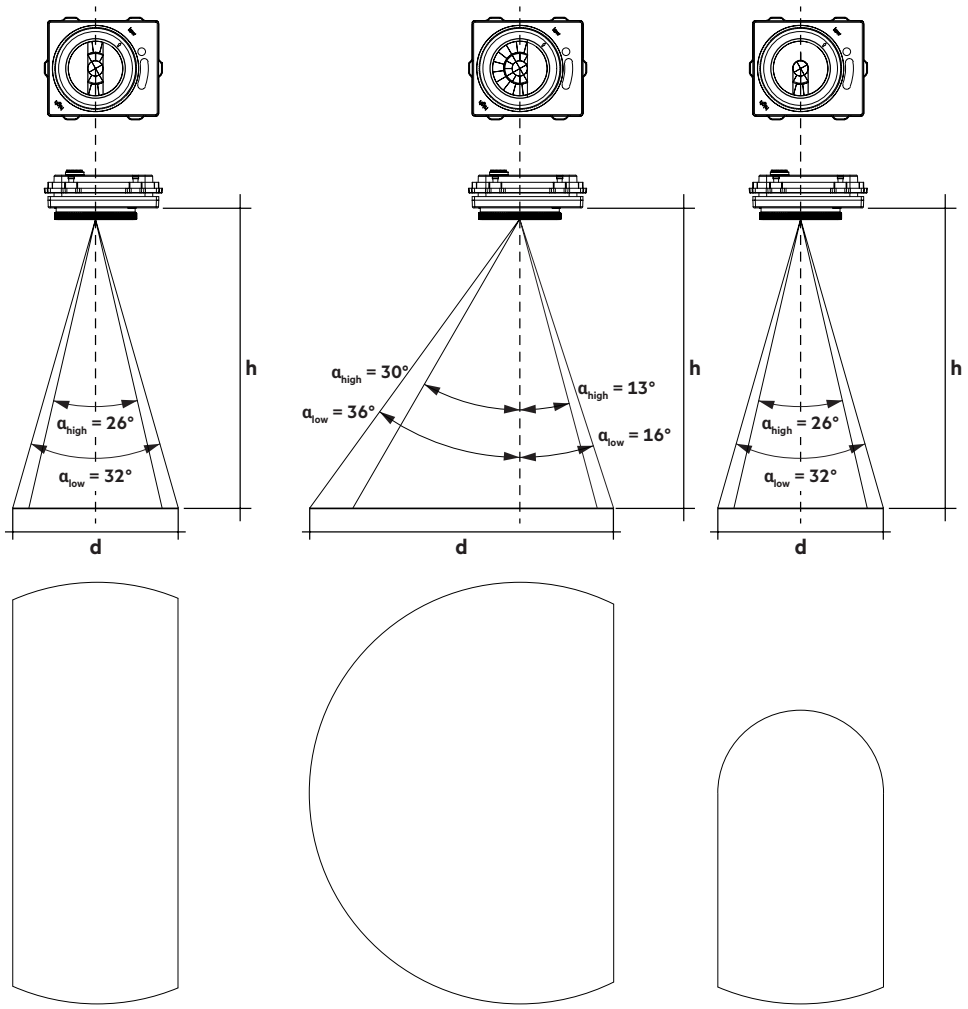
* For mounting heights over 16 m it is recommended to use several sensors grouped together in one presence group. As the sensitivity for the detection diameter can not be guaranteed for heights over 16 m.

4.3 Status LED's

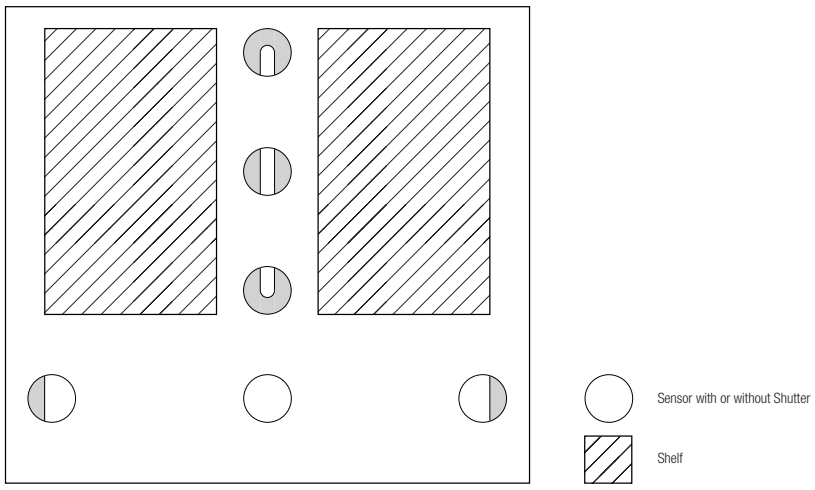
There is a LED built in to indicate different status information to the user. This LED is controlled from the sensor itself.

To not have any influence from LED to the light measurement, LED is disabled while light sensor is measuring by default.

4.4 Presence / motion detection with shader



4.5 Application



5. Configuration

Optimized for the operation in conjunction with the Tridonic application controller sceneCOM S.

For commissioning and configuration the App „sCS commissioning“ (sceneCOM S) is provided by Tridonic. App can be installed on iOS and Android devices. Compatible with Android 6.0 / iOS 10 or later, devices with a min. screen size of 20 cm diagonal and a min. resolution of 1024 x 768 pixels.

Android:

iOS:

6. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

6.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI MSensor G3 SFI 30 16DPI CR WH

DALI-2 multi-sensor

Product description

_ Sensor developed to work with the latest DALI specification
_ Monitoring of ambient light and occupancy detection
_ Designed for industrial, warehouse and retail applications, the PIR High-Bay CR 16m provides reliable motion detection at mounting heights from 8 up to 16 meters
_ Rectangular detection area is optimized for warehouse and corridor environments, ensuring precise coverage where it matters most
_ High performance in corridor applications achieved using single PIR engine in combination with the special optic
_ The innovative mechanical design allows the optics to be rotated by 90°, enabling optimal adjustment of the detection area orientation depending on customer use case and lighting fixture position
_ Optional shutter accessories offer the flexibility to restrict detection zones, making it ideal for entry areas or narrow corridors
_ The front housing is engineered for enhanced ingress protection, achieving an IP65 rating for superior durability in demanding conditions
_ Remote control interface allowing infrared remote control interaction
_ Individual adjustment of the parameters
_ Power supply via DALI line
_ Mounting ring and gasket included to reach IP65 protection
_ Built-in sensor with double insulation
_ Double terminals for through wiring
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

_ Casing: polycarbonate, white
_ Type of protection up to IP65

Note

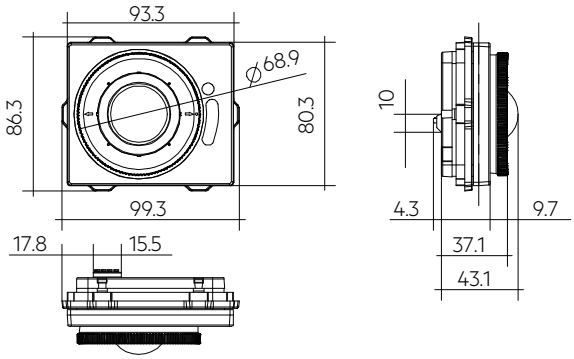
_ Tridonic DALI MSensor G3 family sensors are developed according to DALI Standard EN 62386-101 Ed.2, also known as DALI-2. To be able to use the sensor in such installation, an application controller is necessary.
_ List of approved application controller can be found on our WEB page in “Downloads” in document “Application_controllers_MSensor_G3.pdf”.

Website

http://www.tridonic.com/28005996

DALI MSensor G3 SFI 30 16DPI CR WH

DALI-2 multi-sensor



Ordering data

Type	Article number	Suitable for	Packaging, carton	Weight per pc.
DALI MSensor G3 SFI 30 16DPI CR WH	**28005996**	Luminaire installation	10 pc(s).	0.114 kg

Technical data

Supply via	DALI cable
Supply voltage ①	9.5 – 22.5 V
Current consumption (no LED)	max. 8 mA
Current consumption (with LED)	max. 9 mA
Supported operating modes	0 or 128 (default)
Mounting height	8 – 16 m
Mounting opening	70 x 83 mm
Housing thickness of the luminaire	0.75 – 4 mm
Detection angle for PIR detection angle "horizontal"	92°
Detection angle for PIR detection angle "vertical"	45°
Detection range for light measurement ②	0.5 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Dimensions L x W x H	99.3 x 86.3 x 47.4 mm
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9016)
Housing colour lens	White
Type of installation	Fitted in luminaires
Type of protection ③	Up to IP65
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2-11, EN 61347-1, EN 61547, EN 55015, EN 62386-101, EN 62386-103, EN 62386-301, EN 62386-303, EN 62386-304, EN 62386-351

① Uin acc. IEC 62386-101.
② The measured value at the sensor head corresponds to approx. 3 to 6,300 lux on the surface measured.
③ Depending on the installation type up to IP 65 for more details see data sheet.

REMOTECONTROL IR6

Accessory

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

Website
http://www.tridonic.com/28000647

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

Shading Kit

Accessory

Product description
_ Two different shutters give the ability to reduce the detection area for Narrow and Entry applications

28005969

28005970

Website
http://www.tridonic.com/28005969

Ordering data

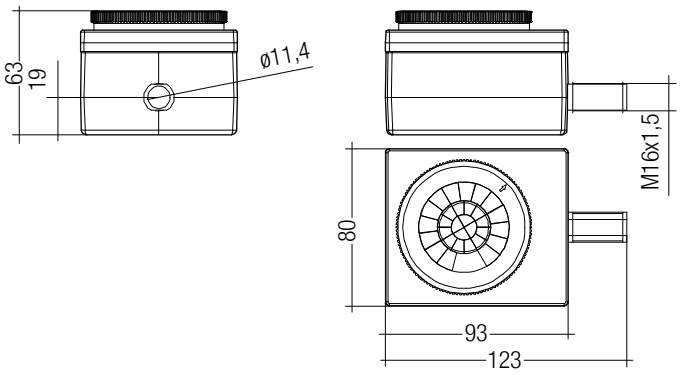
Type	Article number	Packaging, carton	Weight per pc.
Shading entry ACU 035 16DP CR	**28005969**	500 pc(s).	0.011 kg
Shading narrow ACU 036 16DP CR	**28005970**	500 pc(s).	0.013 kg

Mounting box 16DPI

Accessory

ACU MOUNTING BOX 16DPI HIGHBAY

ACU MOUNTING BOX 16DPI HIGHBAY with sensor



Product description

_ Easy adaptation of suspended lighting fixtures to a sensor solution, just by adding one additional hole
_ Side entry screw connection in combination with rubber gasket gives a true IP65 protection for industrial applications
_ Easy remote commissioning with IR interface while sensor is still protected
_ Tightening torque = 0.6 Nm

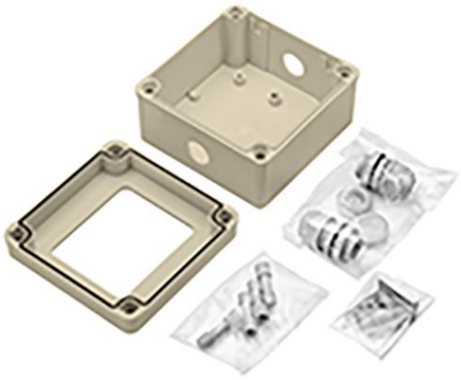
Website
http://www.tridonic.com/28001568

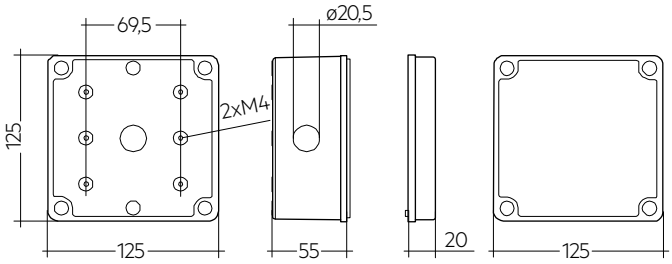
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU MOUNTING BOX 16DPI HIGHBAY	**28001568**	64 pc(s).	0.105 kg

Sensor housing ACU 033 IP65 WH

Accessory





Product description

_ IP65 protection box
_ Mounting box for DALI MSensor G3 SFI 30 PIR 16DPI WH sensors allowing direct mounting to the ceiling
_ Easy “Click In” installation of the sensor to the top part of the box
_ Casing: ABS, white RAL 9010
_ UV stabilized plastic
_ Full mounting kit with screws and dowels, allowing hassle free mount of the box to the ceiling
_ Including 2 cable glands and 2 grommets for ideal IP protection of inserted cables with a diameter of 6 – 12 mm
_ Casing passed glow wire test with 850 °C according to EN 61347-1

Website

http://www.tridonic.com/28003866

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Sensor housing ACU 033 IP65 WH	**28003866**	1 pc(s).	48 pc(s).	0.24 kg

1. Standards

EN 61347-2-11
EN 61347-1
EN 61547
EN 55015
EN 62386-101
EN 62386-103
EN 62386-301
EN 62386-303
EN 62386-304
EN 62386-351

1.1 DALI note

Sensor is only applicable for DALI-2 installations according to EN 62386-101 Ed.2.
List of approved application controller can be found on our WEB page „Application_controllers_MSensor_G3.pdf“

Following table shows the instances and which values they provide.

DALI instances	
Instance number	**Explanation**
0	Occupancy sensor DALI Part 303
1	Light sensor DALI Part 304
2 – 13	Push button DALI Part 301

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850 °C.

2. Common

DALI MSensor G3 SFI 30 16DPI CR WH is one of the new generation of Tridonic sensors.
With this Sensor, the customer gets a sensor for protection against environmental influence up to IP65.

This sensor provides measurement of ambient light, motion detection via PIR sensor and IR remote control input as well as a LED output for signalization.
DALI MSensor G3 SFI 30 16DPI CR WH is created for following main applications:
For buildings with mid to high ceiling heights such as:

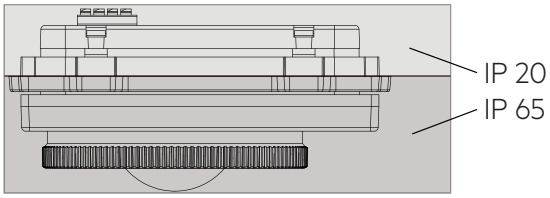
- Factory buildings
- Corridors, passages und Garages
- Storage buildings and warehouses

3. Installation

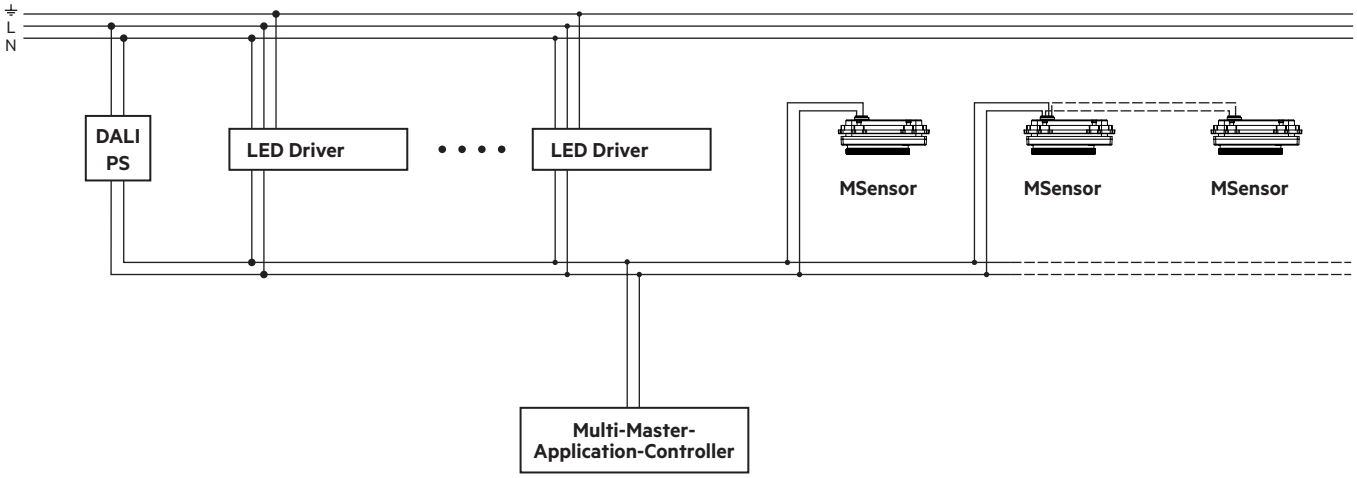
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- The maximum cable length of the DALI control signal must not be exceeded.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not unnecessarily overlap. This may have influence to the lighting control.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect presence detection.
- Surface temperature is detected by the sensor.
  Clothing or covers which reduce the surface temperature affect the detection.
- To avoid false readings, the sensor should be installed so there is no direct light from the lamp in the detection zone. Reflections can disturb the measurement results as well (e.g. high-bay warehouse of metal shelfs).
- To avoid false measurements caused by the light from other luminaires we recommend that the sensor should be located centrally in the luminaire.
- The detection area is rectangular and can be rotated up to 90° by turning the ring, if this ring is rotated to often (>10x) the IP Protection may be impaired.
- Sensor must be installed according to the installation instructions to ensure the IP protection.
- Sensor head is not UV resistant.
- In case of pollution or mechanical damage of the lens, the functionality of the sensor may be limited.
- When installed at a height other than the recommended installation height, the presence sensor might show different characteristics.
  When mounted at a higher level, its sensitivity is reduced.
  If mounted at a lower level, its range is reduced.
- Avoid direct illumination of the light source on the sensor including housing.

3.1 Ingress protection

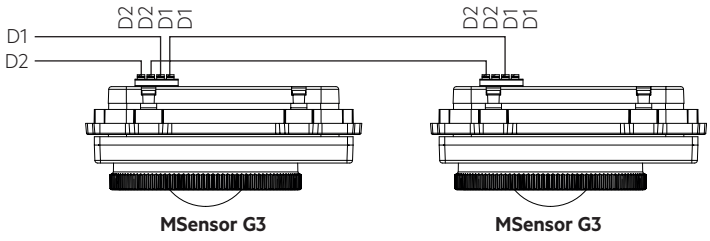
This device contains IP-protection to use it also in applications with the need of protection against dust and water ingress. IP65 protection applies to the front of the sensor whereas the back of the sensor is IP20 rated.



3.2 Wiring

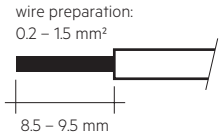


Through wiring:



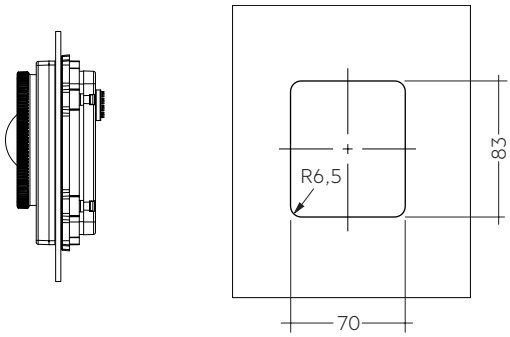
3.3 Cable types and cable cross-sections

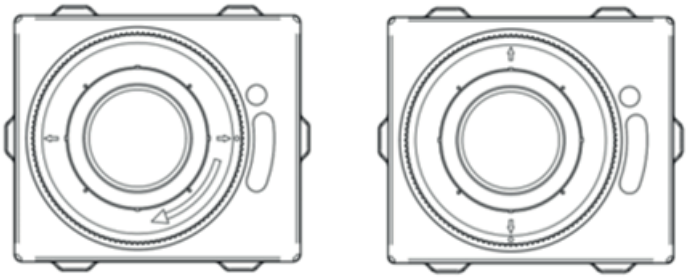
For wiring use solid wire from 0.2 to 1.5 mm².



3.4 Mounting variant luminaire housing:

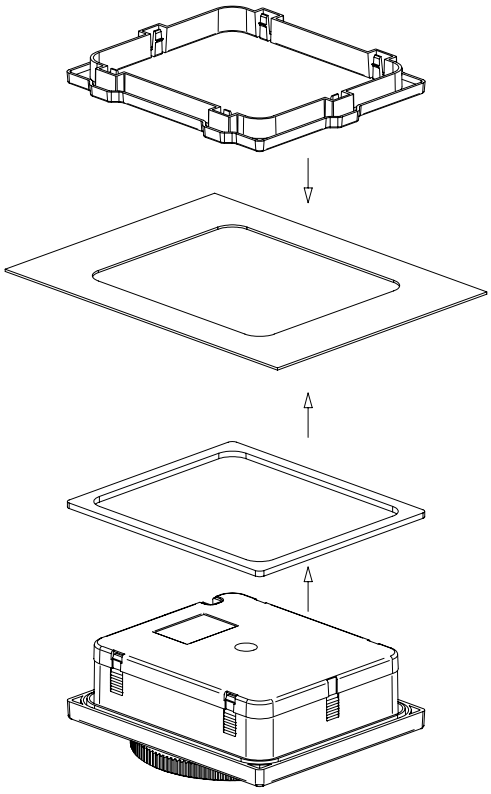
Sheet thickness: 1 – 4 mm

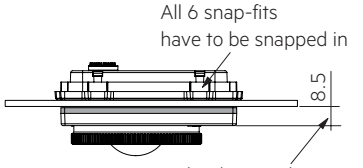




The detection area is rectangular and can be rotated up to 90° by turning the ring. The arrow on the ring points in the length of the detection area.

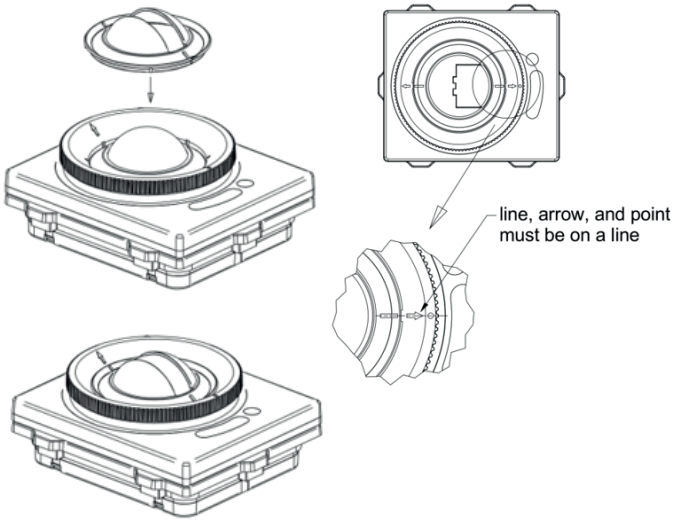
3.5 Sensor mounting





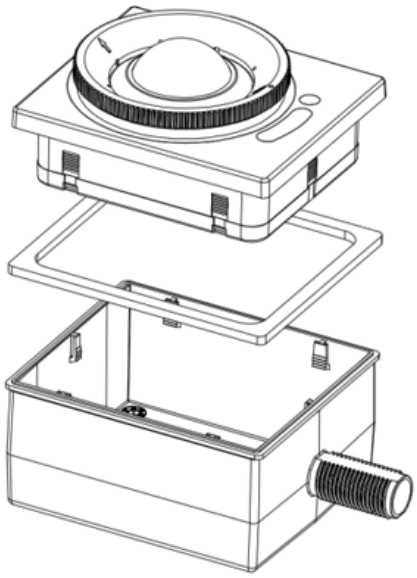
To guarantee IP65 the distance between sensor surface and luminaire surface must be less than 8.5 mm

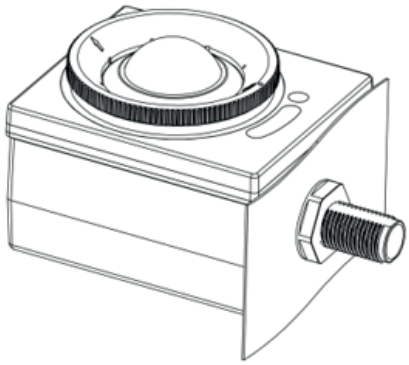
3.6 Shader mounting



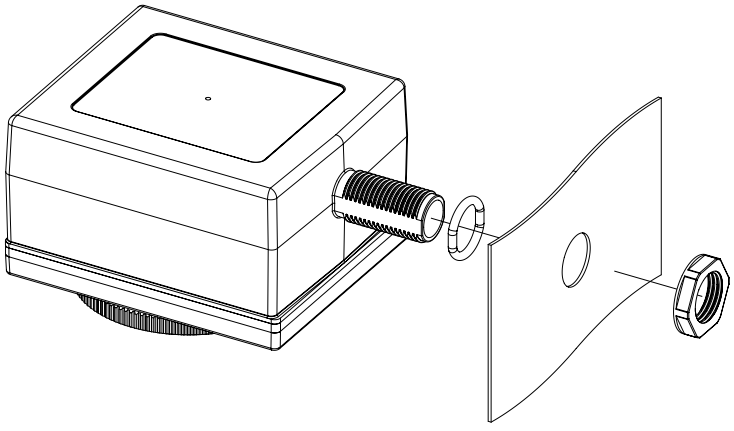
3.7 Mounting box mounting

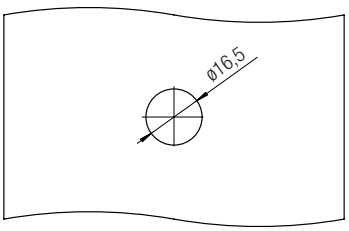
- The sensor can be installed only once in the mounting box (Sensor snap in permanent)!
- Insert the cable of the sensor before installing.
- There are 2 installation variants possible for the sensor. The sensor can be turned through 180°.





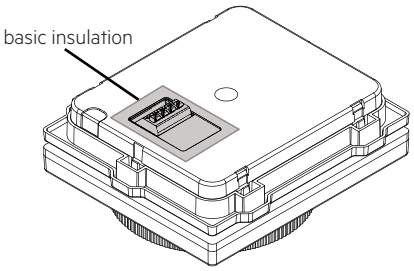
3.8 Mounting box in luminaire housing:





3.9 Mounting in class II luminaire

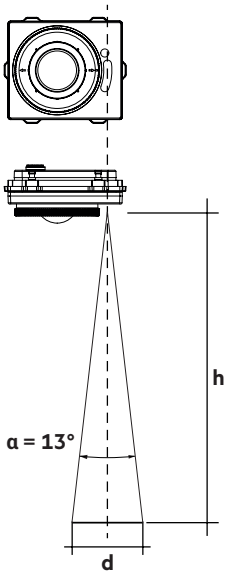
The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the most part of the sensor is tested to fulfil the class II requirements for double or reinforced insulation. Basic insulation is illustrated in the graphic below and covers an area 2,5 mm around the terminal.
The rest of the sensor fulfils class II requirements.



4. Sensor functions

4.1 Light level recognition area

The light measurement has a cone-shaped detection area with a half angle of approximately 6.5°.

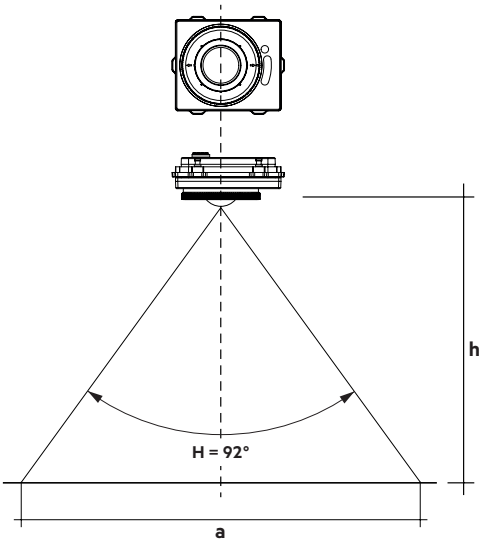


h	d
8 m	1.8 m
10 m	2.3 m
12 m	2.7 m
14 m	3.2 m
16 m	3.7 m

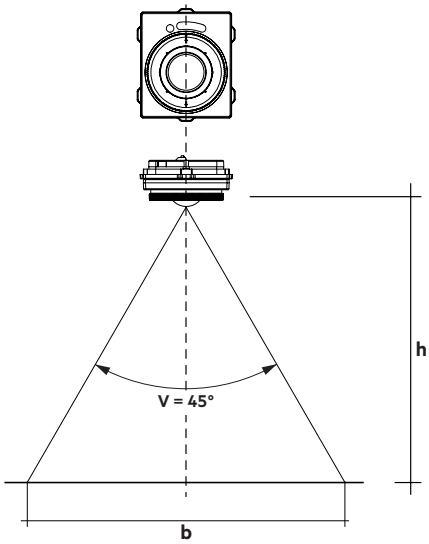
The measurement range is between 1 and 2,000 lx.
Measured at the sensor head.

4.2 Detection area

The detection range is rectangular, with a length a oriented at horizontal angle H and a width b oriented at vertical angle V at floor level.
Graphic shows the default position.



h	horizontal a
8 m	16.0 m
9 m	18.0 m
10 m	20.0 m
11 m	22.0 m
12 m	24.0 m
13 m	26.0 m
14 m	28.0 m
15 m	30.0 m
16 m	32.0 m



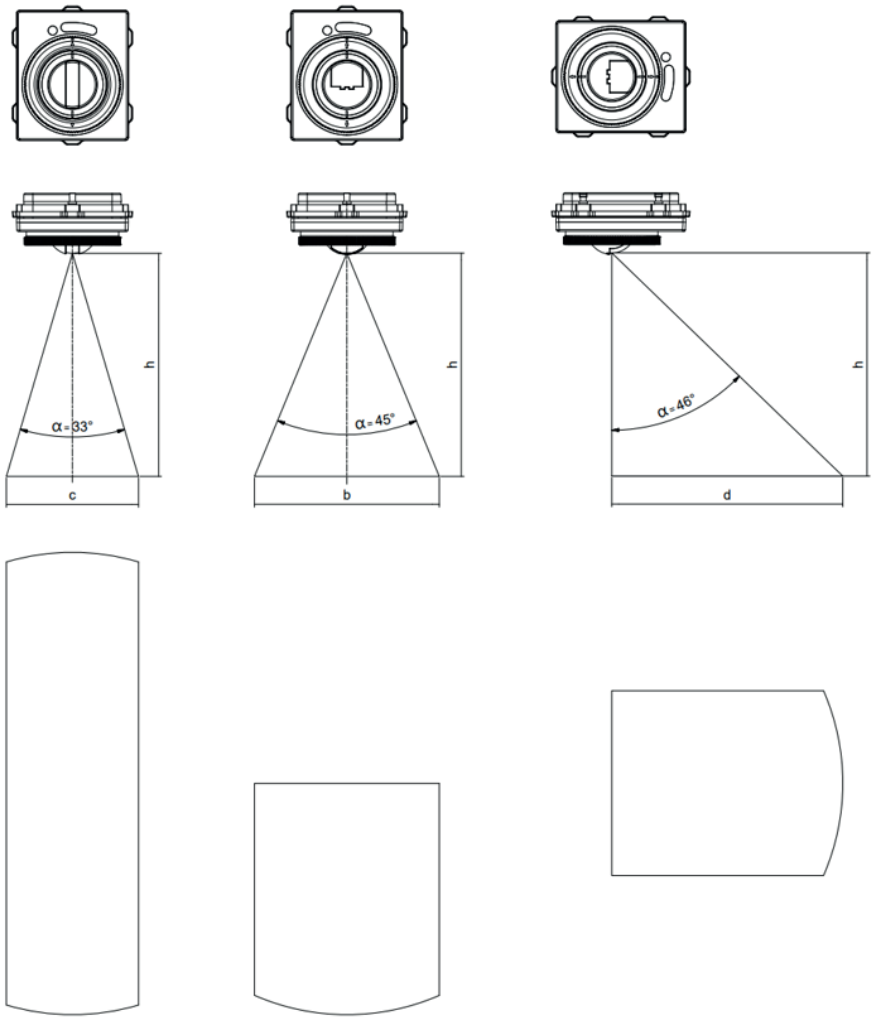
h	vertical b
8 m	6.0 m
9 m	6.5 m
10 m	7.5 m
11 m	8.0 m
12 m	9.0 m
13 m	9.5 m
14 m	10.5 m
15 m	11.0 m
16 m	12.0 m

4.3 Status LED's

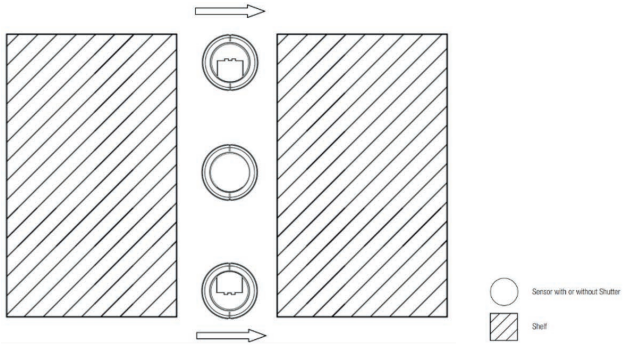
There is a LED built in to indicate different status information to the user. This LED is controlled from the sensor itself.

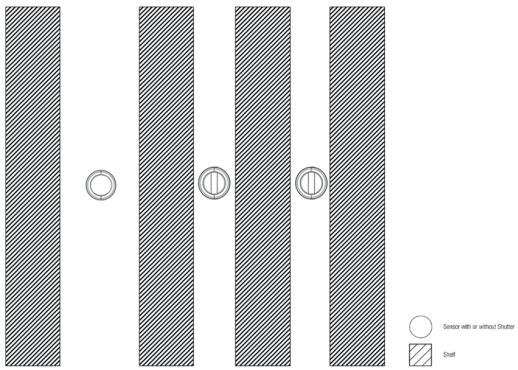
To not have any influence from LED to the light measurement, LED is disabled while light sensor is measuring by default.

4.4 Presence / motion detection with shader



4.5 Application





5. Configuration

Optimized for the operation in conjunction with the Tridonic application controller sceneCOM S.

For commissioning and configuration the App „sCS commissioning“ (sceneCOM S) is provided by Tridonic. App can be installed on iOS and Android devices. Compatible with Android 6.0 / iOS 10 or later, devices with a min. screen size of 20 cm diagonal and a min. resolution of 1024 x 768 pixels.

Android:

iOS:

6. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

6.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI MSensor OTD SFI 30 PIR 10DP DA WH

DALI-2 multi-sensor

DALI MSensor OTD SFI 30 PIR 10DP DA WH

Typical application

Product description

_ Sensor developed to work with the latest DALI specification
_ Monitoring of ambient light and occupancy detection
_ Individual adjustment of the parameters with configuration software
_ Power supply via DALI line
_ Shutter for preventing occupancy detection in specific areas
_ Small dimensions allowing easy and inconspicuous integration in luminaries
_ Wide range of accessories allowing extended application range
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties

_ Casing: polycarbonate, white
_ Type of protection up to IP66

Note

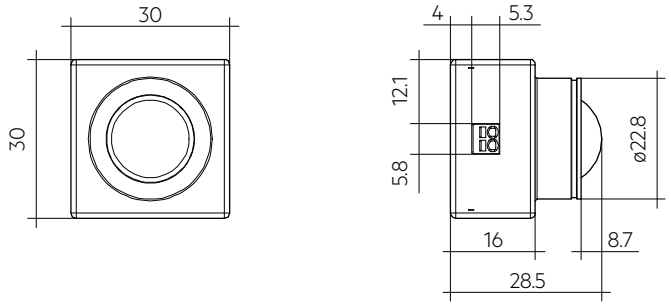
_ Tridonic DALI MSensor G3 family sensors are developed according to DALI Standard EN 62386-101 Ed.2, also known as DALI-2. To be able to use the sensor in such installation, an application controller is necessary.
_ List of approved application controller can be found on our WEB page in “Downloads” in document “Application_controllers_MSensor_G3.pdf”.

Website

http://www.tridonic.com/28004440

DALI MSensor OTD SFI 30 PIR 10DP DA WH

DALI-2 multi-sensor



Ordering data

Type	Article number	Suitable for	Dimensions L x W x H	Packaging, carton	Weight per pc.
MSensor OTD SFI 30 PIR 10DP DA WH	**28004440**	Luminaire installation	30 x 30 x 28.5 mm	15 pc(s).	0.013 kg

Technical data

Sensor type	PIR sensor
Supply via	DALI cable
Supply voltage ①	9.5 – 22.5 V
Current draw	6 mA from DALI
Current consumption (no LED)	max. 8 mA
Current consumption (with LED)	max. 9 mA
Starting time	30 s
Supported operating modes	0 or 128 (default)
Mounting height	5 – 10 m
Mounting hole diameter	23 mm
Housing thickness of the luminaire	0.75 – 4 mm
Detection angle for PIR detection (tagential / radial)	72° / 44°
Detection angle for light measurement	30° – 40°
Detection range for light measurement ②	0.5 – 2,000 lx
Min. temperature difference between ambient temperature and detected object	± 4 °C
Ambient temperature ta	-20 … +50 °C
tc point	60 °C
Storage temperature ts	-25 … +60 °C
Housing material body	PC polycarbonate
Housing material lens	PE polyethylene
Housing colour body	White (similar to RAL 9016)
Housing colour lens	White
Type of protection ③	Up to IP66
Impact protection degree	IK05
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2-11, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 62386-101, EN 62386-103, EN 62386-303, EN 62386-304, EN 62386-351

① Uin acc. IEC 62386-101.
② The measured value at the sensor head corresponds to approx. 3 to 6,300 lux on the surface measured.
③ Depending on the installation type up to IP66 for more details see data sheet chapter 3.7.

1. Standards

EN/IEC 61347-2-11:2001
EN 55015:2013
EN 61000-3-2:2014 Part 3-2
EN 61000-3-3:2013 Part 3-3
EN 61547:2009
EN 62386-101 Ed.2
EN 62386-103 Ed.1
EN 62386-303
EN 62386-304
EN 62386-351

1.1 DALI note

Sensor is only applicable for DALI-2 installations according to EN 62386-101 Ed.2.
The list of compatible systems is documented in chapter 5.

Following table shows the instances and which values they provide.

DALI instances	
Instance number	**Explanation**
0 – 2 *	Occupancy sensor DALI Part 303
3	Light sensor DALI Part 304

* All 3 instances share the same PIR sensor.

1.2 D4i note

D4i luminaire-mounted control devices (part 351) = Type B

1.3 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Common

This sensor is one of the new generation of Tridonic sensors.
With this Sensor, the customer gets a small sized sensor for medium height applications and a protection against environmental influence up to IP66.

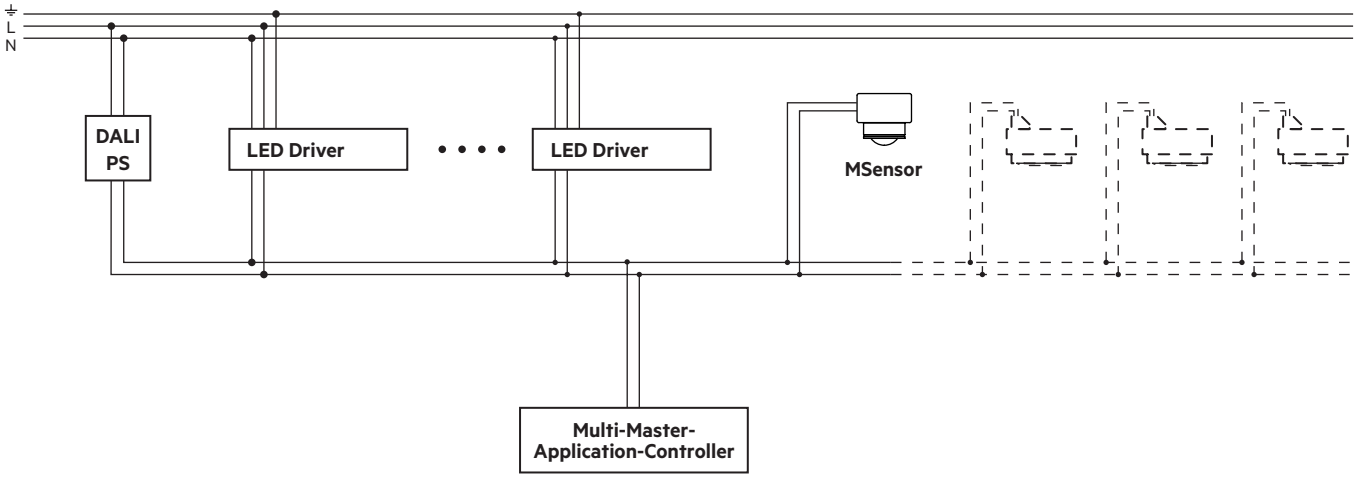
This sensor provides measurement of ambient light, occupancy detection via PIR sensor and a LED output for signalisation.
This sensor is created for following main applications:
Medium height buildings such as

- Factory buildings
- Storage buildings and warehouses
- Corridors, passages und Garages
- Outdoor applications

3. Installation

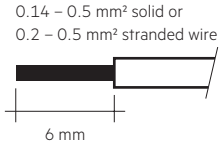
- The DALI MSensor must not be connected to the mains. It is supplied directly via the DALI power supply.
- DALI is not SELV.
  The installation instructions for mains voltage therefore apply.
- Please ensure that the detection range of the sensor lies in the lighting area of the controlled luminaires.
- Please ensure that the detection ranges of the sensors do not overlap. This may have influence to the lighting control.
- When installed at a height other than the recommended installation height, the sensor might show different characteristics.
  When mounted at a higher level, its sensitivity is reduced.
  If mounted at a lower level, its range is reduced.
- Heaters, fans, printers and copiers located in the detection zone may cause incorrect occupancy detection.
- Avoid direct illumination of the light source on the sensor including housing.
- Be sure to engage the mounting ring correctly in the mounting groove.

3.1 Wiring



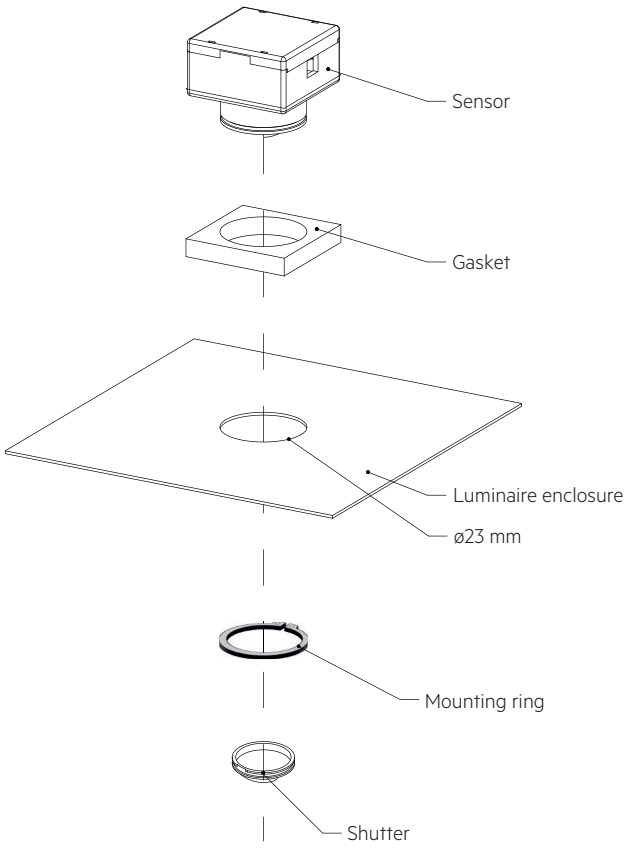
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules from 0.2 to 0.5 mm² or solid wire from 0.14 to 0.5 mm².



3.3 Mounting variants luminaire installation sensor:

3.3.1 Installation in luminaire
To ensure the right IP protection please read chapter 3.6 Gasket.

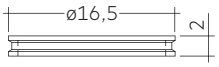


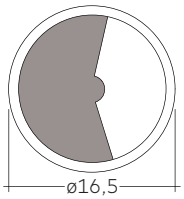
3.4 Detection area covers

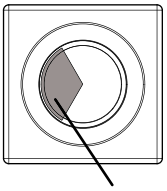
Included in each Sensor there are three detection area covers.
Each of these cover can be attached to the front of the sensor.
The 180° cover reduces the detection area of PIR sensor by half.
The 120° cover offers the possibility to reduce the detection area of PIR Sensor by 120° or 1/3 of its detection area.
There is no influence of detection area of light measurement or IR receiver by this cover.
0° cover is made only for aesthetical reasons to give the sensor a flush surface. It is not needed for proper operation of the sensor.

	0° / 120°	180°
Type of material	PC polycarbonate	PC polycarbonate
Colour	Transparent	White
Surface finish	polished	polished

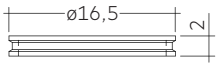
180° cover:

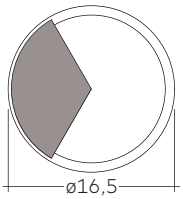


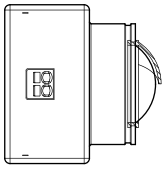




120° cover:

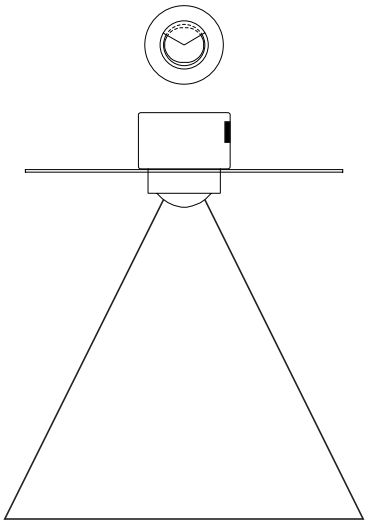


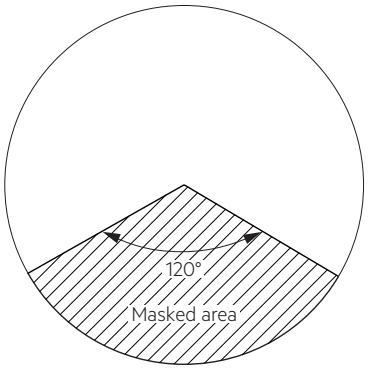




Attach the detection area cover to the sensor by inserting it into the corresponding groove at the front of the sensor.

Area which is masked, e.g. by the 120° shutter:

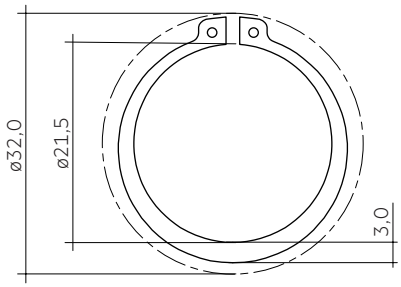




3.5 Mounting ring

The delivery scope of each sensor includes a black stainless steel mounting ring. This Ring allows to mount the sensor into a luminaire in an easy and visual attractive way.

Be sure to engage the mounting ring correctly in the mounting groove.
Excessive spreading of the mounting ring can result in permanent deformation.



3.6 Gasket

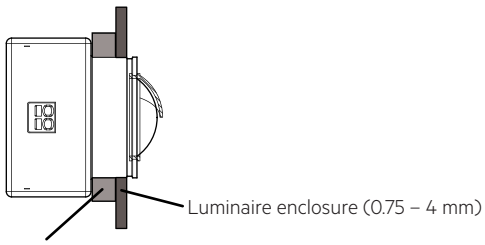
To fulfill ingress protection two different gaskets are included in the sensor. The gaskets are necessary to ensure ingress protection as well as proper mounting of the sensor in luminaire.

Sensor can be inserted into luminaires with a cover size from 0.75 up to 4.0 mm.
To cover different sizes of material, three gaskets with different sizes are included.

Available size of sealing: 5 / 8 mm

According to the size of luminaire cover in certain application, one of the gaskets must be used and mounted between the front of the sensor and the luminaire housing.
It is not allowed to use a combination of e.g. two gaskets, because this will not provide the right amount of sealing and you may run in to a risk to not reach the IP66 requirements.

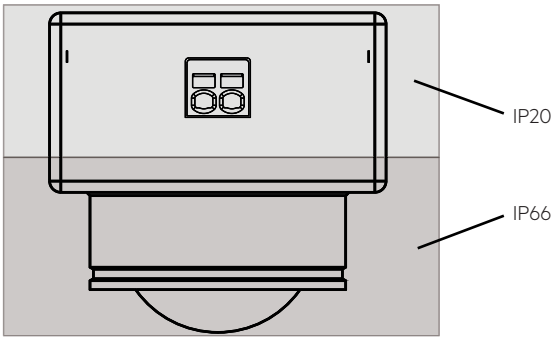
Use maximum possible size for your application to ensure a proper fit and protection.



Distance between Sensor and luminaire	Final size of gasket after assembly	Use gasket
2.5 – 4.0 mm	2.5 – 4.0 mm	5 mm
4.0 – 5.9 mm	4.0 – 5.9 mm	8 mm

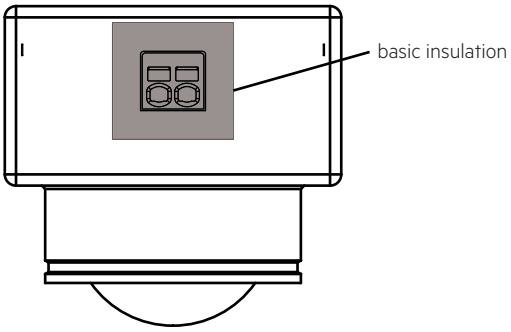
3.7 Ingress protection

This device contains IP-protection to use it also in applications with the need of protection against dust and water ingress. IP66 protection applies to the front of the sensor whereas the back of the sensor is IP20 rated.



3.8 Mounting in class II luminaire

The Sensor provides basic insulation as required by IEC 62386-101 and defined in IEC 61347-1.
If the sensor is built in to a class II luminaire which has to provide double or reinforced insulation it has to be considered that the Sensor is not a class II device. Still the Sensor can be used for such projects as the most part of the sensor is tested to fulfil the class II requirements for double or reinforced insulation. Basic insulation is illustrated in the graphic below and covers an area 2,5 mm around the terminal.
The rest of the sensor fulfils class II requirements.



4. Sensor function

4.1 Occupancy / motion detection

For occupancy detection PIR technology is used. PIR Lens is made to detect moving people in working areas such as warehouses, storage buildings and similar working areas with the following performance criteria:

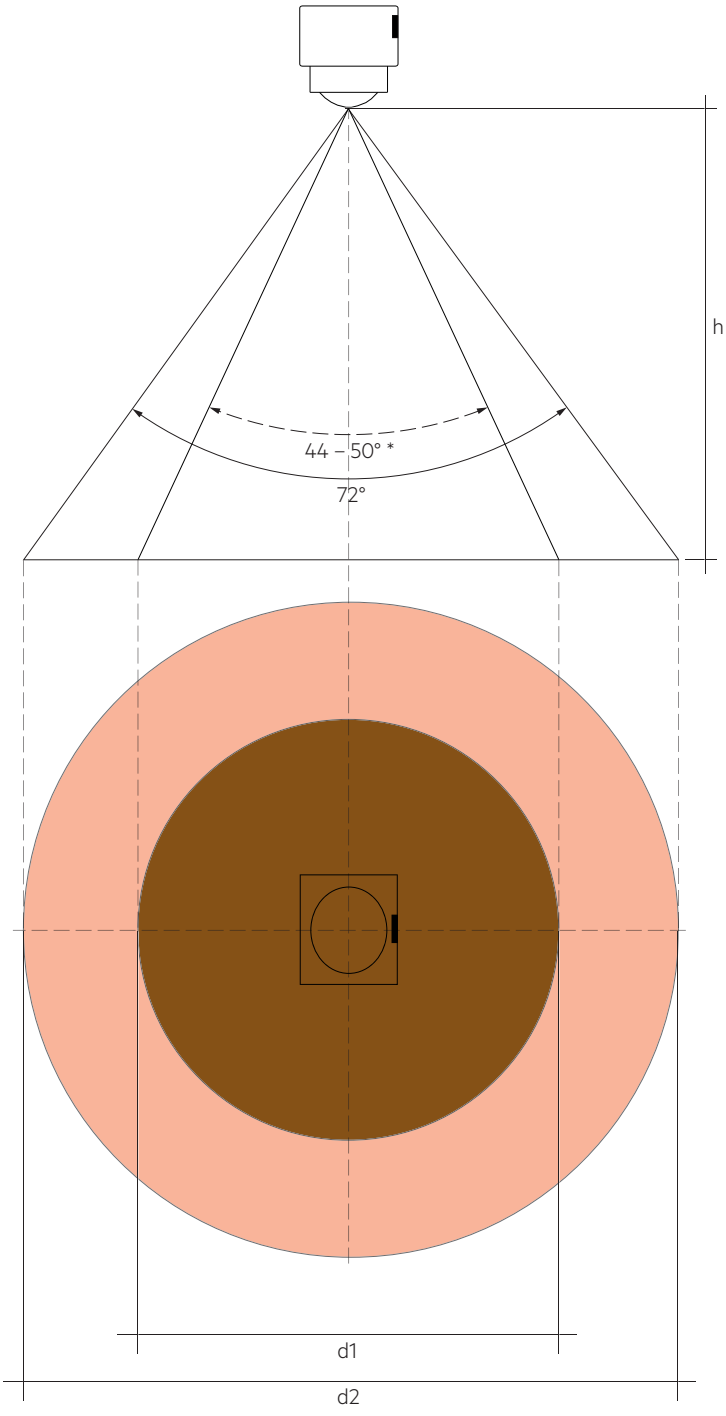
- Ceiling height from 5 up to 10 m
- Movement of human body (increment ≥ 1.5 m), no slight motion (no sitting person)
- Movement ≥1.0 m/s for mounting heights up to 7.5 m
- Movement ≥1.5 m/s for mounting heights up to 10.0 m

Reaction time of the sensor (time between occupancy detected and event information send to DALI Bus) is ≤ 25 ms.

The reaction time of the system can be extended by factors such as the amount of data on the bus, the number of connected devices or the control device used (Application Controller).

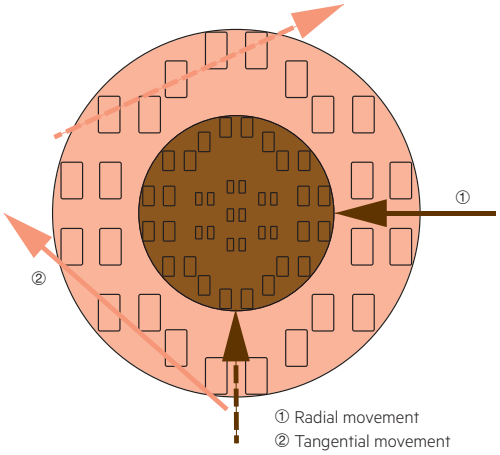
The point at which the light responds must therefore not be equated with the outer detection range.

4.2 Detection area



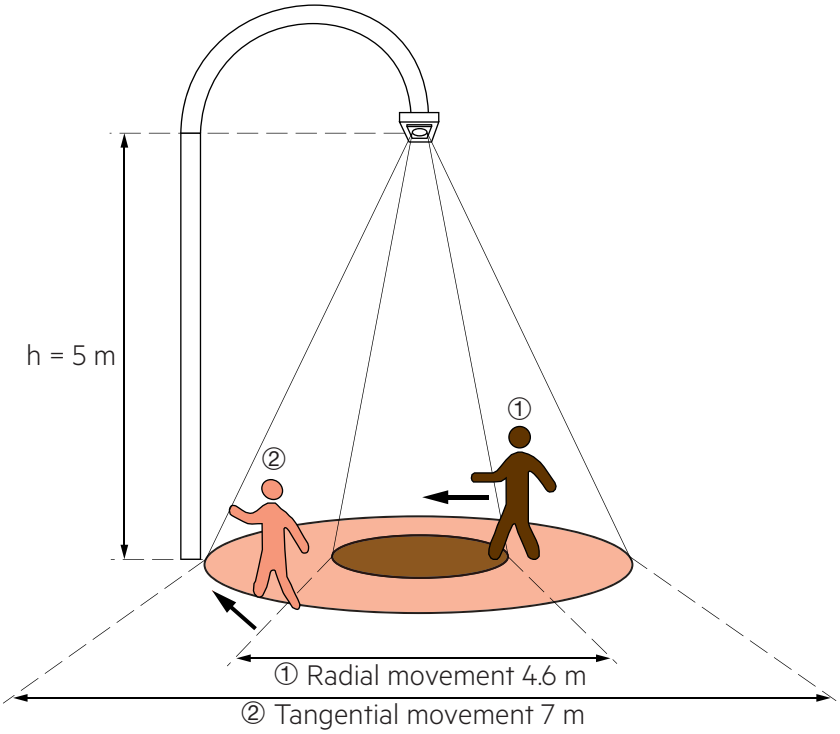
h = Height	d1 = Radial	Radial detection angle	d2 = Tangential (72°)
5 m	4.6 m	50°	7.0 m
6 m	5.6 m	50°	8.4 m
7 m	6.6 m	50°	9.8 m
8 m	7.4 m	50°	11.2 m
9 m	7.2 m	44°	12.6 m
10 m	8.0 m	44°	14.0 m

Schematic illustration of radial / tangential movements:



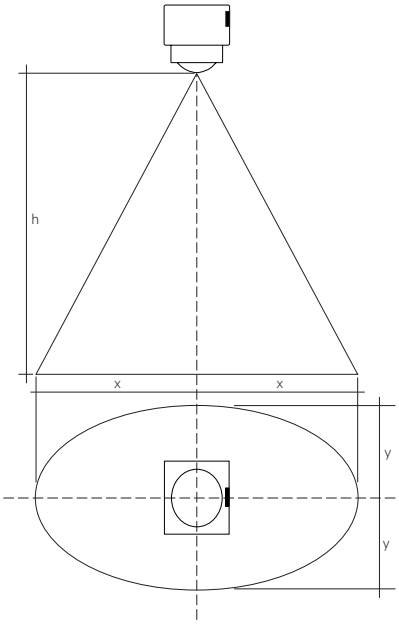
* The detection angle for the radial movement varies with the different mounting height between 44 and 50°.

Detection example at 5 m mounting height:



4.3 Light measurement

The light measurement has a cone-shaped detection area with a half angle of approximately 20° in x-direction and 15° in y-direction.



h	dx	dy
5.0 m	3.6 m	2.7 m
7.5 m	5.5 m	4.0 m
10.0 m	7.2 m	5.4 m

The measurement range is between 0.5 and 2000 lx.
Measured at the sensor head.

To be able to measure values < 5 lx in an accurate way it is needed to change integration time of light sensor to 800 ms. Integration time of light sensor is set to 100 ms by default. For values > 5 lx there is no difference in between these measurements.

4.4 Status LED's

There is a LED built in to indicate different status information to the user.

Event	Blinking sequence	LED Color
DALI command „identify device"	500 ms on / 500 ms off for 10 s	Red
Motion detection①	Default deactivated but can be activated by the application controller. If active, 1,000 ms on every time Motion is detected.	Red

Light measurement priority
① By default, these blinking patterns are interrupted by the light measurement, because the light measurement has a higher priority.
This behavior can be changed via the application controller, i.e. it can be configured that the blinking patterns are carried out, regardless of an ongoing light measurement. Consequently, the accuracy of the light measurement will become worse, because the brightness of the LED distorts the measurement.

4.3.1 Light value formate

The default operating mode is 128.
In this mode the user is able to choose from fixed point and floating point values for the light measurement. The default setting are floating point values.
In addition to operation mode 128 also operating mode 0 is implemented.
In operating mode 0 the fixed point values are supported for the light measurement values.
Resolution for fixed point and floating point = 1/64 Lux

5. Configuration

Compatible and approved with following systems:

- Tridonic premium outdoor driver with sensorMODE
- CIS 30 RF868DA2 28002647
- CIS 30 GPS RF868 DA2 28003929
- basicDIM Wireless OTD 28004237

6. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

6.2 Additional information

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TRIDONIC

DALI MSensor SFI 40 HF 5DP bDW

Casambi Ready wireless sensor

DALI MSensor SFI 40 HF 5DP bDW

DALI MSensor SFI 40 HF 5DP bDW S

Product description

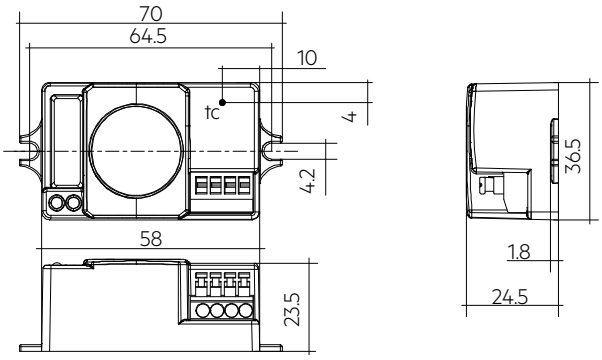
- Can be integrated in Casambi systems (Casambi Ready)
- Wireless controllable with an Android / iOS smart device
- No need for an external gateway device
- Forms automatically a wireless communication network with up to 250 nodes
- Digital output: Standalone DALI (compatible)
- Integrated switchabel DALI power supply with 20 mA
- Motion detector for luminaire installation
- Motion detection through glass and thin materials (except metal)
- 2 light sensor modes available, threshold mode for bright out controll and closed loop regulation if threshold is disabled
- Bright-out function: luminaire is not switched on if there is adequate brightness
- Delay time, detection range and light value for the bright-out function can be set via 4remoteBT App
- Max. installation height 5 m
- Variable detection area (100 – 10 %)
- Zero cross switching supported
- 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
- We will provide security updates for the next five years after the date of purchase of this product

Website

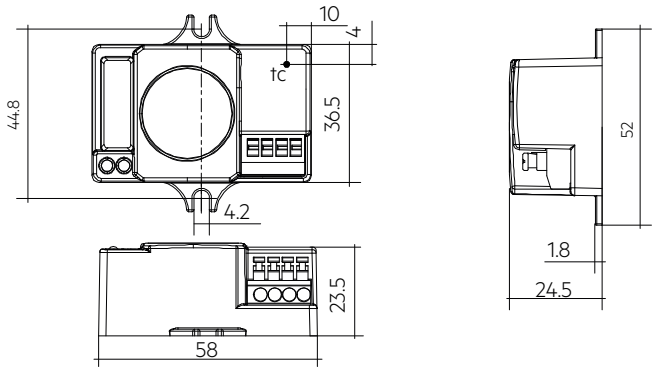
http://www.tridonic.com/28005971

DALI MSensor SFI 40 HF 5DP bDW

Casambi Ready wireless sensor



DALI MSensor SFI 40 HF 5DP bDW



DALI MSensor SFI 40 HF 5DP bDW S

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
DALI MSensor SFI 40 HF 5DP bDW	**28005971**	70 x 36.5 x 24.5 mm	5 pc(s).	0.04 kg
DALI MSensor SFI 40 HF 5DP bDW S	**28005972**	58 x 52.0 x 24.5 mm	5 pc(s).	0.04 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Max. mains current	6 mA
Power	< 1.2 W
Typ. power consumption ①	0.7 W
Radio transceiver operating frequencies	2.4 – 2.483 GHz
Max. output power radio transceiver (E.I. R.P.) ②	< + 20 dBm
Frequency	5.8 GHz (± 75 MHz)
Transmission power	< 0.2 mW
Radio protocol	Bluetooth 4.0 or 5.0 Low Energy (BLE)
Capable for mesh network	Up to 250 nodes / Standard networks and Long Range
Output	DALI (compatible)
Number of DALI addresses ③	4
Guaranteed output current, DALI	20 mA
Max. output current, DALI	250 mA
Max. DALI wiring length	5 m at 1 mm²
Detection angle	30 – 150°
Max. detection area	ø 6 m
Max. mounting height	5 m
Max. casing temperature tc	70 °C
Ambient temperature ta	-20 … +60 °C
Storage temperature ts	-20 … +70 °C
Humidity	min. 5 … max. 85 % at 30 °C
Type of protection	IP20
Protection class	II
Housing material	PC, halogen-free
Housing colour	RAL 9016 (white)
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 61347-1, EN 61347-2-11, EN 300 440, EN 301 489-1, EN 301 489-3, EN 301 489-17, EN 62479, EN 300 328, EN 62493, EN 62386-101, EN 62386-103

① Depending on the number of connected DALI loads.
② E.I.R.P.: Equivalent Isotropically Radiated Power.
③ Assignment of max. 4 single / group addresses, depending on the device profile.

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547
EN 61347-1
EN 61347-2-11
EN 300 440
EN 301 489-1
EN 301 489-3
EN 301 489-17
EN 62479
EN 300 328
EN 62493
EN 62386-101
EN 62386-103

Built-in electronic controlgear marked with this symbol provide double or reinforced insulation between hazardous live parts and all parts of the enclosure (complete or partial) that can come in contact with the luminaire body when incorporated.

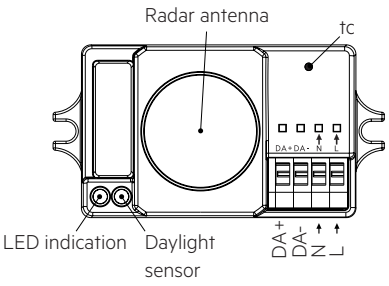
WARNING: FELV terminals marked "Risk of electric shock" are not safe to touch. Circuits connected to any FELV control terminal shall be insulated from the LV supply voltage of the control gear.
Any terminals connected to the FELV circuit shall be protected against accidental contact.

1.1 Glow-wire test according to EN 60598-1

850 °C passed

2. Common

The MSensor SFI 40 HF 5DP bDW provides simple, cost-effective and wireless motion detection in combination with a Tridonic electronic dimmable control gear.
If the user-definable light value at the integrated light sensor is exceeded the control gear remains switched off.
With a light guide, the sensor can also be used for daylight control.
High-frequency technology enables the sensor to be installed in completely enclosed luminaires.
All basicDIM Wireless devices can be controlled with the Tridonic 4remote BT app. The app is available free of charge from the Apple App Store and Google Play Store.



2.1 Operation

The MSensor SFI 40 HF 5DP bDW is fully compatible with networks which support up to 250 nodes (Evolution networks). If the sensor is used with different types of basicDIM Wireless devices in an Evolution network, check their compatibility in advance.
The MSensor SFI 40 HF 5DP bDW is not compatible with classic networks.

Multiple devices automatically form a mesh network that is controllable from any point. These networks communicate wireless directly with the smartphone or tablet. Therefore an external gateway or wireless LAN network is not needed.

MSensor SFI 40 HF 5DP bDW devices have an integrated 2.4 GHz Bluetooth antenna.
For optimal RF performance when integrated into a luminaire, special attention is required. See chapter 4.4 Placement for further instructions.
Configure the settings and operating modes using the 4remote BT app.

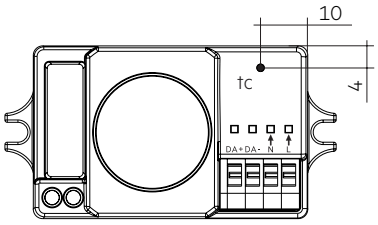
3. Thermal details and lifetime

3.1 Expected lifetime

Expected lifetime

Type	**ta**	**60 °C**
MSensor SFI 40 HF 5DP bDW	tc	70 °C
	Lifetime	50,000 h

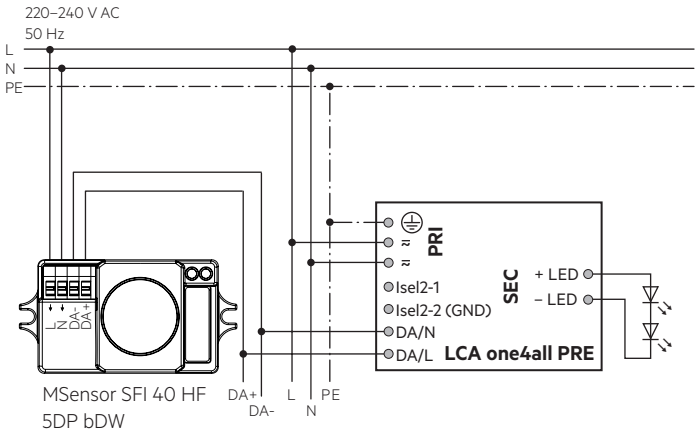
The device is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.



4. Installation

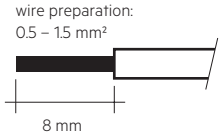
- The sensor must protrude over the light sources.
- Disconnect the power supply before installation.
- Suitable for installation only in indoor luminaires (e.g. corridors and closed parking garage) without vibration.
- Opening angle of the sensor: must be at least 45 %.
- Motion detection: only possible through thin housing material (e.g. plastic or glass), do not use metal housing.
- Light sensor: must be able to detect reflected artificial light and reflected daylight.
- Reflected HF waves (e.g. of walls, floors, ceilings or furniture) from other transmitters affect motion detection.
- Avoid direct illumination of the light source on the sensor including housing.

4.1 Wiring diagram

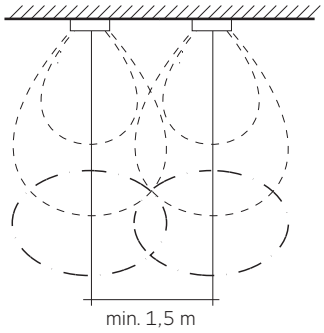


4.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.5 to 1.5 mm². Strip 8 mm of insulation from the cables to ensure perfect operation of the push-in terminals.
Use one wire for each terminal connector only.



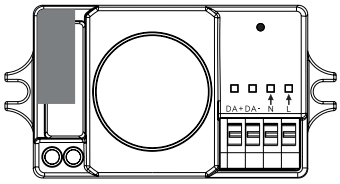
4.3 Minimum spacing for further sensors



4.4 Placement

The MSensor SFI 40 HF 5DP bDW has an integrated Bluetooth antenna for easy integration. In order to maximize the range in every direction consider the following design guidelines:

- The Bluetooth antenna is located at the end of the enclosure.
- When mounting the device on a metal plate (e.g. frame of a luminaire), it may efficiently block the radio frequency signal. In this case a cut-out underneath the Bluetooth antenna is may be needed for the RF signal to exit the structure. The cut-out area should be as large as possible.
- Place the device as far away as possible from any vertical metal structures.



■ Bluetooth antenna position

The range of the communication signal is depending on the environment e.g. luminaire, construction of the building, furnitures or humans and needs to be tested and approved in the installation.

To ensure a good radio connection and function do not cover the MSensor SFI 40 HF 5DP bDW completely with metal!

5. Functions

5.1 Setting up

Setting the detection area
To avoid unnecessary switching on of the lighting system due to an excessively large detection area, this can be limited.
The detection area indicates the diameter within motion is detected.
Set this value with the 4remote BT app.

Sensitivity
100 % (default)
50 %
30 %
10 %

Setting the switch-off delay
To avoid unnecessary switching on and off of the lighting system it is possible to set a switch-off delay. The delay starts after the last motion in the detection area. With the detection of further motion during this delay it is retriggered. At the end of the delay the light will be switched off.
Set this value with the 4remote BT app.

Setting the daylight threshold value
To avoid unnecessary switching on of the lighting system when there is adequate illuminance, a threshold value can be set. The threshold value indicates up to which illuminance value detected movement cause the lighting system to switch on.
Set this value with the 4remote BT app.

Daylight sensor
Disable (default)
50 Lux
20 Lux
5 Lux
2 Lux

Daylight sensor with light guide

If the daylight threshold is disabled the Sensor can be used in closed loop applications.

It is important to ensure that the light sensor does not measure reflected light behind the diffuser (use a light guide) or that the sensor is placed outside the diffuser.

5.3 Start up behaviour

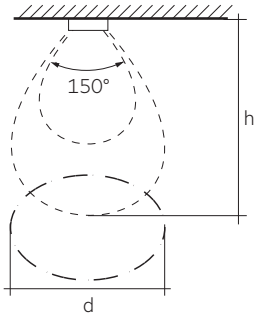
20 seconds after mains is connected, the sensor is ready and indicates this by flashing on the green LED.

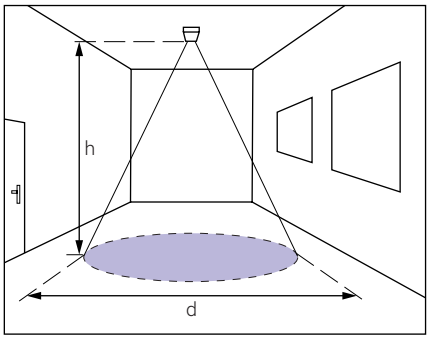
5.4 Motion detection

Ceiling mounted:

Sensitivity

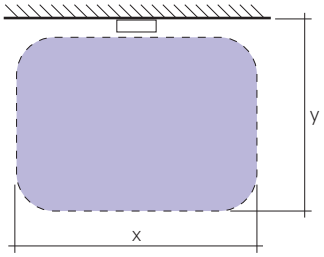
h	100 %	50 %	30 %	10 %
	d			
0.5 m	–	–	–	–
1.0 m	–	–	–	–
1.5 m	–	–	–	–
2.0 m	5.0 m	3.0 m	1.5 m	1.0 m
2.5 m	6.0 m	3.0 m	1.5 m	1.0 m
3.0 m	6.0 m	3.0 m	1.5 m	1.0 m
3.5 m	6.0 m	3.0 m	1.5 m	–
4.0 m	5.0 m	2.5 m	1.0 m	–
4.5 m	4.5 m	2.0 m	–	–
5.0 m	4.0 m	2.0 m	–	–

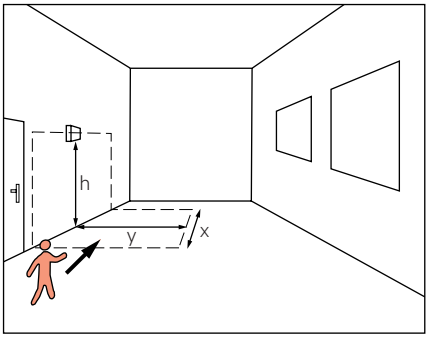




Wall mounted – passing by:

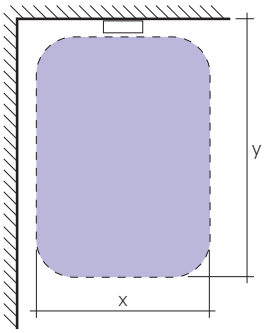
x	y	h	Sensibility
5.0 m	5 m	1.8 m	100 %
1.5 m	4 m	1.8 m	50 %
1.0 m	3 m	1.8 m	30 %
0.5 m	2 m	1.8 m	10 %

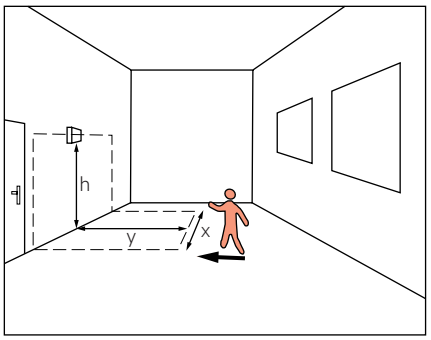




Wall mounted – moving towards:

x	y	h	Sensibility
3 m	8 m	1.8 m	100 %
3 m	4 m	1.8 m	50 %
2.5 m	1.5 m	1.8 m	30 %
2 m	1 m	1.8 m	10 %





The table shows the diameter of the detection cone as a function of height at maximum detection area without considering objects in the room. Stationary objects (walls, tables, floor-standing luminaires, etc.) located in the direct view of the sensor change the characteristics of the detection area. The mentioned values are typical minimum values. Depending on the environment and application the detection area may increase.

5.5 Detection sensitivity

Optimized for detection of pedestrians with a speed of 0.5 – 1.5 m/s corresponds to 1.8 – 5.4 km/h.
Depending on the application and environmental conditions the maximum detectable speed of object may vary.

6. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

6.2 Conditions of use and storage

Environmental conditions:	5 % up to max. 85 %, not condensed
Storage temperature:	-20 °C up to max. +70 °C

The devices have to be acclimatised to the specified temperature range (ta) before commissioning.

6.3 Additional information

The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by Zumtobel Group AG is under license.
Tridonic GmbH & Co. KG is a subsidiary of Zumtobel Group AG.

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI PCD 1-380 one4all G3

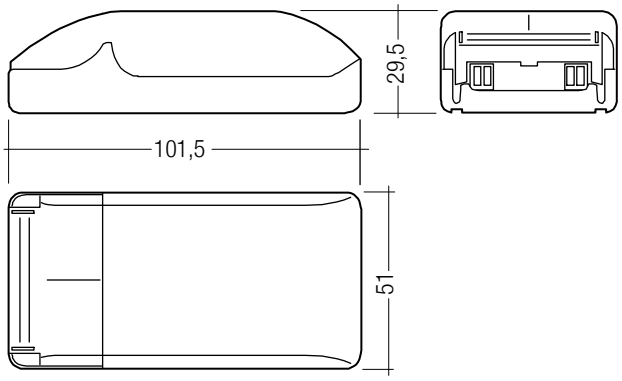
DALI actuator

Product description
_ Digital leading-edge and trailing-edge phase dimmer
_ Total connected load: 1 – 380 VA
_ one4all input: DALI, DSI, switchDIM and corridorFUNCTION input
_ Zero cross switching supported
_ 1 dimmed phase (output)
_ With automatic load detection
_ Surface-mounted casing
_ Suitable for operation with LED retrofit bulbs
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website
http://www.tridonic.com/28004625

DALI PCD 1-380 one4all G3

DALI actuator



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI-PCD 1-380 one4all G3	**28004625**	25 pc(s).	0.085 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Connected load	1 – 380 VA
Power loss	0.6 W (1.8 W at full load)
Ambient temperature ta	0 … +50 °C
Storage temperature ts	-20 … +50 °C
Humidity	0 … 95 %
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	101.5 x 51 x 29.5 mm

Approval marks

Standards

EN 61347-1, EN 61347-2-11, EN 60669-1, EN 60669-2-1, EN 50428, EN 62386-101, EN 62386-102, EN 62386-205

Specific technical data

	Inputs			Outputs			
Type	Input, DALI / DSI control input / switchDIM and corridorFUNCTION	Current draw	Number of DALI addresses	Dimmed phase	Control range, DSI	Control range, DALI	Terminals
DALI-PCD 1-380 one4all G3	1	2 mA from DALI	1	1	1 – 100 %	0.1 – 100 %	0.5 – 1.5 mm²

1. Standards

EN 61347-1
EN 61347-2-11
EN 60669-1
EN 60669-2-1
EN 50428
EN 62386-101 Ed. 2
EN 62386-102 Ed. 2
EN 62386-205

2. Common

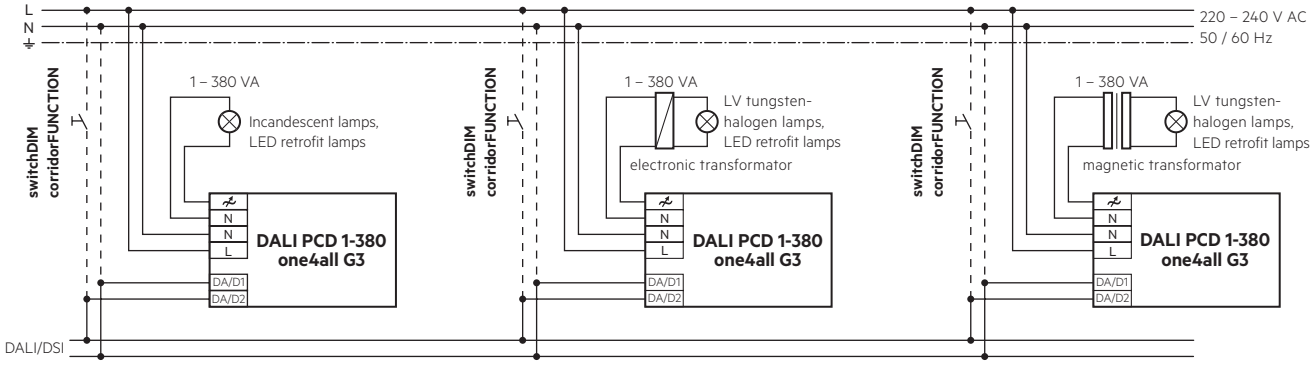
Phase dimmers with automatic load detection, leading-edge or trailing-edge. Controlled via switches (switchDIM and corridorFUNCTION) or a DALI/DSI signal.
Total connected load: 1–380 VA

2.1 Area of application

Digital phase dimmers enable low-voltage tungsten-halogen lamps, in conjunction with electronic or magnetic transformers, and ohmic light sources (incandescent lamps) with a total output of 1 to 380 VA to be dimmed.
Control is either via a DALI/DSI signal or directly connected switches (switchDIM and corridorFUNCTION).
The digital phase dimmer is compatible with LED retrofit lamps. Because of the variety of different LED Retrofit lamps it is recommended to test the operation before installation.
LV halogen LED retrofit lamps that are operated by an electronic or magnetic transformer are also compatible.

3. Installation

3.1 Wiring



Mixed loads (capacitative, inductive and ohmic) may be used.[1)]

[1)] Different loads require different control signals by the dimmer. If various loads are operated simultaneously at the dimmer, e.g. electronic transformers, magnetic transformers, LED retrofit lamps, etc., the dimming signal will focus on the most dominant load. As a result, the other loads may be operated by wrong control signals, which will result in improper dimming. In this case, a decrease in the service life of the loads installed cannot be excluded either. It is therefore recommended to avoid controlling different loads simultaneously by the same dimmer.

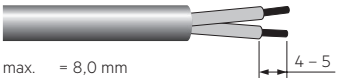
Information on minimum dimming level

The PCD 1-380 supports in general a min. dimming level of 1 % for DSI and 0.1 % for DALI. But not every load supports such low levels. For that reason the minimum dimming level is not a static value and is calculated for every load new.

3.2 Wiring type and cross section

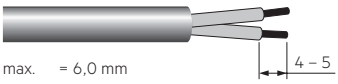
For wiring use stranded wire with ferrules or solid wire.
For perfect function of the cage clamp terminals the strip length should be 4 – 5 mm for the input terminal.
The max. torque at the clamping screw (M3) is 0.2 Nm.

Side D2



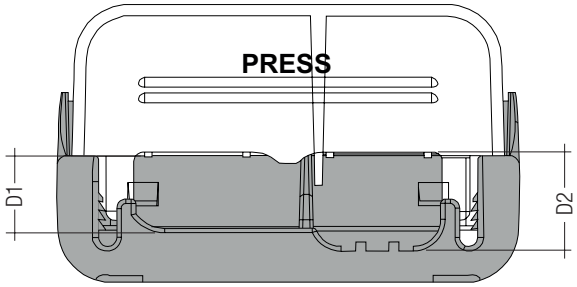
max. = 8,0 mm
min. = 4,0 mm

Side D1



max. = 6,0 mm
min. = 2,0 mm

To get a proper working strain relief it is recommended that the cable jacket diameter of the side D2 is 2 mm bigger than the diameter of the side D1. (This can vary if the used cable jacket material varies from side D2 to D1 in pinching property).



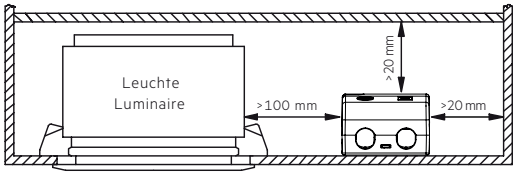
- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.
- Only plastic screws may be used for fastening.
- Individual DALI circuits must not exceed 250 mA (depends on the used DALI Powersupply).
- The maximum cable length of the DALI signal wires must not exceed 300 m or drop more than 2 V on the signal line voltage.

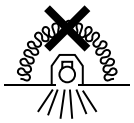
Control terminals marked „Risk of electric shock" are not safe to touch.
Circuits connected to any FELV control terminal shall be insulated from the LV supply voltage of the controlgear and any terminals connected to the FELV circuit shall be protected against accidental contact.

There is a risk of electric shock when touching these terminals in case of failure.
Note: In some countries basic insulated control terminals are to be marked with this symbol.

3.3 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device. Minimum distances stated below are recommendations and depend on the actual luminaire.
Is not suitable for fixing in corner.





Device not suitable for covering with thermally insulating material according to IEC 60598-1 Ed.9

4. Functions

4.1 Control input (DA/N, DA/L)

Digital DALI signal or switchDIM can be wired on the same terminals (DA/N and DA/L).
The control input is non-polar for digital control signals (DALI, DSI).
The control signal is not SELV. Control cable has to be installed in accordance to the requirements of low voltage installations.
Different functions depending on each module.

4.2 corridorFUNCTION

The corridorFUNCTION can be programmed in two different ways.
To program the corridorFUNCTION by means of software a DALI-USB interface is needed in combination with a DALI PS.
The software can be the masterCONFIGURATOR.
To activate the corridorFUNCTION without using software a voltage of 230 V has to be applied for five minutes at the switchDIM connection.
The unit will then switch automatically to the corridorFUNCTION.

If the corridorFUNCTION is wrongly activated in a switchDIM system (for example a switch is used instead of pushbutton), there is the option of installing a pushbutton and deactivating the corridorFUNCTION mode by five short pushes of the button within three seconds.

switchDIM and corridorFUNCTION are very simple tools for controlling gears with conventional pushbuttons or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings.
Serious mains faults may impair the operation of switchDIM and corridorFUNCTION.

4.3 switchDIM

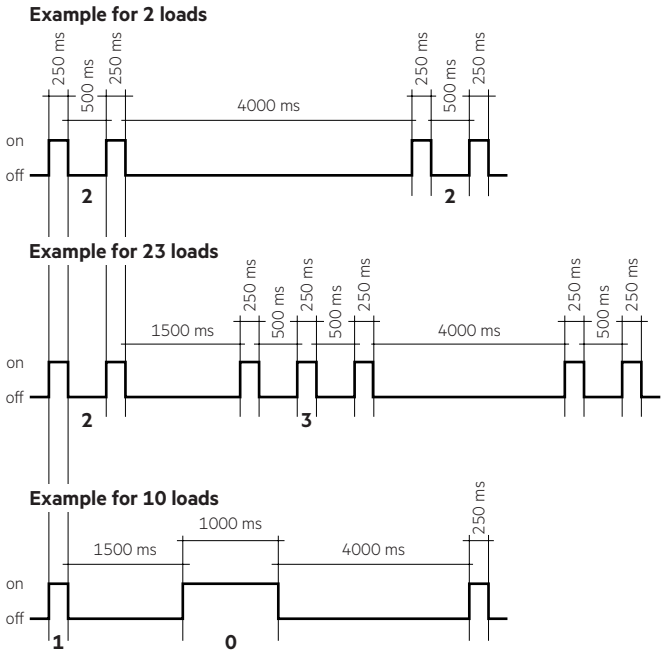
When a new unit is installed in an existing system or when the system is first put into operation the individual units are not synchronised. This means that some units will be at status on and some at status off. Pressing the switch briefly will change the status; units previously on will be switched off, but the rest will be switched on. By pressing the switch for longer than 10 seconds all the units will be synchronised to the same status. The synchronisation process is completed when all the lamps have assumed the same light value (50 %).
The same synchronisation process may also be necessary during normal operation if an individual unit becomes unsynchronised because of an incorrect switching operation.
switchDIM is a very simple tool for controlling ballasts with conventional momentary-action switches or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings.
Serious mains faults may impair the operation of switchDIM.

4.4 Automatic load measurement

In default setting the PCD does an automatic load measurement after every mains interruption. This guaranties ideal load control. Disable the automatic load measurement via the programming of the Physical Minimum Level (PML) with the software masterCONFIGURATOR. If the Power On Level (POL) is set to 0, the load measurement starts after a DALI command > 0 is send to the PCD and not directly after mains is switched back on.

4.5 Display of load factor

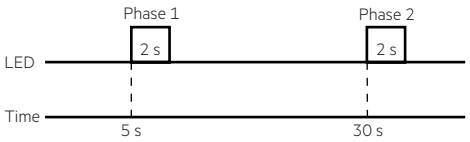
After every automatic load measurement, the amount of possible connectable loads will be indicated for 2 minutes by the LED located on the device, between the DALI and mains terminals.



Values up to 99 can be displayed.
0 will be indicated with the LED switched on for 1,000 ms.
1 – 9 will be indicated with the LED blinking 250 ms on, 500 ms off.
Break between digits = 1,500 ms.
Break between full numbers = 4,000 ms.

4.6 Reset switch

The reset switch is located between the DALI and Mains terminals.
By operating the reset switch a new load measurement can be executed.
In addition in the second phase the PCD can be reset to factory settings. The automatic load measurement is active in the factory settings.



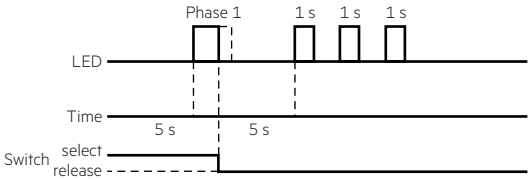
Release switch in Phase 1 = Load measurement will be executed, the PHM will be changed accordingly to the measurement result. Automatic load measurement will be deactivated.

Release switch in Phase 2 = The PCD will be reset to factory settings. Automatic load measurement will be activated again and executed after every mains interruption.

Important the switch has to be released within the 2 second window in which the indication LED is switched on.

The execution of Phase 1 and 2 will be visualized by a sequence of the indication LED.
The sequence will start 5 seconds after the phase during witch the switch was released.

Example triggering Phase 1:



4.7 Status LED

The Status LED is located between the DALI and Mains terminals.
If there is no error, no load number and no activity with the Reset button, then the LED is switched off. If there is an error or an activity then one of the following blinking patterns is applied:

System state	Blinking pattern
Load reduction because of over-current / -temperature	Blinking with 1 Hz
Over-voltage	Blinking 2 times with 2.5 Hz, then pause
Short-circuit	Blinking with 5 Hz
Shutdown by over-current / -temperature	Permanently on

5. Miscellaneous

5.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI PS1

DALI power supply

Product description

- For supplying 200 mA for DALI devices or control modules without their own power supplies
- Surface-mounted casing
- 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

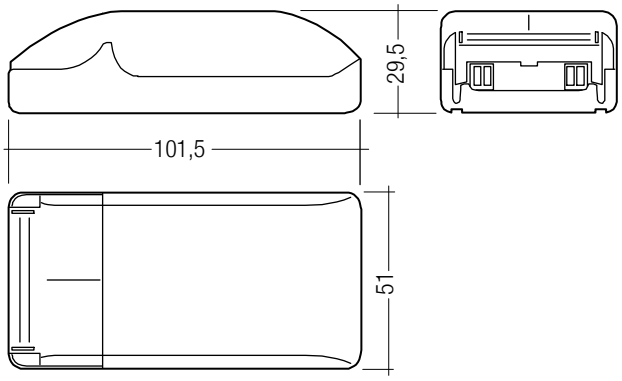
Website

http://www.tridonic.com/24034323

TRIDONIC

DALI PS1

DALI power supply



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI PS1	**24034323**	172 pc(s).	0.155 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. rated current (at 230 V, 50 Hz, full load)	57 mA
Power	4 W
Output	DALI
Max. output current, DALI	200 mA
Ambient temperature ta	0 … +50 °C
Type of protection	IP20
Dimensions L x W x H	101.5 x 51 x 29.5 mm
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

RoHS

1. DALI standard

DALI PS1 is designed to supply control gear with DALI standard IEC 60929 (DALI V0) and IEC 62386 (DALI V1).

1.1 Glow-wire test

according to EN 60598-1 passed.

2. Common

2.1 Functional description

Central DALI power supply rated at 200 mA (DALI standard allows max. 250 mA).
The controls interface of a DALI ballast normally sources 2 mA, with 64 individual addresses this will source 128 mA.
The remaining 72 mA can be used to power other DALI controls without an internal power supply such as the DALI GC and DALI SC.

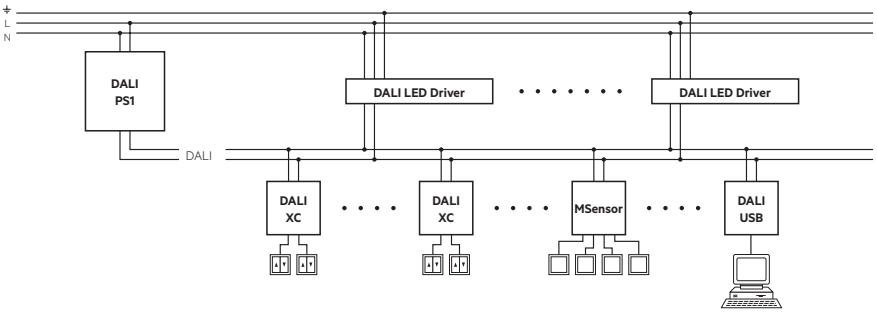
2.2 LED display

Status LED indicating operating status.
Green (flashing): normal operation (with telegram traffic through bus).
Red: short circuit or excessive load at DALI control line.

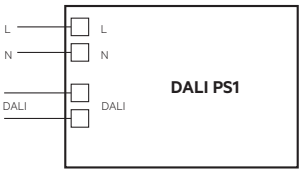
3. Installation

- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.
- Only plastic screws may be used for fastening.
- Individual DALI circuits must not exceed 200 mA.
- The maximum cable length of the DALI signal wires must not exceed 300 m or drop more than 2 V on the signal line voltage.

3.1 Wiring

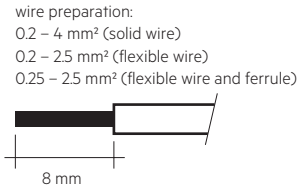


3.2 Circuit diagram



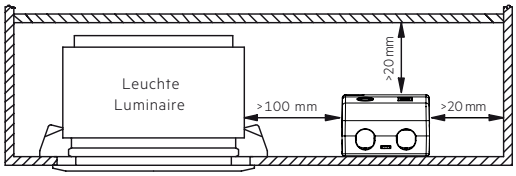
3.3 Cable types and cable cross-sections

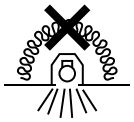
For wiring use solid wire from 0.2 to 4 mm², stranded wire from 0.2 to 2.5 mm² or stranded wire with ferrules from 0.25 to 2.5 mm².
Strip 8 mm of insulation from the cables to ensure perfect operation of terminals.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device. Minimum distances stated below are recommendations and depend on the actual luminaire.
Is not suitable for fixing in corner.





Device not suitable for covering with thermally insulating material according to IEC 60598-1 Ed.9

4. Miscellaneous

4.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

4.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI PS2

DALI power supply

Product description

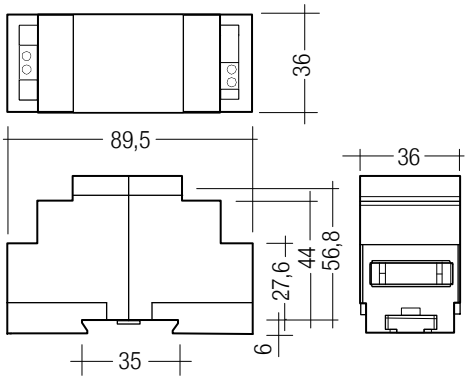
- For supplying 240 mA for DALI devices or control modules without their own power supplies
- For installation in switching cabinets
- 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website

http://www.tridonic.com/28000876

DALI PS2

DALI power supply



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI PS2	**28000876**	40 pc(s).	0.105 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. rated current (at 230 V, 50 Hz, full load)	57 mA
Power	4.7 W
Output voltage	13.5 V ± 5 %
Max. output current, DALI	240 mA
Operating temperature	0 … +50 °C
Max. casing temperature tc	80 °C
Storage temperature ts	0 … +70 °C
Type of protection	IP20
Dimensions L x W x H	89.5 x 36 x 56.8 mm
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

RoHS

Standards

EN 55015, EN 61547, EN 61000-3-2, EN 61000-3-3, EN 61347-2-11, EN 62386-101

1. Standards

EN 55015
EN 61547
EN 61000-3-2
EN 61000-3-3
EN 61347-2-11
EN 62386-101

1.1 DALI standard

DALI PS2 is designed to supply control gear with DALI standard IEC 60929 (DALI V0) and IEC 62386 (DALI V1).

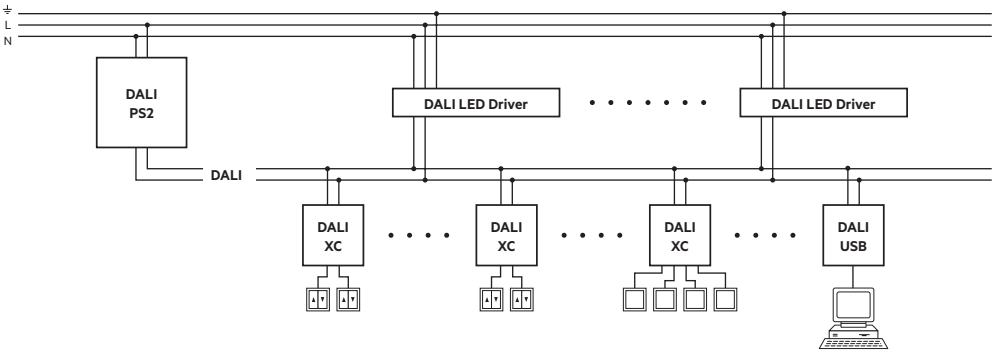
1.2 Glow-wire test

according to EN 60598-1 passed.

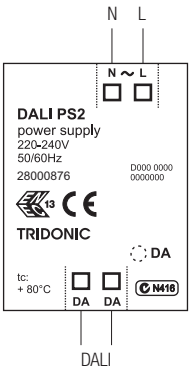
2. Installation

- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage
- Individual DALI circuits must not exceed 240 mA
- The maximum cable length of the DALI signal wires must not exceed 300 m or drop more than 2 V on the signal line voltage

2.1 Wiring

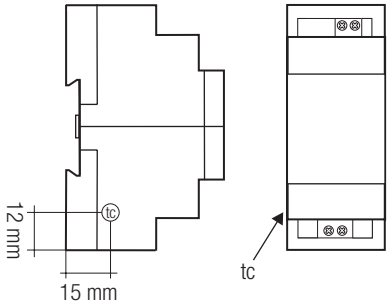


2.2 Circuit diagram



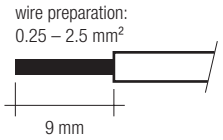
2.3 tc control point

Max. casing temperature tc = 80 °C



2.4 Wiring type and cross section

For wiring use stranded wire without / with ferrules or solid wire from 0.25 to 2.5 mm².



3. Miscellaneous

3.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

3.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim. No warranty if device was opened.

TRIDONIC

DALI PS3

DALI-2 power supply

Product description

- DALI-2 power supply providing 70 mA for a DALI-2 installation
- Excellent scalability allowing to connect up to 2 PS3 in a DALI-2 installation
- Compact form factor combined with detachable mounting flaps allowing high installation flexibility, e.g. in luminaire
- Up to 100,000 guaranteed operating hours enable outstanding lifetime of the entire lighting system
- 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

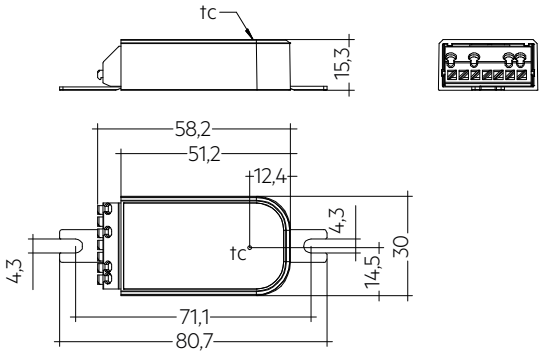
Website

http://www.tridonic.com/87500873

TRIDONIC

DALI PS3

DALI-2 power supply



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI PS3	**87500873**	60 pc(s).	0.02 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. current ①	0.0172 A
Power consumption ①	1.75 W
Typ. power consumption on stand-by ②	0.31 W
Output power ①	1.2 W
Output	DALI
Max. level voltage DC, DALI	18.4 V
Min. level voltage DC, DALI	13.6 V
Typ. level voltage DC, DALI	16 V
Guaranteed output current, DALI	70 mA
Max. output current, DALI	105 mA
Ambient temperature ta	-20 … +65 °C
tc point	65 °C
Type of protection	IP20
Dimensions L x W x H	80.7 x 30 x 15.3 mm
Lifetime	100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2-11, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 62386-101

① Test condition at 230 V, 50 Hz and full load.
② No DALI traffic at the interface.

1. Standards

EN/IEC 61347-2-11: 2001
EN 55015: 2013
EN 61000-3-2: 2014 Part 3-2
EN 61000-3-3: 2013 Part 3-3
EN 61547: 2009
EN 62386-101 Ed.2.1

1.1 Glow-wire test

according to EN 61347-2-11 passed for temperatures up to 850 °C.

2. Common

2.1 Functional description

DALI PS3 is developed according to EN 62386-101 Ed.2.1 also known as DALI-2. DALI PS3 is a power supply, rated at 16 V DC and providing 70 mA.

With the provided 70 mA current up to 35 DALI loads can be connected.

Standard DALI loads are specified to consume max. 2 mA.
Some DALI control devices may consume more than 2 mA (e.g. MSensor G3). If such devices are connected to the PS3 the amount of possible connected devices will be reduced.
This has to be considered during the application design.

Up to 2 PS3 can be connected in parallel to provide up to 140 mA.

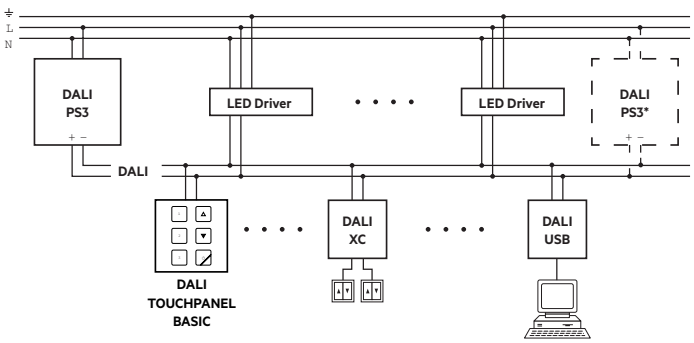
Additional PS3 must be connected in parallel and the polarity has to be considered. Do not connect more than 2 PS3 in one installation. This may cause damage to the device and all other devices connected to the control wires.

The housing provides mounting flaps (manually removable) which can be used for easy installation inside a luminaire.

3. Installation

- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.
- The DALI signal wires must not drop more than 2 V.

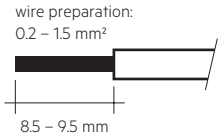
3.1 Wiring



* Possible connection of additional DALI PS3

3.2 Cable types and cable cross-sections

For wiring use stranded wire with ferrules or solid wire from 0.2–1.5 mm².
Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



When loosing the wiring, always use the push-button handle and never pull on the wire until the letch is released.

3.3 Max. output cable length

Material	Cross-section	Max. cable length 25 °C	50 °C	75 °C
Copper	0.20 mm²	45 m	41 m	37 m
	0.50 mm²	112 m	102 m	93 m
	0.75 mm²	168 m	153 m	140 m
	1.00 mm²	224 m	204 m	187 m
	1.50 mm²	300 m①	300 m①	281 m
Aluminium	0.20 mm²	27 m	25 m	23 m
	0.50 mm²	68 m	62 m	57 m
	0.75 mm²	102 m	93 m	86 m
	1.00 mm²	136 m	125 m	115 m
	1.50 mm²	205 m	187 m	172 m

① Cable lengths of more than 300 m are not recommended.

3.4 Output short circuit conditions

Output short circuit behavior has no delay, retry and restart period of shutdown mechanism, but short circuit proof. The PS3 keeps working even output is short with limited max. output current.

4. Thermal details and lifetime

4.1 Expected lifetime

Expected lifetime				
Type	ta	40 °C	50 °C	65 °C
DALI PS3	tc	55 °C	65 °C	75 °C
	Lifetime	>100,000 h	100,000 h	65,000 h

The device is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

5. Miscellaneous

5.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data
Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI repeater

DALI interface

Product description

_ For amplifying the DALI signal
_ For extending the DALI line length from 300 to 600 m
_ A star-type network with multiple DALI repeater's can be set up
_ Power supply via DALI line
_ For installation in switching cabinets
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Note

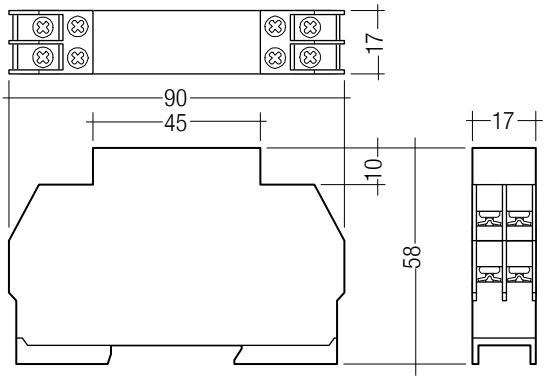
_ Because of the signal delay it is not possible to connect multiple DALI repeaters in series (no cascading)
_ There is no increase in the maximum number of DALI units. A maximum of 64 DALI addresses can be configured in a DALI circuit (main and subordinate circuit)
_ Because of the electrical isolation between the main circuit and the subordinate circuit an additional DALI power supply unit is needed for each DALI repeater

Website

http://www.tridonic.com/86458401

DALI repeater

DALI interface



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI Repeater	**86458401**	1 pc(s).	0.077 kg

Technical data

Supply via	DALI cable
Supply voltage ①	9.5 – 22.5 V
Current draw for main control circuit (IN)	6 mA from DALI
Current draw for subordinate control circuit (OUT)	4 mA from DALI
Starting time	≤ 2 s
Input	DALI
Output	DALI
Operating temperature	0 … +50 °C
Storage temperature ts	-20 … +70 °C
Housing material body	Polyamide
Type of protection	IP20
Protection class	II
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

CE UKCA RoHS

Standards

EN 55015, EN 61547, EN 61347-2-11, EN 61347-1

① Uin acc. IEC 62386-101.

1. Standards

EN 55015
EN 61547
EN 61347-2-11
EN 61347-1

1.1 DALI note

Device is designed to be used in DALI installation and supports DALI standards.
EN 60929 (DALI-0)
EN 62386 (DALI-1)
EN 62386-101 Ed.2 (DALI-2)

2. Common

- The DALI Repeater extends the maximum DALI control line from 300 to 600 m.
- The repeater amplifies the DALI signal.
- Electrical insulation between the main control circuit and the subordinate control circuit.
- In Single-Master applications star networks with multiple repeaters can be set up.

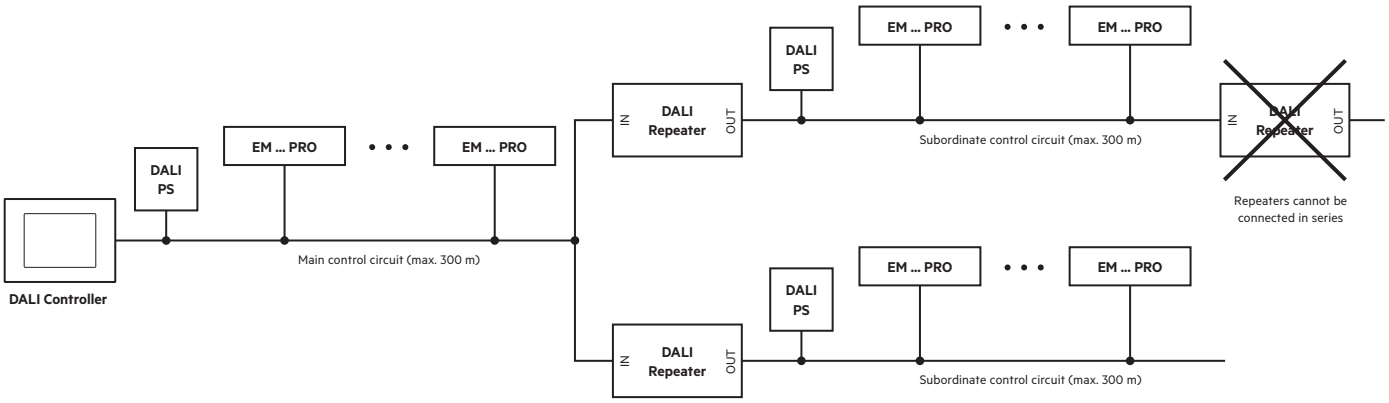
3. Installation

- Because of the signal delay it is not possible to connect DALI repeaters in series (no cascading) – see note relating to the wiring diagram.
- There is no increase in the maximum number of DALI units. A maximum of 64 DALI addresses are possible in one DALI circuit (main and subordinate circuit).
- The distribution of the DALI units is optional.
- Particular notice has to be taken of the not allowed cascading, if more than one DALI control is connected to the DALI circuit.
- An additional DALI PS/PS1 is needed for each subordinate circuit.
- The DALI signal is not SELV. The installation instructions for low voltage therefore apply.
- The length of the DALI control line after the DALI repeater must not exceed 300 m (for a cable cross-section of 1.5 mm²) or the drop in voltage must not exceed 2 V.

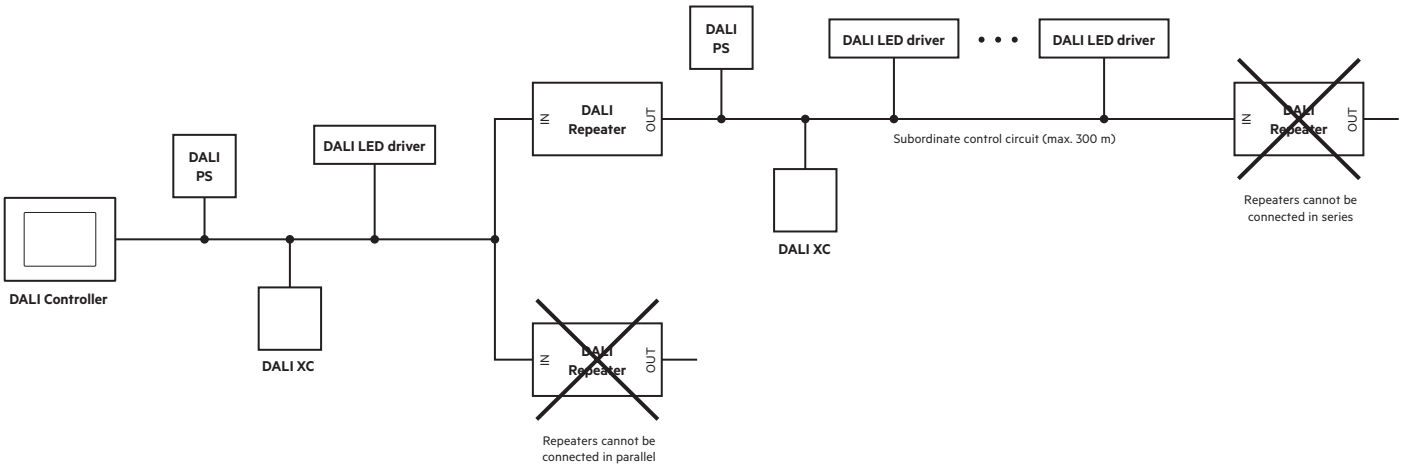
3.1 Connection diagram

Wire size for solid wire	0.05 – 2.5 mm² (AWG20 – AWG14)
Wire size for stranded wire	0.05 – 2.5 mm² (AWG20 – AWG14)
Wire size using wire end ferrule	0.25 – 1.5 mm²
Stripping length	7 mm / 0.27 inch
Locking torque	0.5 Nm
Release of wire	Open screw

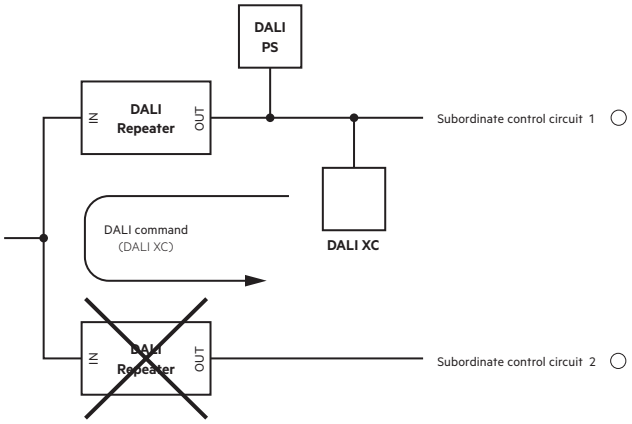
3.2 Single-Master application



3.3 Multi-Master application



Attention
Due to DALI actors in the subordinate control circuit, a star network is not permitted. This would cause a not allowed cascading of DALI Repeaters.
For example: The DALI command of the DALI XC in the subordinate control circuit ① passes two repeaters to the subordinate control circuit ②.



4. Miscellaneous

4.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

4.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI RM

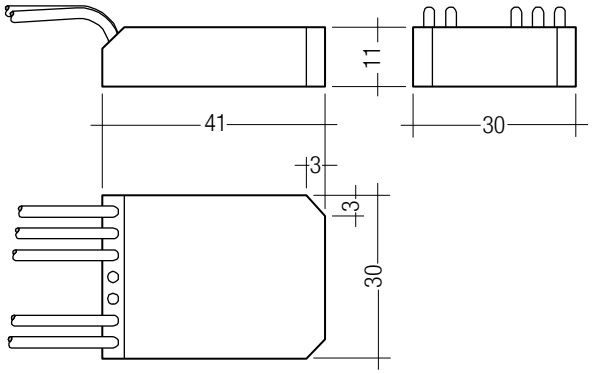
DALI actuator

Product description
_ Control of one standard contactor
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website
http://www.tridonic.com/24034702

DALI RM

DALI actuator



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI-RM	**24034702**	1 pc(s).	0.087 kg

Technical data

Ambient temperature ta	0 … +50 °C
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	41 x 30 x 11 mm

Approval marks

CE UKCA RoHS

Specific technical data

	Inputs			Output, relay			
Type	DALI control input	Current draw	Number of DALI addresses	Max. switching voltage AC	Max. switching voltage DC	Type of contact	Min. contact load
DALI-RM	1	12 mA from DALI	1	250 V	35 V	1 changeover	1.2 W

1. Standards

1.1 DALI standard

The DALI RM is designed to control control gear with DALI standard IEC 60929 (DALI V0) .

1.2 Glow-wire test

according to EN 60598-1 passed.

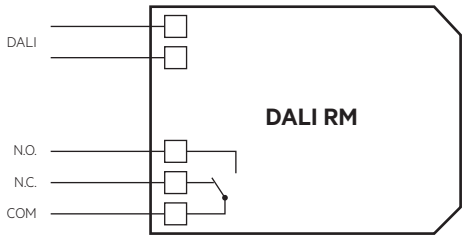
2. Common

- Compact relay module for controlling a standard contactor via DALI.
- Loads that do not have a DALI input can therefore be integrated in the DALI circuit. The loads can be switched on and off via DALI.
- “masterCONFIGURATOR” software is available free of charge at www.tridonic.com for programming the switch-on and switch-off points.
  “MIN LEVEL”: Sets switch off level
  “MAX LEVEL”: Sets switch on level
  Factory preset:
  “MIN LEVEL” = 0 → OFF
  “MAX LEVEL” = 100 → ON

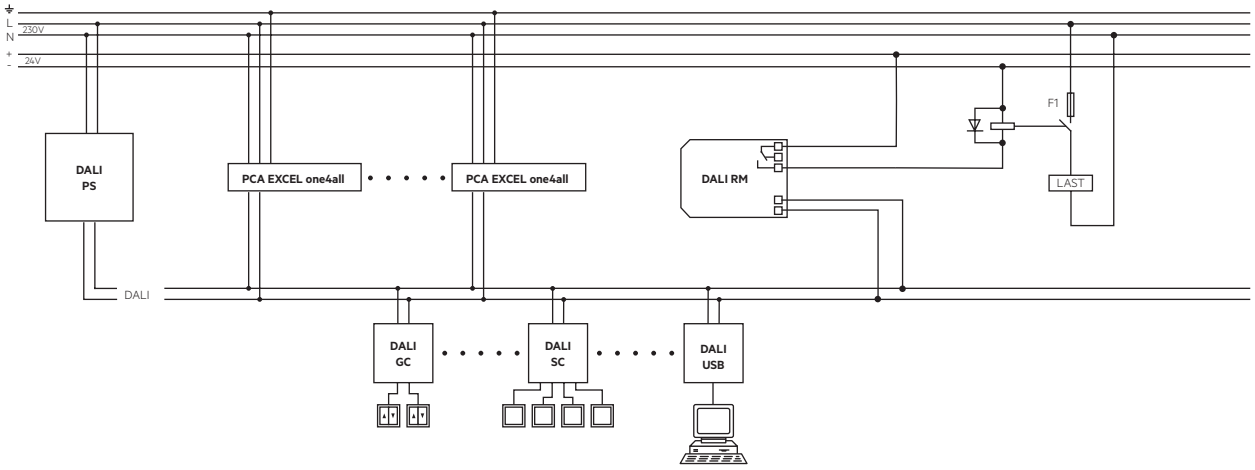
3. Installation

- Loads must not be connected directly to the DALI RM. The load must always be switched via an external contactor.
- The maximum load that can be connected to the DALI RM is the load of a contactor coil.
- When selecting the correct contactor please check the inrush currents of the switched loads. Electronic ballasts may have very high inrush currents. Check with the contactor manufacturer.
- If DC contactor coils are controlled, they must be equipped with an appropriate free-wheeling diode.
- Relay switches on when ACTUAL LEVEL is above the MAX-LEVEL.
- Relay switches off when ACUTAL LEVEL is below the MIN-LEVEL.
- The DALI RM is powered directly by the DALI line, hence in case of missing supply the relay-contact opens.
  Therefore the SYSTEM FAILURE LEVEL is meaningless.
- It is not possible to receive information about the state of the loads. Hence error messages do not make sense in this application and QUERY LAMP FAILURE will always send NO as an answer.
  The QUERY STATUS bits 0&1 are not implemented.
- The physical selection method is not implemented.
- When storing a scene level, besides the ACTUAL LEVEL, the relay state will be stored as well. When storing scenes it is important that the relay is in the required state.
- This is not a separate unit, it is intended for installation.
- DALI is not SELV. The installation instructions for low voltage therefore apply.

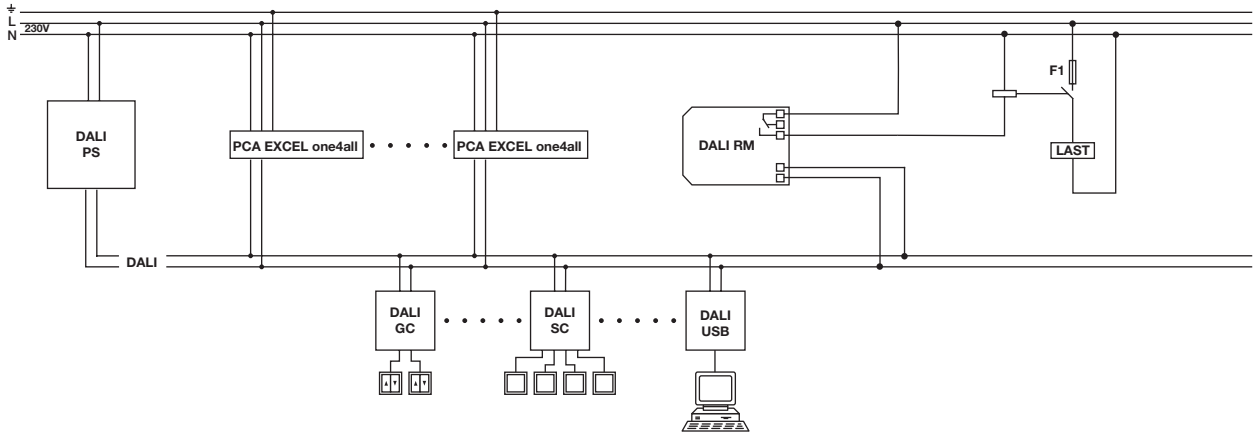
3.1 Connection diagram



3.2 Switching of 12/24 VDC contactor coils



3.3 Switching of 230 VAC contactor coils



4. Miscellaneous

4.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

4.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI RM CDM 30 10A 1CH

DALI-2 single channel relay

Product description
_ DALI-2 Relay
_ Compatible with DALI and DALI-2 versions
_ Compliant to IEC 62386-208
_ 1 channel actuator (switch) with DALI-2 input
_ Protected against DALI overvoltage
_ Suitable for switchboard mount on standard DIN rail
_ Mains rated dry-contact (volt-free) potential free relay output
_ Compliant DALI device type 7
_ Small dimensions
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Interfaces
_ DALI

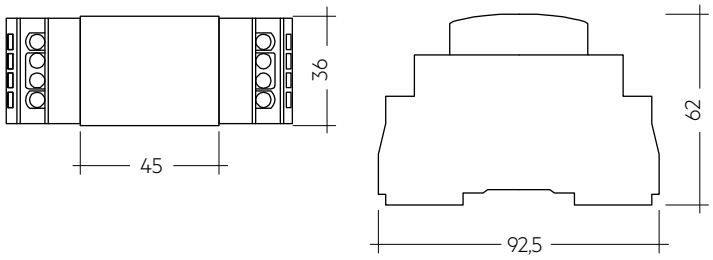
Functions
_ Optimized for electronic loads with high inrush currents like LED drivers, which have short but very high peaks of in-rush currents
_ Switching of loads with inrush currents up to 490 A / 1.5 ms
_ Compliant with common DALI-2 controllers and gateways
_ DALI backwards compatible

Website
http://www.tridonic.com/28003311

TRIDONIC

DALI RM CDM 30 10A 1CH

DALI-2 single channel relay



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI RM CDM 30 10A 1CH	**28003311**	40 pc(s).	0.088 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Current consumption of DALI	2 mA
Input	DALI
Output	Potential free contact
Relay type	non-latching, normally open
Output load (resistive / inductive)	10 A / 6 A
In-rush current (peak / duration)	490 A / 1,500 µs
Relay switching cycles ①	50,000
Ambient temperature ta	-20 … +45 °C
Storage temperature ts	-20 … +65 °C
Humidity	20 … 90 % (non-condensing)
Starting time	≤ 0.3 s
Type of protection	IP20
Protection class	Protection class II
Mounting	DIN rail mounting, 35 mm
Housing material	Polycarbonate
Housing colour	White (RAL 9003)
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	92.5 x 36 x 62 mm

Approval marks

Standards

EN 55015, EN 60669-2-1, EN 61000-3-2, EN 61000-3-3, EN 62386-208, EN 62386-101, EN 62386-102

① Max. switch cycles per hour are 360. One cycle is either close or open.

1. Standards

EN 55015
EN 60669-2-1
EN 61000-3-2
EN 61000-3-3
EN 62386-208
EN 62386-101 Ed.2
EN 62386-102 Ed.2

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 750°C.

2. Common

- Loads that do not have a DALI input can be integrated in the DALI circuit. The loads can be switched on and off via DALI.

3. Installation

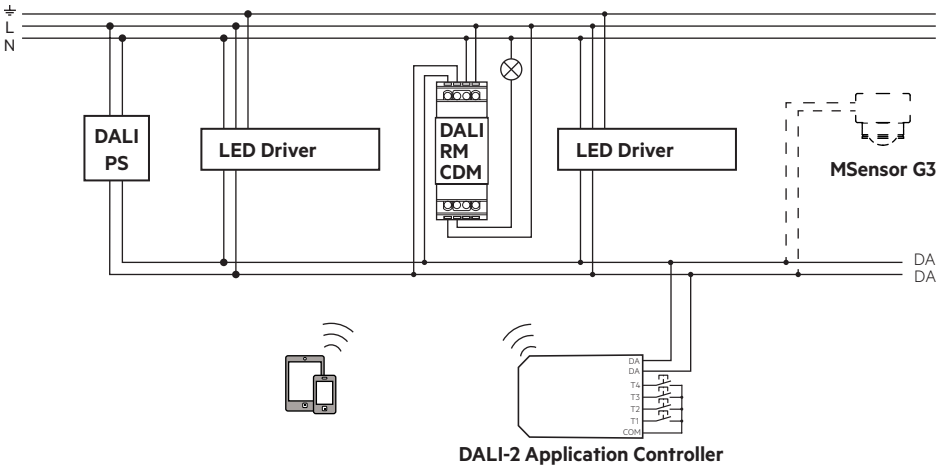
3.1 Safety instructions

- Do not connect the device to DC (direct current) voltage, as this will damage the device.
- Do not create a short circuit on the secondary side, as this will damage the device.
  It is recommended to connect the device with a residual current circuit breaker (RCD) or a circuit breaker with a rated value not higher than 10 A to the secondary side to protect the device in case of a short circuit.
- Installation of this device may only be carried out by specialist staff who have provided proof of their skills.
- The power supply must be switched off before handling the device.
- The relevant safety and accident prevention regulations must be observed.
- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.

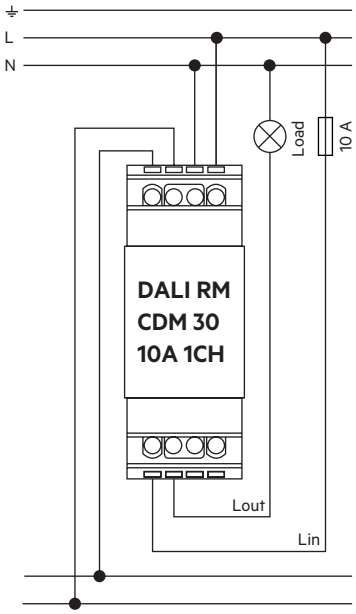
3.2 Area of application

The device may only:
- be used for the applications specified,
- for safe installation in dry, clean environment and
- be installed in such a way that access is only possible using a tool.

3.3 Connection diagrams



DALI-2 Application Controller



3.4 Installation

Mount the DALI relay on DIN rail inside a mains rated enclosure as shown in fig. 1.
To remove from DIN rail, release the clip mechanism with a flat blade screw driver, as per fig. 2.

Fig. 1

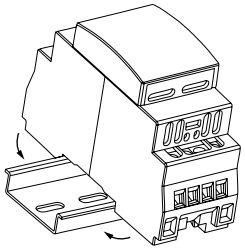
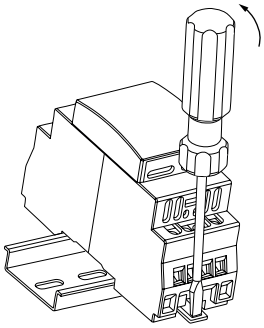
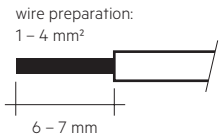


Fig. 2



3.5 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 1 to 4 mm².



3.6 Note for Application Controller

Device is developed according DALI Standard EN 62386-208 and is DALI device Type 7, control gear – Switching function.

4. Miscellaneous

4.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

4.2 Additional information

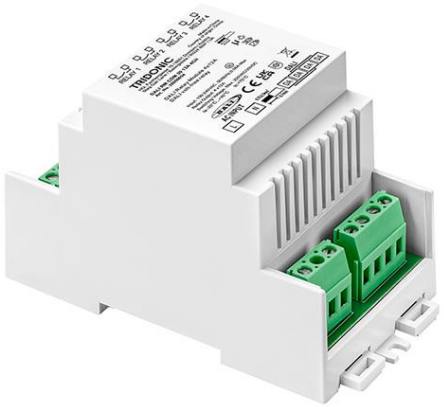
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim. No warranty if device was opened.

TRIDONIC

DALI RM CDM 30 12A 4CH

DALI-2 4 channel relay



Product description
_ DALI-2 Relay
_ Compatible with DALI and DALI-2 versions
_ Compliant with EN 62386-208
_ 4 channel actuator (switch) with DALI-2 input
_ Protected against DALI overvoltage
_ Suitable for switchboard mount on standard DIN rail
_ Mains rated dry-contact (volt-free) potential free relay output
_ Compliant DALI device type 7
_ Small dimensions
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

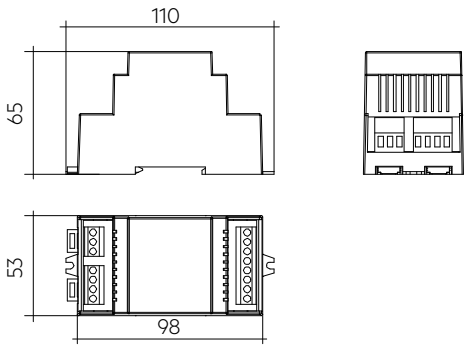
Interfaces
_ DALI

Functions
_ Optimized for electronic loads with high inrush currents like LED drivers, which have short but very high peaks of in-rush currents
_ With zero-crossing switching for extended relay lifetime
_ Compliant with common DALI-2 controllers and gateways
_ DALI backwards compatible

Website
http://www.tridonic.com/28006054

DALI RM CDM 30 12A 4CH

DALI-2 4 channel relay



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI RM CDM 30 12A 4CH	**28006054**	46 pc(s).	0.2 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. power consumption on stand-by	< 0.5 W
Max. rated current	80 mA
Current consumption of DALI	3 mA
Input	DALI
Output	Potential free contact
Relay type	non-latching, normally open
Relay switching AC	250 V / 12 A
Relay switching cycles ①	100,000
Ambient temperature ta	-25 … +45 °C
tc	75 °C
Storage temperature ts	-40 … +85 °C
Humidity	10 … 85 % not condensed
Starting time	≤ 0.6 s
Type of protection	IP20
Protection class	Protection class II
Mounting	DIN rail mounting, 35 mm
Housing material	Polycarbonate
Housing colour	RAL 9016 (white)
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	110 x 53 x 65 mm

Approval marks

Standards

EN 60669-2-1, EN 61000-3-2, EN 61000-3-3, EN 60669-1, EN 62386-101, EN 62386-102, EN 62386-208

① One cycle means close and open.

1. Standards

EN 60669-2-1
EN 61000-3-2
EN 61000-3-3
EN 60669-1
EN 62386-101
EN 62386-102
EN 62386-208

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 650°C.

2. Common

- Loads that do not have a DALI input can be integrated in the DALI circuit. The loads can be switched on and off via DALI.

3. Installation

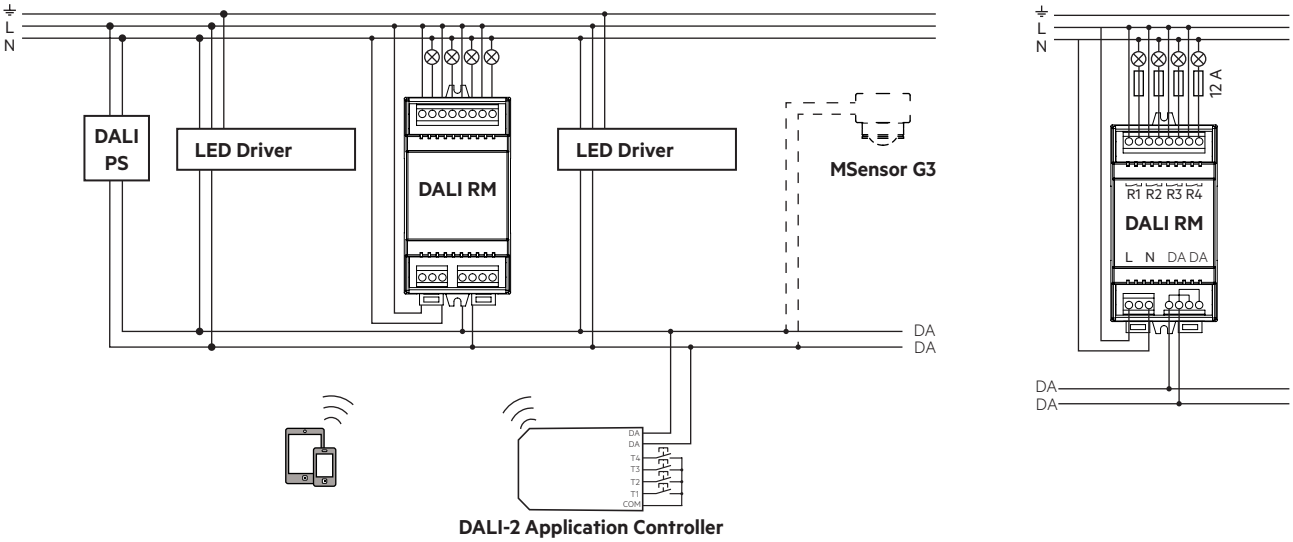
3.1 Safety instructions

- Do not create a short circuit on the secondary side, as this will damage the device.
  It is recommended to connect the device with a residual current circuit breaker (RCD) or a circuit breaker with a rated value not higher than 12 A to the secondary side to protect the device in case of a short circuit.
- Installation of this device may only be carried out by specialist staff who have provided proof of their skills.
- The power supply must be switched off before handling the device.
- The relevant safety and accident prevention regulations must be observed.
- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.

3.2 Area of application

The device may only:
- be used for the applications specified,
- for safe installation in dry, clean environment and
- be installed in such a way that access is only possible using a tool.

3.3 Connection diagrams



3.4 Installation

Mount the DALI relay on DIN rail inside a mains rated enclosure as shown in fig. 1.
To remove from DIN rail, release the clip mechanism with a flat blade screw driver, as per fig. 2.

Fig. 1

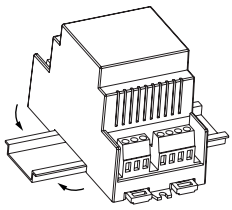
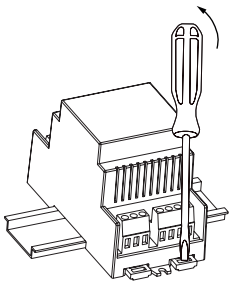
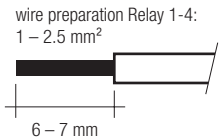


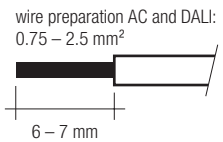
Fig. 2



3.5 Wiring type and cross section

The wiring can be solid wire or stranded wire with end sleeve.





3.6 Note for Application Controller

Device is developed according DALI Standard EN 62386-208 and is DALI device Type 7, control gear – Switching function.

4. Miscellaneous

4.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

4.2 Conditions of storage and use

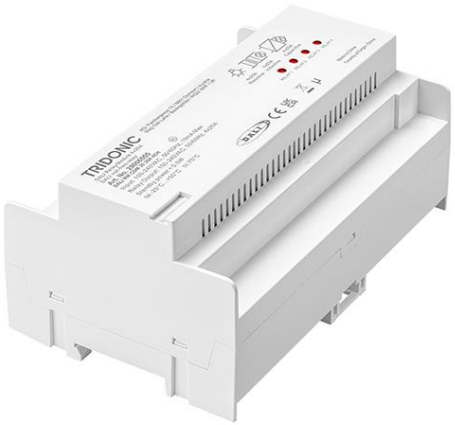
Humidity:	10 % up to max. 85 %, not condensed
Storage temperature:	-40 °C up to max. +85 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

TRIDONIC

DALI RM CDM 30 20A 4CH

DALI-2 4 channel relay



Product description
_ DALI-2 Relay
_ Compatible with DALI and DALI-2 versions
_ Compliant with EN 62386-208
_ 4 channel actuator (switch) with DALI-2 input
_ Protected against DALI overvoltage
_ Suitable for switchboard mount on standard DIN rail
_ Mains-rated potential-free (dry-contact) relay output
_ Compliant DALI device type 7
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

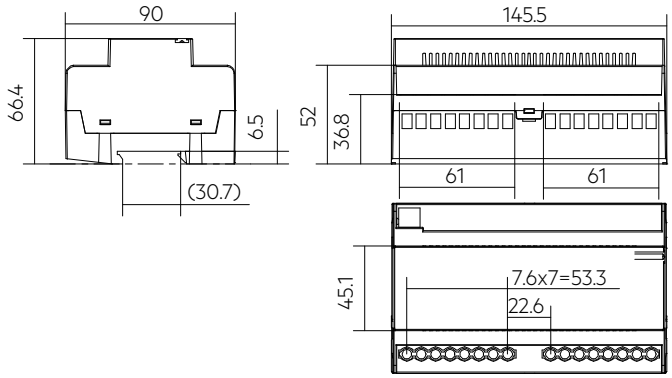
Interfaces
_ DALI

Functions
_ Optimized for electronic loads with high inrush currents like LED drivers, which have short but very high peaks of in-rush currents
_ With zero-crossing switching for extended relay lifetime
_ Compliant with common DALI-2 controllers and gateways
_ DALI backwards compatible

Website
http://www.tridonic.com/28006055

DALI RM CDM 30 20A 4CH

DALI-2 4 channel relay



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI RM CDM 30 20A 4CH	**28006055**	20 pc(s).	0.401 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. power consumption on stand-by	< 0.5 W
Current consumption of DALI	3 mA
Input	DALI
Output	Potential free contact
Relay type	non-latching, normally open
Relay switching AC	250 V / 20 A
Relay switching cycles ①	100,000
Ambient temperature ta	-25 … +50 °C
tc	75 °C
Storage temperature ts	-40 … +85 °C
Humidity	10 … 85 % not condensed
Starting time	< 1 s
Type of protection	IP20
Protection class	Protection class II
Mounting	DIN rail mounting, 35 mm
Housing material	Polycarbonate
Housing colour	RAL 9016 (white)
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	145.4 x 90 x 66.4 mm

Approval marks

Standards

EN 60669-2-1, EN 61000-3-2, EN 61000-3-3, EN 60669-1, EN 62386-101, EN 62386-102, EN 62386-208

① One cycle means close and open.

1. Standards

EN 60669-2-1
EN 61000-3-2
EN 61000-3-3
EN 60669-1
EN 62386-101
EN 62386-102
EN 62386-208

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 650°C.

2. Common

- Loads that do not have a DALI input can be integrated in the DALI circuit. The loads can be switched on and off via DALI.

3. Installation

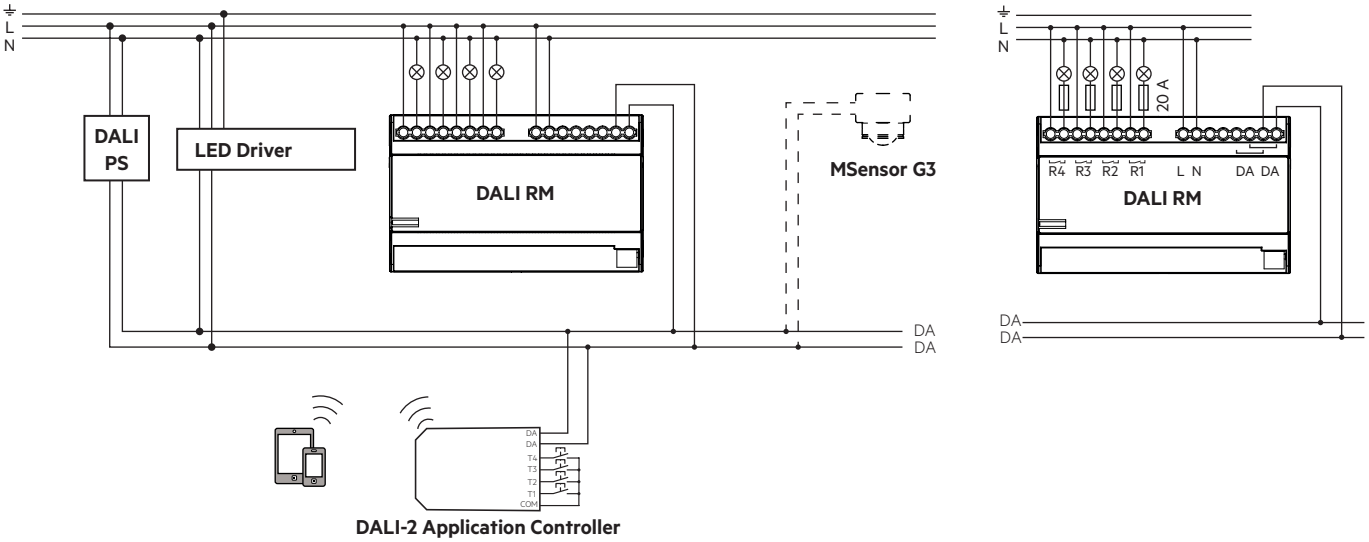
3.1 Safety instructions

- Do not connect the device to DC (direct current) voltage, as this will damage the device.
- Do not create a short circuit on the secondary side, as this will damage the device.
  It is recommended to connect the device with a residual current circuit breaker (RCD) or a circuit breaker with a rated value not higher than 20 A to the secondary side to protect the device in case of a short circuit.
- Installation of this device may only be carried out by specialist staff who have provided proof of their skills.
- The power supply must be switched off before handling the device.
- The relevant safety and accident prevention regulations must be observed.
- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.

3.2 Area of application

The device may only:
- be used for the applications specified,
- for safe installation in dry, clean environment and
- be installed in such a way that access is only possible using a tool.

3.3 Connection diagrams



3.4 Installation

Mount the DALI relay on DIN rail inside a mains rated enclosure as shown in fig. 1.
To remove from DIN rail, release the clip mechanism with a flat blade screw driver, as per fig. 2.

Fig. 1

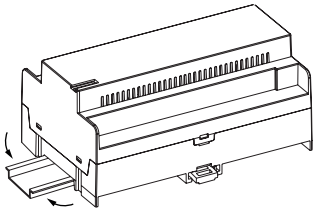
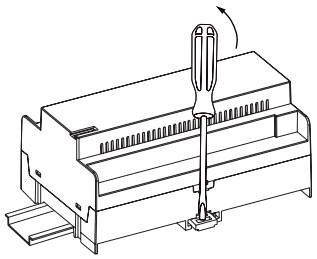
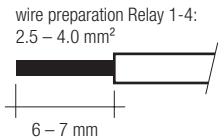


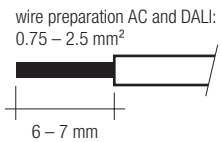
Fig. 2



3.5 Wiring type and cross section

The wiring can be solid wire or stranded wire with end sleeve.





3.6 Note for Application Controller

Device is developed according DALI Standard EN 62386-208 and is DALI device Type 7, control gear – Switching function.

3.7 Status LED‘s

There is a LED built in to indicate different status information to the user.

Event	Blinking sequence	LED Color
Relay closed	on	Red

4. Miscellaneous

4.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

4.2 Conditions of storage and use

Humidity: 10 % up to max. 85 %, not condensed

Storage temperature: -40 °C up to max. +85 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

TRIDONIC

DALI RM CWM 30 4A 1CH AC

DALI-2 single channel relay

Product description
_ DALI-2 Relay
_ Compatible with DALI and DALI-2 versions
_ Compliant to IEC 62386-208
_ 1 channel actuator (switch) with DALI-2 input
_ Protected against DALI overvoltage
_ Mains-rated AC Relay
_ Compliant DALI device type 7
_ Installation in a flush-mounting box
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Interfaces
_ DALI

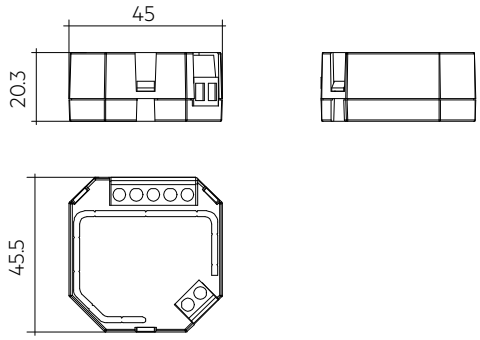
Functions
_ Optimized for electronic loads with high inrush currents like LED drivers, which have short but very high peaks of in-rush currents
_ With zero-crossing switching for extended relay lifetime
_ Compliant with common DALI-2 controllers and gateways
_ DALI backwards compatible

Website
http://www.tridonic.com/28006053

TRIDONIC

DALI RM CWM 30 4A 1CH AC

DALI-2 single channel relay



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI RM CWM 30 4A 1CH AC	**28006053**	200 pc(s).	0.042 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. power consumption on stand-by	< 0.5 W
Current consumption of DALI	3 mA
Input	DALI
Output	active / hot contact
Relay type	non-latching, normally open
Relay switching AC	240 V / 4 A
Relay switching cycles ①	300,000
Ambient temperature ta	-25 … +50 °C
tc	75 °C
Storage temperature ts	-40 … +85 °C
Humidity	10 … 85 % not condensed
Starting time	< 1 s
Type of protection	IP20
Protection class	Protection class II
Mounting	Mounting box
Housing material	Polycarbonate
Housing colour	RAL 9016 (white)
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	45 x 45.5 x 20.3 mm

Approval marks

DALI 2 CE UKCA

Standards

EN 60669-2-1, EN 61000-3-2, EN 61000-3-3, EN 60669-1, EN 62386-101, EN 62386-102, EN 62386-208

① One cycle means close and open.

1. Standards

EN 60669-2-1
EN 61000-3-2
EN 61000-3-3
EN 60669-1
EN 62386-101
EN 62386-102
EN 62386-208

1.2 Glow wire test

according to EN 61347-2-11 passed for temperatures up to 650°C.

2. Common

- Loads that do not have a DALI input can be integrated in the DALI circuit. The loads can be switched on and off via DALI.

3. Installation

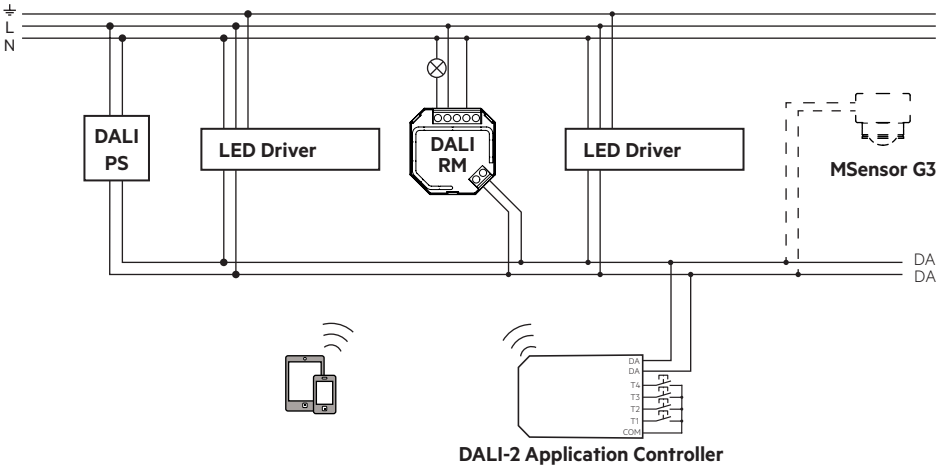
3.1 Safety instructions

- Do not connect the device to DC (direct current) voltage, as this will damage the device.
- Do not create a short circuit on the secondary side, as this will damage the device.
  It is recommended to connect the device with a residual current circuit breaker (RCD) or a circuit breaker with a rated value not higher than 4 A to the secondary side to protect the device in case of a short circuit.
- Installation may only be carried out by qualified specialist staff.
- Active/hot contact, connected load and device will be powered by the same line.
- Do not switch any external voltages or other circuits.
- The power supply must be switched off before handling the device.
- The relevant safety and accident prevention regulations must be observed.
- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.

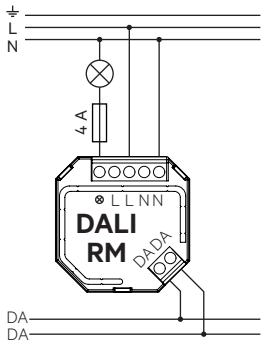
3.2 Area of application

The device may only:
- be used for the applications specified,
- for safe installation in dry, clean environment and
- be installed in such a way that access is only possible using a tool.

3.3 Connection diagrams

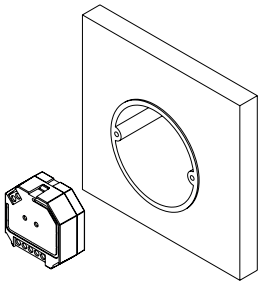


DALI-2 Application Controller



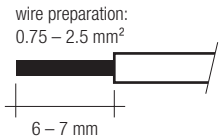
3.4 Installation

Installation in flush-mounting box



3.5 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire.



3.6 Note for Application Controller

Device is developed according to DALI Standard EN 62386-208 and is DALI device Type 7, control gear – Switching function.

4. Miscellaneous

4.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

4.2 Conditions of storage and use

Humidity:	10 % up to max. 85 %, not condensed
Storage temperature:	-40 °C up to max. +85 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

TRIDONIC

DALI-RM/S 4x10 A

DALI actuator

Product description

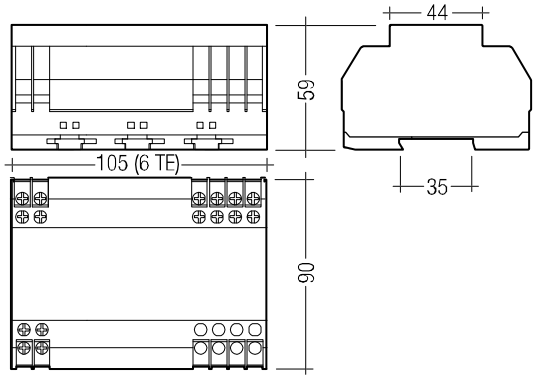
_ Switching of 4 independent and potential free contacts via DALI
_ Max. switching current per contact: 10 A at ohmic load (cos Φ = 1)
_ 1 DALI address per switching contact
_ For installation in switching cabinets
_ Status LED for indicating the operating status
_ Test switch for installation test
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website

http://www.tridonic.com/22185237

DALI-RM/S 4x10 A

DALI actuator



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI-RM/S 4x10A	**22185237**	1 pc(s).	0.46 kg

Technical data

Rated supply voltage	230 – 240 V
Mains frequency	50 / 60 Hz
Power	< 2 W
Typ. rated current (at 230 V, 50 Hz, all relay contacts open)	10.6 mA
Typ. rated current (at 230 V, 50 Hz, all relay contacts closed)	20.1 mA
Ambient temperature ta	0 … +50 °C
Max. casing temperature tc	75 °C
Storage temperature ts	-20 … +70 °C
Humidity ①	5 … max. 85 %
Type of protection	IP20
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

EAC CE UKCA RoHS

Specific technical data

	Inputs			Output, relay		
Type	DALI control input	Current draw	Number of DALI addresses	Relay, floating	Switching output (at 125 V DC max.) ②	Switching output (at 240 V AC max.) ②
DALI-RM/S 4x10A	1	2 mA from DALI	4 (1 per contact)	4 (make contact)	30 W (ohmic load)	2,000 W / 10 A (ohmic load)

① Not condensed (max. 56 days/year at 85 %).
② More loads see data sheet.

1. Standards

1.1 DALI standard

DALI-RM/S 4x10A is designed to control control gear with DALI standard IEC 60929 (DALI V0).

1.2 Glow-wire test

according to EN 60598-1 passed.

2. Common

2.1 Functional and planning instructions

DALI-RM/S 4x10A enables switching of 4 independent switching loads via DALI. Lamps and other electronic users with a mains voltage of 230 / 240 VAC can be integrated in a DALI circuit.

- For each DALI scene the 4 contact positions “opened / closed“ can be defined separately.
- Default parameters (not changeable):
  - Control value ≥ DALI DAP 2: contact closes
  - Control value ≤ DALI DAP 1: contact opens
  - Command „Recall min. Level“ contact opens
  - Command „Recall max“ contact closes (permits the identification with the „localisation“ function on masterCONFIGURATOR)
- It is not permitted to connect tapped transformers (e.g. autotransformers) or 3-phase loads (e.g. 3-phase motors) to the DALI RM/S 4x10A because of the risk of a mains short circuit
- Use only in electrical installations that meet EMC regulations.
- No monitoring of loads

2.2 Status LED and momentary-action test switch

The status LED indicates the operating status of the device and helps to locate faults:

on, flickering occasionally	OK
off, flickering at (4 second) intervals	fault in DALI line (break or short-circuit)
off	no mains voltage
flashing steadily (on/off every 0,5 s)	test mode
red, intermittently flickering	error at output side (interruption or short circuit)
red, flickering at regular intervals every 4s	error on DALI line (interruption or short circuit)

2.3 Test mode

If the momentary-action test switch is pressed for 1 to 5 seconds, all luminaires connected will be switched on. Each time the test switch is subsequently pressed for 1 to 5 seconds, the luminaires are alternately switched on and off. In this way it is possible to check the wiring and operation of the DALI-RM/S 4x10A. The test mode is ended by pressing the momentary-action test switch for more than 5 seonds.

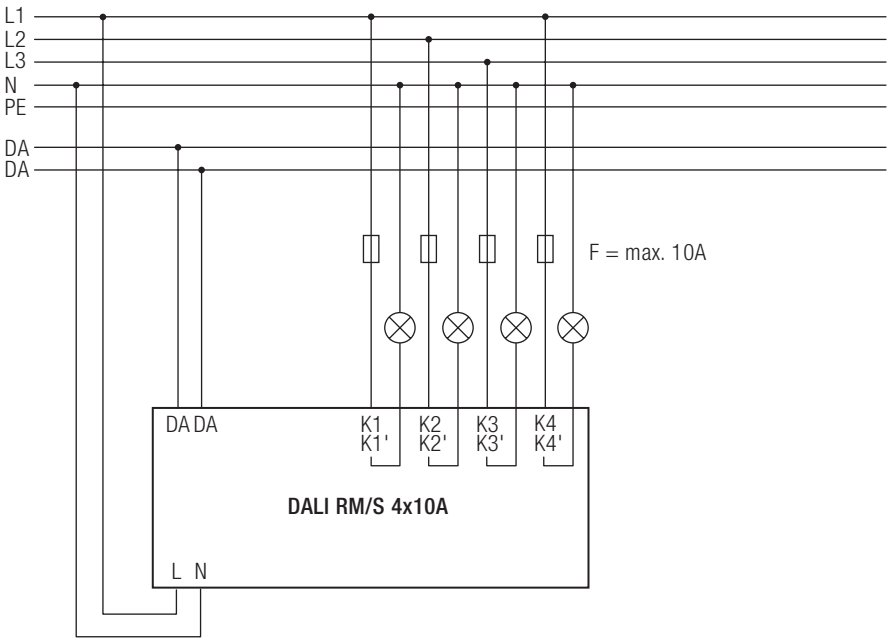
2.4 Load specification (designed for 30,000 switching operations)

- Light bulb: 2,000 W
- High-voltage halogen lamps: 2,000 W
- Flourescent lamps uncompensated: 1,000 W
- Flourescent lamps parallel compensated: 920 W / 100 µF
- Flourescent lamps duo circuit: 2 x 1,000 W
- Compact flourescent lamps uncompensated: 800 W
- Compact flourescent lamps parallel compensated: 800 W / 100 µF
- Low-voltage halogen lamps to magnetic transformers: 400 VA
- Electronic ballasts:
  as mentioned in manufacturar data for electronic ballasts for automatic circuit breaker type B / 10 A
- HID lamps: 800 W / 100 µF

3. Installation

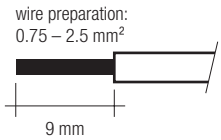
- Mounting of switching and distribution cabinets on cap rail (35 mm)
- The DALI interface is not SELV.
  The installation instructions for mains voltage therefore apply.
- The maximum cable length of the DALI control signal (for a cable crosssection of 1.5 m²) must not be exceeded 300 m or 2 V voltage decrease

3.1 Wiring diagram



3.2 Wiring type and cross section

The wiring can be solid wire stranded wire with end sleeve with a cross-section of 0.75 mm² to 2.5 mm².



4. Miscellaneous

4.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

4.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI TOUCHPANEL BASIC

Operating and control unit

DALI TOUCHPANEL BASIC C

DALI TOUCHPANEL BASIC TW

Product description

_ Capacitive Touchpanel
_ High-quality appearance with real glass display
_ Multiple control modules are possible in a DALI system
_ Power supply via DALI line
_ Double terminals for through wiring
_ Adjustment of DALI lighting group with “Group” rotary switch
_ Individual adjustment of start number of lighting scenes with “Scene” rotary switch
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Type TW:

_ Tunable white (colour converter) control (colour temperature along the Planckian Locus, Colour temperature Tc)

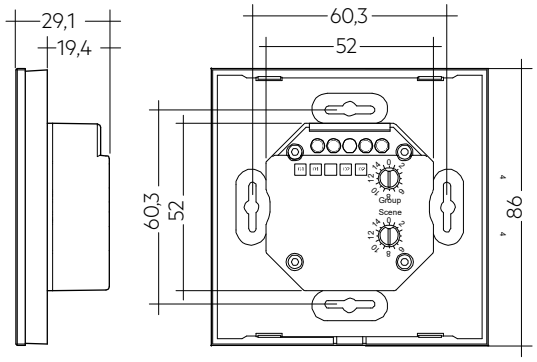
Website

http://www.tridonic.com/28001987

TRIDONIC

DALI TOUCHPANEL BASIC

Operating and control unit



Ordering data

Type	Article number	Model	Packaging, carton	Weight per pc.
DALI TOUCHPANEL BASIC C	**28001987**	Combination	10 pc(s).	0.21 kg
DALI TOUCHPANEL BASIC TW	**28001990**	Tunable White	10 pc(s).	0.21 kg

Technical data

Supply via	DALI cable
Supply voltage ①	9.5 – 22.5 V
Current draw	10 mA
Interface	DALI
Ambient temperature ta	0 … +50 °C
Max. casing temperature tc	60 °C
Storage temperature ts	0 … +50 °C
Humidity	5 … max. 85 % (non-condensing)
Type of protection	IP20
Housing material	PC
Housing colour	RAL 9010 (white)
Mounting	Mounting box 60 x 61 (ø x d)
Dimensions L x W x H	86 x 86 x 29.1 mm
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

CE UKCA RoHS

Standards

EN 55015, EN 61347-1, EN 61347-2-11, EN 61547

① Uin acc. IEC 62386-101.

1. Standards

EN 55015
EN 61347-1
EN 61347-2-11
EN 61547

1.1 DALI standard

DALI TOUCHPANEL BASIC is designed to control control gear with DALI standard IEC 60929 (DALI V0) and IEC 62386 (DALI V1).

2. Settings

The DALI TOUCHPANEL BASIC Models Combination, Group, Scene and Tunable White are multi-functional devices for DALI circuits.
Every model offers 6 touch sensitive fields with unique functionalities to control your light. An additional position LED allows easy location of the DALI TOUCHPANEL BASIC in dark areas.

The combination of different rotary selector switches combined with the variety of 4 DALI TOUCHPANEL BASIC models offers an easy way to reach a high degree of flexibility without the need of additional programming.
The easy configuration options are also efficient for easy replacement because only the rotary selector switch position has to be copied and no need of additional programming.

2.1 Scene / Group switch

Depending on the model one or two rotary selector switches are available. As a function from the position of the rotary switch different Scene or Group commands can be send to your DALI installation.

Rotary selector switch Scenes

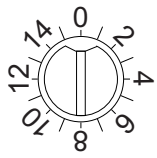
Position	Recall Scene
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15

Rotary selector switch Group

Position	DALI Group
0	Broadcast
1	0
2	1
3	2
4	3
5	4
6	5
7	6
8	7
9	8
10	9
11	10
12	11
13	12
14	13
15	14

2.2 Rotary selector switch

The rotary selector switch has 16 positions.
Default setting is position 0 as illustrated in the picture below.



2.3 Short / long press

When in this documentation an short press is mentioned it means that the time of contact with the touch panel field was under 500 ms. Every contact longer than 500 ms will be recognized as a long press and will depending on the model send a different command than the short press.
Short press < 500 ms < long press

2.4 Quick start guide

If you do experience any issues with your installation make sure to follow the following quick start guide.

Step 1:
Make sure drivers connected to the DALI line are addressed, grouped and Scene values are saved as preferred.
Info: In case other Tridonic lighting components are used the commissioning of the DALI line can easy be achieved by using the Tridonic Software masterCONFIGURATOR in combination with the DALI USB via a Windows PC. But it can also be done by using other standard DALI commissioning tools of different manufacturers.

Step 2:
Program your TOUCHPANEL according to your needs. The programming is done via the rotary selector switches on the back of the panel. The exact functionality for every model is explained separate in the following chapters.

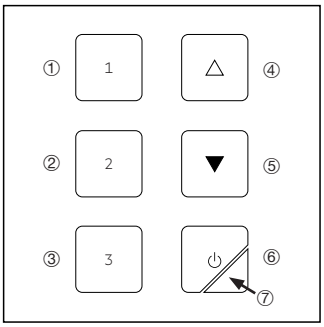
Step 3:
Mechanically install and wire your TOUCHPANEL as described in the chapter wiring.
DALI is not SELV so the roles for mains voltage installation have to be applied!

Step 4:
Once all components are configured and installed make a test of your installation to get sure everything works as programmed.

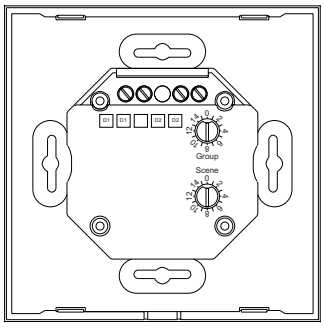
If you have issues with your installation please check out our DALI quick start guide which can be found on our webpage www.tridonic.com there you will find more information about DALI, how to commission a DALI line and troubleshooting help.

3. Interfaces / communication

3.1 DALI TOUCHPANEL BASIC C



Front view

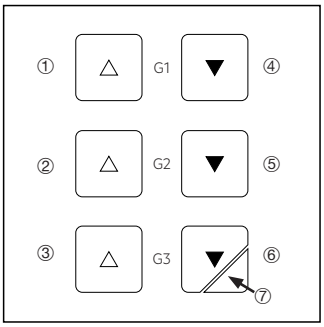


Back view

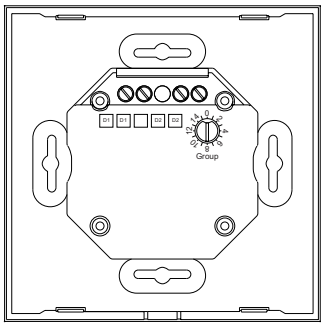
DALI TOUCHPANEL BASIC Combination offers two rotary selector switches the Group rotary selector switch allowing to select if a Group 0–14 or the whole DALI line via Broadcast should be controlled.
The Scene rotary selector switch allows to recall 3 Scene values 0–15.
Default position of the rotary selector switches Group and Scene is 0 in this position Scene 0, 1 and 2 will be recalled and all commands will be send via Broadcast to the whole DALI line.
① Broadcast go to Scene 0
② Broadcast go to Scene 1
③ Broadcast go to Scene 2
④ Broadcast dim up
⑤ Broadcast dim down
⑥ Broadcast toggle between recall max/OFF
⑦ Postion LED activate/deactivate with long press default activated

If the rotary selector switch Scene is in position 14 then Scenes 14, 15 and 0 can be recalled and if the rotary selector switch Group is in position 2 then all commands will be send to Group 1. No other Group will react to the send commands.
① Group 1 go to Scene 14
② Group 1 go to Scene 15
③ Group 1 go to Scene 0
④ Group 1 dim up
⑤ Group 1 dim down
⑥ Group 1 toggle between recall max/OFF
⑦ Position LED activate/deactivate with long press default activated

3.2 DALI TOUCHPANEL BASIC G



Front view

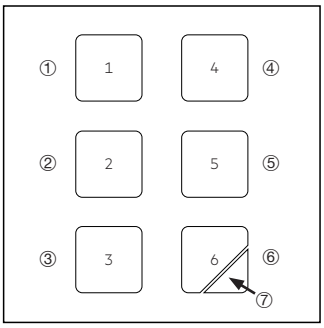


Back view

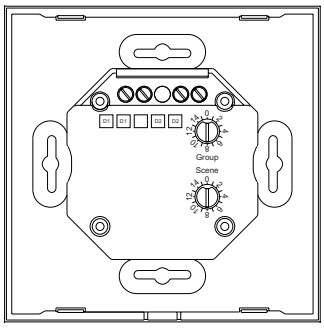
DALI TOUCHPANEL BASIC Group can control up to 3 DALI Groups.
Which Groups should be controlled can be selected with the Group rotary selector switch on the back.
Default position of the rotary selector switch Group is 0 in this position the whole DALI line can be controlled via Broadcast and in addition Group 0 and 1 can be controlled separately.
① Short press Broadcast recall max
Long press Broadcast dim up
④ Short press Broadcast off
Long press Broadcast dim down
② Short press Group 0 recall max
Long press Group 0 dim up
⑤ Short press Group 0 off
Long press Group 0 dim down
③ Short press Group 1 recall max
Long press Group 1 dim up
⑥ Short press Group 1 off
Long press Group 1 dim down
⑦ Position LED activate/deactivate with long press default activated

If the Group rotary selector switch is in position 14 then Groups 13, 14 and the whole DALI line Broadcast can be controlled.
① Short press Group 13 recall max
Long press Group 13 dim up
④ Short press Group 13 off
Long press Group 13 dim down
② Short press Group 14 recall max
Long press Group 14 dim up
⑤ Short press Group 14 off
Long press Group 14 dim down
③ Short press Broadcast recall max
Long press Broadcast dim up
⑥ Short press Broadcast off
Long press Broadcast dim down
⑦ Position LED activate/deactivate with long press default activated

3.3 DALI TOUCHPANEL BASIC S



Front view

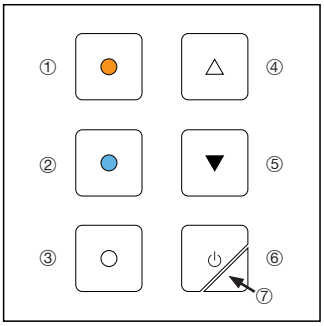


Back view

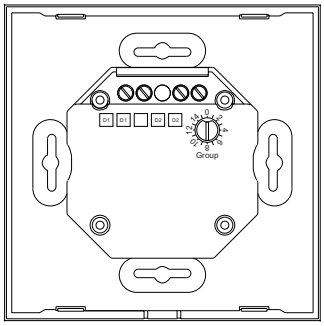
DALI TOUCHPANEL BASIC Scene offers two rotary selector switches on the back. The Scene rotary selector switch allows to select which Scenes should be recalled and the Group rotary selector switch allows to control for which Group the Scenes should be recalled.
Default position of the rotary selector switches Group and Scene is 0 in this position Scene 0 – 5 will be recalled and all commands will be send via Broadcast to the whole DALI line.
① Broadcast go to Scene 0
② Broadcast go to Scene 1
③ Broadcast go to Scene 2
④ Broadcast go to Scene 3
⑤ Broadcast go to Scene 4
⑥ Broadcast go to Scene 5
⑦ Position LED activate/deactivate with long press default activated

If the rotary selector switch Scene is in position 12 then Scenes 12, 13, 14, 15 and 0 will be recalled and if the rotary selector switch Group is in position 14 then the Scene commands will be only recalled for Group 13. No other Group will react to the send commands.
① Group 13 go to Scene 12
② Group 13 go to Scene 13
③ Group 13 go to Scene 14
④ Group 13 go to Scene 15
⑤ Group 13 go to Scene 0
⑥ Group 13 go to Scene 1
⑦ Position LED activate/deactivate with long press default activated

3.4 DALI TOUCHPANEL BASIC TW



Front view



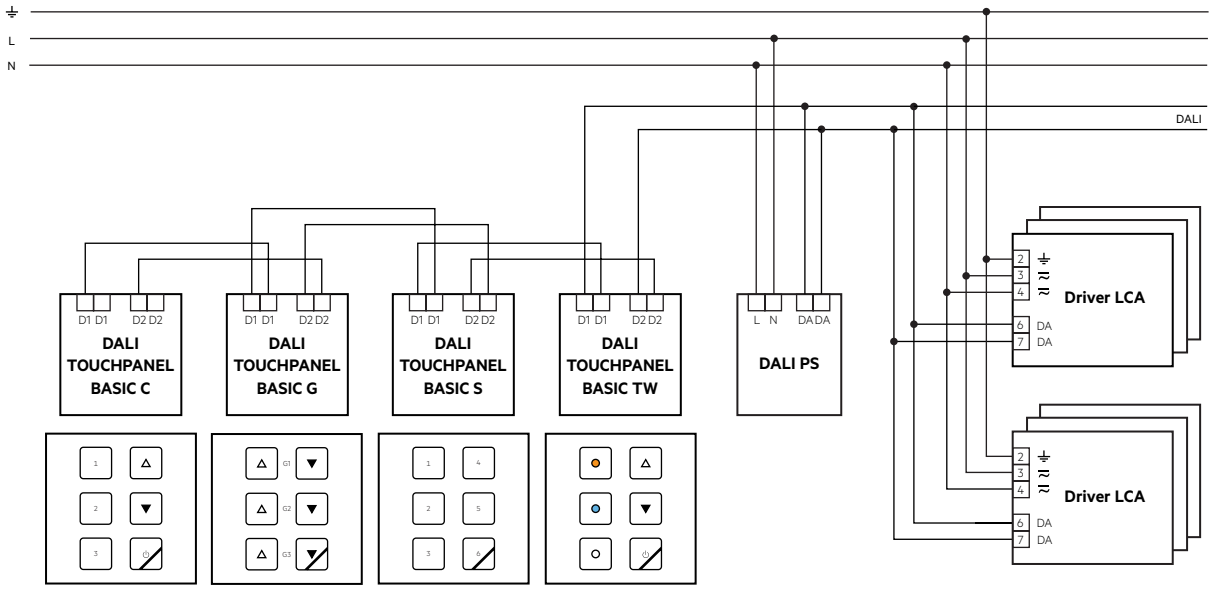
Back view

DALI TOUCHPANEL BASIC Tunable White allows an easy way to control Tunable White luminaries and offers one rotary selector switch on the back. Depending on the position of the Group rotary selector switch different Groups 0 – 14 or the whole DALI line can be controlled.
Default position of the rotary selector switch is 0 in this position commands will be send as Broadcast commands to the whole DALI line.
① Short/long press Broadcast step warmer
② Short/long press Broadcast step cooler
③ Short/long press Broadcast recall colour temperature value 4,000 K
④ Short/long press Broadcast dim up
⑤ Short/long press Broadcast dim down
⑥ Broadcast toggle between recall max / off
⑦ Position LED activate/deactivate with long press default activated

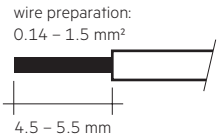
If the rotary selector switch is in position 11 then Group 10 will be controlled, no other Group will react to the send commands. Following commands will be send out to the DALI line.
① Short/long press Group 10 step warmer
② Short/long press Group 10 step cooler
③ Short/long press Group 10 recall colour temperature value 4,000 K
④ Short/long press Group 10 dim up
⑤ Short/long press Group 10 dim down
⑥ Group 10 toggle between recall max / off
⑦ Position LED activate/deactivate with long press default activated

4. Installation / wiring

4.1 Wiring diagram



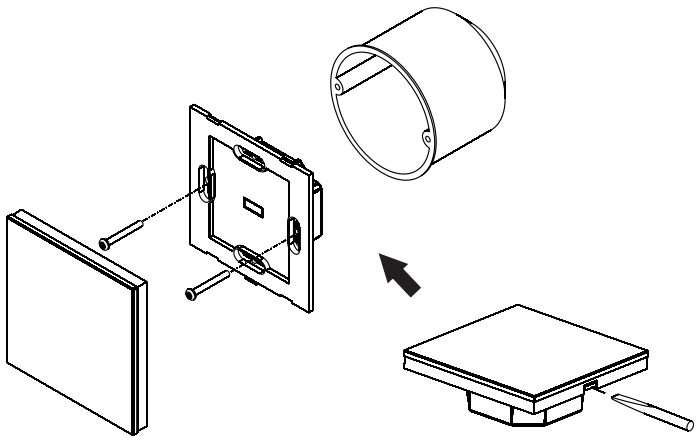
4.2 Wiring type and cross section



The wiring can be solid wire or stranded wire with a cross-section of 0.14 to 1.5 mm².

4.3 Installation and safety instructions:

- **DALI is not SELV.** Apply the installation instructions for mains voltage
- Installation: fixed only, in a clean and dry environment
- Supply: via DALI control line only; no mains voltage allowed
- DALI control line: use standard installation material for low-voltage systems (< 1000 V); only tree, linear and star topologies permitted; cores may be reverse connected
- Terminals D1/D2: do not connect with mains line
- Terminals: when using solid conductors, connect only one per terminal
- The Touchpanels do send Group and Scene commands. Make sure your devices are grouped and Scene values are saved correctly
- Handle with care, the glass may be damaged if dropped, burned, punctured or crushed
- Static electricity, sweat, oil and other impurities on your hand or on the touch panel may result in a not responsive touchscreen. If this happens please make sure to clean the touch panel and your hands.
- The device may only be used for the application area specified
- Relevant health and safety regulations must be observed
- While assembling and installing the device, the voltage supply must be disconnected
- Only qualified personnel may assemble, install and commission the device
- If an error occurs, dangerous voltage levels may be present at the DALI terminals and on the DALI control line



5. Miscellaneous

5.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI USB

DALI interface

Product description

_ Interface module from USB to a DALI system
_ For connecting Tridonic software tools
_ Addressing, programming and parametrising DALI installations and Tridonic devices
_ Power supply via DALI line and USB interface
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

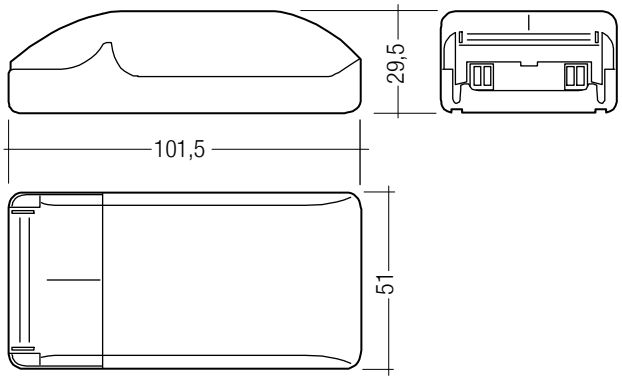
Website

http://www.tridonic.com/24138923

TRIDONIC

DALI USB

DALI interface



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI USB	**24138923**	50 pc(s).	0.155 kg

Technical data

Supply via	DALI cable and USB interface
Current draw	6 mA from DALI
Input	1 USB (Personal Computer)
Output	DALI
Ambient temperature ta	0 … +50 °C
Type of protection	IP20
Dimensions L x W x H	101.5 x 51 x 29.5 mm
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

RoHS

1. Standards

1.1 DALI standard

The DALI USB is designed to control control gear with DALI standard IEC 60929 (DALI V0) and IEC 62386 (DALI V1).

1.2 Glow-wire test

according to EN 60598-1 passed.

2. Common

The interface module DALI USB is used to connect Personal Computers directly to the DALI network.

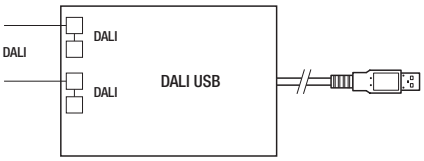
This means that complex DALI lighting control solutions can be easily addressed and programmed and that the parameters of the ballasts can be changed.

Attention
The DALI USB cannot be used together with winDIM.

3. Installation

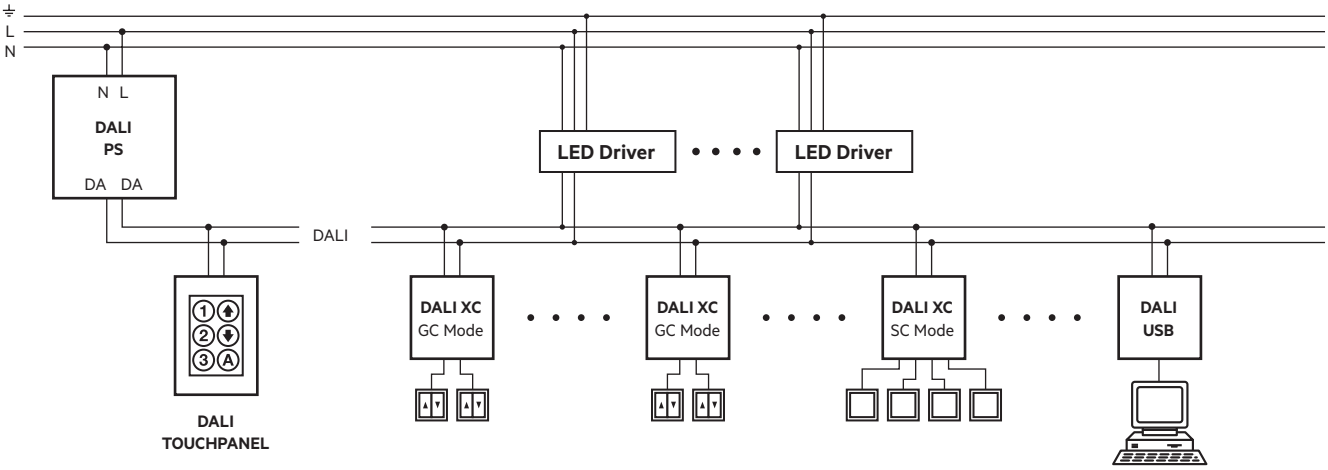
- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.
- Only plastic screws may be used for fastening.
- Individual DALI circuits must not exceed 250 mA (depends on the used DALI Powersupply).
- The maximum cable length of the DALI signal wires must not exceed 300 m or drop more than 2 V on the signal line voltage.

3.1 Connection diagram



Note
The connection to the DALI-line is polarity free.
230 V on the DALI-line can destroy DALI USB!

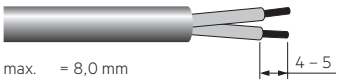
3.2 Wiring



3.3 Wiring type and cross section

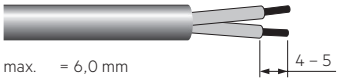
For wiring use stranded wire with ferrules or solid wire.
For perfect function of the cage clamp terminals the strip length should be 4 – 5 mm for the input terminal.
The max. torque at the clamping screw (M3) is 0.2 Nm.

Side D2



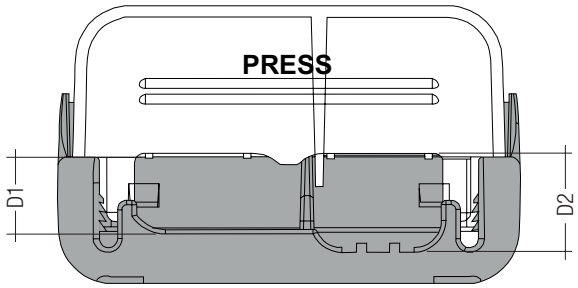
max. = 8,0 mm
min. = 4,0 mm

Side D1



max. = 6,0 mm
min. = 2,0 mm

To get a proper working strain relief it is recommended that the cable jacket diameter of the side D2 is 2 mm bigger than the diameter of the side D1. (This can vary if the used cable jacket material varies from side D2 to D1 in pinching property).



4. Miscellaneous

4.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

4.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

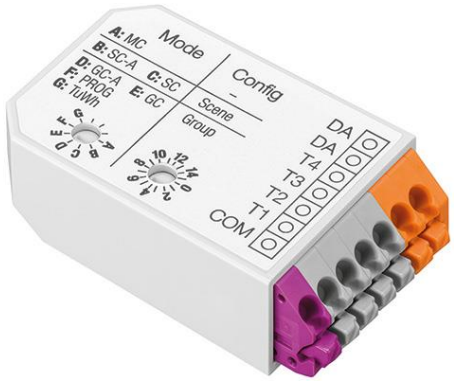
Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI XC

DALI control module with switch inputs



Product description

_ DALI input controller
_ 4 independent inputs for floating contacts
_ For connecting standard momentary-action switch or switches
_ Adjustable operating mode and range via 2 rotary selector
_ Multiple DALI XCs possible on the DALI line
_ Power supply via DALI line
_ Connection wires according to the terminal colours with 25 cm length included
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

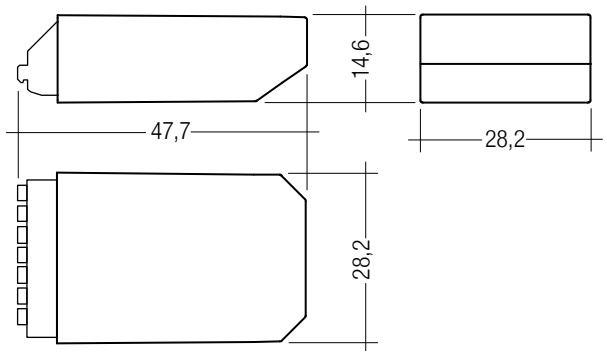
Website

http://www.tridonic.com/28001716

TRIDONIC

DALI XC

DALI control module with switch inputs



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI XC	**28001716**	125 pc(s).	0.035 kg

Technical data

Supply via	DALI cable
Current draw	6 mA
Input	4 Taster/Schalter oder Relais
Output	DALI
Ambient temperature ta	0 … +60 °C
Storage temperature ts	-25 … +80 °C
Humidity	20 … 90 % not condensed
Starting time	≤ 6 s
Type of protection	IP20
Mounting	Mounting box 60 x 61 (ø x d)
Housing material	PC, halogen-free polycarbonate, non-flammable
Dimensions L x W x H	47.7 x 28.2 x 14.6 mm
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

RoHS

Standards

IEC CISPR 15, IEC 61547, IEC 61347-2-11, IEC 61347-1

1. Standards

IEC CISPR 15
IEC 61547
IEC 61347-2-11
IEC 61347-1

1.1 DALI standard

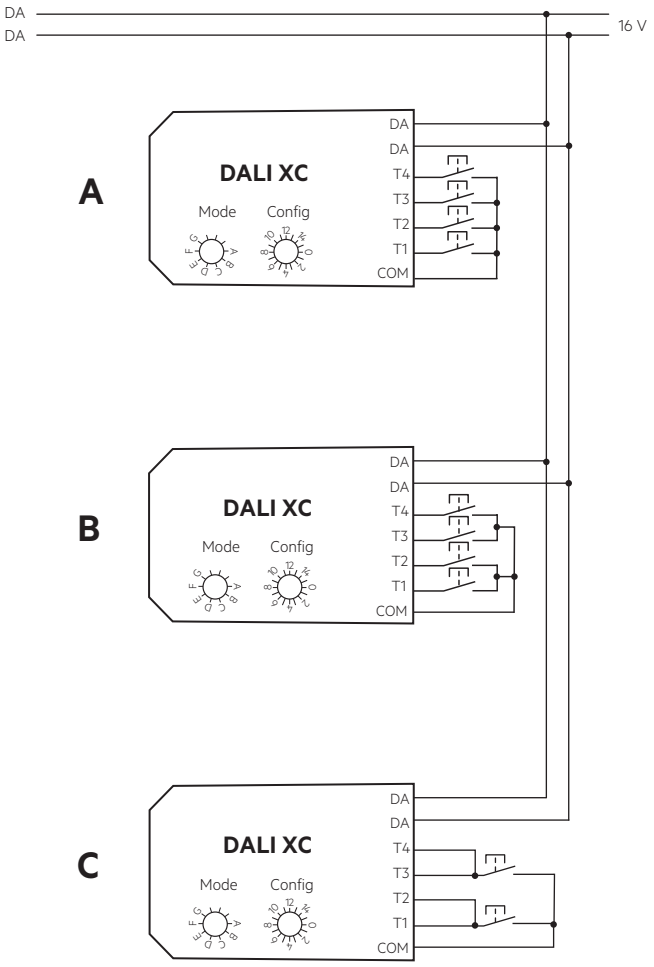
DALI XC is designed to control control gear with DALI standard IEC 60929 (DALI V0) and IEC 62386 (DALI V1).

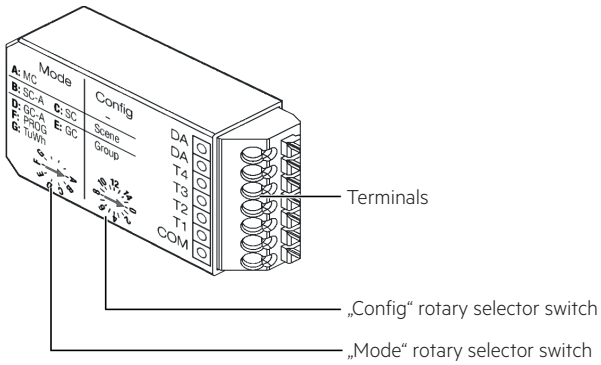
1.2 Glow wire test

according to IEC 61347-1 passed.

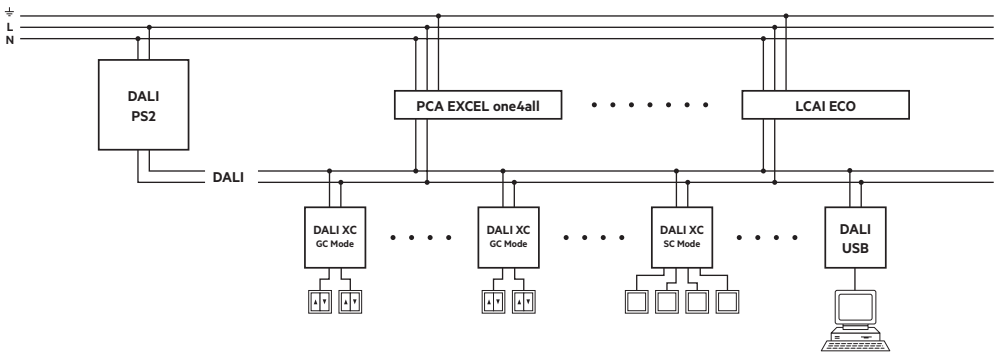
2. Installation

- The DALI XC can be inserted into the mounting box for the momentary switch.
- The DALI XC must not be connected to the mains. It is supplied directly via the DALI signal line.
- The momentary switches are connected directly to the DALI XC (potential free contacts) and must not be connected to the mains.
- DALI signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.
- Only one momentary switch each DALI XC output.
- DALI XC modules allow multi master operation. Multiple control modules can be used on the same proDIM DALI network.
- Short press < 500 ms < long press



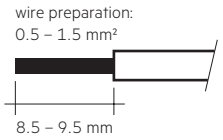


2.1 Connection diagrams



2.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.5 to 1.5 mm². Maximum cable length between momentary-action switch and DALI XC is 50 cm.
Connecting wires are supplied inside the package.



3. Operating modes

Changing the operating mode
- The operating mode can be changed using the “Mode” rotary selector switch.

MC operating mode „Mode“ rotary selector switch position A
- Programmed functions can be recalled via single momentary-action switches and/or double momentary-action switches and/or standard switches.
- The MC operating mode is only configured using the masterCONFIGURATOR software.
- Connection diagram: A, B or C

SC-A operating mode „Mode“ rotary selector switch position B and SC operating mode „Mode“ rotary selector switch position C
- Scenes can be recalled via single momentary-action switches.
- The SC operating mode also allows scenes to be saved using the single momentary-action switches.
- Connection diagram: A or B
- Different scenes can be assigned to inputs T1–T4 using the „Config“ rotary selector switch.

Rotary selector	Scene			
switch „Config“	Input T1	Input T2	Input T3	Input T4
0	0	1	2	3
1	1	2	3	4
2	2	3	4	5
3	3	4	5	6
4	4	5	6	7
5	5	6	7	8
6	6	7	8	9
7	7	8	9	10
8	8	9	10	11
9	9	10	11	12
10	10	11	12	13
11	11	12	13	14
12	12	13	14	15
13	13	14	15	0
14	14	15	0	1
15	15	0	1	2

Acoustic signal
Three times 0.2 s on/off ..... supply voltage was connected
Once after aprrox. 1 s ..... rotary selector switch position was changed
Different acoustic signals ..... configuration steps were carried out

„Prog“ operating mode rotary selector switch position F
- Commissioning or a system extension can be started and completed in this operating mode.
- The lighting system is in programming mode while these processes are ongoing.

GC-A operating mode „Mode“ rotary selector switch position D and GC operating mode „Mode“ rotary selector switch position E
- Groups can be switched on and off and dimmed and brightened via single momentary-action switches and/or double momentary-action switches.
  Commands send out:
  T1 ... short press = DALI Command 0 = OFF
  long press = DALI Command 2 = DOWN
  T2 ... short press = DALI Comannd 5 = Recall max. level
  long press = DALI Command 1 = UP
  T3 ... short press = DALI Command 0 = OFF
  long press = DALI Command 2 = DOWN
  T4 ... short press = DALI Command 5 = Recall max. level
  long press = DALI Command 1 = UP
- The GC operating mode also allows luminaires to be grouped using the momentary-action switches.
- Connection diagram: A, B or C
- Different groups can be assigned to inputs T1 and T2 and inputs T3 and T4 using the „Config“ rotary selector switch.

Rotary selector	Group	
switch „Config“	Input T1 and T2	Input T3 and T4
0	All	0
1	0	1
2	1	2
3	2	3
4	3	4
5	4	5
6	5	6
7	6	7
8	7	8
9	8	9
10	9	10
11	10	11
12	11	12
13	12	13
14	13	14
15	14	15

Tunable White operating mode „Mode“ rotary selector switch position G
- The intensity of a group can be set via a double momentary-action switch (Inputs T1 and T2).
  Commands send out:
  T1 ... short press = DALI Command 0 = OFF
  long press = DALI Command 2 = DOWN
  T2 ... short press = DALI Command 5 = Recall max. level
  long press = DALI Command 1 = UP
  T3 ... DALI Command 233 = Tc step warmer
  T4 ... DALI Command 232 = Tc step cooler
- The colour temperature (Colour temperature Tc) of the Tunable white luminaires in a group can be set using the other double momentary-action switch (Inputs T3 and T4).
- Connection diagram: A or B
- Different groups can be assigned to the DALI XC using the „Config“ rotary selector switch.

Rotary selector	Group
switch „Config“	
0	All
1	0
2	1
3	2
4	3
5	4
6	5
7	6
8	7
9	8
10	9
11	10
12	11
13	12
14	13
15	14

4. Miscellaneous

4.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

4.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

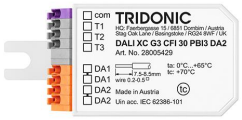
Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI XC G3 CFI 30 PBI3 DA2

DALI-2 control module with switch inputs



Product description

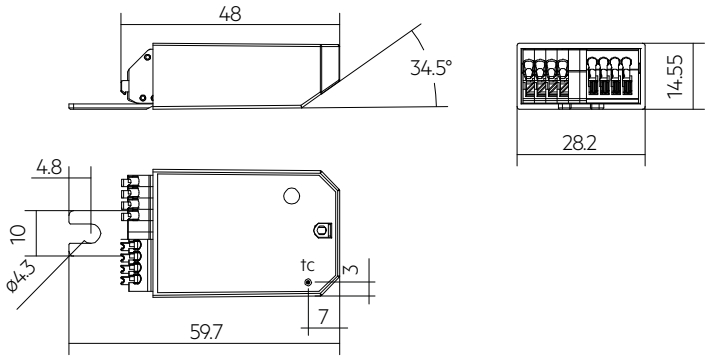
- DALI-2 push buttons input device
- Compatible with DALI-2 certified Application Controller
- Suitable for DALI-2 certified lighting control systems
- 3 independent inputs enabling connection of floating contact, standard momentary switches
- Multiple DALI XCs possible on the DALI-2 line
- Power supply via DALI-2 line
- Extended max. wiring length up to 2 m between COM and Tx terminal
- Detachable mounting flaps, allow installation in flush-mounted boxes and luminaires
- Through-wiring DA1 / DA2 possible
- DALI-2 / D4i certified (type “B”)
- 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website
http://www.tridonic.com/28005429

TRIDONIC

DALI XC G3 CFI 30 PBI3 DA2

DALI-2 control module with switch inputs



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI XC G3 CFI 30 PBI3 DA2	**28005429**	28 pc(s).	0.087 kg

Technical data

Supply via	DALI-2
Supply voltage ①	9.5 – 22.5 V
Current draw	max. 6 mA
Input	3 momentary-action switches or relays
Ambient temperature ta	0 … +65 °C
tc point	70 °C
Storage temperature ts	-25 … +60 °C
Humidity	20 … 90 % not condensed
Starting time	≤ 6 s
Type of protection	IP20
Mounting	Luminaire installation
Housing material	Polycarbonate
Housing colour	Light grey, similar to RAL 7035
Dimensions L x W x H	59.7 x 28.2 x 14.6 mm
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-1, EN 55015, EN 61347-2-11, EN 61547, EN 62386-101, EN 62386-103, EN 62386-301

① Uin acc. IEC 62386-101.

1. Standards

EN 61347-1
EN 55015
EN 61347-2-11
EN 61547
EN 62386-101
EN 62386-103
EN 62386-301
EN 62386-351

1.1 DALI note

Device is developed according to DALI Standard EN 62386-101 Ed.2, also known as DALI-2.
To be able to use the device in such installation, an application controller is necessary.

1.2 D4i note

D4i luminaire-mounted control devices (part 351) = Type B

1.3 Glow wire test

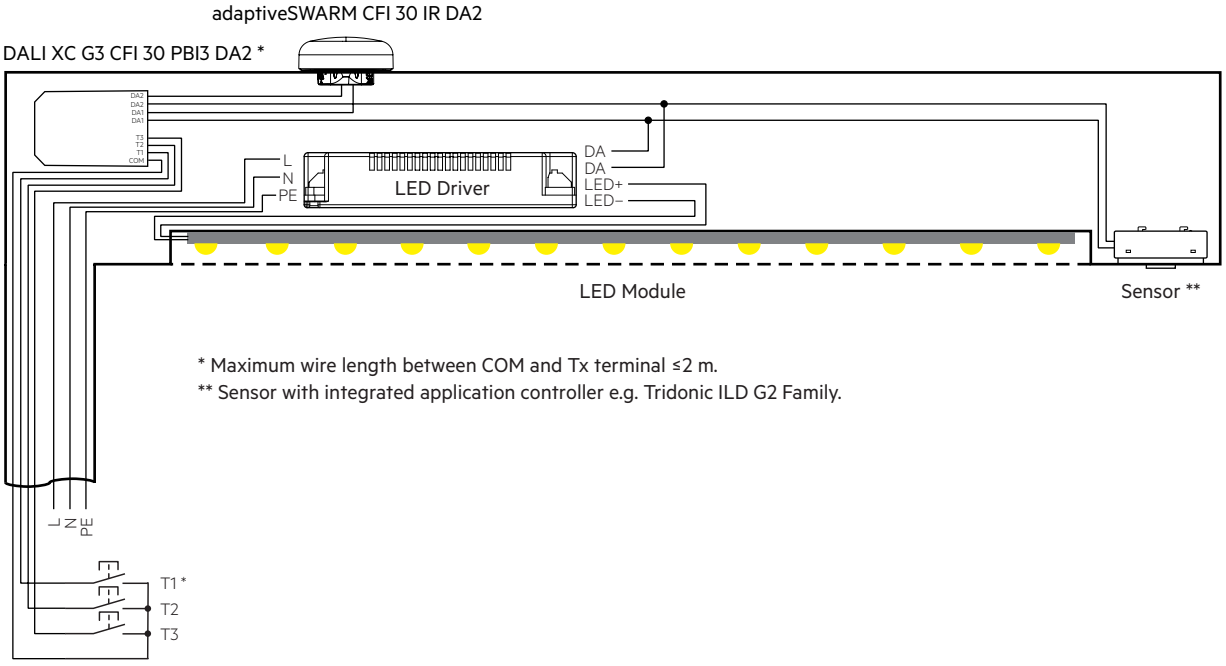
according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Installation

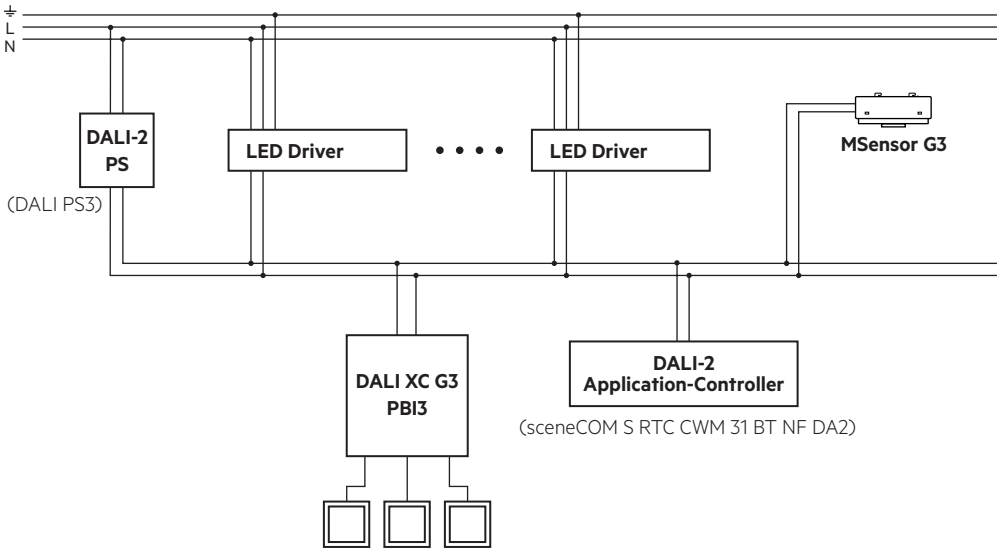
- Device must be installed inside the luminaire.
- Device must not be connected to the mains. It is supplied directly via the DALI-2 signal line.
- The momentary switches are connected directly to the device (potential free contacts) and must not be connected to the mains.
- DALI-2 signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.
- Only one momentary switch each device output.
- Multiple devices can be used on the same DALI-2 network.

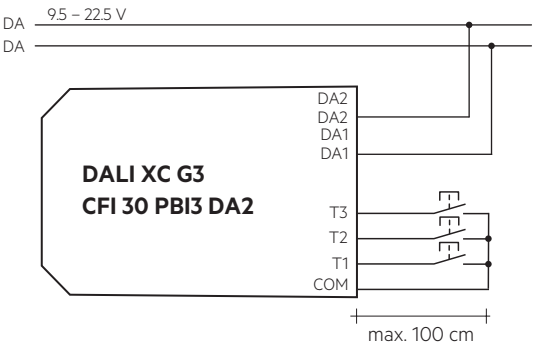
2.1 Connection diagrams

Example wiring inside free-standing luminaire:



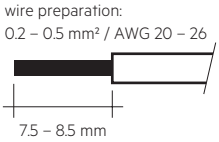
Example DALI installation Wiring:





2.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2 to 0.5 mm².
Maximum cable length between COM and Tx terminal is 200 cm.



2.3 Terminals

Orange = DALI D1 and D2
Grey = Push button inputs T1 – T3
Purple = Push button common

2.4 Terminal and instance description

Device supports the full push button functionality according to IEC62386-301. The device has 3 button terminals.
These correspond to the 3 implemented DALI 301 instances:

Terminal	Instance nr.
T1	0
T2	1
T3	2

3. Miscellaneous

3.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

3.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

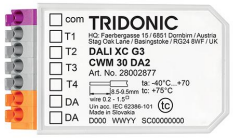
Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DALI XC G3 CWM 30 DA2

DALI-2 control module with switch inputs



Product description

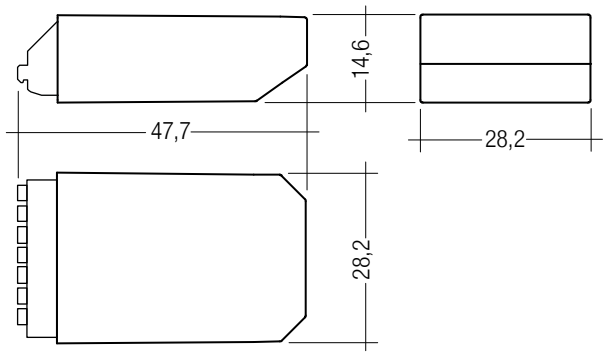
_ DALI-2 input controller
_ Compatible with DALI-2 certified Application Controller
_ Suitable only for DALI-2 certified or compatible lighting control systems, not compatible with Tridonic's comfortDIM system
_ 4 independent inputs enabling connection of floating contact, standard momentary switches
_ Multiple DALI XCs possible on the DALI-2 line
_ Power supply via DALI-2 line
_ Connection wires according to the terminal colours with 25 cm length included
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website

http://www.tridonic.com/28002877

DALI XC G3 CWM 30 DA2

DALI-2 control module with switch inputs



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
DALI XC G3 CWM 30 DA2	**28002877**	60 pc(s).	0.032 kg

Technical data

Supply via	DALI-2
Supply voltage ①	9.5 – 22.5 V
Current draw ②	max. 6 mA
Input	4 momentary-action switches or relays
Ambient temperature ta	-40 … +70 °C
tc point	75 °C
Storage temperature ts	-25 … +60 °C
Humidity	20 … 90 % not condensed
Starting time	≤ 6 s
Type of protection	IP20
Mounting	Mounting box 60 x 61 (ø x d)
Housing material	Polycarbonate
Housing colour	Light grey, similar to RAL 7035
Dimensions L x W x H	47.7 x 28.2 x 14.6 mm
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

DALI RoHS

Standards

EN 61347-1, EN 55015, EN 61347-2-11, EN 61547, EN 62386-101, EN 62386-103, EN 62386-301

① Uin acc. IEC 62386-101.
② Products produced before 9th May 2022 max. 10 mA.

1. Standards

EN 61347-1
EN 55015
EN 61347-2-11
EN 61547
EN 62386-101
EN 62386-103
EN 62386-301

1.1 DALI note

Device is developed according to DALI Standard EN 62386-101 Ed.2, also known as DALI-2.
To be able to use the device in such installation, an application controller is necessary.

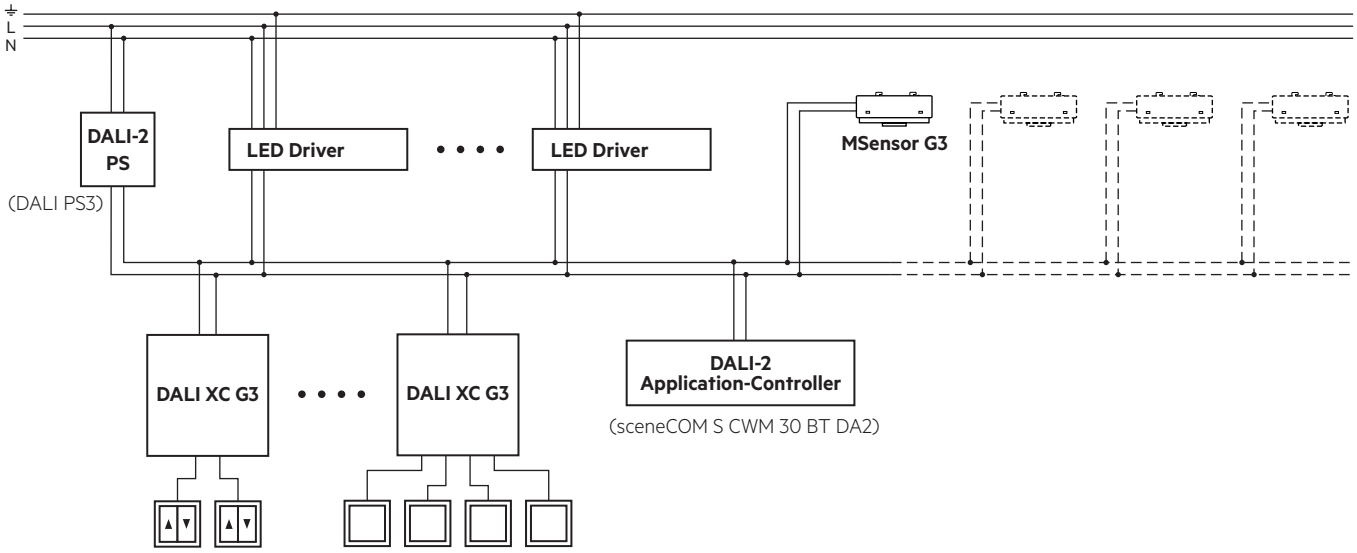
1.2 Glow wire test

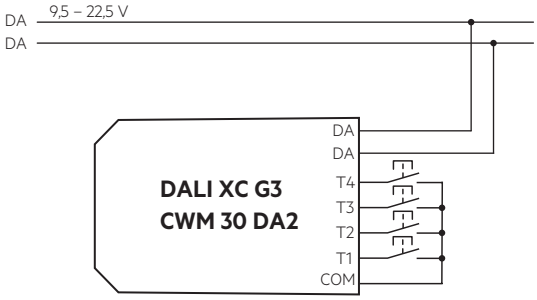
according to EN 61347-2-11 passed for temperatures up to 850°C.

2. Installation

- The device is declared as indoor device, meaning it is intended to be used within a luminaire enclosure or in a flush-mounting box. If the product is used in a different environment, the installation must provide suitable protection for people, device and environment.
- Device must not be connected to the mains. It is supplied directly via the DALI-2 signal line.
- The momentary switches are connected directly to the device (potential free contacts) and must not be connected to the mains.
- DALI-2 signals are not SELV. Therefore the same procedures should be applied as working with mains voltage.
- Only one momentary switch each device output.
- Multiple devices can be used on the same DALI-2 network.

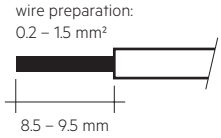
2.1 Connection diagrams





2.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2 to 1.5 mm².
Maximum cable length between momentary switch and device is 50 cm.
Connecting wires are supplied inside the package.



2.3 Terminals

Orange = DALI D1 and D2
Grey = Push button inputs T1 – T4
Purple = Push button common

2.4 Terminal and instance description

Device supports the full push button functionality according to IEC62386-301. The device has 4 button terminals.
These correspond to the 4 implemented DALI 301 instances:

Terminal	Instance nr.
T1	0
T2	1
T3	2
T4	3

4. Miscellaneous

4.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

4.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

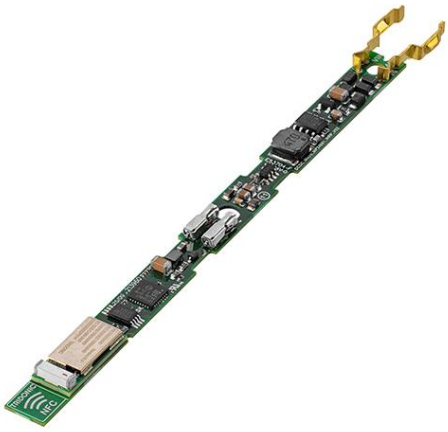
Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DC 48V MICRO 14W 50–700mA bDW NF T

Dimming



Product description
_ Can be integrated in Casambi systems (Casambi Ready)
_ Dimmable constant current
_ Up to 92.9 % efficiency
_ Output voltage range 2 – 42 V
_ Output current adjustable between 50 – 700 mA
_ Pure AM dimming down to 1 %
_ Max. output power 14.7 W
_ Temperature range up to +35 °C
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Pure PCB for built-in application
_ Compatible with STUCCHI 48V MICRO/CORE11 system, see data sheet chapter 6.7
_ Suitable for class III applications

Interfaces
_ basicDIM Wireless
_ Terminal blocks: 0° push terminals
_ Near field communication (NFC)

Functions
_ Adjustable output current in 1-mA-steps (NFC)
_ Protective features (overtemperature, short-circuit, no-load)
_ 48V and DALI input polarity free
_ Temperature declared thermally protected LED driver with integrated electronic protection means against overheating

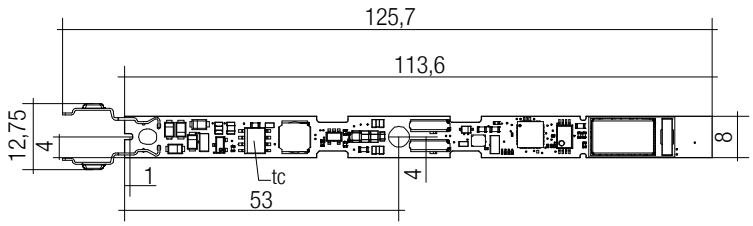
Benefits
_ Application-oriented operating window
_ Small dimensions for miniaturization of luminaires
_ Flexible configuration via companionSUITE (NFC)
_ Support NFC multiple programming (full carton box)
_ We will provide security updates for the next five years after the date of purchase of this product

Typical applications
_ For spot light in art and culture, retail and hospitality, office and education

Website
http://www.tridonic.com/28005580

DC 48V MICRO 14W 50–700mA bDW NF T

Dimming



Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
DC 48V MICRO 14/50-700/42 bDW NF T	**28005580**	90 pc(s).	2,700 pc(s).	0.005 kg

Technical data

DC voltage input	48 V
DC voltage range	46 – 51 V
Mains frequency	0 Hz
Typ. current (full load)	345 mA
Max. input power	16.6 W
Output power range (P_rated)	0.1 – 14.7 W
Typ. efficiency (full load) ①②	92.9 %
Starting time (full load)	< 0.7 s
Hold on time at power failure	< 50 ms
Output current tolerance ①	± 5 %
Output current tolerance (at min. dimming level)	± 10 %
Output LF current ripple	Same as LF ripple on 48 V bus
Max. output voltage (U-OUT)	60 V
Dimming range	1 – 100 % (min. 7 mA)
ESD classification	Severity level 2
Max. casing temperature tc	105 °C
Radio transceiver operating frequencies	2.4 – 2.483 GHz
Max. output power radio transceiver (E.I. R.P.)	< + 20 dBm
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	125.7 x 12.8 x 5.1 mm

Approval marks

CE UK CA NFC WRP lumDATA

Specific technical data

Type	Output current	Min. output voltage	Max. output voltage	Max. output power (at 48 V, full load)	Typ. current consumption (at 48 V, full load)	Ambient temperature ta
DC 48V MICRO 14/50-700/42 bDW NF T	50 mA	2 V	42 V	2.1 W	54.8 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 bDW NF T	150 mA	2 V	42 V	6.3 W	144.1 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 bDW NF T	250 mA	2 V	42 V	10.5 W	237.5 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 bDW NF T	350 mA	2 V	42 V	14.7 W	330.5 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 bDW NF T	500 mA	2 V	29 V	14.5 W	339.4 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 bDW NF T	600 mA	2 V	24 V	14.4 W	341.0 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 bDW NF T	700 mA	2 V	21 V	14.7 W	344.1 mA	0 … +35 °C

① Valid at 100 % dimming level.
② Depending on the selected output current.

1. Standards

EN 61347-1
EN 61347-2-13
EN 62384
EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547
ETSI EN 300 328
ETSI EN 300 330
ETSI EN 301 489-1
ETSI EN 301 489-17

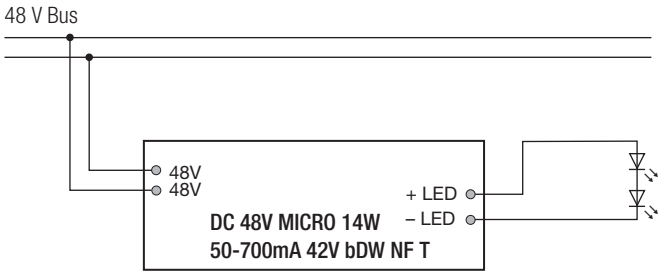
2. Thermal details and lifetime

2.1 Expected lifetime

Lifetime is maximum of 100,000 h.
Max. tc point temperature must not be exceeded.

3. Installation / wiring

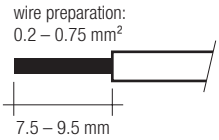
3.1 Circuit diagram



3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2 – 0.75 mm². Strip 7.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

LED module/LED driver/supply



3.3 Wiring guidelines

- Run the 48 V cables separately from the mains connections and mains cables to ensure good EMC conditions.
- Keep the 48 V DC output wiring as short as possible to ensure good EMC. Tridonic did successfully EMC test with more than 30 m on grounded metal housings.
- For plastic housing reduce the cable length if the EMC gets worse.
- The max. cable length, including track light, is limited only by voltage drop: Supply the last DC MICRO in the track light with minimum 46 V. More details in the voltage drop application note!
- To avoid damage of the Driver protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).
- The max. secondary cable (LED module) length is 2 m (4 m circuit).
- To comply with the EMC regulations run the secondary wires (LED module) in parallel.

3.4 DC Micro Track Hot Plug

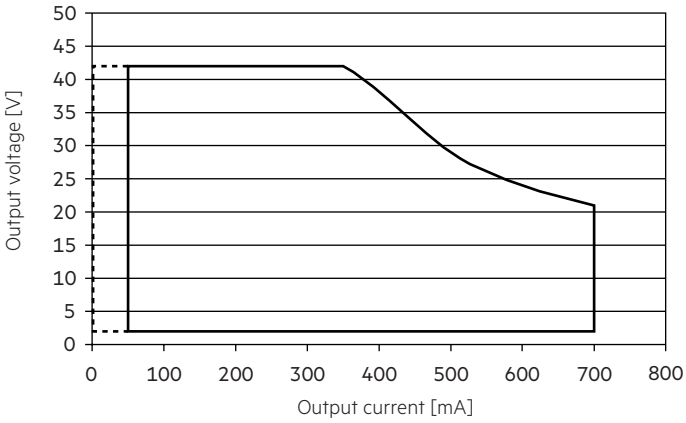
Hotplug of fixtures is allowed. All data will be saved and configuration is stored.

3.5 EOS/ESD safety guidelines

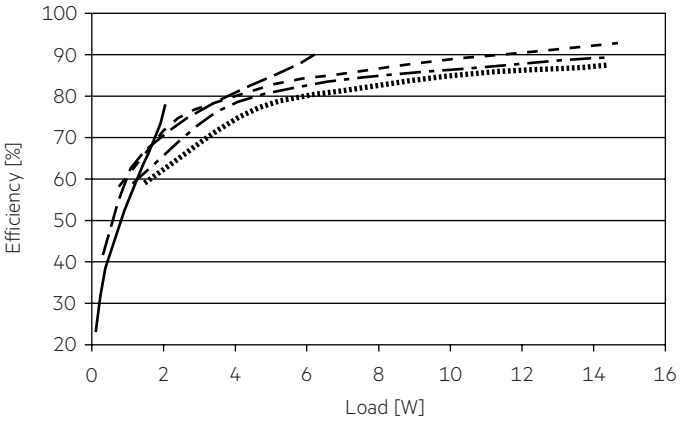
The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice.
For further information for EOS/ESD safety guidlines and the ESD classification please refer to the brochure entitled http://www.tridonic.com/esd-protection.

4. Electrical values

4.1 Operating window



4.2 Efficiency vs load



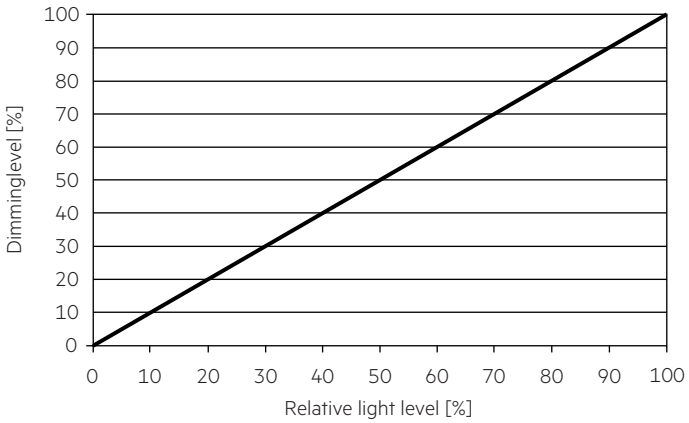
50 mA
150 mA
350 mA
550 mA
700 mA

100 % load corresponds to the max. output power (full load) according to the table on page 2.

4.3 Dimming

Dimming range 1% to 100 % (min. 7 mA)
Digital control with:
- basicDIM Wireless

4.4 Dimming characteristics



5. Interfaces / communication

5.1 Control input

Can be integrated in Casambi systems (Casambi Ready)

5.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again. The restart can either be done via mains reset or via interface (bDW)

5.3 No-load operation

In case of a no-load operation LED output is switched off. After restart of the LED Driver the output will be activated again.
The restart can either be done via mains reset or via interface (bDW).

5.4 Overload protection

If the output power/voltage range is exceeded the LED Driver turns off the LED output. After restart of the LED Driver the output will be activated again.The restart can either be done via mains reset or via interface (bDW)

5.5 Overtemperature protection

Intelligent temperature guard (ITG)

5.6 NFC - configuration

The NFC Interface allows wireless communication with the LED Driver. This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.

6. Functions

⊙ companionSUITE:
NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	NFC
	OEM Identification	⊙
	OEM GTIN	⊙
	Luminaire data	⊙
	LED current	⊙
	Constant light output (eCLO)	⊙
	Enhanced power on level (ePOL)	⊙
	DALI default parameters	⊙
	Scenes and groups	⊙
	fade2zero	⊙
	Power-up fading	⊙
	Dimming curve	⊙
	deviceKEY	⊙
	Intelligent temperature guard (ITG)	⊙

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

The output current of the LED driver can be adjusted in a certain range.

Option: NFC
Adjustment is done by companionSUITE via NFC.

6.2 Enhanced Constant Light Output (eCLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (eCLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
Enhanced eCLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for eCLO see product manual.

The minimal CLO starting point is limited by the smallest output current of the LED driver.

6.3 Enhanced power on level (ePOL)

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
The Enhanced Power On Level can be set to a fixed value (0 – 100 %) or can recall the memory value.
The memory value is the last value the LED driver was set to before the power failure.
This value applies not only in DALI device operating mode, but also in the device operating mode switchDIM.

6.4 fade2zero

When the Driver is switched off, fade2zero allows a smooth dimming down to almost zero.
Activate the fade2zero function when programming with companionSUITE and set a DALI fade time. fade2zero only works if the minimum dimming level of the Driver is the default value.
The device then dims to far below the limit of its working window (dimming range).
This function is deactivated by default.

6.5 deviceKEY

This function enables a password protection for device settings to prevent unauthorized access or changes.

6.6 Intelligent Temperature Guard (ITG)

The intelligent temperature guard protects the LED driver from thermal overheating by reducing the output power or switching off in case of operation above the thermal limits of the luminaire or ballast.
Depending on the luminaire design, the ITG operates at about 5 to 10 °C above tc temperature.

If temperature threshold values are exceeded, the LED output current is limited.
These limits can be adjusted using the programming software.
Even the current ITG temperature in the device can be read out. With this function, the sensitivity of the temperature control can be adjusted.

6.7 Adjustable current

The output current of the LED driver can be adjusted in a certain range.
Physical minimal current is 1 % of max. current of the driver.

6.8 Compatible track adapter

Adapter Type	Compatible Tracks
MICRO Adapter 9619-M	9600-.../...-ST1
MICRO Adapter 9619-M1	9600-.../...-ST5
MICRO Adapter 9620	9600-.../...-ST16
	9600-.../...-ST15

7. Miscellaneous

7.1 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The LED drivers have to be acclimatised to the specified temperature range (ta range of DC power supply) before they can be operated.

The LED driver is declared as inbuilt LED controlgear, meaning it is intended to be used within a luminaire enclosure.
If the product is used outside a luminaire, the installation must provide suitable protection for people and environment (e.g. in illuminated ceilings).

7.2 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

7.3 Additional information

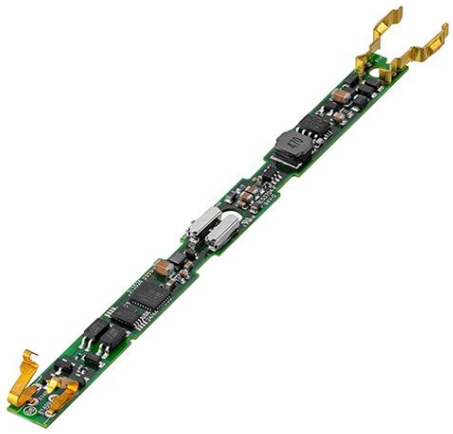
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DC 48V MICRO 14W 50–700mA DA NF T

Dimming



Product description
_ DALI-2 dimmable
_ Up to 93.1 % efficiency
_ Output voltage range 2 – 42 V
_ Output current adjustable between 50 – 700 mA
_ Pure AM dimming down to 1 %
_ Max. output power 14.7 W
_ Temperature range up to +35 °C
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Pure PCB for built-in application
_ Compatible with STUCCHI 48V MICRO/CORE11 system, see data sheet chapter 6.16
_ Suitable for class III applications

Interfaces
_ DALI – DT 6
_ Terminal blocks: 0° push terminals
_ Near field communication (NFC)

Functions
_ Adjustable output current in 1-mA-steps (NFC, DALI-2)
_ lumDATA (DALI-2 part ext. 251, 252 and 253)
_ Protective features (overtemperature, short-circuit, no-load)
_ Protection against wrong wiring of 48V to DALI
_ 48V and DALI input polarity free
_ Temperature declared thermally protected LED driver with integrated electronic protection means against overheating

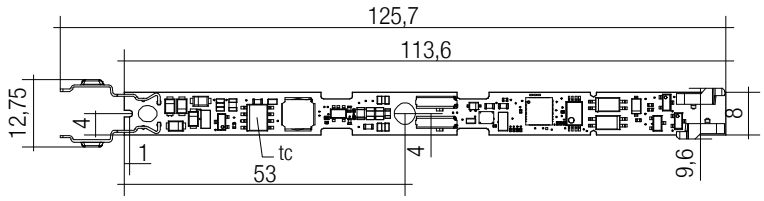
Benefits
_ Application-oriented operating window
_ Small dimensions for miniaturization of luminaires
_ Flexible configuration via companionSUITE (NFC, DALI-2)
_ Support NFC multiple programming (1 carton with 10 pcs)

Typical applications
_ For downlight, spotlight and decorative applications

Website
http://www.tridonic.com/28005579

DC 48V MICRO 14W 50–700mA DA NF T

Dimming



Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
DC 48V MICRO 14/50-700/42 DA NF T	**28005579**	90 pc(s).	2,700 pc(s).	0.005 kg

Technical data

DC voltage input	48 V
DC voltage range	46 – 51 V
Mains frequency	0 Hz
Typ. current (full load)	347 mA
Max. input power	16.6 W
Output power range (P_rated)	0.1 – 14.7 W
Typ. efficiency (full load) ①②	93.1 %
Starting time (full load)	< 0.7 s
Hold on time at power failure	< 50 ms
Output current tolerance ①	± 5 %
Output current tolerance (at min. dimming level)	± 10 %
Output LF current ripple	Same as LF ripple on 48 V bus
Max. output voltage (U-OUT)	60 V
Dimming range	1 – 100 % (min. 7 mA)
ESD classification	Severity level 2
Max. casing temperature tc	105 °C
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	125.7 x 12.8 x 10.1 mm

Approval marks

CE UKCA NFC DALI lumDATA

Specific technical data

Type	Output current	Min. output voltage	Max. output voltage	Max. output power (at 48 V, full load)	Typ. current consumption (at 48 V, full load)	Ambient temperature ta
DC 48V MICRO 14/50-700/42 DA NF T	50 mA	2 V	42 V	2.1 W	54.2 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 DA NF T	150 mA	2 V	42 V	6.3 W	144.7 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 DA NF T	250 mA	2 V	42 V	10.5 W	239.1 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 DA NF T	350 mA	2 V	42 V	14.7 W	332.6 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 DA NF T	500 mA	2 V	29 V	14.5 W	341.9 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 DA NF T	600 mA	2 V	24 V	14.4 W	343.9 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 DA NF T	700 mA	2 V	21 V	14.7 W	347.1 mA	0 … +35 °C

① Valid at 100 % dimming level.
② Depending on the selected output current.

1. Standards

EN 61347-1
EN 61347-2-13
EN 62384
EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547
According to EN 62386-101
According to EN 62386-102
According to EN 62386-207 (DALI-2, including part 251, 252, 253)

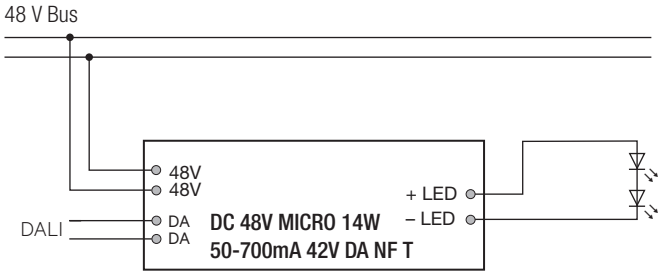
2. Thermal details and lifetime

2.1 Expected lifetime

Lifetime is maximum of 100,000 h.
Max. tc point temperature must not be exceeded.

3. Installation / wiring

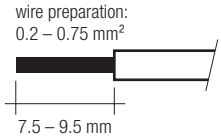
3.1 Circuit diagram



3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2 – 0.75 mm². Strip 7.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

LED module/LED driver/supply



3.3 Wiring guidelines

- Run the 48 V cables separately from the mains connections and mains cables to ensure good EMC conditions.
- Keep the 48 V DC output wiring as short as possible to ensure good EMC. Tridonic did successfully EMC test with more than 30 m on grounded metal housings.
- For plastic housing reduce the cable length if the EMC gets worse.
- The max. cable length, including track light, is limited only by voltage drop: Supply the last DC MICRO in the track light with minimum 46 V. More details in the voltage drop application note!
- To avoid damage of the Driver protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).
- The max. secondary cable (LED module) length is 2 m (4 m circuit).
- To comply with the EMC regulations run the secondary wires (LED module) in parallel.

3.4 DC Micro Track Hot Plug

Hotplug of fixtures is allowed. All data will be saved and configuration is stored.

3.5 EOS/ESD safety guidelines

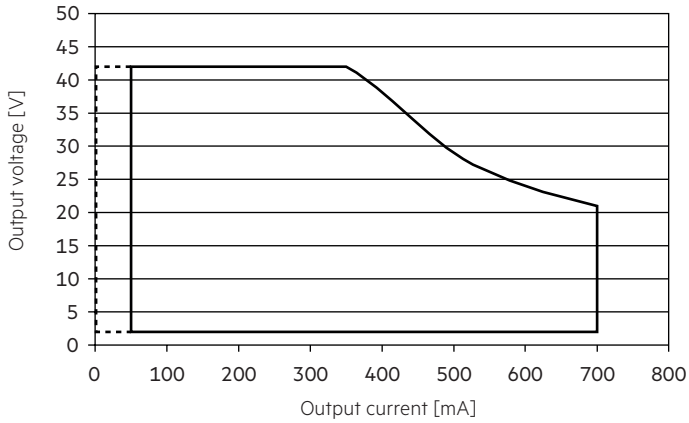
The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice.
For further information for EOS/ESD safety guidlines and the ESD classification please refer to the brochure entitled http://www.tridonic.com/esd-protection.

3.6 Control terminals

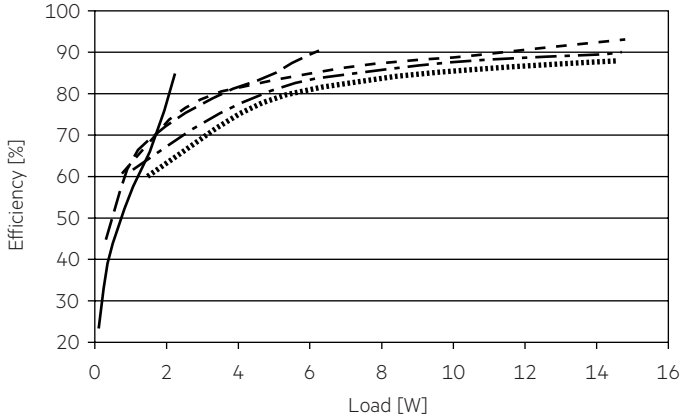
There is a risk of electric shock when touching these terminals in case of failure.

4. Electrical values

4.1 Operating window



4.2 Efficiency vs load



50 mA
150 mA
350 mA
500 mA
700 mA

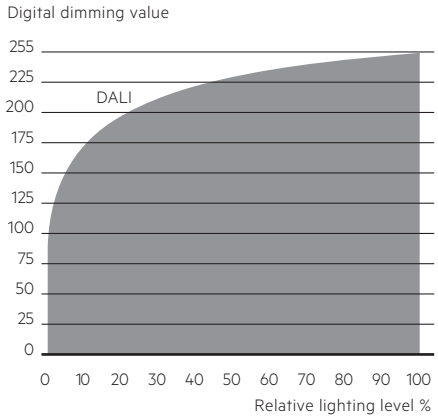
100 % load corresponds to the max. output power (full load) according to the table on page 2.

4.3 Dimming

Dimming range 1 to 100 % (min. 7 mA) of nominal current
Programmable parameter:
Minimum dimming level
Maximum dimming level
Default minimum = depending on nominal current level
Default maximum = 100 %

Physical minimal current is 1 % of max. current of the driver.
Dimming curve is adapted to the eye sensitiveness.
Dimming is realized by amplitude dimming.

4.4 Dimming characteristics



Dimming characteristics as seen by the human eye

5. Interfaces / communication

5.1 Control input

The control input is non-polar for digital control signals (DALI).
The control cable has to be installed in accordance to the requirements of low voltage installations.

5.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again. The restart can either be done via mains reset or via interface (DALI).

5.3 No-load operation

In case of a no-load operation LED output is switched off. After restart of the LED Driver the output will be activated again.
The restart can either be done via mains reset or via interface (DALI).

5.4 Overload protection

If the output power/voltage range is exceeded the LED Driver turns off the LED output. After restart of the LED Driver the output will be activated again.The restart can either be done via mains reset or via interface (DALI).

5.5 Overtemperature protection

Intelligent temperature guard (ITG)

5.6 NFC - configuration

The NFC Interface allows wireless communication with the LED Driver. This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.

6. Functions

⊙ companionSUITE:
DALI-USB, ready2mains Programmer, NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

◈ masterCONFIGURATOR:
DALI-USB, ready2mains Programmer (in DALI mode)
The masterCONFIGURATOR is available via our WEB page:
https://www.tridonic.com/com/en/software-masterconfigurator.asp

Icon	Function	NFC	DALI-2
	OEM Identification	⊙	⊙ ◈
	OEM GTIN	⊙	⊙ ◈
	Luminaire data	⊙	⊙ –
	LED current	⊙	⊙ ◈
	Constant light output (eCLO)	⊙	⊙ ◈
	Enhanced power on level (ePOL)	⊙	⊙ ◈
	DALI default parameters	⊙	⊙ ◈
	Scenes and groups	⊙	⊙ ◈
	fade2zero	⊙	⊙ –
	Power-up fading	⊙	⊙ –
	Dimming curve	⊙	⊙ –
	deviceKEY	⊙	⊙ ◈
	Intelligent temperature guard (ITG)	⊙	⊙ –

6.1 OEM Identification

The OEM (Original Equipment Manufacturer) can set his own identification number.
DALI Part 251: Memory bank 1 extension.

6.2 OEM GTIN

The Original Equipment Manufacturer (OEM) can set his own Global Trade Item Number (GTIN).
DALI Part 251: Memory bank 1 extension.

6.3 Luminaire data

This function provides the asset management with accurate data about the luminaire.
DALI Part 251: Memory bank 1 extension.

6.4 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

The output current of the LED driver can be adjusted in a certain range.
For adjustment there are 4 options available.

Option 1: DALI
Adjustment is done by companionSUITE or by masterCONFIGURATOR.

Option 2: NFC
Adjustment is done by companionSUITE via NFC.

6.5 Enhanced Constant Light Output (eCLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (eCLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
Enhanced eCLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for eCLO see product manual.

The minimal CLO starting point is limited by the smallest output current of the LED driver.

6.6 Enhanced power on level (ePOL)

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
The Enhanced Power On Level can be set to a fixed value (0 – 100 %) or can recall the memory value.
The memory value is the last value the LED driver was set to before the power failure.
This value applies not only in DALI device operating mode, but also in the device operating mode switchDIM.

6.7 DALI default parameters

In order for all luminaires to react the same for each operation (switching, dimming, scene recall ...), these values must be set the same.
These DALI standard parameters are supported by every DALI-2 device.

6.8 Scenes and groups

Each device can be a member of up to 16 groups.
Also, 16 different scene values can be stored in each device.

6.9 fade2zero

When the Driver is switched off, fade2zero allows a smooth dimming down to almost zero.
Activate the fade2zero function when programming with companionSUITE and set a DALI fade time. fade2zero only works if the minimum dimming level of the Driver is the default value.
The device then dims to far below the limit of its working window (dimming range).
This function is deactivated by default.

6.10 Power-up fading

The power-up function offers the opportunity to modify the on behavior.
The time for fading on can be adjusted in a range of 0.2 to 16 seconds.
According to this value, the device dims from 0 % up to the power-on level.
By factory default no fading time is set (= 0 seconds).

6.11 Dimming curve

DALI:
The desired dimming behaviour is selected via two different dimming curves (logarithmic or linear).
The default setting of the dimming behaviour is logarithmic.

6.12 deviceKEY

This function enables a password protection for device settings to prevent unauthorized access or changes.

6.13 Intelligent Temperature Guard (ITG)

The intelligent temperature guard protects the LED driver from thermal overheating by reducing the output power or switching off in case of operation above the thermal limits of the luminaire or ballast.
Depending on the luminaire design, the ITG operates at about 5 to 10 °C above tc temperature.

If temperature threshold values are exceeded, the LED output current is limited.
These limits can be adjusted using the programming software.
Even the current ITG temperature in the device can be read out. With this function, the sensitivity of the temperature control can be adjusted.

6.14 Adjustable current

The output current of the LED driver can be adjusted in a certain range.
Physical minimal current is 1 % of max. current of the driver.

6.15 Compatible track adapter

Adapter Type	Compatible Tracks
MICRO Adapter 9619-M	9600-.../...-ST1
MICRO Adapter 9619-M1	9600-.../...-ST5
MICRO Adapter 9620	9600-.../...-ST16
	9600-.../...-ST15

7. Miscellaneous

7.1 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The LED drivers have to be acclimatised to the specified temperature range (ta range of DC power supply) before they can be operated.

The LED driver is declared as inbuilt LED controlgear, meaning it is intended to be used within a luminaire enclosure.
If the product is used outside a luminaire, the installation must provide suitable protection for people and environment (e.g. in illuminated ceilings).

7.2 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

7.3 Additional information

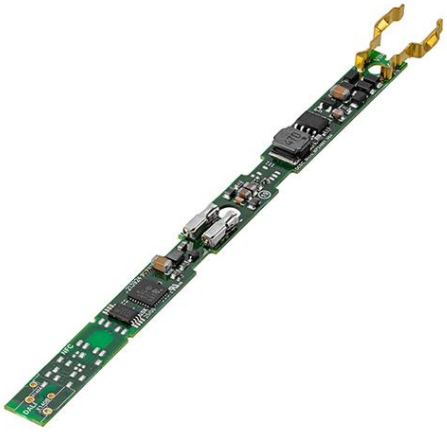
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DC 48V MICRO 14W 50–700mA flexC NF T

Dimming



Product description
_ Constant current LED driver
_ Up to 93.1 % efficiency
_ Output voltage range 2 – 42 V
_ Output current adjustable between 50 – 700 mA
_ Max. output power 14.7 W
_ Temperature range up to +35 °C
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Pure PCB for built-in application
_ Compatible with STUCCHI 48V MICRO/CORE11 system, see data sheet chapter 6.8
_ Suitable for class III applications

Interfaces
_ Terminal blocks: 0° push terminals
_ Near field communication (NFC)

Functions
_ Adjustable output current in 1-mA-steps (NFC)
_ Protective features (overtemperature, short-circuit, no-load)
_ 48V and DALI input polarity free
_ Temperature declared thermally protected LED driver with integrated electronic protection means against overheating

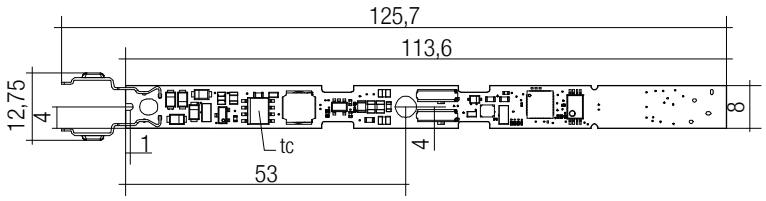
Benefits
_ Application-oriented operating window
_ Small dimensions for miniaturization of luminaires
_ Flexible configuration via companionSUITE (NFC)
_ Support NFC multiple programming (1 carton with 10 pcs)

Typical applications
_ For spot light in art and culture, retail and hospitality, office and education

Website
http://www.tridonic.com/28005578

DC 48V MICRO 14W 50–700mA flexC NF T

Dimming



Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
DC 48V MICRO 14/50-700/42 flexC NF T	**28005578**	90 pc(s).	2,700 pc(s).	0.005 kg

Technical data

DC voltage input	48 V
DC voltage range	46 – 51 V
Mains frequency	0 Hz
Typ. current (full load)	347 mA
Max. input power	16.6 W
Output power range (P_rated)	0.1 – 14.7 W
Typ. efficiency (full load) ①	93.1 %
Starting time (full load)	< 0.7 s
Hold on time at power failure	< 50 ms
Output current tolerance ②	± 5 %
Output current tolerance (at min. dimming level)	± 10 %
Output LF current ripple	Same as LF ripple on 48 V bus
Max. output voltage (U-OUT)	60 V
Surge voltage at output side (against PE)	Same as on 48 V bus
Max. casing temperature tc	105 °C
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	125.7 x 12.8 x 4.8 mm

Approval marks

Specific technical data

Type	Output current	Min. output voltage	Max. output voltage	Max. output power (at 48 V, full load)	Typ. current consumption (at 48 V, full load)	Ambient temperature ta
DC 48V MICRO 14/50-700/42 flexC NF T	50 mA	2 V	42.0 V	2.1 W	54.2 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 flexC NF T	150 mA	2 V	42.0 V	6.3 W	144.7 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 flexC NF T	250 mA	2 V	42.0 V	10.5 W	239.1 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 flexC NF T	350 mA	2 V	42.0 V	14.7 W	332.6 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 flexC NF T	500 mA	2 V	29.0 V	14.5 W	341.9 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 flexC NF T	600 mA	2 V	24.5 V	14.7 W	343.9 mA	0 … +35 °C
DC 48V MICRO 14/50-700/42 flexC NF T	700 mA	2 V	21.0 V	14.7 W	347.1 mA	0 … +35 °C

① Depending on the selected output current.
② Valid at 100 % dimming level.

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384

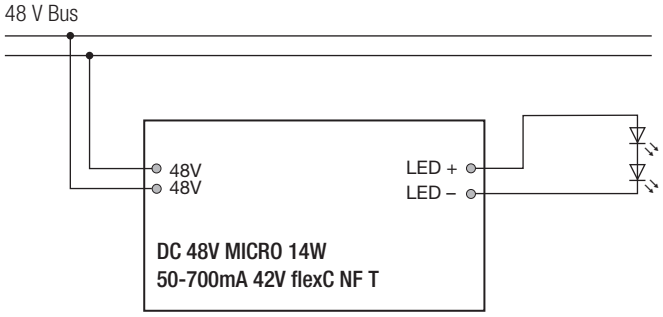
2. Thermal details and lifetime

2.1 Expected lifetime

Lifetime is limited by DC power supply.
Max. tc point temperature must not be exceeded.

3. Installation / wiring

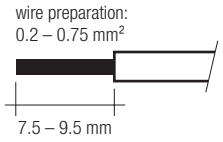
3.1 Circuit diagram



3.2 Wiring type and cross section

For wiring use stranded wire or solid wire from 0.2 – 0.75 mm².
Strip 7.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

LED module/LED driver/supply



3.3 Wiring guidelines

- Run the 48 V cables separately from the mains connections and mains cables to ensure good EMC conditions.
- Keep the 48 V DC output wiring as short as possible to ensure good EMC. Tridonic did successfully EMC test with more than 30 m on grounded metal housings.
- For plastic housing reduce the cable length if the EMC gets worse.
- The max. cable length, including track light, is limited only by voltage drop: Supply the last DC MICRO in the track light with minimum 46 V. More details in the voltage drop application note!
- To avoid damage of the Driver protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).
- The max. secondary cable (LED module) length is 2 m (4 m circuit).
- To comply with the EMC regulations run the secondary wires (LED module) in parallel.

3.4 DC Micro Track Hot Plug

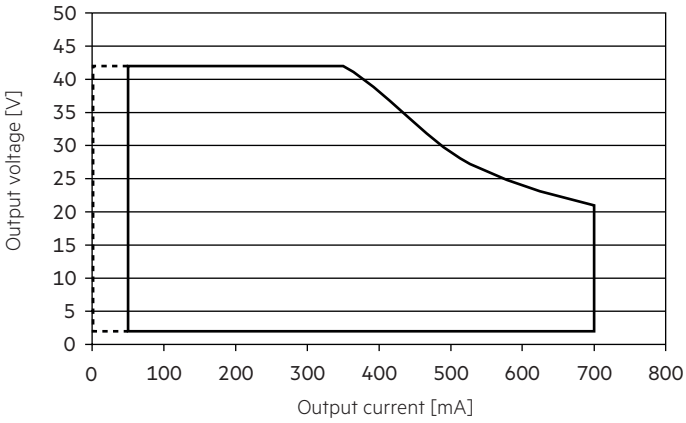
Hotplug of fixtures is allowed. All data will be saved and configuration is stored.

3.5 EOS/ESD safety guidelines

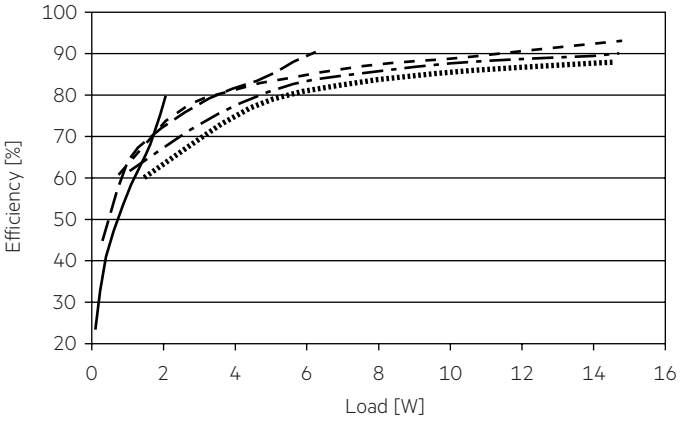
The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice.
For further information for EOS/ESD safety guidlines and the ESD classification please refer to the brochure entitled http://www.tridonic.com/esd-protection.

4. Electrical values

4.1 Operating window



4.2 Efficiency vs load



100 % load corresponds to the max. output power (full load) according to the table on page 2.

5. Interfaces / communication

5.1 Adjustable current

The output current of the LED driver can be adjusted in a certain range.
Physical minimal current is 1 % of max. current of the driver.

5.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED driver will not be damaged.
As soon as short-circuit is removed the LED driver turns on.
No restart is needed.

5.3 No-load operation

In case of a no-load operation LED output is switched off. After restart of the LED Driver the output will be activated again.
The restart can be done via mains reset.

5.4 Overload protection

If the output power/voltage range is exceeded the LED Driver turns off the LED output. After restart of the LED Driver the output will be activated again.The restart can either be done via mains reset.

5.5 Overtemperature protection

If the internal temperature exceeds a defined threshold, the driver switches off to prevent thermal damage. Reactivation requires manual reset.

5.6 NFC - configuration

The NFC Interface allows wireless communication with the LED Driver. This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.

6. Functions

⊙ companionSUITE:
NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	NFC
	OEM Identification	⊙
	OEM GTIN	⊙
	Luminaire data	⊙
	LED current	⊙
	Constant light output (eCLO)	⊙
	Enhanced power on level (ePOL)	⊙
	DALI default parameters	⊙
	Scenes and groups	⊙
	fade2zero	⊙
	Power-up fading	⊙
	Dimming curve	⊙
	deviceKEY	⊙
	Intelligent temperature guard (ITG)	⊙

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

The output current of the LED driver can be adjusted in a certain range.

Option: NFC
Adjustment is done by companionSUITE via NFC.

6.2 Enhanced Constant Light Output (eCLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (eCLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
Enhanced eCLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for eCLO see product manual.

The minimal CLO starting point is limited by the smallest output current of the LED driver.

6.3 Enhanced power on level (ePOL)

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
The Enhanced Power On Level can be set to a fixed value (0 – 100 %) or can recall the memory value.
The memory value is the last value the LED driver was set to before the power failure.
This value applies not only in DALI device operating mode, but also in the device operating mode switchDIM.

6.4 fade2zero

When the Driver is switched off, fade2zero allows a smooth dimming down to almost zero.
Activate the fade2zero function when programming with companionSUITE and set a DALI fade time. fade2zero only works if the minimum dimming level of the Driver is the default value.
The device then dims to far below the limit of its working window (dimming range).
This function is deactivated by default.

6.5 deviceKEY

This function enables a password protection for device settings to prevent unauthorized access or changes.

6.6 Intelligent Temperature Guard (ITG)

The intelligent temperature guard protects the LED driver from thermal overheating by reducing the output power or switching off in case of operation above the thermal limits of the luminaire or ballast.
Depending on the luminaire design, the ITG operates at about 5 to 10 °C above tc temperature.

If temperature threshold values are exceeded, the LED output current is limited.
These limits can be adjusted using the programming software.
Even the current ITG temperature in the device can be read out. With this function, the sensitivity of the temperature control can be adjusted.

6.7 Adjustable current

The output current of the LED driver can be adjusted in a certain range.
Physical minimal current is 1 % of max. current of the driver.

6.8 Compatible track adapter

Adapter Type	Compatible tracks
MICRO Adapter 9619-M MICRO Adapter 9619-M1 MICRO Adapter 9620	9600-.../...-ST1 9600-.../...-ST5 9600-.../...-ST16 9600-.../...-ST15

7. Miscellaneous

7.1 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The LED drivers have to be acclimatised to the specified temperature range (ta range of DC power supply) before they can be operated.

The LED driver is declared as inbuilt LED controlgear, meaning it is intended to be used within a luminaire enclosure.
If the product is used outside a luminaire, the installation must provide suitable protection for people and environment (e.g. in illuminated ceilings).

7.2 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

7.3 Additional information

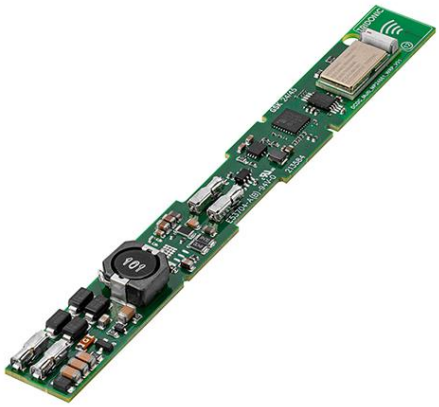
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DC 48V MULTI 30W 50–1050mA bDW NF T

Dimming



Product description
_ Can be integrated in Casambi systems (Casambi Ready)
_ Dimmable constant current
_ Up to 94.5 % efficiency
_ Output voltage range 10 – 42 V
_ Output current adjustable between 50 – 1050 mA
_ Pure AM dimming down to 1 %
_ Max. output power 30 W
_ Temperature range up to +35 °C
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Pure PCB for built-in application
_ Compatible with STUCCHI 48V MULTI/EVO system, see data sheet chapter 6.8
_ Suitable for class III applications

Interfaces
_ basicDIM Wireless
_ Terminal blocks: 0° push terminals
_ Near field communication (NFC)

Functions
_ Adjustable output current in 1-mA-steps (NFC)
_ Protective features (overtemperature, short-circuit, no-load)
_ Temperature declared thermally protected LED driver with integrated electronic protection means against overheating

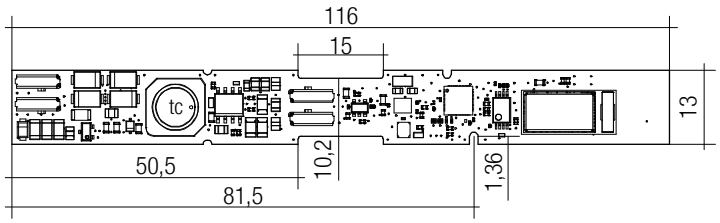
Benefits
_ Application-oriented operating window
_ Enabling even smaller dimensions for the miniaturization of luminaires
_ Flexible configuration via companionSUITE (NFC)
_ Support NFC multiple programming (full carton box)
_ We will provide security updates for the next five years after the date of purchase of this product

Typical applications
_ For spot light in art and culture, retail and hospitality, office and education

Website
http://www.tridonic.com/28005583

DC 48V MULTI 30W 50–1050mA bDW NF T

Dimming



Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
DC 48V MULTI 30/50-1050/42 bDW NF T	**28005583**	90 pc(s).	2,700 pc(s).	0.008 kg

Technical data

DC voltage input	48 V
DC voltage range	46 – 51 V
Mains frequency	0 Hz
Typ. current (full load)	673 mA
Max. input power	32.2 W
Output power range (P_rated)	0.5 – 30 W
Typ. efficiency (full load) ①②	93.9 %
Starting time (full load)	< 0.7 s
Hold on time at power failure	< 50 ms
Output current tolerance ①	± 5 %
Output current tolerance (at min. dimming level)	± 10 %
Output LF current ripple	Same as LF ripple on 48 V bus
Max. output voltage (U-OUT)	60 V
Dimming range	1 – 100 % (min. 10.5 mA)
ESD classification	Severity level 2
Max. casing temperature tc	110 °C
Radio transceiver operating frequencies	2.4 – 2.483 GHz
Max. output power radio transceiver (E.I. R.P.)	< + 20 dBm
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	116 x 13 x 6.2 mm

Approval marks

Specific technical data

Type	Output current	Min. output voltage	Max. output voltage	Max. output power (at 48 V, full load)	Typ. current consumption (at 48 V, full load)	Ambient temperature ta
DC 48V MULTI 30/50-1050/42 bDW NF T	50 mA	10 V	42 V	2.1 W	53.0 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 bDW NF T	150 mA	10 V	42 V	6.3 W	142.0 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 bDW NF T	350 mA	10 V	42 V	14.7 W	326.0 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 bDW NF T	500 mA	10 V	42 V	21.0 W	464.0 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 bDW NF T	700 mA	10 V	42 V	29.4 W	648.0 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 bDW NF T	750 mA	10 V	40 V	30.0 W	664.0 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 bDW NF T	900 mA	10 V	33 V	29.7 W	668.0 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 bDW NF T	1,050 mA	10 V	28 V	29.4 W	672.6 mA	0 … +35 °C

① Valid at 100 % dimming level.
② Depending on the selected output current.

1. Standards

EN 61347-1
EN 61347-2-13
EN 62384
EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547
ETSI EN 300 328
ETSI EN 300 330
ETSI EN 301 489-1
ETSI EN 301 489-17

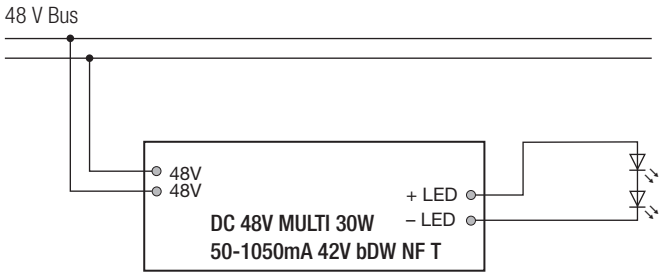
2. Thermal details and lifetime

2.1 Expected lifetime

Lifetime is maximum of 100,000 h.
Max. tc point temperature must not be exceeded.

3. Installation / wiring

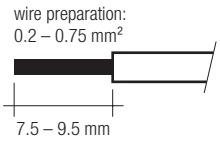
3.1 Circuit diagram



3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2 – 0.75 mm². Strip 7.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

LED module/LED driver/supply



3.3 Wiring guidelines

- Run the 48 V cables separately from the mains connections and mains cables to ensure good EMC conditions.
- Keep the 48 V DC output wiring as short as possible to ensure good EMC. Tridonic did successfully EMC test with more than 30 m on grounded metal housings.
- For plastic housing reduce the cable length if the EMC gets worse.
- The max. cable length, including track light, is limited only by voltage drop: Supply the last DC MULTI in the track light with minimum 46 V. More details in the voltage drop application note!
- To avoid damage of the Driver protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).
- The max. secondary cable (LED module) length is 2 m (4 m circuit).
- To comply with the EMC regulations run the secondary wires (LED module) in parallel.

3.4 DC Multi Track Hot Plug

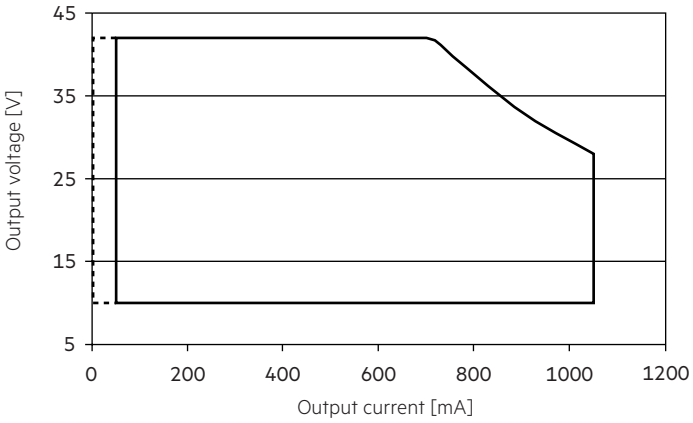
Hotplug of fixtures is allowed. All data will be saved and configuration is stored.

3.5 EOS/ESD safety guidelines

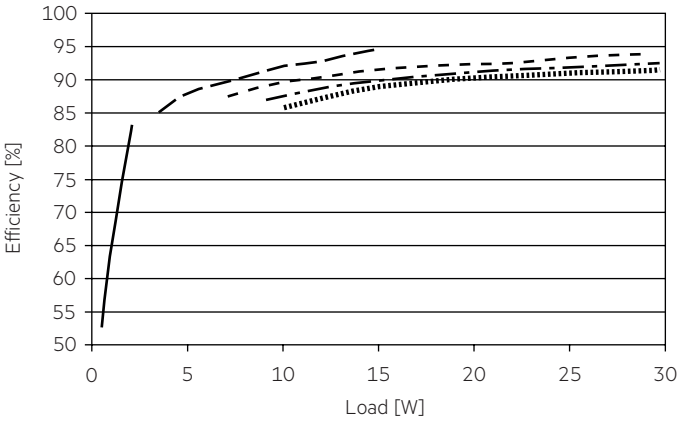
The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice.
For further information for EOS/ESD safety guidlines and the ESD classification please refer to the brochure entitled http://www.tridonic.com/esd-protection.

4. Electrical values

4.1 Operating window



4.2 Efficiency vs load



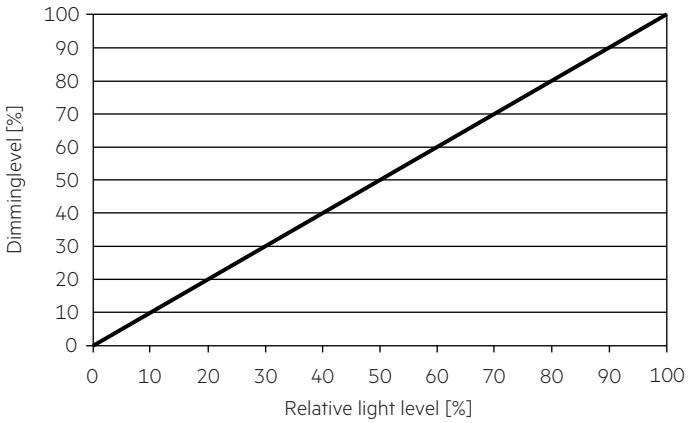
50 mA
350 mA
700 mA
900 mA
1050 mA

100 % load corresponds to the max. output power (full load) according to the table on page 2.

4.3 Dimming

Dimming range 1% to 100 % (min. 10.5 mA)
Digital control with:
- basicDIM Wireless

4.4 Dimming characteristics



5. Interfaces / communication

5.1 Control input

Can be integrated in Casambi systems (Casambi Ready)

5.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again. The restart can either be done via mains reset or via interface (bDW)

5.3 No-load operation

In case of a no-load operation LED output is switched off. After restart of the LED Driver the output will be activated again.
The restart can either be done via mains reset or via interface (bDW).

5.4 Overload protection

If the output power/voltage range is exceeded the LED Driver turns off the LED output. After restart of the LED Driver the output will be activated again.The restart can either be done via mains reset or via interface (bDW)

5.5 Overtemperature protection

Intelligent temperature guard (ITG)

5.6 NFC - configuration

The NFC Interface allows wireless communication with the LED Driver. This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.

6. Functions

⊙ companionSUITE:
NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	NFC
	OEM Identification	⊙
	OEM GTIN	⊙
	Luminaire data	⊙
	LED current	⊙
	Constant light output (eCLO)	⊙
	Enhanced power on level (ePOL)	⊙
	DALI default parameters	⊙
	Scenes and groups	⊙
	fade2zero	⊙
	Power-up fading	⊙
	Dimming curve	⊙
	deviceKEY	⊙
	Intelligent temperature guard (ITG)	⊙

6. Functions

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

The output current of the LED driver can be adjusted in a certain range.

Option 2: NFC
Adjustment is done by companionSUITE via NFC.

6.2 Enhanced Constant Light Output (eCLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (eCLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
Enhanced eCLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for eCLO see product manual.

The minimal CLO starting point is limited by the smallest output current of the LED driver.

6.3 Enhanced power on level (ePOL)

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
The Enhanced Power On Level can be set to a fixed value (0 – 100 %) or can recall the memory value.
The memory value is the last value the LED driver was set to before the power failure.
This value applies not only in DALI device operating mode, but also in the device operating mode switchDIM.

6.4 fade2zero

When the Driver is switched off, fade2zero allows a smooth dimming down to almost zero.
Activate the fade2zero function when programming with companionSUITE and set a DALI fade time. fade2zero only works if the minimum dimming level of the Driver is the default value.
The device then dims to far below the limit of its working window (dimming range).
This function is deactivated by default.

6.5 deviceKEY

This function enables a password protection for device settings to prevent unauthorized access or changes.

6.6 Intelligent Temperature Guard (ITG)

The intelligent temperature guard protects the LED driver from thermal overheating by reducing the output power or switching off in case of operation above the thermal limits of the luminaire or ballast.
Depending on the luminaire design, the ITG operates at about 5 to 10 °C above tc temperature.

If temperature threshold values are exceeded, the LED output current is limited.
These limits can be adjusted using the programming software.
Even the current ITG temperature in the device can be read out. With this function, the sensitivity of the temperature control can be adjusted.

6.7 Adjustable current

The output current of the LED driver can be adjusted in a certain range.
Physical minimal current is 1 % of max. current of the driver.

6.8 Compatible track adapter

Adapter Type	Compatible Tracks
MULTI Adapter 9519-166-K-E / MULTI Adapter 9519-166-M-K-E MULTI Adapter 9519-166-E MULTI Adapter 9519-166-M-E	9500-.../...-ST1-E 9500-.../...-ST2-E 9500-.../...-ST3-E 9500-.../...-ST5-E 9500-.../...-ST6-E 9500-.../...-ST7-E 9500-.../...-ST8-E 9500-.../...-ST9-E 9500-.../...-ST10 9500-.../...-ST13-E 9500-.../...-ST14 9500-.../...-ST15-E 9500-.../...-ST18-E
CORE11 Adapter 9659C-166	9600C-.../B 9600C-.../B-F1 9600C-.../B-F2 9600C-.../B-F3 9600C-...B/-M2-... 9600C-...B/-M6-...

7. Miscellaneous

7.1 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The LED drivers have to be acclimatised to the specified temperature range (ta range of DC power supply) before they can be operated.

The LED driver is declared as inbuilt LED controlgear, meaning it is intended to be used within a luminaire enclosure.
If the product is used outside a luminaire, the installation must provide suitable protection for people and environment (e.g. in illuminated ceilings).

7.2 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

7.3 Additional information

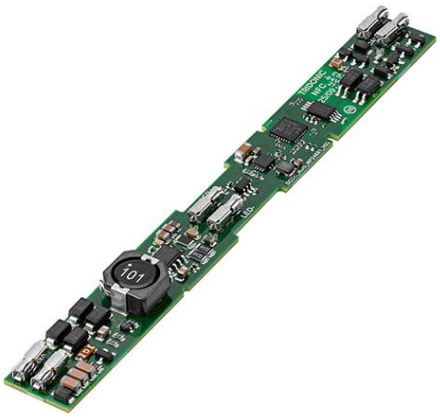
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DC 48V MULTI 30W 50–1050mA DA NF T

Dimming



Product description
_ DALI-2 dimmable
_ Up to 95.5 % efficiency
_ Output voltage range 10 – 42 V
_ Output current adjustable between 50 – 1050 mA
_ Pure AM dimming down to 1 %
_ Max. output power 30 W
_ Temperature range up to +35 °C
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Pure PCB for built-in application
_ Compatible with STUCCHI 48V MULTI/EVO system, see data sheet chapter 6.15
_ Suitable for class III applications

Interfaces
_ DALI – DT 6
_ Terminal blocks: 0° push terminals
_ Near field communication (NFC)

Functions
_ Adjustable output current in 1-mA-steps (NFC, DALI-2)
_ lumDATA (DALI-2 part ext. 251, 252 and 253)
_ Protective features (overtemperature, short-circuit, no-load)
_ Protection against wrong wiring of 48V to DALI
_ Temperature declared thermally protected LED driver with integrated electronic protection means against overheating

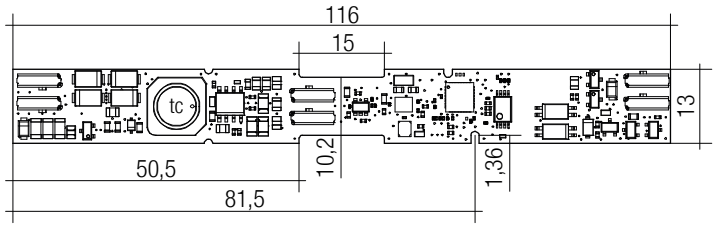
Benefits
_ Application-oriented operating window
_ Enabling even smaller dimensions for the miniaturization of luminaires
_ Flexible configuration via companionSUITE (NFC, DALI-2)
_ Support NFC multiple programming (1 carton with 10 pcs)

Typical applications
_ For downlight, spotlight and decorative applications

Website
http://www.tridonic.com/28005582

DC 48V MULTI 30W 50–1050mA DA NF T

Dimming



Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
DC 48V MULTI 30/50-1050/42 DA NF T	**28005582**	90 pc(s).	2,700 pc(s).	0.008 kg

Technical data

DC voltage input	48 V
DC voltage range	46 – 51 V
Mains frequency	0 Hz
Typ. current (full load)	673 mA
Max. input power	32.2 W
Output power range (P_rated)	0.5 – 30 W
Typ. efficiency (full load) ①②	94.3 %
Starting time (full load)	< 0.7 s
Hold on time at power failure	< 50 ms
Output current tolerance ①	± 5 %
Output current tolerance (at min. dimming level)	± 10 %
Output LF current ripple	Same as LF ripple on 48 V bus
Max. output voltage (U-OUT)	60 V
Dimming range	1 – 100 % (min. 10.5 mA)
ESD classification	Severity level 2
Max. casing temperature tc	110 °C
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	116 x 13 x 6.2 mm

Approval marks

Specific technical data

Type	Output current	Min. output voltage	Max. output voltage	Max. output power (at 48 V, full load)	Typ. current consumption (at 48 V, full load)	Ambient temperature ta
DC 48V MULTI 30/50-1050/42 DA NF T	50 mA	10 V	42 V	2.1 W	51.5 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 DA NF T	150 mA	10 V	42 V	6.3 W	141.0 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 DA NF T	350 mA	10 V	42 V	14.7 W	321.5 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 DA NF T	500 mA	10 V	42 V	21.0 W	511.4 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 DA NF T	700 mA	10 V	42 V	29.4 W	650.2 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 DA NF T	750 mA	10 V	40 V	30.0 W	667.6 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 DA NF T	900 mA	10 V	33 V	29.7 W	670.9 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 DA NF T	1,050 mA	10 V	28 V	29.4 W	672.6 mA	0 … +35 °C

① Valid at 100 % dimming level.
② Depending on the selected output current.

1. Standards

EN 61347-1
EN 61347-2-13
EN 62384
EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547
According to EN 62386-101
According to EN 62386-102
According to EN 62386-207 (DALI-2, including part 251, 252, 253)

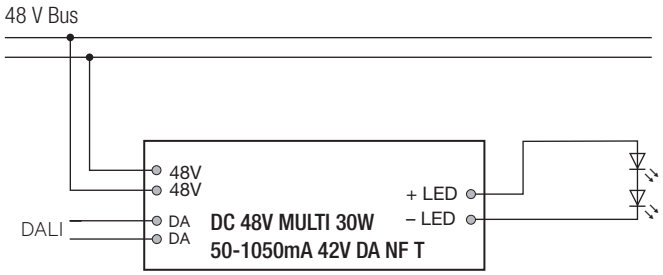
2. Thermal details and lifetime

2.1 Expected lifetime

Lifetime is maximum of 100,000 h.
Max. tc point temperature must not be exceeded.

3. Installation / wiring

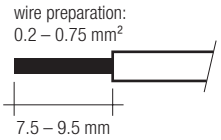
3.1 Circuit diagram



3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2 – 0.75 mm². Strip 7.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

LED module/LED driver/supply



3.3 Wiring guidelines

- Run the 48 V cables separately from the mains connections and mains cables to ensure good EMC conditions.
- Keep the 48 V DC output wiring as short as possible to ensure good EMC. Tridonic did successfully EMC test with more than 30 m on grounded metal housings.
- For plastic housing reduce the cable length if the EMC gets worse.
- The max. cable length, including track light, is limited only by voltage drop: Supply the last DC MULTI in the track light with minimum 46 V. More details in the voltage drop application note!
- To avoid damage of the Driver protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).
- The max. secondary cable (LED module) length is 2 m (4 m circuit).
- To comply with the EMC regulations run the secondary wires (LED module) in parallel.

3.4 DC Multi Track Hot Plug

Hotplug of fixtures is allowed. All data will be saved and configuration is stored.

3.5 EOS/ESD safety guidelines

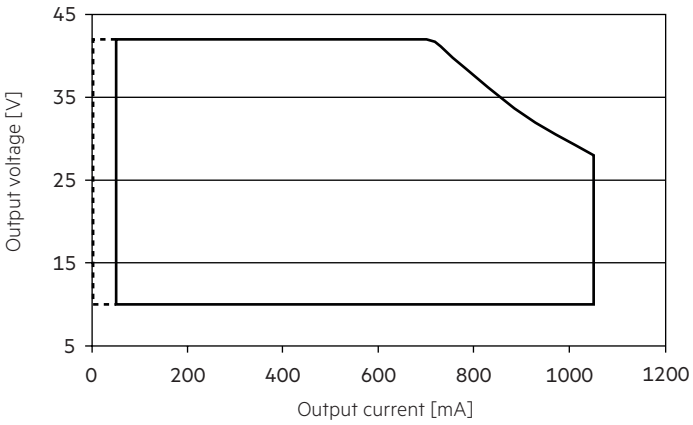
The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice.
For further information for EOS/ESD safety guidlines and the ESD classification please refer to the brochure entitled http://www.tridonic.com/esd-protection.

3.6 Control terminals

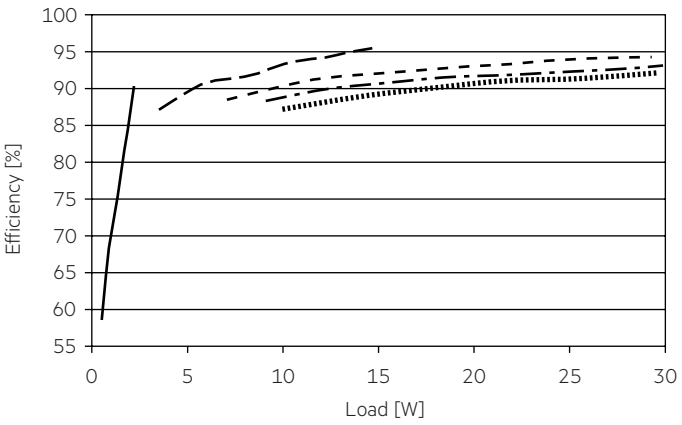
There is a risk of electric shock when touching these terminals in case of failure.

4. Electrical values

4.1 Operating window



4.2 Efficiency vs load



50 mA
350 mA
700 mA
900 mA
1050 mA

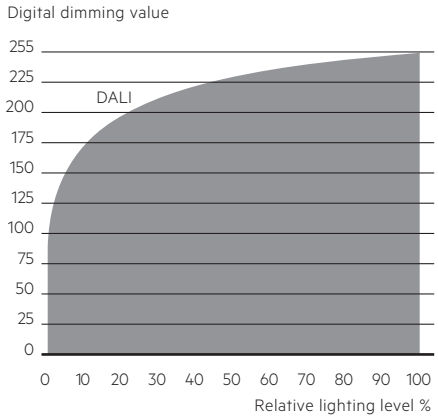
100 % load corresponds to the max. output power (full load) according to the table on page 2.

4.3 Dimming

Dimming range 1 to 100 % (min. 10.5 mA) of nominal current
Programmable parameter:
Minimum dimming level
Maximum dimming level
Default minimum = depending on nominal current level
Default maximum = 100 %

Physical minimal current is 1 % of max. current of the driver.
Dimming curve is adapted to the eye sensitiveness.
Dimming is realized by amplitude dimming.

4.4 Dimming characteristics



Dimming characteristics as seen by the human eye

5. Interfaces / communication

5.1 Control input

The control input is non-polar for digital control signals (DALI).
The control cable has to be installed in accordance to the requirements of low voltage installations.

5.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again. The restart can either be done via mains reset or via interface (DALI).

5.3 No-load operation

In case of a no-load operation LED output is switched off. After restart of the LED Driver the output will be activated again.
The restart can either be done via mains reset or via interface (DALI).

5.4 Overload protection

If the output power/voltage range is exceeded the LED Driver turns off the LED output. After restart of the LED Driver the output will be activated again.The restart can either be done via mains reset or via interface (DALI).

5.5 Overtemperature protection

Intelligent temperature guard (ITG)

5.6 NFC - configuration

The NFC Interface allows wireless communication with the LED Driver. This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.

6. Functions

⊙ companionSUITE:
DALI-USB, ready2mains Programmer, NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

◈ masterCONFIGURATOR:
DALI-USB, ready2mains Programmer (in DALI mode)
The masterCONFIGURATOR is available via our WEB page:
https://www.tridonic.com/com/en/software-masterconfigurator.asp

Icon	Function	NFC	DALI-2
	OEM Identification	⊙	⊙ ◈
	OEM GTIN	⊙	⊙ ◈
	Luminaire data	⊙	⊙ –
	LED current	⊙	⊙ ◈
	Device operating mode	⊙	⊙ ◈
	Constant light output (eCLO)	⊙	⊙ ◈
T	Enhanced power on level (ePOL)	⊙	⊙ ◈
	DALI default parameters	⊙	⊙ ◈
	Scenes and groups	⊙	⊙ ◈
	fade2zero	⊙	⊙ –
	Power-up fading	⊙	⊙ –
	Dimming curve	⊙	⊙ –
	deviceKEY	⊙	⊙ ◈
	Intelligent temperature guard (ITG)	⊙	⊙ –

6.1 OEM Identification

The OEM (Original Equipment Manufacturer) can set his own identification number.
DALI Part 251: Memory bank 1 extension.

6.2 OEM GTIN

The Original Equipment Manufacturer (OEM) can set his own Global Trade Item Number (GTIN).
DALI Part 251: Memory bank 1 extension.

6.3 Luminaire data

This function provides the asset management with accurate data about the luminaire.
DALI Part 251: Memory bank 1 extension.

6.4 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

The output current of the LED driver can be adjusted in a certain range.
For adjustment there are 4 options available.

Option 1: DALI
Adjustment is done by companionSUITE or by masterCONFIGURATOR.

Option 2: NFC
Adjustment is done by companionSUITE via NFC.

6.5 Enhanced Constant Light Output (eCLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (eCLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
Enhanced eCLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for eCLO see product manual.

The minimal CLO starting point is limited by the smallest output current of the LED driver.

6.6 Enhanced power on level (ePOL)

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
The Enhanced Power On Level can be set to a fixed value (0 – 100 %) or can recall the memory value.
The memory value is the last value the LED driver was set to before the power failure.
This value applies not only in DALI device operating mode, but also in the device operating mode switchDIM.

6.7 DALI default parameters

In order for all luminaires to react the same for each operation (switching, dimming, scene recall ...), these values must be set the same.
These DALI standard parameters are supported by every DALI-2 device.

6.8 Scenes and groups

Each device can be a member of up to 16 groups.
Also, 16 different scene values can be stored in each device.

6.9 fade2zero

When the Driver is switched off, fade2zero allows a smooth dimming down to almost zero.
Activate the fade2zero function when programming with companionSUITE and set a DALI fade time. fade2zero only works if the minimum dimming level of the Driver is the default value.
The device then dims to far below the limit of its working window (dimming range).
This function is deactivated by default.

6.10 Power-up fading

The power-up function offers the opportunity to modify the on behavior.
The time for fading on can be adjusted in a range of 0.2 to 16 seconds.
According to this value, the device dims from 0 % up to the power-on level.
By factory default no fading time is set (= 0 seconds).

6.11 Dimming curve

DALI:
The desired dimming behaviour is selected via two different dimming curves (logarithmic or linear).
The default setting of the dimming behaviour is logarithmic.

6.12 deviceKEY

This function enables a password protection for device settings to prevent unauthorized access or changes.

6.13 Intelligent Temperature Guard (ITG)

The intelligent temperature guard protects the LED driver from thermal overheating by reducing the output power or switching off in case of operation above the thermal limits of the luminaire or ballast.
Depending on the luminaire design, the ITG operates at about 5 to 10 °C above tc temperature.

If temperature threshold values are exceeded, the LED output current is limited.
These limits can be adjusted using the programming software.
Even the current ITG temperature in the device can be read out. With this function, the sensitivity of the temperature control can be adjusted.

6.14 Adjustable current

The output current of the LED driver can be adjusted in a certain range.
Physical minimal current is 1 % of max. current of the driver.

6.15 Compatible track adapter

Adapter Type	Compatible Tracks
MULTI Adapter 9519-166-K-E / MULTI Adapter 9519-166-M-K-E MULTI Adapter 9519-166-E MULTI Adapter 9519-166-M-E	9500-.../...-ST1-E 9500-.../...-ST2-E 9500-.../...-ST3-E 9500-.../...-ST5-E 9500-.../...-ST6-E 9500-.../...-ST7-E 9500-.../...-ST8-E 9500-.../...-ST9-E 9500-.../...-ST10 9500-.../...-ST13-E 9500-.../...-ST14 9500-.../...-ST15-E 9500-.../...-ST18-E
CORE11 Adapter 9659C-166	9600C-.../B 9600C-.../B-F1 9600C-.../B-F2 9600C-.../B-F3 9600C-...B/-M2-... 9600C-...B/-M6-...

7. Miscellaneous

7.1 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The LED drivers have to be acclimatised to the specified temperature range (ta range of DC power supply) before they can be operated.

The LED driver is declared as inbuilt LED controlgear, meaning it is intended to be used within a luminaire enclosure.
If the product is used outside a luminaire, the installation must provide suitable protection for people and environment (e.g. in illuminated ceilings).

7.2 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

7.3 Additional information

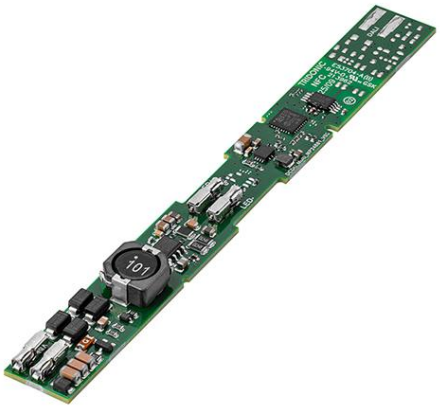
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DC 48V MULTI 30W 50–1050mA flexC NF T

Dimming



Product description
_ Constant current LED driver
_ Up to 95.5 % efficiency
_ Output voltage range 10 – 42 V
_ Output current adjustable between 50 – 1050 mA
_ Max. output power 30 W
_ Temperature range up to +35 °C
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Pure PCB for built-in application
_ Compatible with STUCCHI 48V MULTI/EVO system, see data sheet chapter 6.8
_ Suitable for class III applications

Interfaces
_ Terminal blocks: 0° push terminals
_ Near field communication (NFC)

Functions
_ Adjustable output current in 1-mA-steps (NFC)
_ Protective features (overtemperature, short-circuit, no-load)
_ Temperature declared thermally protected LED driver with integrated electronic protection means against overheating

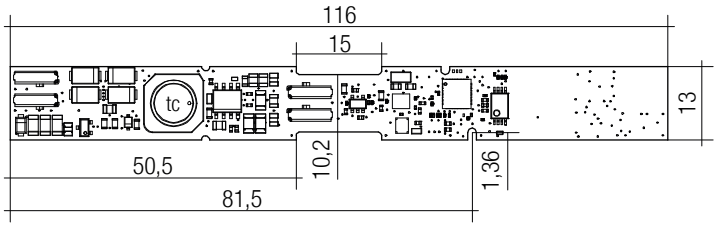
Benefits
_ Application-oriented operating window
_ Enabling even smaller dimensions for the miniaturization of luminaires
_ Flexible configuration via companionSUITE (NFC)
_ Support NFC multiple programming (1 carton with 10 pcs)

Typical applications
_ For spot light in art and culture, retail and hospitality, office and education

Website
http://www.tridonic.com/28005581

DC 48V MULTI 30W 50–1050mA flexC NF T

Dimming



Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
DC 48V MULTI 30/50-1050/42 flexC NF T	**28005581**	90 pc(s).	2,700 pc(s).	0.008 kg

Technical data

DC voltage input	48 V
DC voltage range	46 – 51 V
Mains frequency	0 Hz
Typ. current (full load)	673 mA
Max. input power	32.2 W
Output power range (P_rated)	0.5 – 30 W
Typ. efficiency (full load) ①	94.3 %
Starting time (full load)	< 0.7 s
Hold on time at power failure	< 50 ms
Output current tolerance ②	± 5 %
Output current tolerance (at min. dimming level)	± 10 %
Output LF current ripple	Same as LF ripple on 48 V bus
Max. output voltage (U-OUT)	60 V
Surge voltage at output side (against PE)	Same as on 48 V bus
Max. casing temperature tc	110 °C
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	116 x 13 x 6.2 mm

Approval marks

Specific technical data

Type	Output current	Min. output voltage	Max. output voltage	Max. output power (at 48 V, full load)	Typ. current consumption (at 48 V, full load)	Ambient temperature ta
DC 48V MULTI 30/50-1050/42 flexC NF T	50 mA	10 V	42 V	2.1 W	51.5 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 flexC NF T	150 mA	10 V	42 V	6.3 W	141.0 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 flexC NF T	350 mA	10 V	42 V	14.7 W	321.5 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 flexC NF T	500 mA	10 V	42 V	21.0 W	511.4 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 flexC NF T	700 mA	10 V	42 V	29.4 W	650.2 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 flexC NF T	750 mA	10 V	40 V	30.0 W	667.6 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 flexC NF T	900 mA	10 V	33 V	29.7 W	670.9 mA	0 … +35 °C
DC 48V MULTI 30/50-1050/42 flexC NF T	1,050 mA	10 V	28 V	29.4 W	672.6 mA	0 … +35 °C

① Depending on the selected output current.
② Valid at 100 % dimming level.

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384

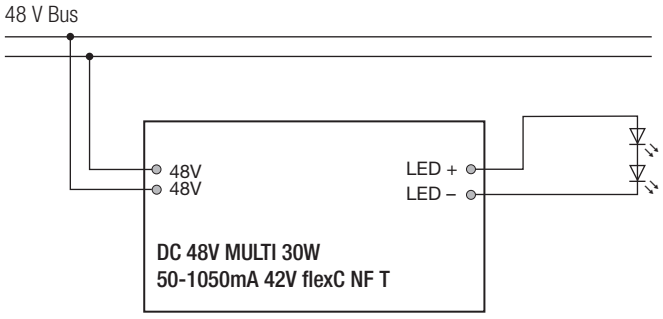
2. Thermal details and lifetime

2.1 Expected lifetime

Lifetime is limited by DC power supply.
Max. tc point temperature must not be exceeded.

3. Installation / wiring

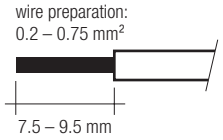
3.1 Circuit diagram



3.2 Wiring type and cross section

For wiring use stranded wire or solid wire from 0.2 – 0.75 mm².
Strip 7.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

LED module/LED driver/supply



3.3 Wiring guidelines

- Run the 48 V cables separately from the mains connections and mains cables to ensure good EMC conditions.
- Keep the 48 V DC output wiring as short as possible to ensure good EMC. Tridonic did successfully EMC test with more than 30 m on grounded metal housings.
- For plastic housing reduce the cable length if the EMC gets worse.
- The max. cable length, including track light, is limited only by voltage drop: Supply the last DC MULTI in the track light with minimum 46 V. More details in the voltage drop application note!
- To avoid damage of the Driver protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).
- The max. secondary cable (LED module) length is 2 m (4 m circuit).
- To comply with the EMC regulations run the secondary wires (LED module) in parallel.

3.4 DC Multi Track Hot Plug

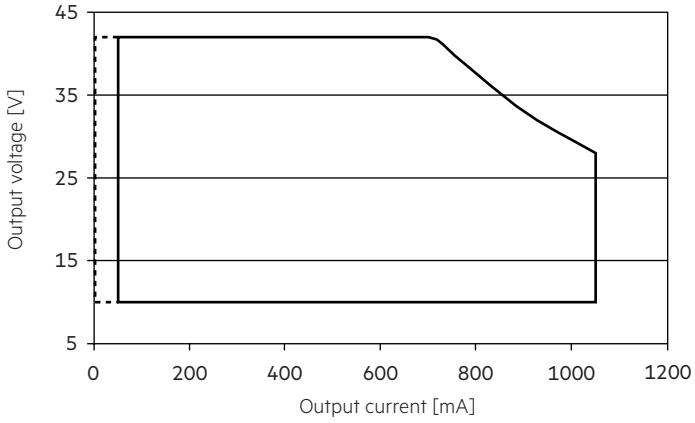
Hotplug of fixtures is allowed. All data will be saved and configuration is stored.

3.5 EOS/ESD safety guidelines

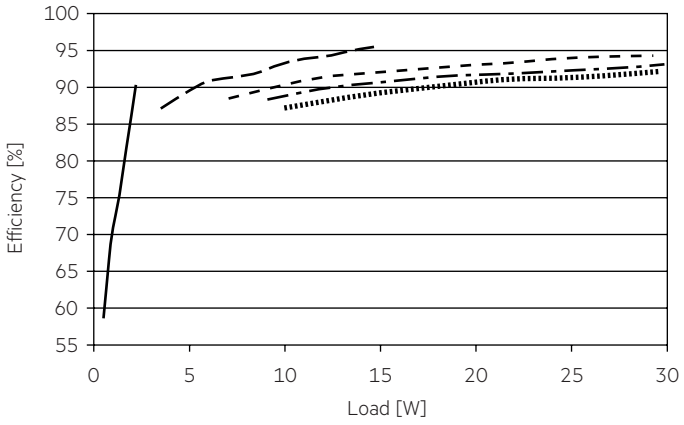
The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice.
For further information for EOS/ESD safety guidlines and the ESD classification please refer to the brochure entitled http://www.tridonic.com/esd-protection.

4. Electrical values

4.1 Operating window



4.2 Efficiency vs load



50 mA
350 mA
700 mA
900 mA
1050 mA

100 % load corresponds to the max. output power (full load) according to the table on page 2.

5. Functions

5.1 Adjustable current

The output current of the LED driver can be adjusted in a certain range.
Physical minimal current is 1 % of max. current of the driver.

5.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED driver will not be damaged.
As soon as short-circuit is removed the LED driver turns on.
No restart is needed.

5.3 No-load operation

In case of a no-load operation LED output is switched off. After restart of the LED Driver the output will be activated again.
The restart can be done via mains reset.

5.4 Overload protection

If the output power/voltage range is exceeded the LED Driver turns off the LED output. After restart of the LED Driver the output will be activated again.The restart can either be done via mains reset.

5.5 Overtemperature protection

If the internal temperature exceeds a defined threshold, the driver switches off to prevent thermal damage. Reactivation requires manual reset.

5.6 NFC - configuration

The NFC Interface allows wireless communication with the LED Driver. This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.

6. Functions

⊙ companionSUITE:
NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	NFC
	OEM Identification	⊙
	OEM GTIN	⊙
	Luminaire data	⊙
	LED current	⊙
	Constant light output (eCLO)	⊙
	Enhanced power on level (ePOL)	⊙
	DALI default parameters	⊙
	Scenes and groups	⊙
	fade2zero	⊙
	Power-up fading	⊙
	Dimming curve	⊙
	deviceKEY	⊙
	Intelligent temperature guard (ITG)	⊙

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

The output current of the LED driver can be adjusted in a certain range.

Option: NFC
Adjustment is done by companionSUITE via NFC.

6.2 Enhanced Constant Light Output (eCLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (eCLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
Enhanced eCLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for eCLO see product manual.

The minimal CLO starting point is limited by the smallest output current of the LED driver.

6.3 Enhanced power on level (ePOL)

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
The Enhanced Power On Level can be set to a fixed value (0 – 100 %) or can recall the memory value.
The memory value is the last value the LED driver was set to before the power failure.
This value applies not only in DALI device operating mode, but also in the device operating mode switchDIM.

6.4 fade2zero

When the Driver is switched off, fade2zero allows a smooth dimming down to almost zero.
Activate the fade2zero function when programming with companionSUITE and set a DALI fade time. fade2zero only works if the minimum dimming level of the Driver is the default value.
The device then dims to far below the limit of its working window (dimming range).
This function is deactivated by default.

6.5 deviceKEY

This function enables a password protection for device settings to prevent unauthorized access or changes.

6.6 Intelligent Temperature Guard (ITG)

The intelligent temperature guard protects the LED driver from thermal overheating by reducing the output power or switching off in case of operation above the thermal limits of the luminaire or ballast.
Depending on the luminaire design, the ITG operates at about 5 to 10 °C above tc temperature.

If temperature threshold values are exceeded, the LED output current is limited.
These limits can be adjusted using the programming software.
Even the current ITG temperature in the device can be read out. With this function, the sensitivity of the temperature control can be adjusted.

6.7 Adjustable current

The output current of the LED driver can be adjusted in a certain range.
Physical minimal current is 1 % of max. current of the driver.

6.8 Compatible track adapter

Adapter Type	Compatible Tracks
MULTI Adapter 9519-166-K-E / MULTI Adapter 9519-166-M-K-E MULTI Adapter 9519-166-E MULTI Adapter 9519-166-M-E	9500-.../...-ST1-E 9500-.../...-ST2-E 9500-.../...-ST3-E 9500-.../...-ST5-E 9500-.../...-ST6-E 9500-.../...-ST7-E 9500-.../...-ST8-E 9500-.../...-ST9-E 9500-.../...-ST10 9500-.../...-ST13-E 9500-.../...-ST14 9500-.../...-ST15-E 9500-.../...-ST18-E
CORE11 Adapter 9659C-166	9600C-.../B 9600C-.../B-F1 9600C-.../B-F2 9600C-.../B-F3 9600C-...B/-M2-... 9600C-...B/-M6-...

7. Miscellaneous

7.1 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The LED drivers have to be acclimatised to the specified temperature range (ta range of DC power supply) before they can be operated.

The LED driver is declared as inbuilt LED controlgear, meaning it is intended to be used within a luminaire enclosure.
If the product is used outside a luminaire, the installation must provide suitable protection for people and environment (e.g. in illuminated ceilings).

7.2 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

7.3 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

Driver LC 15W 200-350mA flexC T SNC3

essence in-track series (3-phase system)

Black (RAL 9005)

White (RAL 9010)

Grey (RAL 7035)

Product description
_ Constant current / in-track LED driver
_ Optional accessory ACU ALU NIPPLE M10x1 for mounting the luminaire head
_ Compatible 3-phase system in-tracks, see data sheet chapter 3.8
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Selectable fixed output current via DIP switch 350, 300, 250 and 200 mA (pre-selected current 200 mA)
_ Max. output power 14.7 W
_ Up to 85 % efficiency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Functions
_ Overload protection
_ Short-circuit protection
_ No-load protection

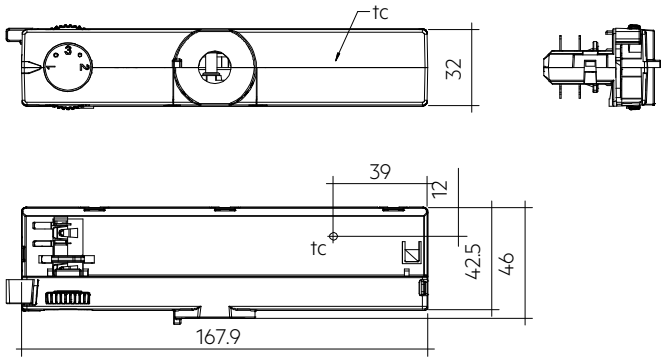
Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/87501011

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 15W 200-350mA flexC T SNC3

essence in-track series (3-phase system)



Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
LC 15/200-350/42 flexC T-B SNC3	**87501011**	Black	10 pc(s).	50 pc(s).	850 pc(s).	0.094 kg
LC 15/200-350/42 flexC T-W SNC3	**87501032**	White	10 pc(s).	50 pc(s).	850 pc(s).	0.094 kg
LC 15/200-350/42 flexC T-G SNC3	**87501036**	Grey	10 pc(s).	50 pc(s).	850 pc(s).	0.094 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.08 A
Leakage current (at 230 V, 50 Hz, full load)	< 450 µA
Touch current (equipotential connected) ①	< 450 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Typ. power consumption (at 230 V, 50 Hz, full load)	17.5 W
Min. output power	4.8 W
Max. output power	15 W
Typ. efficiency (at 230 V, 50 Hz, full load)	85 %
λ (at 230 V, 50 Hz, full load)	0.95
Output current tolerance ②	± 7.5 %
Max. output current peak ③	396 mA
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load)	< 15 %
Output LF current ripple (< 120 Hz) ②	± 5 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.5 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.5 s
Hold on time at power failure (output)	0 s
Ambient temperature ta (at lifetime 50,000 h)	35 °C
Storage temperature ts	-40 … +80 °C
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Surge voltage at output side (against PE)	< 3.5 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	168 x 46 x 32 mm

Approval marks

IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 61000-4-4, EN 61000-4-5

Specific technical data

Type	Output current④	Min. output voltage	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	tc point max.	Ambient temperature ta	I-out select
LC 15/200-350/42 flexC T-B SNC3	200 mA	24 V	42 V	8.4 W	9.5 W	50 mA	50 °C	-20 … +35 °C	1=off / 2=off
LC 15/200-350/42 flexC T-B SNC3	250 mA	24 V	42 V	10.5 W	12.0 W	60 mA	50 °C	-20 … +35 °C	1=off / 2=on
LC 15/200-350/42 flexC T-B SNC3	300 mA	24 V	42 V	12.6 W	14.5 W	70 mA	55 °C	-20 … +35 °C	1=on / 2=off
LC 15/200-350/42 flexC T-B SNC3	350 mA	24 V	42 V	14.7 W	17.5 W	80 mA	60 °C	-20 … +35 °C	1=on / 2=on
LC 15/200-350/42 flexC T-W SNC3	200 mA	24 V	42 V	8.4 W	9.5 W	50 mA	50 °C	-20 … +35 °C	1=off / 2=off
LC 15/200-350/42 flexC T-W SNC3	250 mA	24 V	42 V	10.5 W	12.0 W	60 mA	50 °C	-20 … +35 °C	1=off / 2=on
LC 15/200-350/42 flexC T-W SNC3	300 mA	24 V	42 V	12.6 W	14.5 W	70 mA	55 °C	-20 … +35 °C	1=on / 2=off
LC 15/200-350/42 flexC T-W SNC3	350 mA	24 V	42 V	14.7 W	17.5 W	80 mA	60 °C	-20 … +35 °C	1=on / 2=on
LC 15/200-350/42 flexC T-G SNC3	200 mA	24 V	42 V	8.4 W	9.5 W	50 mA	50 °C	-20 … +35 °C	1=off / 2=off
LC 15/200-350/42 flexC T-G SNC3	250 mA	24 V	42 V	10.5 W	12.0 W	60 mA	50 °C	-20 … +35 °C	1=off / 2=on
LC 15/200-350/42 flexC T-G SNC3	300 mA	24 V	42 V	12.6 W	14.5 W	70 mA	55 °C	-20 … +35 °C	1=on / 2=off
LC 15/200-350/42 flexC T-G SNC3	350 mA	24 V	42 V	14.7 W	17.5 W	80 mA	60 °C	-20 … +35 °C	1=on / 2=on

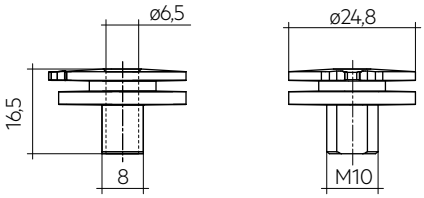
① Maximum of "perception and reaction" and "let go" values according to EN 60598-1.
② Test result at 25 °C.
③ Test result at max. current.
④ Output current is mean value.

ACU ALU NIPPLE M10x1

Accessory

Product description
_ Optional threaded sleeve for luminaire mounting
_ Suitable for S-9009/D-M10 threaded nut
_ Additional mounting equipment, e.g. M13x1 available at AAG Stucchi (http://www.aagstucchi.it/en/)

Website
http://www.tridonic.com/28002398



Ordering data

Type	Article number	Packaging, bag	Weight per pc.
ACU ALU NIPPLE M10x1	**28002398**	100 pc(s).	0.007 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-13
EN 61547
EN 61000-4-4
EN 61000-4-5

1.1 Glow-wire test

According to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

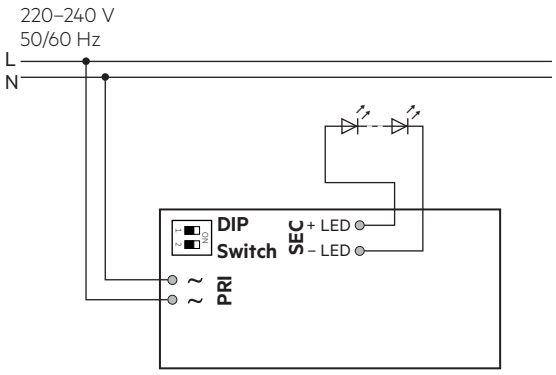
Type	Output current	ta	25 °C	35 °C
LC 15/200-350/42 flexC T SNC3	200 mA	Lifetime	> 100,000 h	> 50,000 h
	250 mA	Lifetime	> 100,000 h	> 50,000 h
	300 mA	Lifetime	> 100,000 h	> 50,000 h
	350 mA	Lifetime	> 100,000 h	> 50,000 h

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

Temperatures were measured with Tracktype PRO-310 from manufacturer powergear. Temperatures can deviate with tracks from other manufacturers.

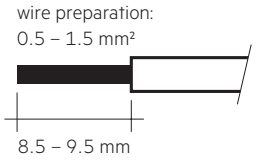
3. Installation / wiring

3.1 Circuit diagram



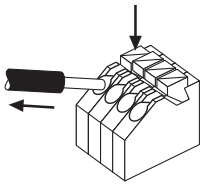
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.5–1.5 mm².
Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid the damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 30 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N)

3.8 Compatible tracks

Subject to be changed without notice.

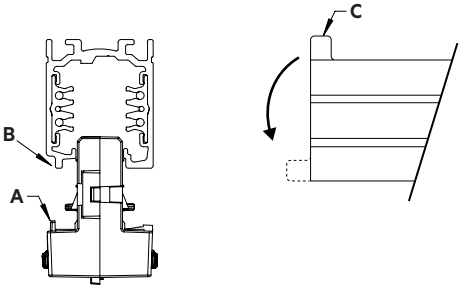
Manufacturer	Type	System	Intrack casing colour
EUTRAC	25-XX-XX / 26-XX-XX	3P	Black, white, grey
iGuzzini	6771-6774	3P	Black, white, grey
iGuzzini	6779-6782	3P	Black, white, grey
IVELA	7501 / 7511 / 7512	3P	Black, white, grey
LUMISYS UNIPRO	T32 / T33 /34	3P	Black, white, grey
LUMISYS UNIPRO	T32F / T33F /34F	3P	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pro XTS 4xxx	3P	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pro XTSF 4xxx	3P	Black, white, grey
ZUMTOBEL	S280...	3P	Black, white, grey
ERCO	783...	3P	Black, white, grey
SIDE	25101	3P	Black, white, grey
PHILIPS	RCS350 3C	3P	Black, white, grey
FOSNOVA	OMNITRACK	3P	Black, white, grey
Stucchi	One track	3P	Black, white, grey
Powergear	PRO-04X0	3P	Black, white, grey
Unipro	T32W	3P	Black, white, grey
Unipro	T32FW	3P	Black, white, grey

Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.

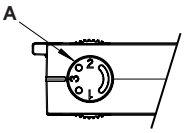
3.9 Adapter mounting into the track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C) until it reachs the locking position.
To open rotate the lever the opposite direction.



3.10 Phase selection

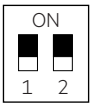
When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector (A) of the adaptor.



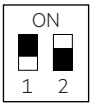
3.11 Current setting

Set the current by DIP switch after mains off.
Use of DIP switch only after mains off.

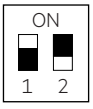
200 mA: Switch 1 = Off, Switch 2 = Off



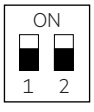
250 mA: Switch 1 = Off, Switch 2 = On



300 mA: Switch 1 = On, Switch 2 = Off

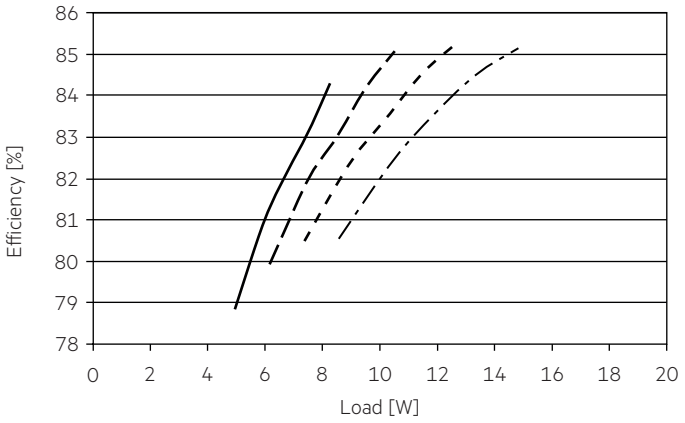


350 mA: Switch 1 = On, Switch 2 = On

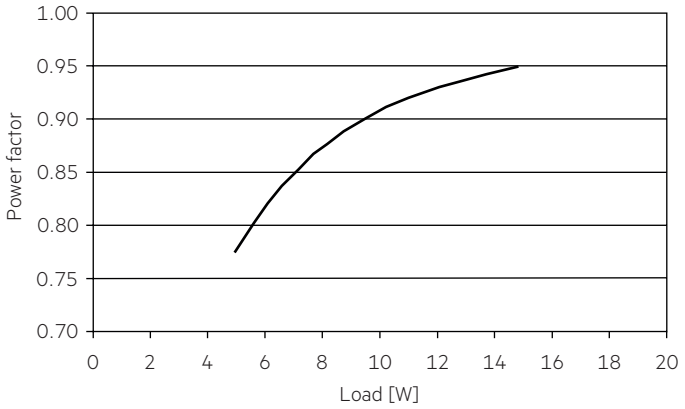


4. Electrical values

4.1 Efficiency vs load

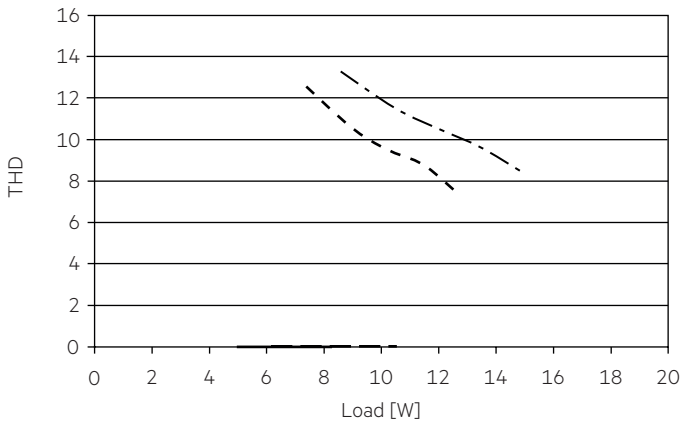


4.2 Power factor vs load



4.3 THD vs load

THD without harmonic < 5 mA (0.6 %) of the input current:



200 mA
250 mA
300 mA
350 mA

4.6 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	I_{max}	Time
LC 15/200-350/42 flexC T SNC3	94	122	151	188	94	122	151	188	6 A	20 µs

These are max. values calculated out of inrush current! Please consider not to exceed the maximum rated continuous current of the circuit breaker.
Calculation uses typical values from ABB series S200 as a reference.
Actual values may differ due to used circuit breaker types and installation environment.

4.7 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 15/200-350/42 flexC T SNC3	< 15	< 12	< 7	< 6	< 5	< 5

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

5. Functions

5.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

5.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

5.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

6. Miscellaneous

6.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

6.2 Conditions of use and storage

Humidity: 5 % up to max. 85 %,
not condensed
(max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be within the specified temperature range (ta) before they can be operated.

6.3 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.

6.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

Driver LC 18W 200-450mA flexC T SNC4

essence in-track series (3-phase system)

Product description
_ Constant current / in-track LED driver
_ Compatible 3-phase system in-tracks, see data sheet chapter 3.8
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Selectable fixed output current via DIP switch 450, 400, 250 and 200 mA (pre-selected current 200 mA)
_ Max. output power 18 W
_ Up to 92 % efficiency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Functions
_ Overload protection
_ Short-circuit protection
_ No-load protection

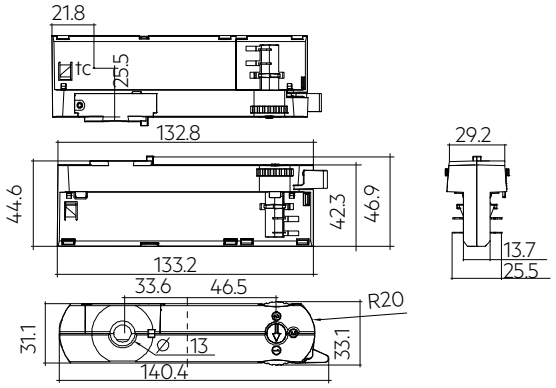
Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/28006018

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 18W 200-450mA flexC T SNC4

essence in-track series (3-phase system)



Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Weight per pc.
LC 18/200-450/40 flexC T-B SNC4	**28006018**	Black	50 pc(s).	2,800 pc(s).	0.09 kg
LC 18/200-450/40 flexC T-W SNC4	**28006019**	White	50 pc(s).	2,800 pc(s).	0.09 kg
LC 18/200-450/40 flexC T-G SNC4	**28006020**	Grey	50 pc(s).	2,800 pc(s).	0.09 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.1 A
Leakage current (at 230 V, 50 Hz, full load)	< 450 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Min. output power	3 W
Max. output power	18 W
Typ. efficiency (at 230 V, 50 Hz, full load)	92 %
λ over full operating range (max.)	0.95
λ over full operating range (min.)	0.75C
Output current tolerance ①	± 5 %
Max. output current peak ②	487 mA
Max. output voltage (U-OUT)	59 V
THD (at 230 V, 50 Hz, full load)	< 20 %
Output LF current ripple (< 120 Hz) ①	± 3 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.5 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.5 s
Hold on time at power failure (output)	0 s
Ambient temperature ta (at lifetime 50,000 h)	35 °C
Storage temperature ts	-25 … +75 °C
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Surge voltage at output side (against PE)	< 0.5 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	140.4 x 46.9 x 31.1 mm

Approval marks

SELV

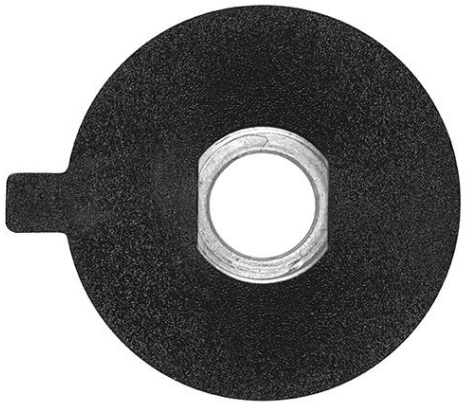
Specific technical data

Type	Output current ③	Min. output voltage	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	tc point max.	Ambient temperature ta	I-out select
LC 18/200-450/40 flexC T-B SNC4	200 mA	30 V	40 V	8 W	9.1 W	49 mA	75 °C	-20 … +35 °C	1=off / 2=off
LC 18/200-450/40 flexC T-B SNC4	250 mA	30 V	40 V	10 W	11.0 W	55 mA	75 °C	-20 … +35 °C	1=off / 2=on
LC 18/200-450/40 flexC T-B SNC4	400 mA	30 V	40 V	16 W	17.6 W	81 mA	75 °C	-20 … +35 °C	1=on / 2=off
LC 18/200-450/40 flexC T-B SNC4	450 mA	30 V	40 V	18 W	19.6 W	90 mA	75 °C	-20 … +35 °C	1=on / 2=on
LC 18/200-450/40 flexC T-W SNC4	200 mA	30 V	40 V	8 W	9.1 W	49 mA	75 °C	-20 … +35 °C	1=off / 2=off
LC 18/200-450/40 flexC T-W SNC4	250 mA	30 V	40 V	10 W	11.0 W	55 mA	75 °C	-20 … +35 °C	1=off / 2=on
LC 18/200-450/40 flexC T-W SNC4	400 mA	30 V	40 V	16 W	17.6 W	81 mA	75 °C	-20 … +35 °C	1=on / 2=off
LC 18/200-450/40 flexC T-W SNC4	450 mA	30 V	40 V	18 W	19.6 W	90 mA	75 °C	-20 … +35 °C	1=on / 2=on
LC 18/200-450/40 flexC T-G SNC4	200 mA	30 V	40 V	8 W	9.1 W	49 mA	75 °C	-20 … +35 °C	1=off / 2=off
LC 18/200-450/40 flexC T-G SNC4	250 mA	30 V	40 V	10 W	11.0 W	55 mA	75 °C	-20 … +35 °C	1=off / 2=on
LC 18/200-450/40 flexC T-G SNC4	400 mA	30 V	40 V	16 W	17.6 W	81 mA	75 °C	-20 … +35 °C	1=on / 2=off
LC 18/200-450/40 flexC T-G SNC4	450 mA	30 V	40 V	18 W	19.6 W	90 mA	75 °C	-20 … +35 °C	1=on / 2=on

① Test result at 25 °C.
② Test result at max. current.
③ Output current is mean value.

ACU ALU NIPPLE M10x8

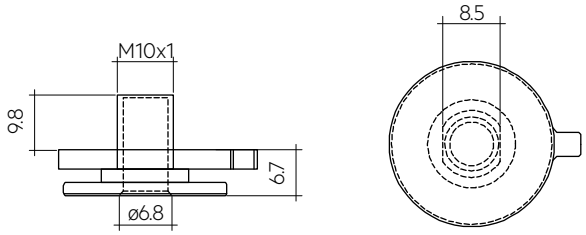
Accessory



Product description

_ Optional threaded sleeve for luminaire mounting
_ Suitable for M10x8 mm threaded nut
_ We suggest to use mechanical way(screw) to assemble the nipple and track light fixure, use glue may have potential risk to change the material charactoristics and destroy the plastic gasket and the nipple.

Website
http://www.tridonic.com/28005589



Ordering data

Type	Article number	Weight per pc.
ACU ALU NIPPLE M10x8 BK	**28005589**	0.005 kg
ACU ALU NIPPLE M10x8 WH	**28005590**	0.005 kg
ACU ALU NIPPLE M10x8 GR	**28005591**	0.005 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-13
EN 61547
EN 61000-4-4
EN 61000-4-5

1.1 Glow-wire test

According to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

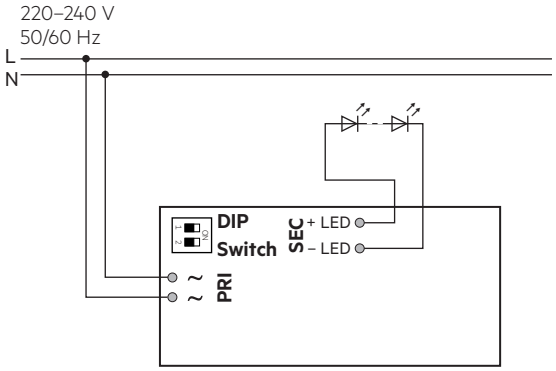
Type	ta	25 °C	35 °C
LC 18/200-450/40 flexC T SNC4	Lifetime	> 100,000 h	> 50,000 h

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

Temperatures were measured with Tracktype PRO-310 from manufacturer powergear. Temperatures can deviate with tracks from other manufacturers.

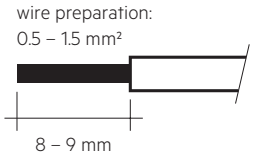
3. Installation / wiring

3.1 Circuit diagram



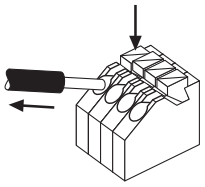
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.5–1.5 mm².
Strip 8–9 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 30 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N)

3.8 Compatible tracks

Subject to be changed without notice.

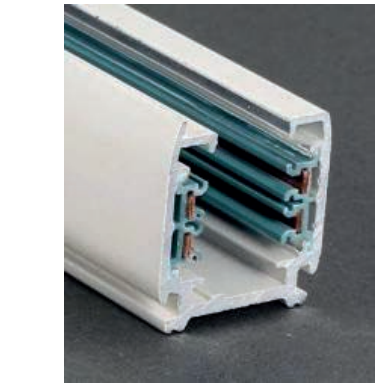
Manufacturer	Type	System	Intrack casing colour
Global	XTS 4&XTSF 4	3P	Black, white, grey
Stucchi	9000-.../...-ST, 9000A-.../...-ST, 9000-.../...-ST15 9000-.../...-R.	3P	Black, white, grey
Eutrac	2510x	3P	Black, white, grey
Unipro	T32B	3P	Black, white, grey
Lvela	7501	3P	Black, white, grey

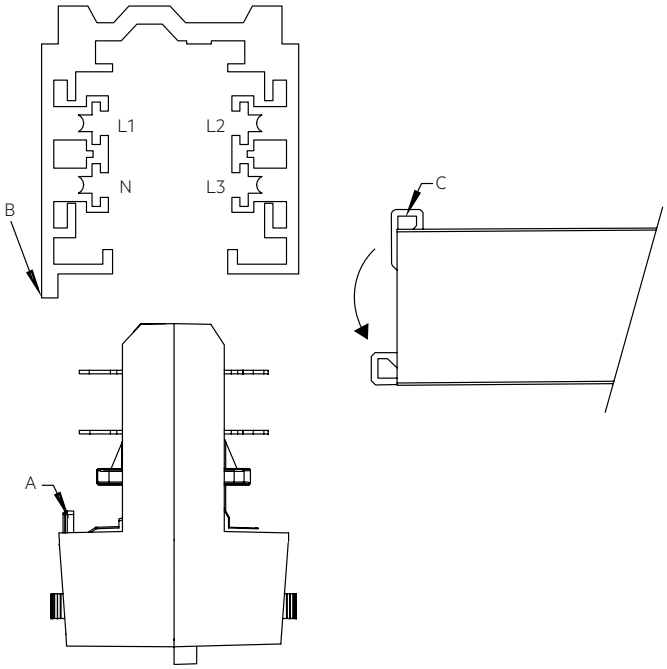
Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.

3.9 Adapter mounting into the track

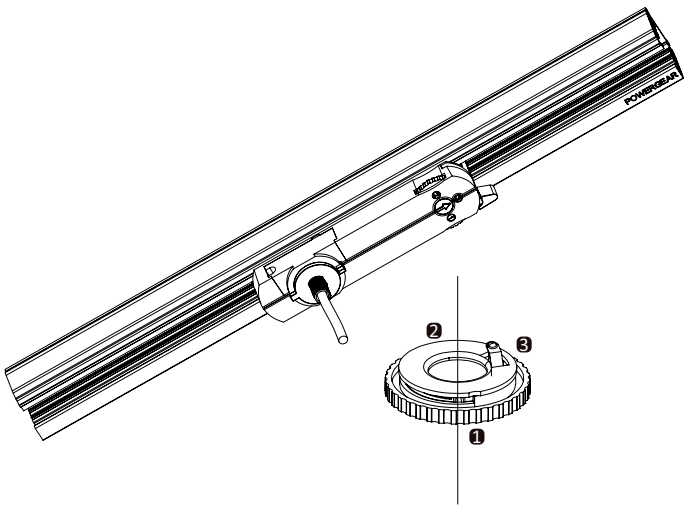
Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C) until it reachs the locking position.
To open rotate the lever the opposite direction.





3.10 Phase selection

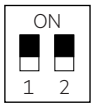
When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector of the adaptor.



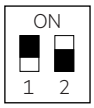
3.11 Current setting

Set the current by DIP switch after mains off.
Use of DIP switch only after mains off.

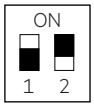
200 mA: Switch 1 = Off, Switch 2 = Off



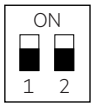
250 mA: Switch 1 = Off, Switch 2 = On



400 mA: Switch 1 = On, Switch 2 = Off

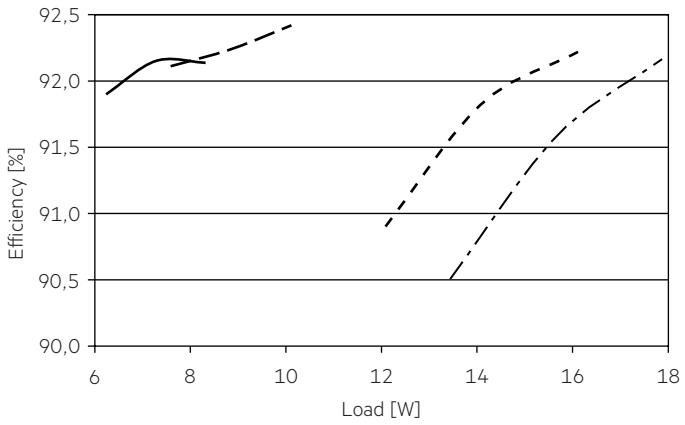


450 mA: Switch 1 = On, Switch 2 = On

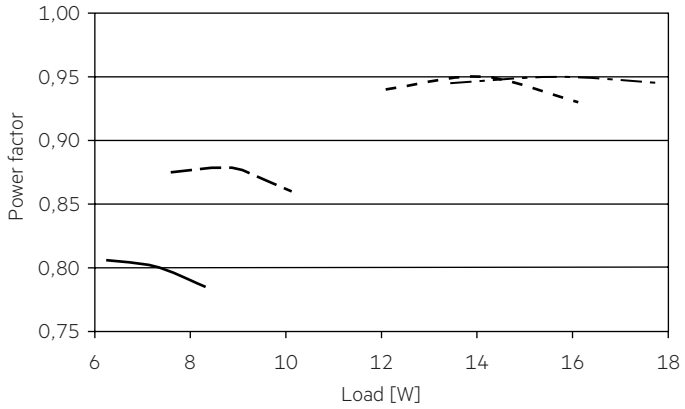


4. Electrical values

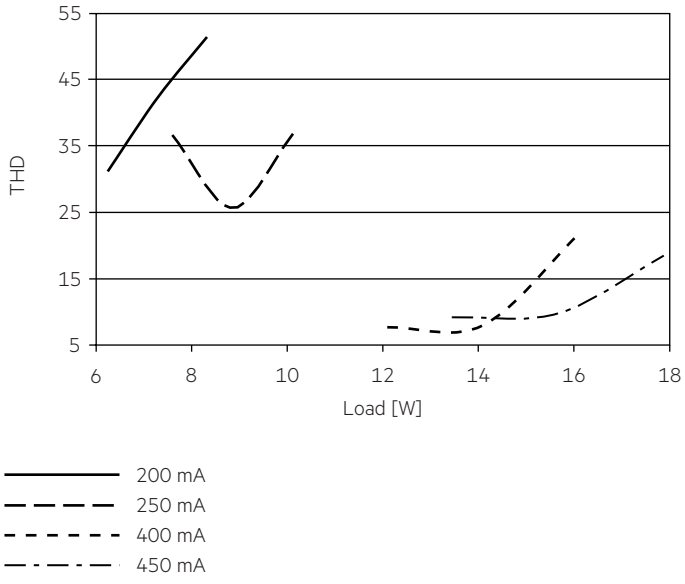
4.1 Efficiency vs load



4.2 Power factor vs load



4.3 THD vs load



4.6 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	I_{max}	Time
LC 18/200-450/40 flexC T SNC4	55	71	88	110	34	44	55	68	10 A	114 µs

These are max. values calculated out of inrush current! Please consider not to exceed the maximum rated continuous current of the circuit breaker.
Calculation uses typical values from ABB series S200 as a reference.
Actual values may differ due to used circuit breaker types and installation environment.

4.7 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 18/200-450/40 flexC T SNC4	< 20	< 20	< 25	< 20	< 20	< 20

5. Functions

5.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

5.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

5.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

6. Miscellaneous

6.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

6.2 Conditions of use and storage

Humidity: 10 % up to max. 95 %,
not condensed
(max. 56 days/year at 85 %)

Storage temperature: -25 °C up to max. +75 °C

The devices have to be within the specified temperature range (ta) before they can be operated.

6.3 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.

6.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

Driver LC 25W 350-600mA 42V bDW NF T EXC3

excite NFC in-track series

Black (RAL 9005)

Grey (RAL 7035)

White (RAL 9010)

Product description
_ Can be integrated in Casambi systems (Casambi Ready)
_ Dimmable constant current / in-track LED driver
_ Optional accessory ACU ALU NIPPLE M10x1 for mounting the luminaire head
_ Compatible 3-phase system in-tracks, see data sheet chapter 3.8
_ Forms automatically a wireless communication network with up to 250 nodes
_ Dimming range 1 to 100 % (min. 3.5 mA)
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Adjustable output current between 350 and 600 mA via near field communication (NFC)
_ Max. output power 25 W
_ Up to 85 % efficiency
_ Power input on stand-by < 0.5 W
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ We will provide security updates for the next five years after the date of purchase of this product

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Interfaces
_ basicDIM Wireless
_ Near field communication (NFC)

Functions
_ Adjustable output current in 1-mA-steps (NFC)
_ Overtemperature protection
_ Overload protection
_ Short-circuit protection
_ No-load protection
_ Burst protection voltage 2 kV
_ Surge protection voltage 1 kV (L to N)

Benefits
_ Flexible configuration via companionSUITE (NFC)
_ Support NFC multiple programming (full carton box)

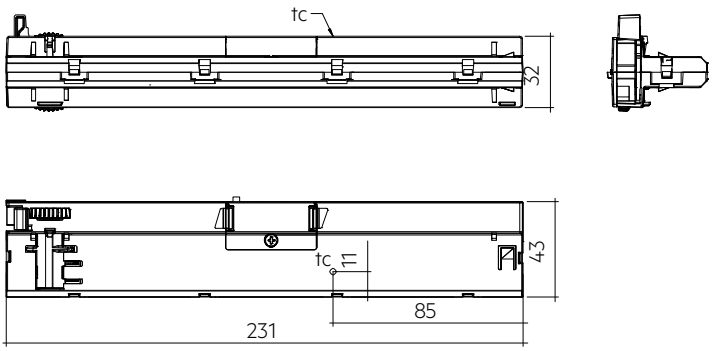
Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/28003054

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 25W 350-600mA 42V bDW NF T EXC3

excite NFC in-track series



Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
LC 25/350-600/42 bDW NF T-B EXC3	**28003054**	10 pc(s).	1,260 pc(s).	0.150 kg
LC 25/350-600/42 bDW NF T-W EXC3	**28003055**	10 pc(s).	1,260 pc(s).	0.150 kg
LC 25/350-600/42 bDW NF T-G EXC3	**28003056**	10 pc(s).	1,260 pc(s).	0.149 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.13 A
Leakage current (at 230 V, 50 Hz, full load)	< 700 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Max. input power ①	29.6 W
Typ. power consumption (at 230 V, 50 Hz, full load) ①	29.6 W
Min. output power	0.049 W
Max. output power	25 W
Typ. power consumption on stand-by ②	< 0.5 W
Typ. efficiency (at 230 V, 50 Hz, full load) ①	83 %
λ (over full operating range)	0.79C – 0.95
Output current tolerance ③	± 5 %
Max. output current peak ④	≤ output current + 20 %
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load) ①	< 10 %
Output LF current ripple (< 120 Hz)	± 3 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.66 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.03 s
Hold on time at power failure (output)	0 s
Dimming range	1 – 100 % (min. 3.5 mA)
Ambient temperature ta (at lifetime 100,000 h)	25 °C
Storage temperature ts	-40 … +80 °C
Mains surge capability (between L - N)	1 kV
Radio transceiver operating frequencies	2.4 – 2.483 GHz
Max. output power radio transceiver (E.I. R.P.) ⑤	< + 20 dBm
Radio protocol	Bluetooth 4.0 or 5.0 Low Energy (BLE)
Capable for mesh network	Up to 250 nodes / Standard networks and Long Range
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	231 x 32 x 43 mm

Approval marks

NFC IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61000-4-4, EN 61000-4-5, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384, EN 62386 (acc. to DALI standard V1), ETSI EN 300 330, ETSI EN 301 489-1, ETSI EN 301 489-3, ETSI EN 300 328, ETSI EN 301 489-17

Specific technical data

Type	Output current[3]	Min. output voltage[6]	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	tc point max.	Ambient temperature ta
LC 25/350-600/42 bDW NF T-B EXC3	350 mA	14 V	42.0 V	14.7 W	18.0 W	81 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-B EXC3	400 mA	14 V	42.0 V	16.8 W	20.3 W	91 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-B EXC3	450 mA	14 V	42.0 V	18.9 W	22.6 W	101 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-B EXC3	500 mA	14 V	42.0 V	21.0 W	24.9 W	110 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-B EXC3	550 mA	14 V	42.0 V	23.1 W	27.3 W	121 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-B EXC3	600 mA	14 V	41.7 V	25.0 W	29.7 W	130 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-W EXC3	350 mA	14 V	42.0 V	14.7 W	18.0 W	81 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-W EXC3	400 mA	14 V	42.0 V	16.8 W	20.3 W	91 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-W EXC3	450 mA	14 V	42.0 V	18.9 W	22.6 W	101 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-W EXC3	500 mA	14 V	42.0 V	21.0 W	24.9 W	110 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-W EXC3	550 mA	14 V	42.0 V	23.1 W	27.3 W	121 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-W EXC3	600 mA	14 V	41.7 V	25.0 W	29.7 W	130 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-G EXC3	350 mA	14 V	42.0 V	14.7 W	18.0 W	81 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-G EXC3	400 mA	14 V	42.0 V	16.8 W	20.3 W	91 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-G EXC3	450 mA	14 V	42.0 V	18.9 W	22.6 W	101 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-G EXC3	500 mA	14 V	42.0 V	21.0 W	24.9 W	110 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-G EXC3	550 mA	14 V	42.0 V	23.1 W	27.3 W	121 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 bDW NF T-G EXC3	600 mA	14 V	41.7 V	25.0 W	29.7 W	130 mA	70 °C	-20 … +35 °C

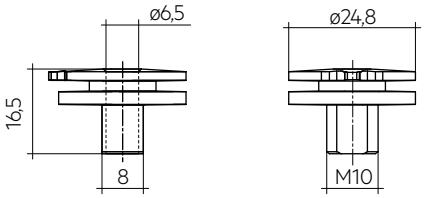
① Test result at 600 mA.
② Depending on the basicDIM Wireless traffic.
③ Output current is mean value.
④ Test result at 25 °C.
⑤ E.I.R.P.: Equivalent Isotropically Radiated Power.
⑥ Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

ACU ALU NIPPLE M10x1

Accessory

Product description
_ Optional threaded sleeve for luminaire mounting
_ Suitable for S-9009/D-M10 threaded nut
_ Additional mounting equipment, e.g. M13x1 available at AAG Stucchi (http://www.aagstucchi.it/en/)

Website
http://www.tridonic.com/28002398



Ordering data

Type	Article number	Packaging, bag	Weight per pc.
ACU ALU NIPPLE M10x1	**28002398**	100 pc(s).	0.007 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61000-4-4
EN 61000-4-5
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384
EN 62386
ETSI EN 300 330
ETSI EN 301 489-1
ETSI EN 301 489-3
ETSI EN 300 328
ETSI EN 301 489-17

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed (Grey RAL 7035 / White RAL 9010).
according to EN 61347-1 with increased temperature of 750 °C passed (Black RAL 9005).

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

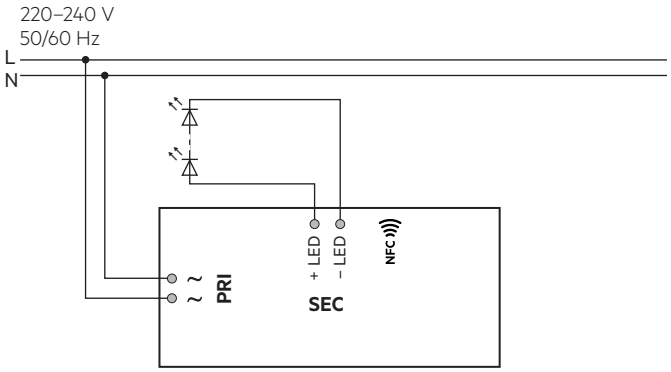
Type	ta	25 °C	35 °C
LC 25/350-600/42 bDW NF T EXC3	Lifetime	>100,000 h	100,000 h

① Test result at max. output voltage.

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

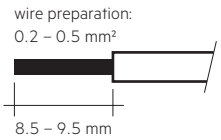
3. Installation / wiring

3.1 Circuit diagram



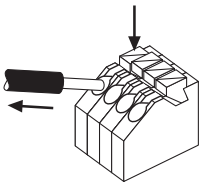
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2–0.5 mm².
Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).
- The driver is a safety isolating device with SELV output.

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 10 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N).
This is valid for horizontal mounting of track system only.
For vertical installation please contact Tridonic for clarification.

3.8 Compatible tracks

Subject to be changed without notice.

Manufacturer	Type	System	Intrack casing colour
EUTRAC	25-XX-XX / 26-XX-XX	3P	Black, white, grey
iGuzzini	6771-6774	3P	Black, white, grey
iGuzzini	6779-6782	3P	Black, white, grey
IVELA	7501 / 7511 / 7512	3P	Black, white, grey
LUMISYS UNIPRO	T32 / T33 /34	3P	Black, white, grey
LUMISYS UNIPRO	T32F / T33F /34F	3P	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pro XTS 4xxx	3P	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pro XTSF 4xxx	3P	Black, white, grey
ERCO	783...	3P	Black, white, grey
SIDE	25101	3P	Black, white, grey
PHILIPS	RCS350 3C	3P	Black, white, grey
FOSNOVA	OMNITRACK	3P	Black, white, grey
Stucchi	ONETRACK	3P	Black, white, grey
Powergear	PRO-0610	3P	Black, white, grey
Unipro	T32W	3P	Black, white, grey
Unipro	T32FW	3P	Black, white, grey

Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.

3.9 Insulation between terminals

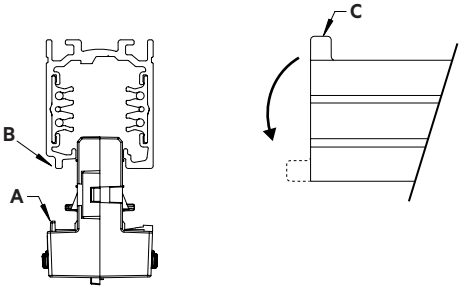
Insulation	Mains	–LED / +LED
Mains	–	double
–LED / +LED	double	–

basic ... represents basic insulation.

double ... represents double or reinforced insulation.

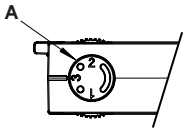
3.10 Adapter mounting into the track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C) until it reachs the locking position.
To open rotate the lever the opposite direction.



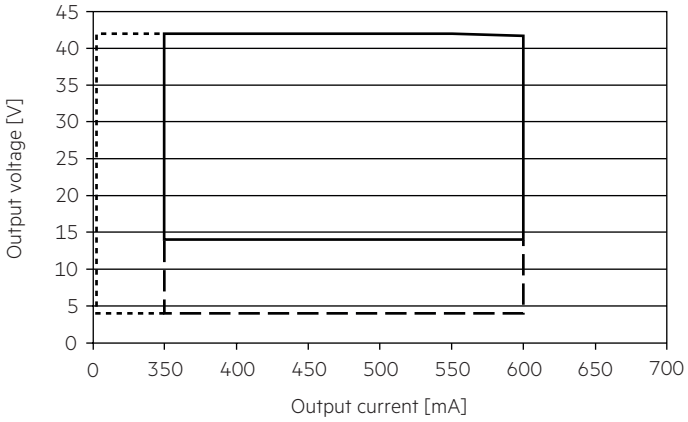
3.11 Phase selection

When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector (A) of the adaptor.



4. Electrical values

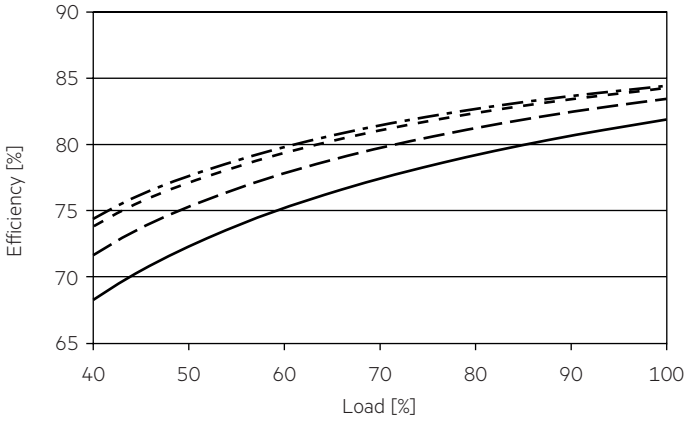
4.1 Operating window



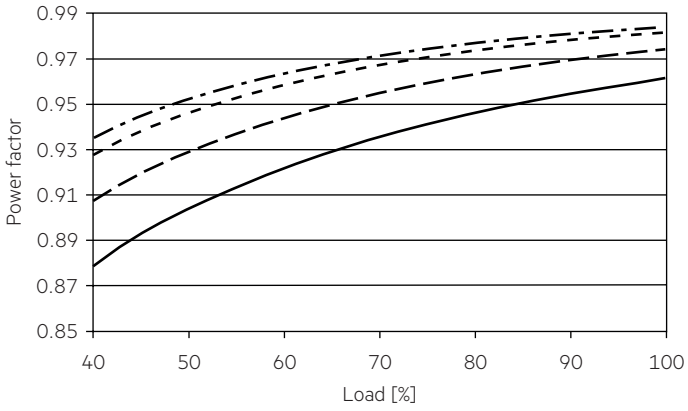
Operating window
Operating window dimmed
Operating window 4 V

Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

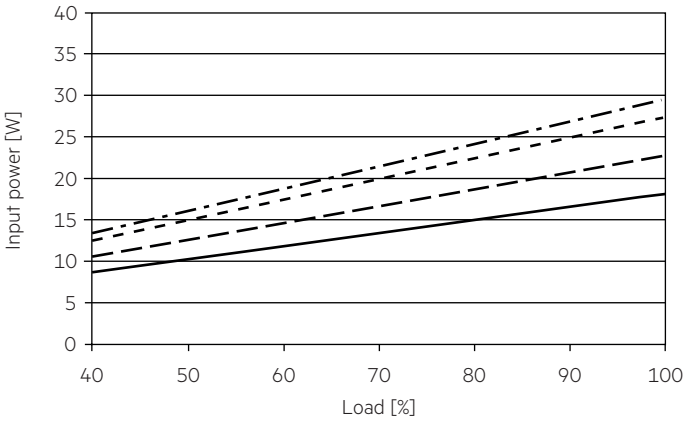
4.2 Efficiency vs load



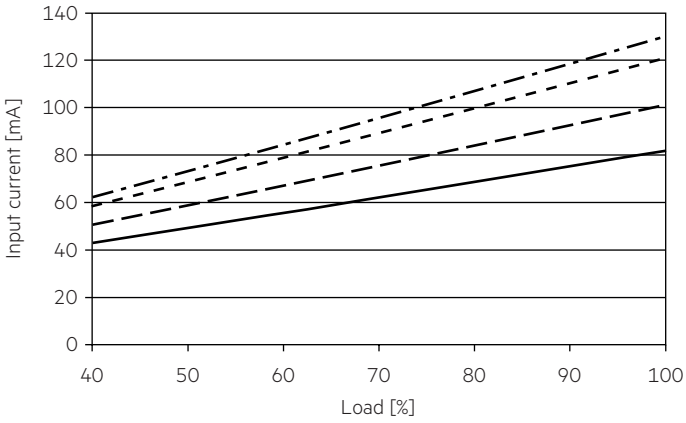
4.3 Power factor vs load



4.4 Input power vs load

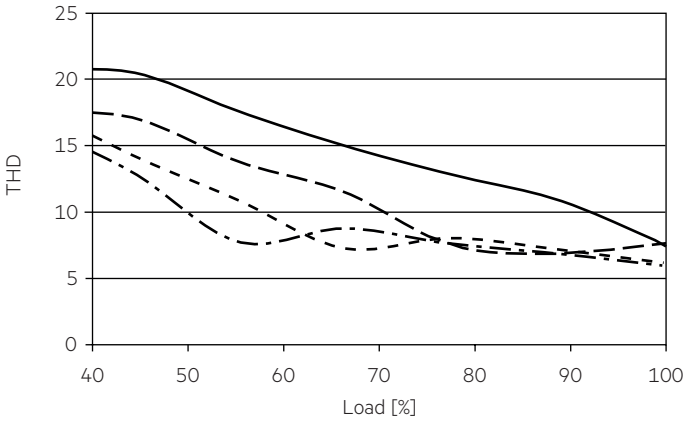


4.5 Input current vs load



4.6 THD vs load

THD without harmonic < 5 mA (0.6 %) of the input current:



350 mA
450 mA
550 mA
600 mA

4.7 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
									I_{max}	Time
LC 25/350-600/42 bDW NF T EXC3	40	52	64	80	40	52	64	80	9.6 A	34 µs

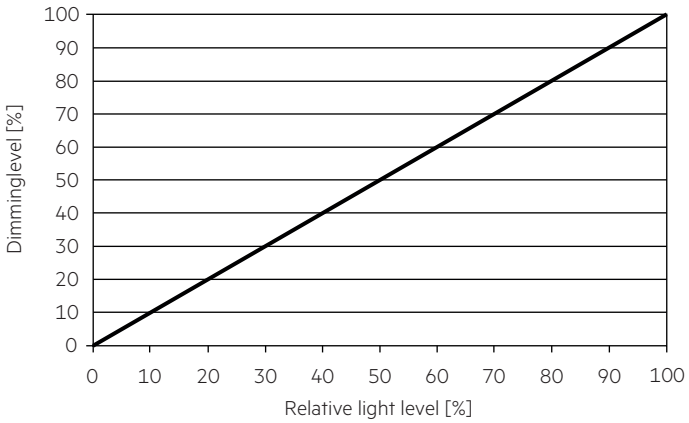
These are max. values calculated out of inrush current! Please consider not to exceed the maximum rated continuous current of the circuit breaker.
Calculation uses typical values from ABB series S200 as a reference.
Actual values may differ due to used circuit breaker types and installation environment.

4.8 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 25/350-600/42 bDW NF T EXC3	< 10	< 6	< 5	< 5	< 4	< 3

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

4.9 Dimming characteristics



5. Software / Programming / Interfaces

5.1 Software / programming

With appropriate software and interface different functions can be activated and various parameters can be configured in the LED driver.
The Driver supports the following software and interfaces:

Software / hardware for configuration:
- companionSUITE (deviceGENERATOR, deviceCONFIGURATOR, deviceANALYSER)

Interfaces for data transfer:
- NFC

5.2 Nearfield communication (NFC)

The NFC Interface allows wireless communication with the LED driver.
This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.
A correct communication between the LED driver and the NFC antenna can only be guaranteed if the antenna is placed directly on the Driver.
Any material placed between the LED driver and the NFC antenna can cause a deterioration of the communication quality.
After programming the device via NFC power up the device one time for one second till the deviceANALYSER can read out the parameters.
We recommend the use of following NFC antenna:
www.tridonic.com/nfc-readers

NFC is complied with ISO/IEC 15963 standard.

Changing parameters via NFC shall be done by qualified engineers only.

6. Functions

⊙ companionSUITE:
NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	NFC
	OEM Identification	⊙
	OEM GTIN	⊙
	LED current	⊙
	corridorFUNCTION	⊙
	Constant light output (CLO)	⊙

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

6.2 Constant Light Output (CLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (CLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
CLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for CLO see product manual.

LED driver has a programmable constant light output function, but operates in all states within its specified rated operating window.

7. Protective features

7.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

7.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

7.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

7.4 Overtemperature protection

The LED driver is protected against temporary thermal overheating.
If the temperature limit is exceeded the LED driver will switch off.
It restarts automatically.
The temperature protection is activated above tc max.

Temperature declared thermally protected LED driver with integrated electronic protection means against overheating.

8. Miscellaneous

8.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

The equipotential terminal is used to connect the heat sink and the LED driver to reduce transients.

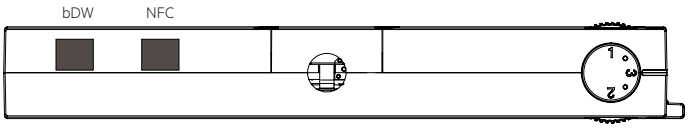
8.2 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

8.3 Placement

basicDIM Wireless has an integrated antenna for easy integration. In order to maximize the range in every direction some design guidelines should be taken into consideration when mounting the device.
The antenna is located on the housing side not covered by the track.
The device should be placed as far away from any vertical metal structures as possible.



The range of the communication signal is depending on the environment e.g. luminaire, construction of the building, furnitures or humans and needs to be tested and approved in the installation.

8.4 Network compatibility

This Driver is fully compatible with networks which support up to 250 nodes (Evolution networks). If the Driver is used with different types of basicDIM Wireless devices in an Evolution network, their compatibility has to be checked before. If a device is not compatible with Evolution networks, it can be only used in networks which support up to max. of 127 devices (Classic networks).

8.5 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

8.6 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

8.7 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

TRIDONIC

Driver LC 25W 350-600mA 42V flexC T ADV

advanced in-track series

Black (RAL 9005)

White (RAL 9010)

Grey (RAL 7035)

Product description
_ Constant current / in-track LED driver
_ Optional accessory ACU ALU NIPPLE M10x1 for mounting the luminaire head
_ Compatible 3-phase system in-tracks, see data sheet chapter 3.8
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Adjustable output current between 350 and 600 mA via I-SELECT 2 plugs
_ Max. output power 25 W
_ Up to 84 % efficiency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Functions
_ Overtemperature protection
_ Overload protection
_ Short-circuit protection
_ No-load protection
_ Burst protection voltage 2 kV
_ Surge protection voltage 1 kV (L to N)

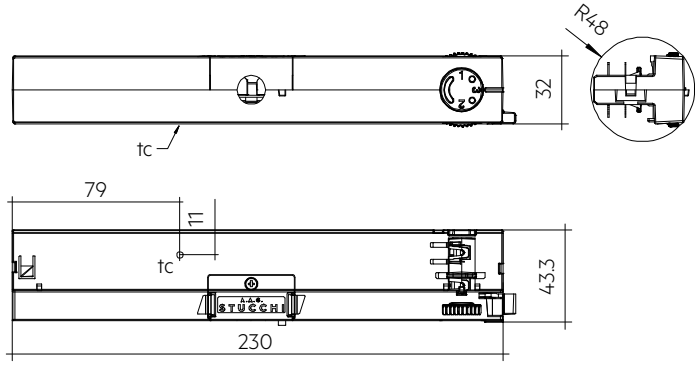
Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/87500787

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 25W 350-600mA 42V flexC T ADV

advanced in-track series



Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
LC 25/350-600/42 flexC T-B ADV	**87500787**	Black	10 pc(s).	90 pc(s).	1,440 pc(s).	0.141 kg
LC 25/350-600/42 flexC T-W ADV	**87500789**	White	10 pc(s).	90 pc(s).	1,440 pc(s).	0.142 kg
LC 25/ 350-600/42 flexC T-G ADV	**87500904**	Grey	10 pc(s).	90 pc(s).	1,440 pc(s).	0.141 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.139 A
Leakage current (at 230 V, 50 Hz, full load)	< 450 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 1 h
Max. input power ①	30.1 W
Typ. power consumption (at 230 V, 50 Hz, full load) ①	29.7 W
Min. output power	4.2 W
Max. output power	25 W
Typ. efficiency (at 230 V, 50 Hz, full load) ①	83 %
λ (at 230 V, 50 Hz, full load) ①	0.95
Output current tolerance ②	± 5 %
Max. output current peak ③	≤ output current + 10 %
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load) ①	< 10 %
Output LF current ripple (< 120 Hz)	± 3 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.5 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.01 s
Hold on time at power failure (output)	0 s
Ambient temperature ta (at lifetime 50,000 h)	35 °C
Storage temperature ts	-40 … +80 °C
Mains surge capability (between L - N)	1 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	230 x 32 x 43.3 mm

Approval marks

IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384

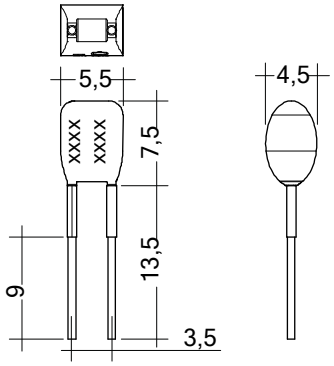
Specific technical data

Type	Output current②	Min. output voltage③	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	tc point max.	Ambient temperature ta	I-SELECT 2 resistor⑤ value
LC 25/350-600/42 flexC T-B ADV	350 mA	12 V	42 V	14.7 W	17.9 W	84 mA	80 °C	-20 … +35 °C	–
LC 25/350-600/42 flexC T-B ADV	400 mA	12 V	42 V	16.8 W	20.2 W	92 mA	80 °C	-20 … +35 °C	12.40 kΩ
LC 25/350-600/42 flexC T-B ADV	450 mA	12 V	42 V	18.9 W	22.5 W	102 mA	80 °C	-20 … +35 °C	11.00 kΩ
LC 25/350-600/42 flexC T-B ADV	500 mA	12 V	42 V	21.0 W	24.9 W	112 mA	80 °C	-20 … +35 °C	10.00 kΩ
LC 25/350-600/42 flexC T-B ADV	550 mA	12 V	42 V	23.1 W	27.3 W	122 mA	80 °C	-20 … +35 °C	9.09 kΩ
LC 25/350-600/42 flexC T-B ADV	600 mA	12 V	42 V	25.2 W	29.7 W	132 mA	80 °C	-20 … +35 °C	0.00 kΩ
LC 25/350-600/42 flexC T-W ADV	350 mA	12 V	42 V	14.7 W	17.9 W	84 mA	80 °C	-20 … +35 °C	–
LC 25/350-600/42 flexC T-W ADV	400 mA	12 V	42 V	16.8 W	20.2 W	92 mA	80 °C	-20 … +35 °C	12.40 kΩ
LC 25/350-600/42 flexC T-W ADV	450 mA	12 V	42 V	18.9 W	22.5 W	102 mA	80 °C	-20 … +35 °C	11.00 kΩ
LC 25/350-600/42 flexC T-W ADV	500 mA	12 V	42 V	21.0 W	24.9 W	112 mA	80 °C	-20 … +35 °C	10.00 kΩ
LC 25/350-600/42 flexC T-W ADV	550 mA	12 V	42 V	23.1 W	27.3 W	122 mA	80 °C	-20 … +35 °C	9.09 kΩ
LC 25/350-600/42 flexC T-W ADV	600 mA	12 V	42 V	25.2 W	29.7 W	132 mA	80 °C	-20 … +35 °C	0.00 kΩ
LC 25/ 350-600/42 flexC T-G ADV	350 mA	12 V	42 V	14.7 W	17.9 W	84 mA	80 °C	-20 … +35 °C	–
LC 25/ 350-600/42 flexC T-G ADV	400 mA	12 V	42 V	16.8 W	20.2 W	92 mA	80 °C	-20 … +35 °C	12.40 kΩ
LC 25/ 350-600/42 flexC T-G ADV	450 mA	12 V	42 V	18.9 W	22.5 W	102 mA	80 °C	-20 … +35 °C	11.00 kΩ
LC 25/ 350-600/42 flexC T-G ADV	500 mA	12 V	42 V	21.0 W	24.9 W	112 mA	80 °C	-20 … +35 °C	10.00 kΩ
LC 25/ 350-600/42 flexC T-G ADV	550 mA	12 V	42 V	23.1 W	27.3 W	122 mA	80 °C	-20 … +35 °C	9.09 kΩ
LC 25/ 350-600/42 flexC T-G ADV	600 mA	12 V	42 V	25.2 W	29.7 W	132 mA	80 °C	-20 … +35 °C	0.00 kΩ

① Test result at 600 mA.
② Output current is mean value.
③ Test result at 25 °C.
④ Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.
⑤ Not compatible with I-SELECT (generation 1). Calculated resistor value.

I-SELECT 2 PLUG PRE / EXC

Accessory



Product description

_ Ready-for-use resistor to set output current value
_ Compatible with LED driver featuring I-select 2 interface; not compatible with I-SELECT (generation 1)
_ Resistor is base insulated
_ Resistor power 0.25 W
_ Current tolerance ± 2 % additional to output current tolerance
_ Compatible with LED driver series PRE and EXC

Example of calculation

_ R [kΩ] = 5 V / I_out [mA] x 1000
_ E96 resistor value used
_ Resistor value tolerance ≤ 1 %; resistor power ≥ 0.1 W; base insulation necessary
_ When using a resistor value beyond the specified range, the output current will automatically be set to the minimum value (resistor value too big), respectively to the maximum value (resistor value too small)

Website

http://www.tridonic.com/28001110

Ordering data

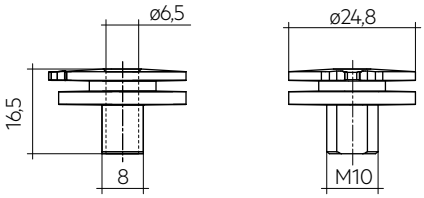
Type	Article number	Colour	Marking	Current	Resistor value	Packaging, bag	Weight per pc.
I-SELECT 2 PLUG 350MA BL	**28001110**	Blue	0350 mA	350 mA	14.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 375MA BL	**28001111**	Blue	0375 mA	375 mA	13.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 400MA BL	**28001112**	Blue	0400 mA	400 mA	12.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 425MA BL	**28001251**	Blue	0425 mA	425 mA	11.80 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 450MA BL	**28001113**	Blue	0450 mA	450 mA	11.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 475MA BL	**28001252**	Blue	0475 mA	475 mA	10.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 500MA BL	**28001114**	Blue	0500 mA	500 mA	10.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 550MA BL	**28001115**	Blue	0550 mA	550 mA	9.09 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	**28001099**	Blue	MAX	MAX	0.00 kΩ	10 pc(s).	0.001 kg

ACU ALU NIPPLE M10x1

Accessory

Product description
_ Optional threaded sleeve for luminaire mounting
_ Suitable for S-9009/D-M10 threaded nut
_ Additional mounting equipment, e.g. M13x1 available at AAG Stucchi (http://www.aagstucchi.it/en/)

Website
http://www.tridonic.com/28002398



Ordering data

Type	Article number	Packaging, bag	Weight per pc.
ACU ALU NIPPLE M10x1	**28002398**	100 pc(s).	0.007 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed (Black RAL9005/ White RAL9010).
according to EN 61347-1 with increased temperature of 750 °C passed (Grey RAL7035).

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

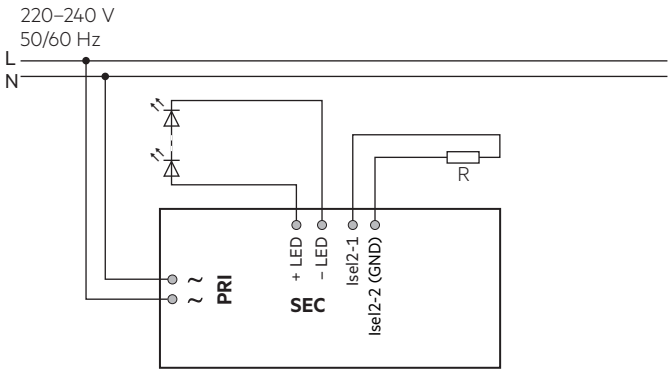
Type	ta	25 °C	35 °C
LC 25/350-600/42 flexC T ADV	Lifetime	100,000 h	50,000 h

① Test result at max. output voltage.

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

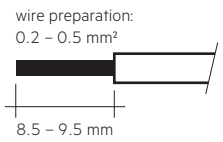
3. Installation / wiring

3.1 Circuit diagram



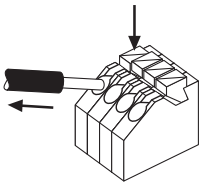
3.2 Wiring type and cross section

For wiring use stranded wire or solid wire from 0.2–0.5 mm². Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 10 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N).
This is valid for horizontal mounting of track system only.
For vertical installation please contact Tridonic for clarification.

3.8 Compatible tracks

Subject to be changed without notice.

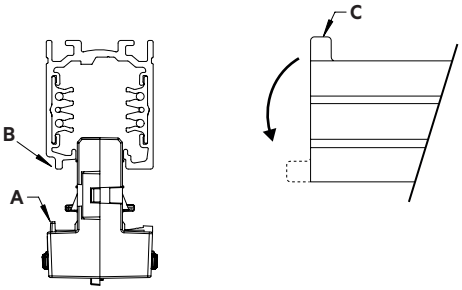
Manufacturer	Type	System	Intrack casing colour
EUTRAC	25-XX-XX / 26-XX-XX	3P	Black, white, grey
iGuzzini	6771-6774	3P	Black, white, grey
iGuzzini	6779-6782	3P	Black, white, grey
IVELA	7501 / 7511 / 7512	3P	Black, white, grey
LUMISYS UNIPRO	T32 / T33 /34	3P	Black, white, grey
LUMISYS UNIPRO	T32F / T33F /34F	3P	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pro XTS 4xxx	3P	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pro XTSF 4xxx	3P	Black, white, grey
ZUMTOBEL	S280...	3P	Black, white, grey
ERCO	783...	3P	Black, white, grey
SIDE	25101	3P	Black, white, grey
PHILIPS	RCS350 3C	3P	Black, white, grey
FOSNOVA	OMNITRACK	3P	Black, white, grey
Stucchi	One track	3P	Black, white, grey
Powergear	PRO-0610	3P	Black, white, grey
Unipro	T32W	3P	Black, white, grey
Unipro	T32FW	3P	Black, white, grey

Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.

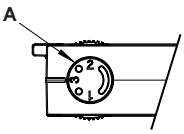
3.9 Adapter mounting into the track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C) until it reachs the locking position.
To open rotate the lever the opposite direction.



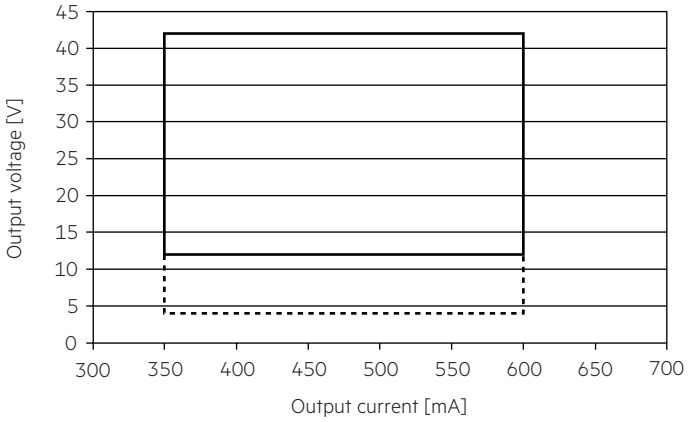
3.10 Phase selection

When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector (A) of the adaptor.



4. Electrical values

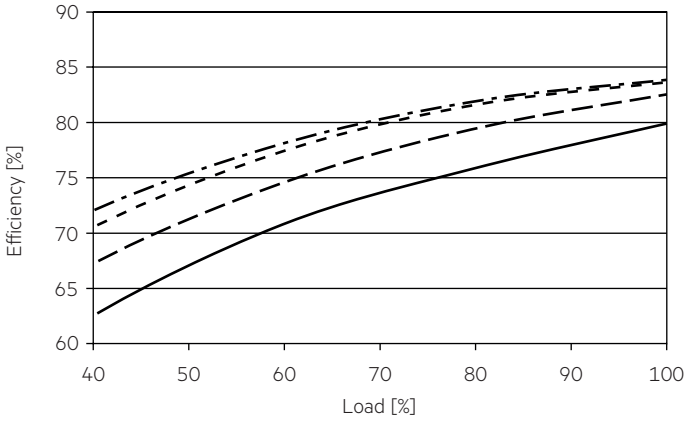
4.1 Operating window



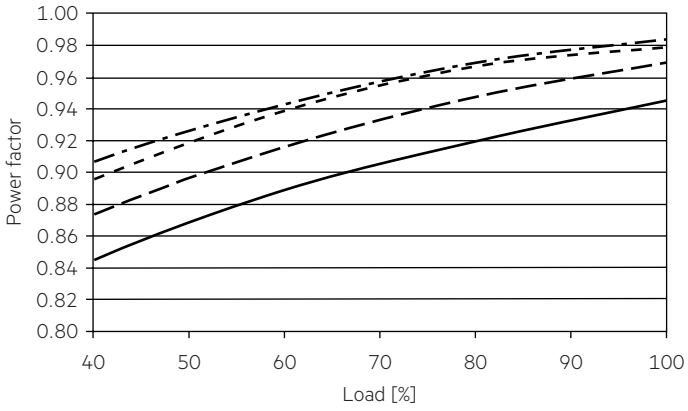
Operating window
Operating window 4 V

Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

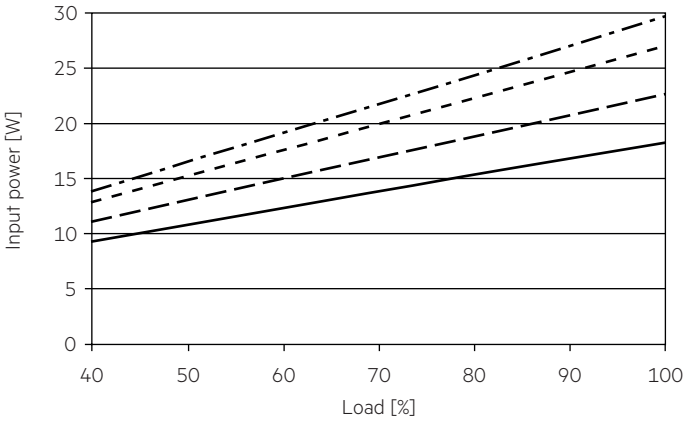
4.2 Efficiency vs load



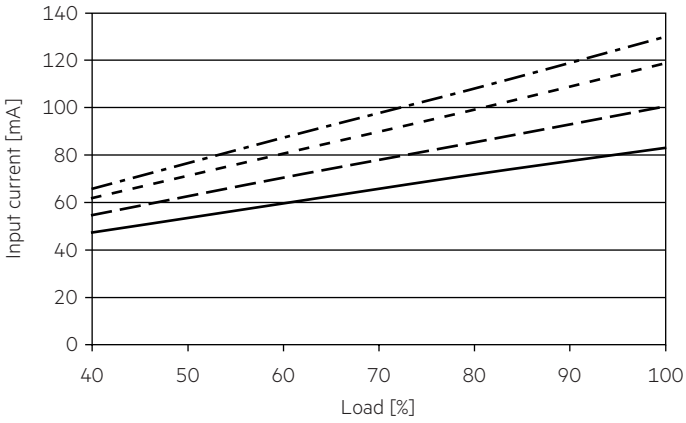
4.3 Power factor vs load



4.4 Input power vs load

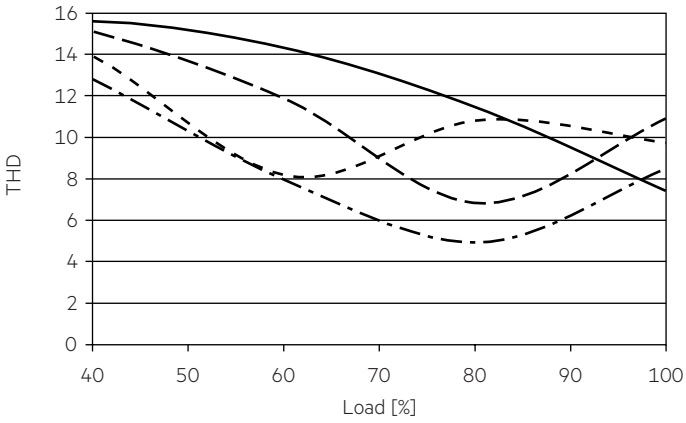


4.5 Input current vs load



4.6 THD vs load

THD without harmonic < 5 mA (0.6 %) of the input current:



350 mA
450 mA
550 mA
600 mA

4.7 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	Time
LC 25/350-600/42 flexC T-B ADV	58	76	94	117	58	76	94	117	8 A	80 µs

These are max. values calculated out of continuous current running the device on full load.
There is no limitation due to inrush current.
If load is smaller than full load for calculation only continuous current has to be considered.

4.8 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 25/350-600/42 flexC T-B ADV	< 9	< 7	< 5	< 4	< 1	< 2

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

5. Functions

5.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

5.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

5.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

5.4 Overtemperature protection

The LED driver is protected against temporary thermal overheating.
If the temperature limit is exceeded the LED driver will switch off.
It restarts automatically.
The temperature protection is activated above tc max.

5.5 Function: adjustable current

The output current of the LED driver can be adjusted in a certain range.

I-SELECT 2
By inserting a suitable resistor or third party resistor into the I-SELECT 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter "Accessories I-SELECT 2 Plugs".

Please note that the resistor values for I-SELECT 2 are not compatible with I-SELECT (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

6. Miscellaneous

6.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

6.2 Conditions of use and storage

Humidity: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be within the specified temperature range (ta) before they can be operated.

6.3 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.

6.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

Driver LC 25W 350-600mA 42V o4a NF T EXC3

excite NFC in-track series

Black (RAL 9005)

Grey (RAL 7035)

White (RAL 9010)

Product description
_ Dimmable constant current / in-track LED driver
_ Optional accessory ACU ALU NIPPLE M10x1 for mounting the luminaire head
_ Compatible with Global Trac PULSE from Nordic Aluminum and OneTrack from Stucchi, see data sheet chapter 3.8
_ Dimming range 1 to 100 % (min. 3.5 mA)
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Adjustable output current between 350 and 600 mA via near field communication (NFC)
_ Max. output power 25 W
_ Up to 83 % efficiency
_ Power input on stand-by < 0.5 W
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Interfaces
_ Near field communication (NFC)
_ one4all (DALI-2, switchDIM, corridorFUNCTION)

Functions
_ Adjustable output current in 1-mA-steps (NFC, DALI-2)
_ Overtemperature protection
_ Overload protection
_ Short-circuit protection
_ No-load protection
_ Burst protection voltage 2 kV
_ Surge protection voltage 1 kV (L to N)

Benefits
_ Flexible configuration via companionSUITE (NFC, DALI-2)
_ Support NFC multiple programming (full carton box)

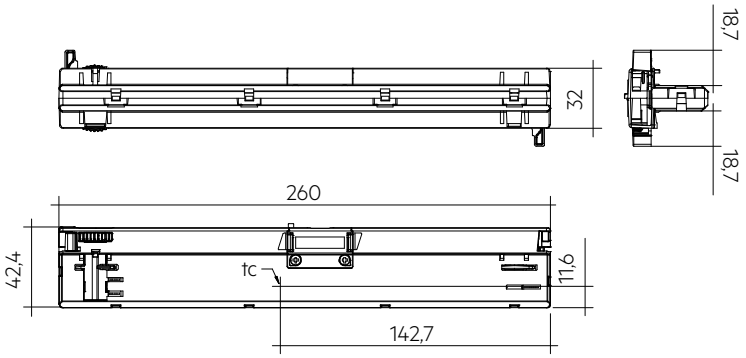
Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/87500896

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 25W 350-600mA 42V o4a NF T EXC3

excite NFC in-track series



Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
LC 25/350-600/42 o4a NF T-B EXC3	**87500896**	Black	10 pc(s).	130 pc(s).	1,170 pc(s).	0.165 kg
LC 25/350-600/42 o4a NF T-W EXC3	**87500897**	White	10 pc(s).	130 pc(s).	1,170 pc(s).	0.164 kg
LC 25/350-600/42 o4a NF T-G EXC3	**87500898**	Grey	10 pc(s).	130 pc(s).	1,170 pc(s).	0.164 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.13 A
Leakage current (at 230 V, 50 Hz, full load)	< 700 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Max. input power ①	29.6 W
Typ. power consumption (at 230 V, 50 Hz, full load) ①	29.7 W
Min. output power	0.049 W
Max. output power	25 W
Typ. power consumption on stand-by	< 0.5 W
Typ. efficiency (at 230 V, 50 Hz, full load) ①	83 %
λ (at 230 V, 50 Hz, full load) ①	0.95
Output current tolerance ②	± 5 %
Max. output current peak ③	≤ output current + 20 %
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load) ①	< 10 %
Output LF current ripple (< 120 Hz)	± 3 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.66 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.03 s
Hold on time at power failure (output)	0 s
Dimming range	1 – 100 % (min. 3.5 mA)
Ambient temperature ta (at lifetime 100,000 h)	25 °C
Storage temperature ts	-40 … +80 °C
Mains surge capability (between L - N)	1 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	260 x 32 x 42.4 mm

Approval marks

NFC DALI IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384

Specific technical data

Type	Output current②	Min. output voltage①	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	tc point max.	Ambient temperature ta
LC 25/350-600/42 o4a NF T-B EXC3	350 mA	14 V	42.0 V	14.7 W	18.0 W	81 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-B EXC3	400 mA	14 V	42.0 V	16.8 W	20.3 W	91 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-B EXC3	450 mA	14 V	42.0 V	18.9 W	22.6 W	101 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-B EXC3	500 mA	14 V	42.0 V	21.0 W	24.9 W	110 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-B EXC3	550 mA	14 V	42.0 V	23.1 W	27.3 W	121 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-B EXC3	600 mA	14 V	41.7 V	25.0 W	29.7 W	130 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-W EXC3	350 mA	14 V	42.0 V	14.7 W	18.0 W	81 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-W EXC3	400 mA	14 V	42.0 V	16.8 W	20.3 W	91 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-W EXC3	450 mA	14 V	42.0 V	18.9 W	22.6 W	101 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-W EXC3	500 mA	14 V	42.0 V	21.0 W	24.9 W	110 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-W EXC3	550 mA	14 V	42.0 V	23.1 W	27.3 W	121 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-W EXC3	600 mA	14 V	41.7 V	25.0 W	29.7 W	130 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-G EXC3	350 mA	14 V	42.0 V	14.7 W	18.0 W	81 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-G EXC3	400 mA	14 V	42.0 V	16.8 W	20.3 W	91 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-G EXC3	450 mA	14 V	42.0 V	18.9 W	22.6 W	101 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-G EXC3	500 mA	14 V	42.0 V	21.0 W	24.9 W	110 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-G EXC3	550 mA	14 V	42.0 V	23.1 W	27.3 W	121 mA	70 °C	-20 … +35 °C
LC 25/350-600/42 o4a NF T-G EXC3	600 mA	14 V	41.7 V	25.0 W	29.7 W	130 mA	70 °C	-20 … +35 °C

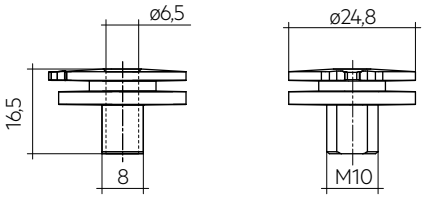
① Test result at 600 mA.
② Output current is mean value.
③ Test result at 25 °C.
④ Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

ACU ALU NIPPLE M10x1

Accessory

Product description
_ Optional threaded sleeve for luminaire mounting
_ Suitable for S-9009/D-M10 threaded nut
_ Additional mounting equipment, e.g. M13x1 available at AAG Stucchi (http://www.aagstucchi.it/en/)

Website
http://www.tridonic.com/28002398



Ordering data

Type	Article number	Packaging, bag	Weight per pc.
ACU ALU NIPPLE M10x1	**28002398**	100 pc(s).	0.007 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61000-4-4
EN 61000-4-5
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384
EN 62386

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

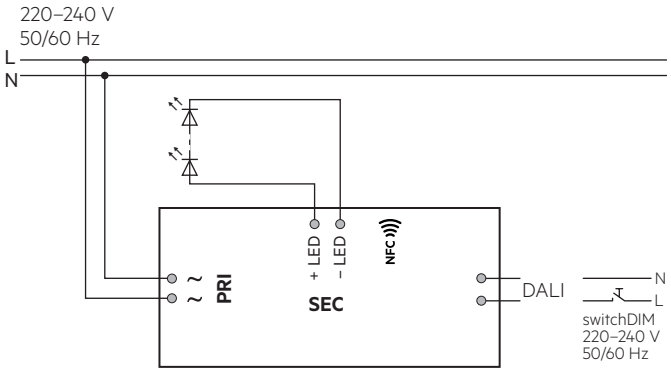
Type	ta	25 °C	35 °C
LC 25/350-600/42 o4a NF T EXC3	Lifetime	>100,000 h	100,000 h

① Test result at max. output voltage.

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

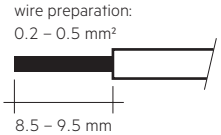
3. Installation / wiring

3.1 Circuit diagram



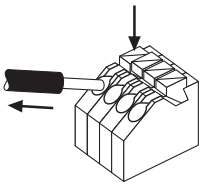
3.2 Wiring type and cross section

For wiring use stranded wire or solid wire from 0.2–0.5 mm². Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 10 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N).
This is valid for horizontal mounting of track system only.
For vertical installation please contact Tridonic for clarification.

3.8 Compatible tracks

Subject to be changed without notice.

Manufacturer	Type	System	Intrack casing colour
NORDIC ALUMINIUM	GLOBAL Trac Pulse XTSC 6xxx	3P + DALI	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pulse XTSCF 6xxx	3P + DALI	Black, white, grey
Stucchi	One track	3P + DALI	Black, white, grey
Powergear	PRO-0610	3P + DALI	Black, white, grey
Unipro	TC32W	3P + DALI	Black, white, grey
Unipro	TC32FW	3P + DALI	Black, white, grey

Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.
Please check compatibility of track system with switchDIM or corridorFUNCTION in advance.

3.9 Insulation between terminals

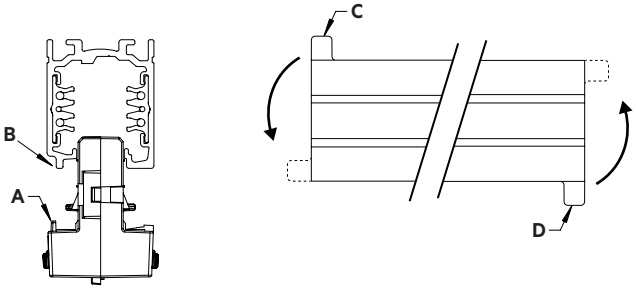
Insulation	Mains	–LED / +LED	one4all
Mains	–	double	basic
–LED / +LED	double	–	double
one4all	basic	double	–

basic ... represents basic insulation.

double ... represents double or reinforced insulation.

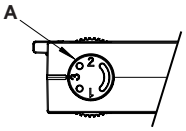
3.10 Adapter mounting into the track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C = mains and D = DALI-2) until it reachs the locking position.
To open rotate the lever the opposite direction.



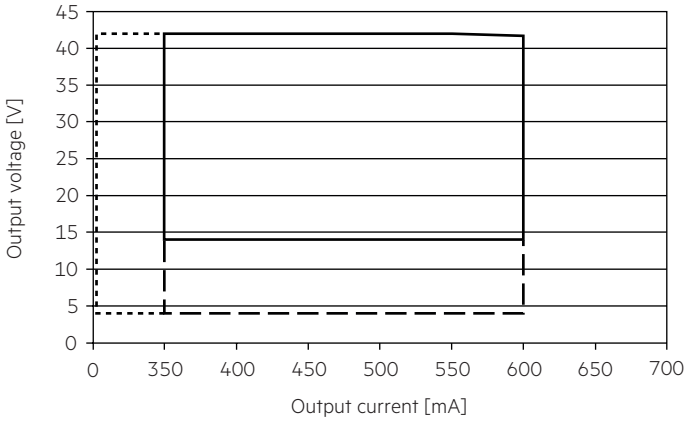
3.11 Phase selection

When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector (A) of the adaptor.



4. Electrical values

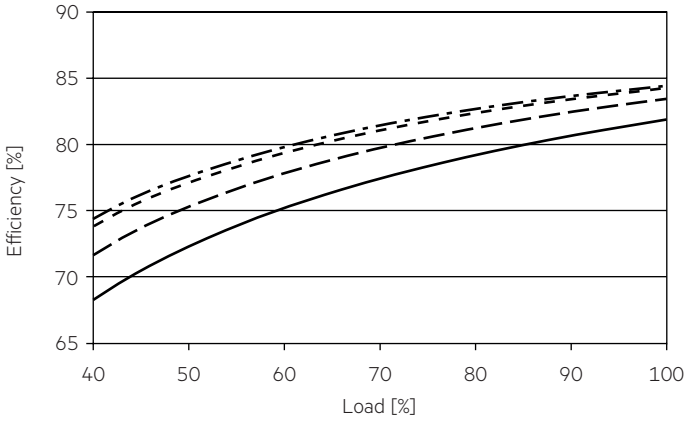
4.1 Operating window



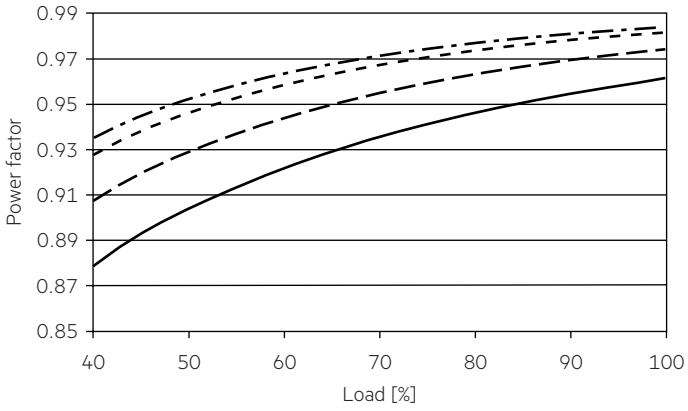
Operating window
Operating window dimmed
Operating window 4 V

Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

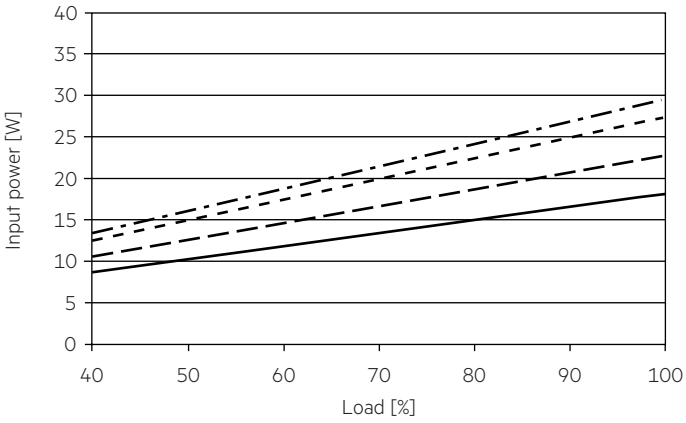
4.2 Efficiency vs load



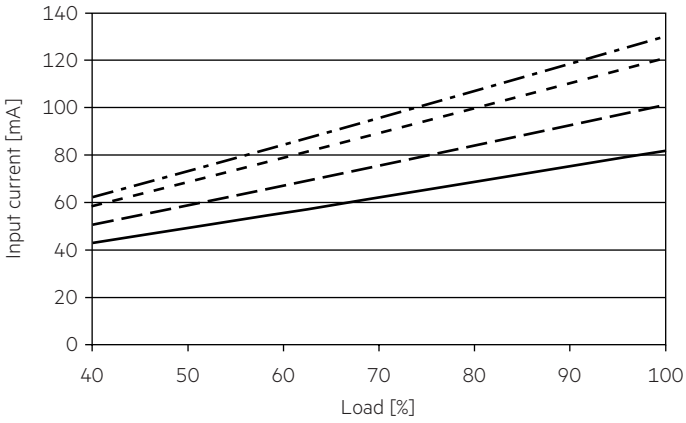
4.3 Power factor vs load



4.4 Input power vs load

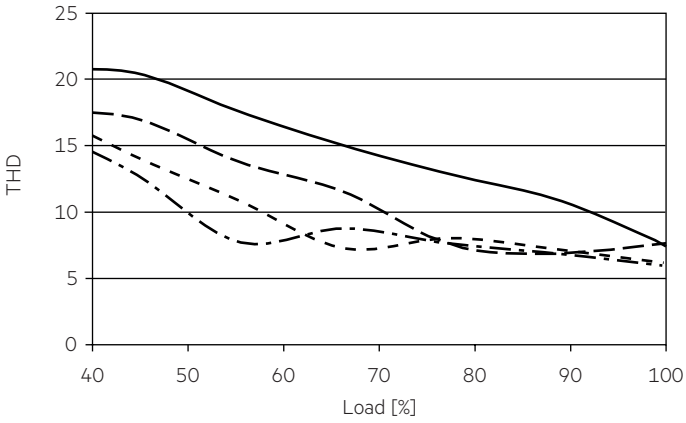


4.5 Input current vs load



4.6 THD vs load

THD without harmonic < 5 mA (0.6 %) of the input current:



350 mA
450 mA
550 mA
600 mA

4.7 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
									I_{max}	Time
LC 25/350-600/42 o4a NF T EXC3	40	52	64	80	40	52	64	80	9.6 A	34 µs

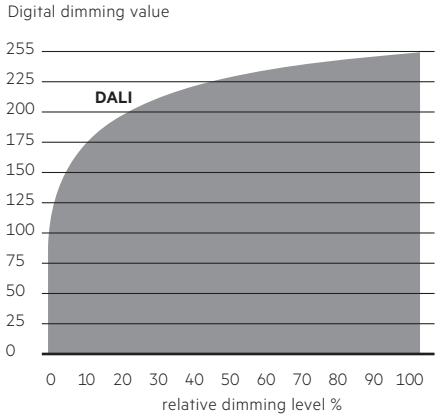
These are max. values calculated out of continuous current running the device on full load.
There is no limitation due to inrush current.
If load is smaller than full load for calculation only continuous current has to be considered.

4.8 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 25/350-600/42 o4a NF T EXC3	< 10	< 6	< 5	< 5	< 4	< 3

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

4.9 Dimming characteristics



Dimming characteristics as seen by the human eye.

Dimming is realized by amplitude dimming.

5. Software / Programming / Interfaces

5.1 Software / programming

With appropriate software and interface different functions can be activated and various parameters can be configured in the LED driver. The Driver supports the following software and interfaces:

Software / hardware for configuration:
- companionSUITE (deviceGENERATOR, deviceCONFIGURATOR, deviceANALYSER)

Interfaces for data transfer:
- NFC

5.2 Nearfield communication (NFC)

The NFC Interface allows wireless communication with the LED driver. This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.
A correct communication between the LED driver and the NFC antenna can only be guaranteed if the antenna is placed directly on the Driver.
Any material placed between the LED driver and the NFC antenna can cause a deterioration of the communication quality.
After programming the device via NFC power up the device one time for one second till the deviceANALYSER can read out the parameters.
We recommend the use of following NFC antenna:
www.tridonic.com/nfc-readers

NFC is complied with ISO/IEC 15963 standard.

Changing parameters via NFC shall be done by qualified engineers only.

6. Functions

⊙ companionSUITE:
NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	NFC	DALI-2
	OEM Identification	⊙	⊙
	OEM GTIN	⊙	⊙
	LED current	⊙	⊙
	Device operating mode	⊙	⊙
	corridorFUNCTION	⊙	⊙
	Constant light output (CLO)	⊙	⊙
T	Enhanced power on level (ePOL)	⊙	⊙

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

6.2 switchDIM

Integrated switchDIM function allows a direct connection of a pushbutton for dimming and switching.
Brief push (< 0.6 s) switches LED driver ON and OFF. The dimm level is saved at power-down and restored at power-up. When the pushbutton is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction.
In installations with LED drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED drivers can be synchronized to 50 % dimming level by a 10 s push.
Use of pushbutton with indicator lamp is not permitted.

6.3 corridorFUNCTION

A motion detector (corridorFUNCTION) can be wired on the DALI track.
With the corridorFUNCTION and a commercially available motion detector, it is easy to adapt the lighting in one area to its use.
That is, when the area is entered by a person, the lighting dims instantly to a certain brightness and is available in desired strength.
After the area is left by the person, the brightness dims slowly to a smaller value or switches off completely.
The individual parameters of the desired profile, such as brightness values or delay times, can be adjusted flexibly and individually.

To activate the corridorFUNCTION without using software a voltage of 230 V has to be applied at the DALI track.
The unit will then switch automatically to the corridorFUNCTION.

corridorFUNCTION is a very simple tool for controlling gears with conventional pushbuttons or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings.
Serious mains faults may impair the operation of corridorFUNCTION.

Note:
By using corridorFUNCTION programming and monitoring via DALI is always possible.

6.4 Constant Light Output (CLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (CLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
CLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for CLO see product manual.

6.5 Enhanced power on level (ePOL)

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
Detailed description for ePOL see product manual.

7. Protective features

7.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

7.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

7.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

7.4 Overtemperature protection

The LED driver is protected against temporary thermal overheating.
If the temperature limit is exceeded the LED driver will switch off.
It restarts automatically.
The temperature protection is activated above tc max.

8. Miscellaneous

8.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

The equipotential terminal is used to connect the heat sink and the LED driver to reduce transients.

8.2 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

8.3 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

Driver LC 25W 350-600mA 42V o4a T EXC3

excite in-track series

Black (RAL 9005)

Grey (RAL 7035)

White (RAL 9010)

Product description
_ Dimmable constant current / in-track LED driver
_ Optional accessory ACU ALU NIPPLE M10x1 for mounting the luminaire head
_ Compatible with Global Trac PULSE from Nordic Aluminum and OneTrack from Stucchi, see data sheet chapter 3.8
_ Dimming range 1 to 100 % (min. 3.5 mA)
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Adjustable output current between 350 and 600 mA via I-SELECT 2 plugs or DALI
_ Max. output power 25 W
_ Up to 83 % efficiency
_ Power input on stand-by < 0.5 W
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Interfaces
_ one4all (DALI-2, switchDIM, corridorFUNCTION)
_ Terminal blocks: 45° push terminals

Functions
_ Adjustable output current in 1-mA-steps (DALI-2, I-SELECT 2)
_ Overtemperature protection
_ Overload protection
_ Short-circuit protection
_ No-load protection
_ Burst protection voltage 2 kV
_ Surge protection voltage 1 kV (L to N)

Benefits
_ Flexible configuration via companionSUITE (DALI-2)

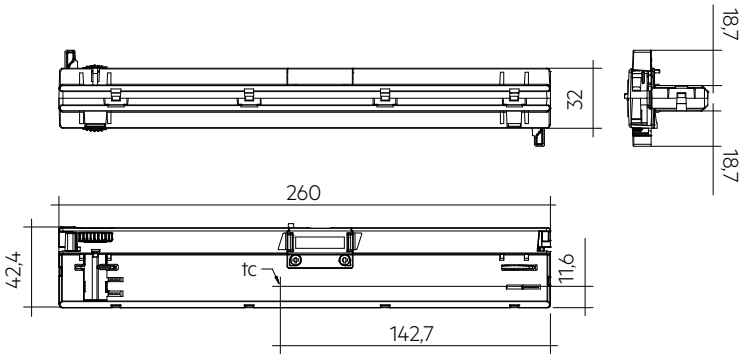
Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/87500908

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 25W 350-600mA 42V o4a T EXC3

excite in-track series



Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
LC 25/350-600/42 o4a T-B EXC3	**87500908**	Black	10 pc(s).	130 pc(s).	1,170 pc(s).	0.165 kg
LC 25/350-600/42 o4a T-W EXC3	**87500909**	White	10 pc(s).	130 pc(s).	1,170 pc(s).	0.165 kg
LC 25/350-600/42 o4a T-G EXC3	**87500910**	Grey	10 pc(s).	130 pc(s).	1,170 pc(s).	0.165 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.13 A
Leakage current (at 230 V, 50 Hz, full load)	< 700 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Max. input power	29.6 W
Typ. power consumption (at 230 V, 50 Hz, full load) ①	29.7 W
Min. output power	0.049 W
Max. output power	25 W
Typ. power consumption on stand-by ②	< 0.5 W
Typ. efficiency (at 230 V, 50 Hz, full load) ①	83 %
λ (at 230 V, 50 Hz, full load) ①	0.95
Output current tolerance ③	± 5 %
Max. output current peak ④	≤ output current + 20 %
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load) ①	< 10 %
Output LF current ripple (< 120 Hz)	± 3 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.66 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.03 s
Hold on time at power failure (output)	0 s
Dimming range	1 – 100 % (min. 3.5 mA)
Ambient temperature ta (at lifetime 100,000 h)	25 °C
Storage temperature ts	-40 … +80 °C
Mains surge capability (between L - N)	1 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	260 x 32 x 42.4 mm

Approval marks

DALI 2 IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384

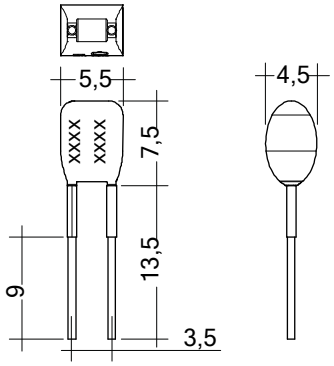
Specific technical data

Type	Output current[3]	Min. output voltage[5]	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	tc point max.	Ambient temperature ta	I-SELECT 2 resistor value[6]
LC 25/350-600/42 o4a T-B EXC3	350 mA	14 V	42.0 V	14.7 W	18.0 W	81 mA	70 °C	-20 … +35 °C	–
LC 25/350-600/42 o4a T-B EXC3	400 mA	14 V	42.0 V	16.8 W	20.3 W	91 mA	70 °C	-20 … +35 °C	12.5 kΩ
LC 25/350-600/42 o4a T-B EXC3	450 mA	14 V	42.0 V	18.9 W	22.6 W	101 mA	70 °C	-20 … +35 °C	11.1 kΩ
LC 25/350-600/42 o4a T-B EXC3	500 mA	14 V	42.0 V	21.0 W	24.9 W	110 mA	70 °C	-20 … +35 °C	10.0 kΩ
LC 25/350-600/42 o4a T-B EXC3	550 mA	14 V	42.0 V	23.1 W	27.3 W	121 mA	70 °C	-20 … +35 °C	9.1 kΩ
LC 25/350-600/42 o4a T-B EXC3	600 mA	14 V	41.7 V	25.0 W	29.7 W	130 mA	70 °C	-20 … +35 °C	0.0 kΩ
LC 25/350-600/42 o4a T-W EXC3	350 mA	14 V	42.0 V	14.7 W	18.0 W	81 mA	70 °C	-20 … +35 °C	–
LC 25/350-600/42 o4a T-W EXC3	400 mA	14 V	42.0 V	16.8 W	20.3 W	91 mA	70 °C	-20 … +35 °C	12.5 kΩ
LC 25/350-600/42 o4a T-W EXC3	450 mA	14 V	42.0 V	18.9 W	22.6 W	101 mA	70 °C	-20 … +35 °C	11.1 kΩ
LC 25/350-600/42 o4a T-W EXC3	500 mA	14 V	42.0 V	21.0 W	24.9 W	110 mA	70 °C	-20 … +35 °C	10.0 kΩ
LC 25/350-600/42 o4a T-W EXC3	550 mA	14 V	42.0 V	23.1 W	27.3 W	121 mA	70 °C	-20 … +35 °C	9.1 kΩ
LC 25/350-600/42 o4a T-W EXC3	600 mA	14 V	41.7 V	25.0 W	29.7 W	130 mA	70 °C	-20 … +35 °C	0.0 kΩ
LC 25/350-600/42 o4a T-G EXC3	350 mA	14 V	42.0 V	14.7 W	18.0 W	81 mA	70 °C	-20 … +35 °C	–
LC 25/350-600/42 o4a T-G EXC3	400 mA	14 V	42.0 V	16.8 W	20.3 W	91 mA	70 °C	-20 … +35 °C	12.5 kΩ
LC 25/350-600/42 o4a T-G EXC3	450 mA	14 V	42.0 V	18.9 W	22.6 W	101 mA	70 °C	-20 … +35 °C	11.1 kΩ
LC 25/350-600/42 o4a T-G EXC3	500 mA	14 V	42.0 V	21.0 W	24.9 W	110 mA	70 °C	-20 … +35 °C	10.0 kΩ
LC 25/350-600/42 o4a T-G EXC3	550 mA	14 V	42.0 V	23.1 W	27.3 W	121 mA	70 °C	-20 … +35 °C	9.1 kΩ
LC 25/350-600/42 o4a T-G EXC3	600 mA	14 V	41.7 V	25.0 W	29.7 W	130 mA	70 °C	-20 … +35 °C	0.0 kΩ

① Test result at 600 mA.
② Depending on the DALI traffic at the interface.
③ Output current is mean value.
④ Test result at 25 °C.
⑤ Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.
⑥ Not compatible with I-SELECT (generation 1). Calculated resistor value.

I-SELECT 2 PLUG PRE / EXC

Accessory



Product description

_ Ready-for-use resistor to set output current value
_ Compatible with LED driver featuring I-select 2 interface; not compatible with I-SELECT (generation 1)
_ Resistor is base insulated
_ Resistor power 0.25 W
_ Current tolerance ± 2 % additional to output current tolerance
_ Compatible with LED driver series PRE and EXC

Example of calculation

_ R [kΩ] = 5 V / I_out [mA] x 1000
_ E96 resistor value used
_ Resistor value tolerance ≤ 1 %; resistor power ≥ 0.1 W; base insulation necessary
_ When using a resistor value beyond the specified range, the output current will automatically be set to the minimum value (resistor value too big), respectively to the maximum value (resistor value too small)

Website

http://www.tridonic.com/28001111

Ordering data

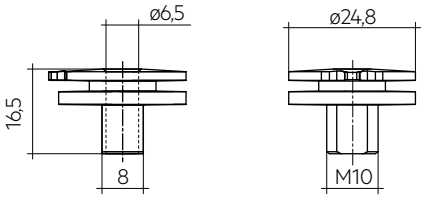
Type	Article number	Colour	Marking	Current	Resistor value	Packaging, bag	Weight per pc.
I-SELECT 2 PLUG 375MA BL	**28001111**	Blue	0375 mA	375 mA	13.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 400MA BL	**28001112**	Blue	0400 mA	400 mA	12.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 425MA BL	**28001251**	Blue	0425 mA	425 mA	11.80 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 450MA BL	**28001113**	Blue	0450 mA	450 mA	11.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 475MA BL	**28001252**	Blue	0475 mA	475 mA	10.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 500MA BL	**28001114**	Blue	0500 mA	500 mA	10.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 550MA BL	**28001115**	Blue	0550 mA	550 mA	9.09 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	**28001099**	Blue	MAX	MAX	0.00 kΩ	10 pc(s).	0.001 kg

ACU ALU NIPPLE M10x1

Accessory

Product description
_ Optional threaded sleeve for luminaire mounting
_ Suitable for S-9009/D-M10 threaded nut
_ Additional mounting equipment, e.g. M13x1 available at AAG Stucchi (http://www.aagstucchi.it/en/)

Website
http://www.tridonic.com/28002398



Ordering data

Type	Article number	Packaging, bag	Weight per pc.
ACU ALU NIPPLE M10x1	**28002398**	100 pc(s).	0.007 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61000-4-4
EN 61000-4-5
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384
EN 62386

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

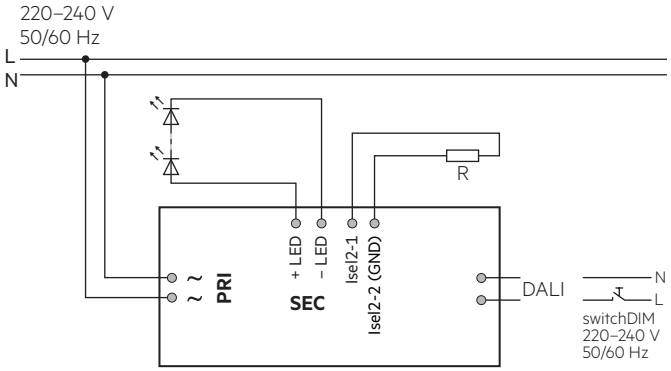
Type	ta	25 °C	35 °C
LC 25/350-600/42 o4a T EXC3	Lifetime	>100,000 h	100,000 h

① Test result at max. output voltage.

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

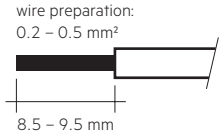
3. Installation / wiring

3.1 Circuit diagram



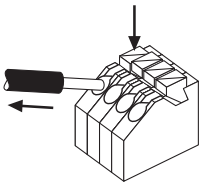
3.2 Wiring type and cross section

For wiring use stranded wire or solid wire from 0.2–0.5 mm². Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 20 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N).
This is valid for horizontal mounting of track system only.
For vertical installation please contact Tridonic for clarification.

3.8 Compatible tracks

Subject to be changed without notice.

Manufacturer	Type	System	Intrack casing colour
NORDIC ALUMINIUM	GLOBAL Trac Pulse XTSC 6xxx	3P + DALI	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pulse XTSCF 6xxx	3P + DALI	Black, white, grey
Stucchi	One track	3P + DALI	Black, white, grey
Powergear	PRO-0610	3P + DALI	Black, white, grey
Unipro	TC32W	3P + DALI	Black, white, grey
Unipro	TC32FW	3P + DALI	Black, white, grey

Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.
Please check compatibility of track system with switchDIM or corridorFUNCTION in advance.

3.9 Insulation between terminals

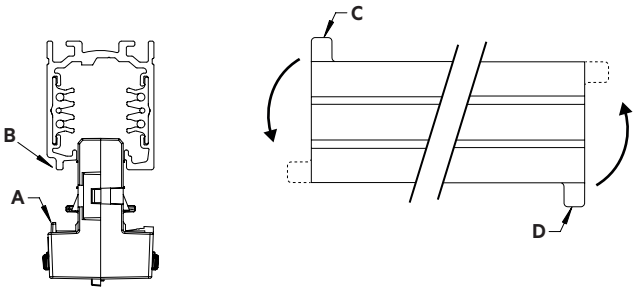
Insulation	Mains	–LED / +LED	one4all
Mains	–	double	basic
–LED / +LED	double	–	double
one4all	basic	double	–

basic ... represents basic insulation.

double ... represents double or reinforced insulation.

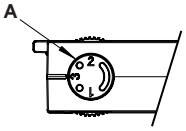
3.10 Adapter mounting into the track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C = mains and D = DALI-2) until it reachs the locking position.
To open rotate the lever the opposite direction.



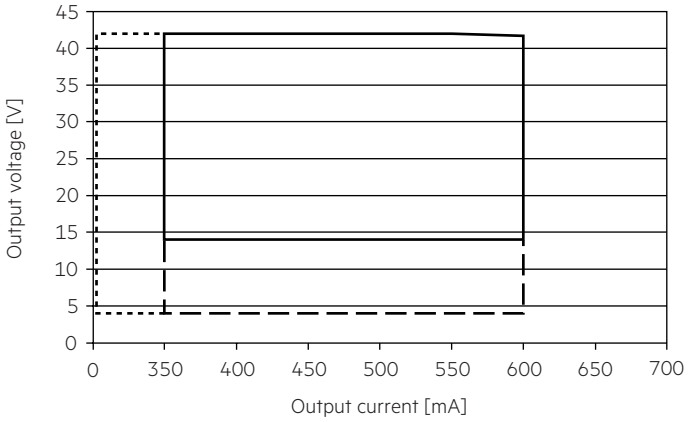
3.11 Phase selection

When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector (A) of the adaptor.



4. Electrical values

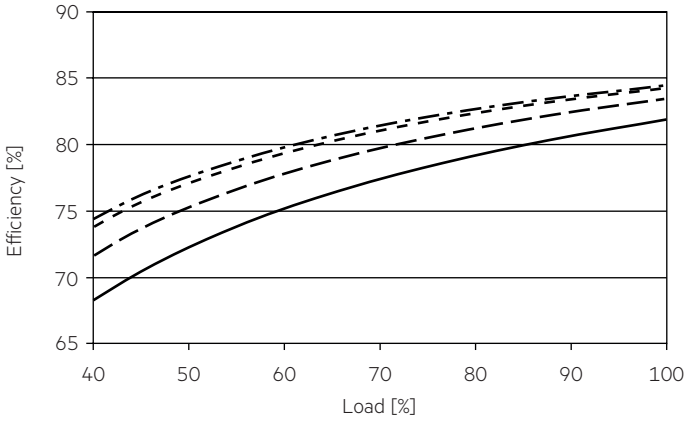
4.1 Operating window



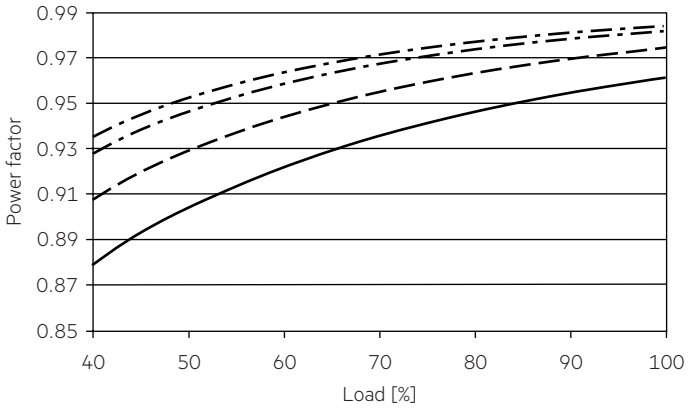
Operating window
Operating window dimmed
Operating window 4 V

Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

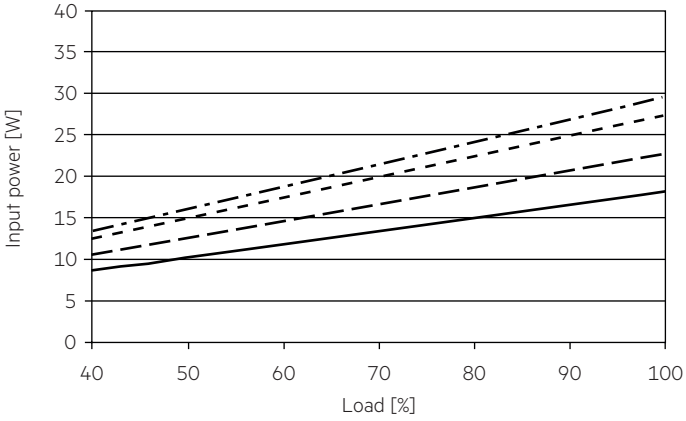
4.2 Efficiency vs load



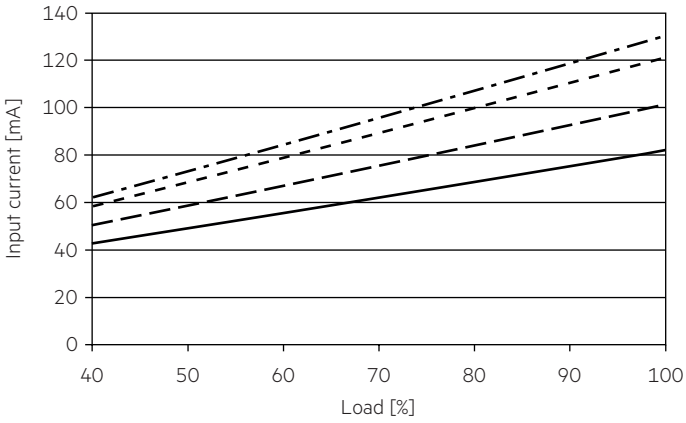
4.3 Power factor vs load



4.4 Input power vs load

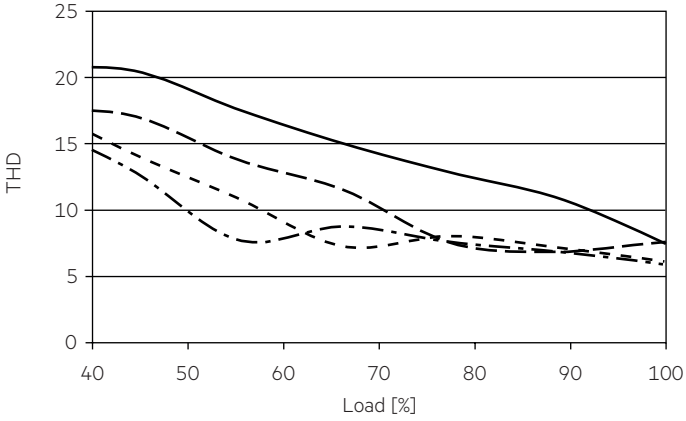


4.5 Input current vs load



4.6 THD vs load

THD without harmonic < 5 mA (0.6 %) of the input current:



350 mA
450 mA
550 mA
600 mA

4.7 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	Time
LC 25/350-600/42 o4a T EXC3	40	52	64	80	40	52	64	80	9.6 A	34 µs

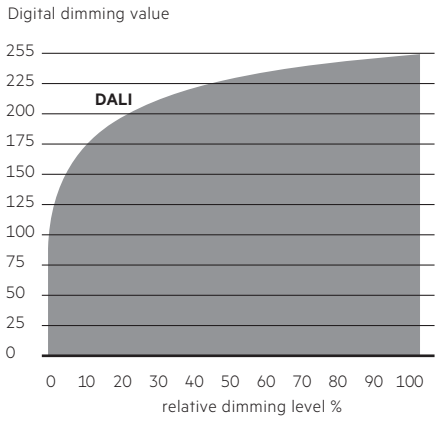
These are max. values calculated out of continuous current running the device on full load.
There is no limitation due to inrush current.
If load is smaller than full load for calculation only continuous current has to be considered.

4.8 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 25/350-600/42 o4a T EXC3	< 10	< 6	< 5	< 5	< 4	< 3

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

4.9 Dimming characteristics



Dimming characteristics as seen by the human eye.

Dimming is realized by amplitude dimming.

5. Software / Programming / Interfaces

5.1 Software / programming

With appropriate software and interface different functions can be activated and various parameters can be configured in the LED driver. The Driver supports the following software and interface:

Software / hardware for configuration:
- companionSUITE (deviceGENERATOR, deviceCONFIGURATOR, deviceANALYSER)

6. Functions

⊙ companionSUITE:
DALI-2
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	DALI-2
	OEM Identification	⊙
	OEM GTIN	⊙
	LED current	⊙
	Device operating mode	⊙
	corridorFUNCTION	⊙
	Constant light output (CLO)	⊙
	Enhanced power on level (ePOL)	⊙

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

6.2 switchDIM

Integrated switchDIM function allows a direct connection of a pushbutton for dimming and switching.
Brief push (< 0.6 s) switches LED driver ON and OFF. The dimm level is saved at power-down and restored at power-up. When the pushbutton is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction.
In installations with LED drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED drivers can be synchronized to 50 % dimming level by a 10 s push.
Use of pushbutton with indicator lamp is not permitted.

6.3 corridorFUNCTION

A motion detector (corridorFUNCTION) can be wired on the DALI track.
With the corridorFUNCTION and a commercially available motion detector, it is easy to adapt the lighting in one area to its use.
That is, when the area is entered by a person, the lighting dims instantly to a certain brightness and is available in desired strength.
After the area is left by the person, the brightness dims slowly to a smaller value or switches off completely.
The individual parameters of the desired profile, such as brightness values or delay times, can be adjusted flexibly and individually.

To activate the corridorFUNCTION without using software a voltage of 230 V has to be applied at the DALI track.
The unit will then switch automatically to the corridorFUNCTION.

corridorFUNCTION is a very simple tool for controlling gears with conventional pushbuttons or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings.
Serious mains faults may impair the operation of corridorFUNCTION.

Note:
By using corridorFUNCTION programming and monitoring via DALI is always possible.

6.4 Constant Light Output (CLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (CLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
CLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for CLO see product manual.

6.5 Enhanced power on level (ePOL)

T

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
Detailed description for ePOL see product manual.

7. Functions

7.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

7.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

7.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

7.4 Overtemperature protection

The LED driver is protected against temporary thermal overheating.
If the temperature limit is exceeded the LED driver will switch off.
It restarts automatically.
The temperature protection is activated above tc max.

7.5 Function: adjustable current

The output current of the LED driver can be adjusted in a certain range.

I-SELECT 2
By inserting a suitable resistor or third party resistor into the I-SELECT 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter "Accessories I-SELECT 2 Plugs".

Please note that the resistor values for I-SELECT 2 are not compatible with I-SELECT (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

8. Miscellaneous

8.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

The equipotential terminal is used to connect the heat sink and the LED driver to reduce transients.

8.2 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

8.3 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

Driver LC 28W 100-700mA 40V DA T EXC

excite in-track series

Product description
_ Dimmable constant current / in-track LED driver
_ Completely in-track, enabling a true no-compromise design
_ Optional accessory for mounting the luminaire head
_ Dimming range 1 to 100 % (min. 3.5 mA)
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Selectable fixed output current via DIP switch 100 and 700 mA (pre-selected current 100 mA) or DALI
_ Max. output power 28 W
_ Up to 86 % efficiency
_ Power input on stand-by < 0.5 W
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Interfaces
_ Terminal blocks: 45° push terminals

Functions
_ Overtemperature protection
_ Overload protection
_ Short-circuit protection
_ No-load protection
_ Burst protection voltage 2 kV
_ Surge protection voltage 1 kV (L to N)

Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/28005613

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 28W 100-700mA 40V DA T EXC

excite in-track series

Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Weight per pc.
LC 28/100-700/40 DA Ti-B EXC	**28005613**	Black	50 pc(s).	1,600 pc(s).	0.11 kg
LC 28/100-700/40 DA Ti-W EXC	**28005614**	White	50 pc(s).	1,600 pc(s).	0.11 kg
LC 28/100-700/40 DA Ti-G EXC	**28005616**	Grey	50 pc(s).	1,600 pc(s).	0.11 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.15 A
Mains frequency	50 / 60 Hz
Max. input power	33 W
Max. output power	28 W
Typ. efficiency (at 230 V, 50 Hz, full load)	86 %
λ (at 230 V, 50 Hz, full load)	0.96
In-rush current (peak / duration)	0.25 A / 15 ms
Output current tolerance	± 5 %
Max. output peak current	735 mA
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load)	< 20 %
Output LF current ripple (< 120 Hz)	± 0.2 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.5 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.5 s
Dimming range	0.1 – 100 %
Ambient temperature ta (at lifetime 100,000 h)	25 °C
Mains surge capability (between L - N)	1 kV
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	350 x 28.4 x 13.8 mm

Approval marks

DALI 2 IP20 SELV 120 RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384, EN 60598-1, EN 61000-4-4, EN 61000-4-5

Specific technical data

Type	Output current	Min. output voltage	Max. output voltage	Max. output power	tc point max.	Ambient temperature ta	I-out select
LC 28/100-700/40 DA Ti-B EXC	100 mA	12 V	40 V	4 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=off / 4=off
LC 28/100-700/40 DA Ti-B EXC	200 mA	12 V	40 V	8 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=on / 4=off
LC 28/100-700/40 DA Ti-B EXC	300 mA	12 V	40 V	12 W	85 °C	-20 … +35 °C	1=off / 2=on / 3=off / 4=off
LC 28/100-700/40 DA Ti-B EXC	400 mA	12 V	40 V	16 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=off / 4=off
LC 28/100-700/40 DA Ti-B EXC	500 mA	12 V	40 V	20 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=on / 4=on
LC 28/100-700/40 DA Ti-B EXC	600 mA	12 V	40 V	24 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=off / 4=off
LC 28/100-700/40 DA Ti-B EXC	700 mA	12 V	40 V	28 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=on / 4=on
LC 28/100-700/40 DA Ti-W EXC	100 mA	12 V	40 V	4 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=off / 4=off
LC 28/100-700/40 DA Ti-W EXC	200 mA	12 V	40 V	8 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=on / 4=off
LC 28/100-700/40 DA Ti-W EXC	300 mA	12 V	40 V	12 W	85 °C	-20 … +35 °C	1=off / 2=on / 3=off / 4=off
LC 28/100-700/40 DA Ti-W EXC	400 mA	12 V	40 V	16 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=off / 4=off
LC 28/100-700/40 DA Ti-W EXC	500 mA	12 V	40 V	20 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=on / 4=on
LC 28/100-700/40 DA Ti-W EXC	600 mA	12 V	40 V	24 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=off / 4=off
LC 28/100-700/40 DA Ti-W EXC	700 mA	12 V	40 V	28 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=on / 4=on
LC 28/100-700/40 DA Ti-G EXC	100 mA	12 V	40 V	4 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=off / 4=off
LC 28/100-700/40 DA Ti-G EXC	200 mA	12 V	40 V	8 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=on / 4=off
LC 28/100-700/40 DA Ti-G EXC	300 mA	12 V	40 V	12 W	85 °C	-20 … +35 °C	1=off / 2=on / 3=off / 4=off
LC 28/100-700/40 DA Ti-G EXC	400 mA	12 V	40 V	16 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=off / 4=off
LC 28/100-700/40 DA Ti-G EXC	500 mA	12 V	40 V	20 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=on / 4=on
LC 28/100-700/40 DA Ti-G EXC	600 mA	12 V	40 V	24 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=off / 4=off
LC 28/100-700/40 DA Ti-G EXC	700 mA	12 V	40 V	28 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=on / 4=on

ACU Retaining Collar M10

Accessory

ACU Retaining Collar M10

Product description
_ Suitable for M10 x 1 threaded nut
_ Smart slider for 360° rotation (max. torque 1.5 Nm)
_ Threaded sleeve for luminaire mounting
_ The accessory is not included and must be ordered separately.

Website
http://www.tridonic.com/28005690

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU RETAINING COLLAR M10	**28005690**	25 pc(s).	0.003 kg

ACU Retaining Rotary Stop

Accessory

Product description
_ Retaining rotary stop for luminaire mounting
_ Prevents output wires from unplugging when overwinded
_ We suggest the use of tweezers for installation
_ The accessory is not included and must be ordered separately.

Website
http://www.tridonic.com/28005691

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU RETAINING ROTARY STOP	**28005691**	25 pc(s).	0.001 kg

ACU Retaining Collar M10 & Rotary Stop

Accessory

ACU Retaining Collar M10

ACU Rotary Stop

Product description

_ Suitable for M10 x 1 threaded nut
_ Smart slider for 360° rotation (max. torque 1.5 Nm)
_ Threaded sleeve for luminaire mounting
_ Retaining rotary stop for luminaire mounting
_ Prevents output wires from unplugging when overwinded
_ We suggest the use of tweezers for installation
_ One set includes 1 pc. ACU Retaining Collar M10 and 1 pc. ACU Rotary Stop
_ The accessory is not included and must be ordered separately.

Website
http://www.tridonic.com/28006396

Ordering data

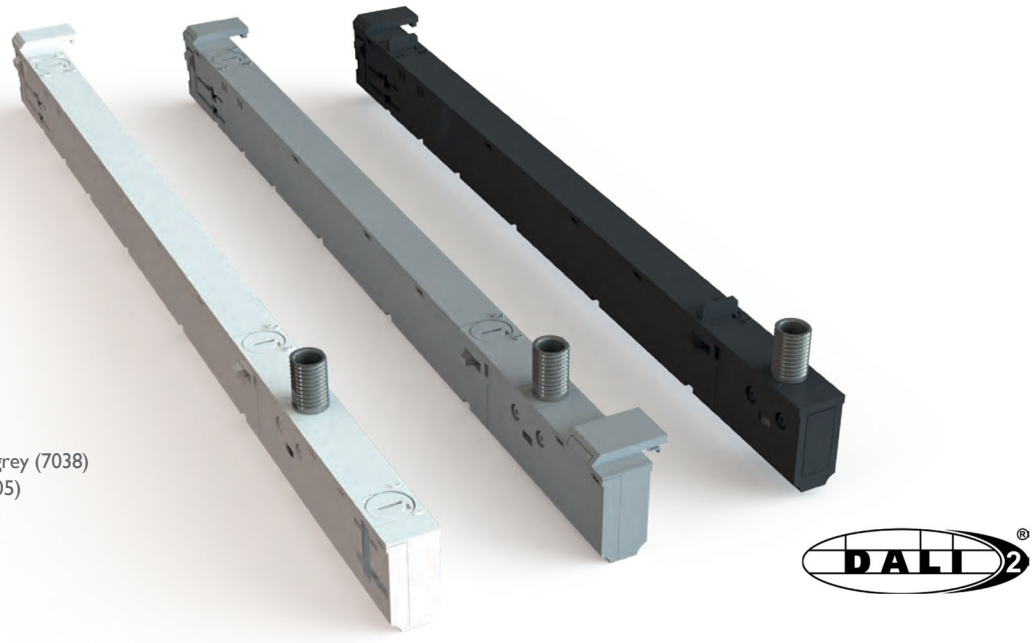
Type	Article number	Packaging, carton	Weight per pc.
ACU RETAINING COLLAR M10 & ROTARY STOP	**28006396**	500 pc(s).	0.013 kg

INVITRACK – THE INVISIBLE TRACK DRIVER

Nordic Power Converters have joined forces, and combined cutting- edge LED drivers with world-class track components to fix an industry eye-sore; the new InviTrack driver series puts the entire LED driver inside the track. The driver is virtually invisible, the only thing seen on the track is your perfectly designed luminaire. Set your design free and improve the Quality of Light at the same time.

Product Advantages

- **Completely in-track,** enabling a true no-compromise design.
- **Flicker free,** no visible or perceivable fiicker (IEEE1789 NOEL compliant, very low PstLM and SVM values).
- **Low temperature,** ensuring high reliability through high efficiency and good thermal design.
- **No inrush current,** enabling use of the full power rating of the main fuse.
- **Superior dimming,** smooth, deep, accurate and efficient via DALI2.
- **Fits all major tracks,** including Global, Stucchi, PowerGear and more.



Available in
white (9016), grey (7038)
and black (9005)

Main specifications

Specification item	Value
Input voltage	220...240 V
PF	> 0.96
THD	< 20%
Inrush	>100 drivers on a MCB16A type B fuse
Efficiency	86%
Isolation	SELV/Class-II
Output power	28 W

Specification item	Value
Output current	100...700 mA
Output voltage	12...40 V
Minimum dimming	0.1%
Size	350×13.8×28.4 mm
Luminaire weight, max	1.5 kg
Lifetime	50,000 hrs
Ambient temperature	-20 °C to 35 °C
T_{case} max	85 °C

Electrical specifications

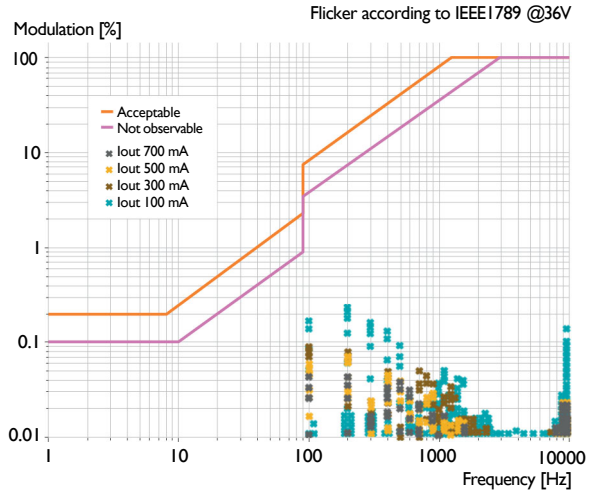
Input characteristics

Specification item	Value	Condition
Rated input voltage range	220…240 V_{AC}	Performance range
Rated input voltage	230 V_{AC}	
Rated input frequency range	50/60 Hz	Performance range
Rated input current	150 mA	@ 28 Wout and 230 Vac
Rated input power	33 W	@ 28 Wout and 230 Vac
Power factor	> 0.96	@ 28 Wout and 230 Vac
Total harmonic distortion	< 20%	@ 28 Wout and 230 Vac
Efficiency	86%	@ 28 Wout and 230 Vac
Standby	0.25 W	
EU Ecodesign	Compliant	Requirements of December 2019
Input voltage range	198…264 V_{AC}	Operational range
Input frequency range	47…63 Hz	Operational range
Isolation input to output	SELV	
Inrush current I_{PEAK}	0.25 A	@ rated input voltage
Inrush current T_{WIDTH}	15 ms	@ rated input voltage @ 50% I_{PEAK}
Drivers/MCB 16A type B	> 100 pcs	

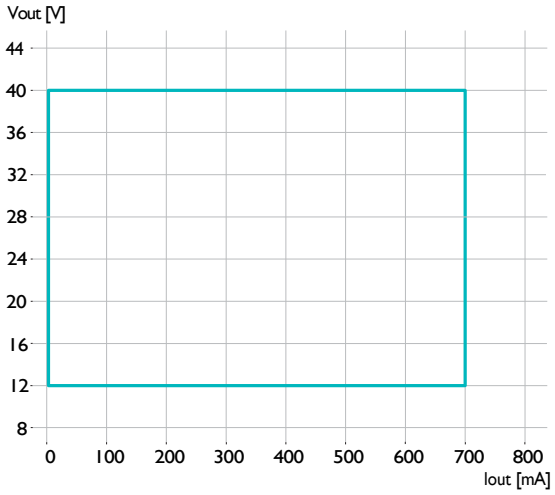
Output characteristics

Specification item	Value	Condition
Control method	Constant current	
Output voltage range	12…40 V_{DC}	
Output voltage (max)	60 VDC	Peak voltage at open load
Output current range	100…700 mA	Set via DALI2 or dipswitch
Minimum dimming	0.1%	via DALI2
Output current tolerance	±5%	@ 36 V_{DC}
Output flicker	IEEE1789 NOEL	Compliant with IEEE1789 No Observable Effect Limit
PstLM	< 0.1	@ 36 Vdc and 700 mA
SVM	< 0.05	@ 36 Vdc and 700 mA
Output current ripple, <120 Hz	0.2%	@ 36 V_{DC}
Output current ripple, <3 kHz	0.2%	@ 36 V_{DC}
Output power	28 W	@ 40 V_{DC}

Flicker measurement

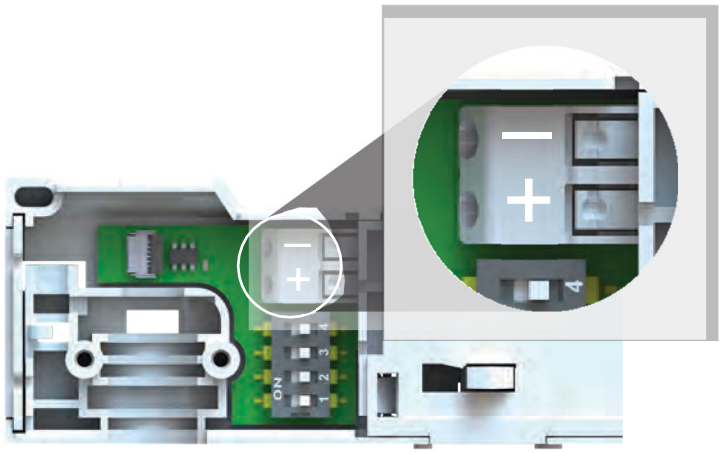


Output window



Wiring and connections

Specification item	Value	Condition
Output wire cross-section	0.2…0.75 mm2	Solid or strand wire
	24…18 AWG	Solid or strand wire
Output wire strip length	7…9 mm	
Screw size	Torx 6	
Maximum cable length	300 mm	Total length of wiring including LED module, one way
Maximum luminaire weight	1.5 kg	According to EN 60570



Set output current

Via dipswitch

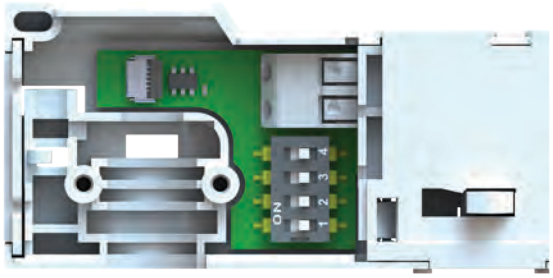
Value	Switch 1	Switch 2	Switch 3	Switch 4
700 mA	ON	ON	ON	ON
650 mA	ON	ON	ON	–
600 mA	ON	ON	–	ON
550 mA	ON	ON	–	–
500 mA	ON	–	ON	ON
450 mA	ON	–	ON	–
425 mA	ON	–	–	ON
400 mA	ON	–	–	–

Value	Switch 1	Switch 2	Switch 3	Switch 4
375 mA	–	ON	ON	ON
350 mA	–	ON	ON	–
325 mA	–	ON	–	ON
300 mA	–	ON	–	–
250 mA	–	–	ON	ON
200 mA	–	–	ON	–
150 mA	–	–	–	ON
100 mA	–	–	–	–

Via DALI

LED current is set by the dipswitch by default (100 mA). The LED current can be set through DALI in the range 100...700 mA. If the current is set through DALI, the dip-switch will no longer have any function unless the default register values are restored through DALI.
After the DALI sequence has been transmitted, a mains power cycle is necessary for the change to take effect.
X1 and X2 determine I_{max} and are calculated using the following equations:

$$X1 = \frac{I_{max}}{256} \quad \text{(Truncate Result)} \qquad X2 = Imax - (X1*256)$$



Command Sequence	Value
ENABLE_WRITE_MEMORY*	NA
ENABLE_WRITE_MEMORY*	NA
DTR1	199
DTR0	2
WRITE_MEMORY_LOCATION	85
DTR0	12
WRITE_MEMORY_LOCATION	X1
WRITE_MEMORY_LOCATION	X2
SAVE_PERSISTANT_VARIABLES*	NA
SAVE_PERSISTANT_VARIABLES*	NA

*The time between the two commands needs to be under 100 ms to take effect.

I_{max}	X1	X2
700 mA	2	188
650 mA	2	138
600 mA	2	88
550 mA	2	38
500 mA	1	244
450 mA	1	194
400 mA	1	144
350 mA	1	94
300 mA	1	44
250 mA	0	250
200 mA	0	200
150 mA	0	150
100 mA	0	100
Dipswitch	255	255

Example values for X1 and X2 for common output current levels

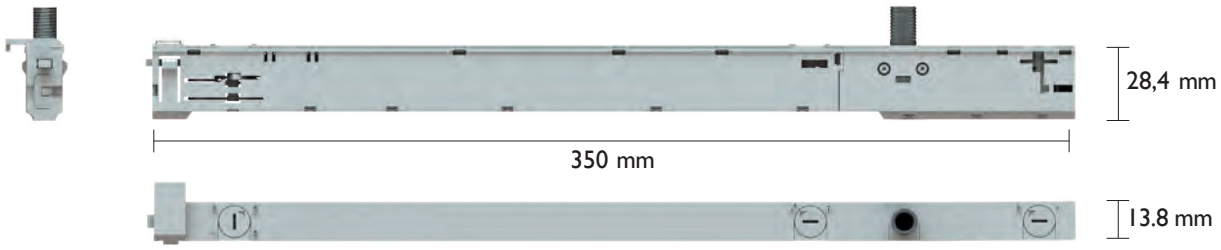
Compatible tracks

Manufacturer	Part number
Global	XTSC Series, XTSCF Series
Stucchi	9000 ST, 9000A ST, 9000 R, 9000 H, 9000 ST15
PowerGear	PRO-06 Series, PRO-R6 Series

Tests have been done with tracks taken from the market in 2020-2023.
Nordic Power Converters has no control or responsibility on any future or past possible changes made by different manufactures that could affect the compatibility between tracks and adapters.
When product is used, a clearance distance between the InviTrack casing and any of the track's non-insulated live parts (incl. DALI conductors) must be minimum 3 mm. The retaining collar is not intended to be electrically connected to the LED output terminals or protective earth.

Dimensions and weight

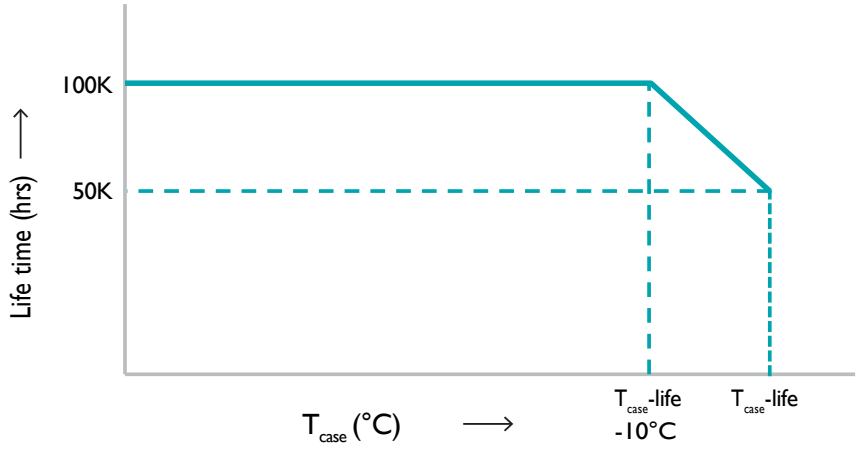
Specification item	Value	Condition
Length	350 mm	See below
Width	13.8 mm	
Height	28.4 mm	Without retaining collar
Weight	110 g	



LC 28/100-700/40 DA Ti-B EXC

Operating conditions

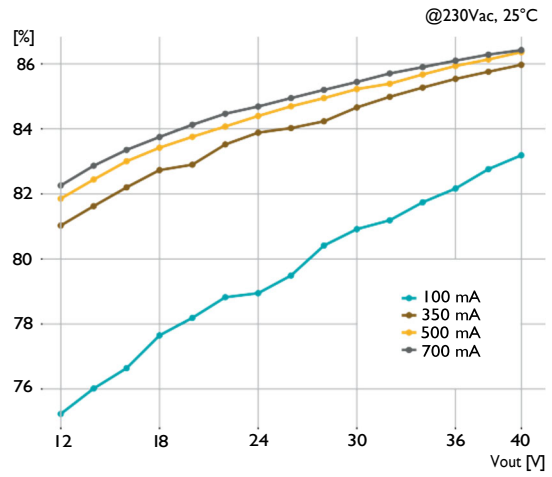
Specification item	Value	Condition
Ambient temperature	-20…+35 °C	Higher ambient temperature allowed as long as T_{case}-max is not exceeded
T_{case}-max	85 °C	Maximum temperature measured at T_{case}-point
T_{case}-life	85 °C	Measured at T_{case}-point
Relative humidity	5…85%	Non-condensing
Mains surge immunity (diff. mode)	1 kV	Acc. IEC61000-4-5 2 Ohm 1.2/50 us, 8/20 us
Mains surge immunity (comm. mode)	2 kV	Acc. IEC61000-4-5 2 Ohm 1.2/50 us, 8/20 us
Lifetime	50,000 hrs	Measured temperature at T_{case}-point is T_{case}-life. Maximum failures = 10%
Warranty	5 years	



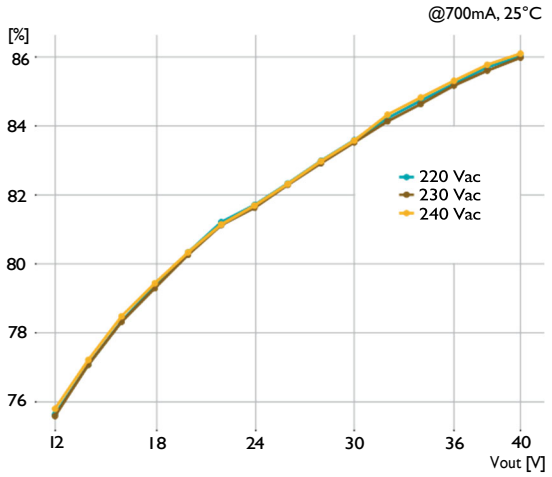
Conformity and standards

Specification item	Value	Condition
Protection class	Class II	
Isolation voltage	3 kV	
Casing class	IP20	
Approvals	CE, DALI2	DALI2 includes DALI Luminaire Data (251) & Diagnostics Data (253, mandatory part)
EMC standards	EN 55015, EN 61547, EN 61000-3-2 (class C)	
CB certificate (safety standards)	IEC 61347-1, IEC 61347-2-13, IEC 60570, IEC 62384	The CB certificate includes EU group differences, AU and NZ

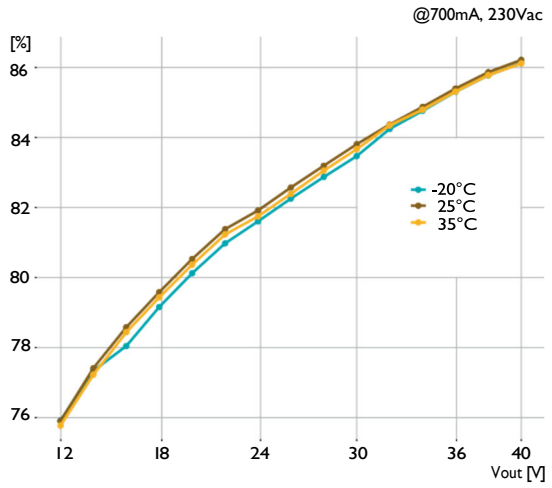
Efficiency vs. Output current



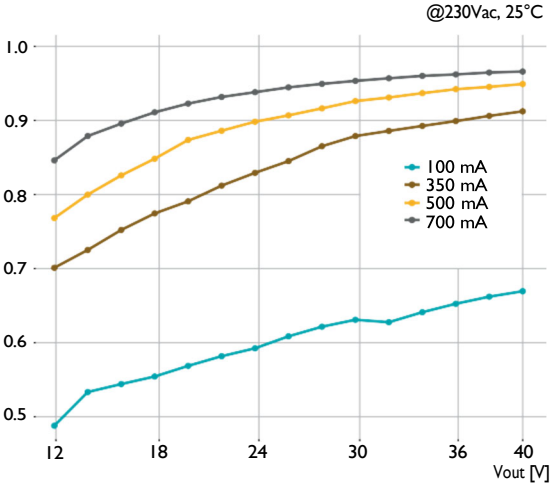
Efficiency vs. Input voltage



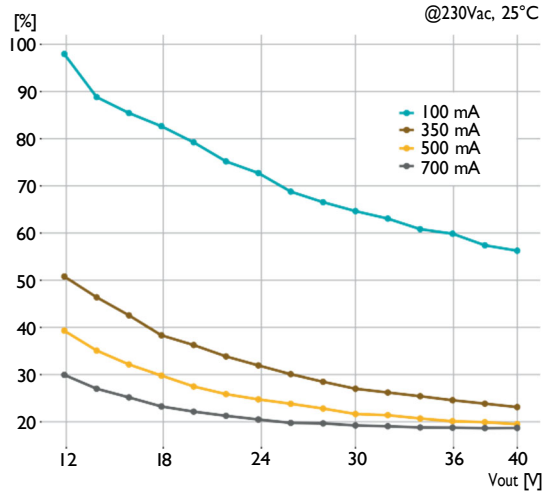
Efficiency vs. Temperature



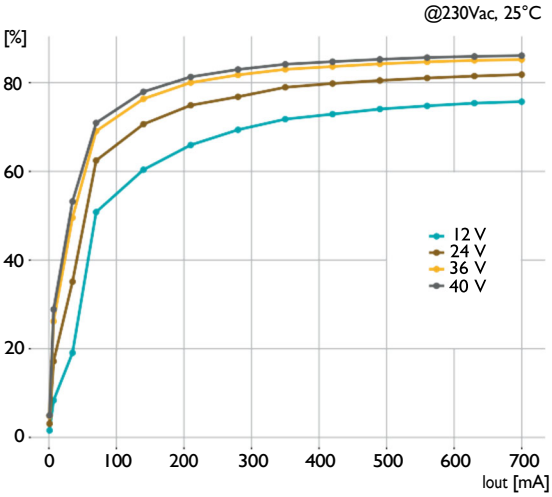
Power factor vs. Output current



THD vs. Output current



Dim Efficiency vs. Output voltage



TRIDONIC

Driver LC 28W 100-700mA 40V flexC T EXC

excite in-track series

Product description
_ Constant current / in-track LED driver
_ Completely in-track, enabling a true no-compromise design
_ Optional accessory for mounting the luminaire head
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Selectable fixed output current via DIP switch 100 and 700 mA (pre-selected current 100 mA)
_ Max. output power 28 W
_ Up to 86 % efficiency
_ Power input on stand-by < 0.5 W
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Interfaces
_ Terminal blocks: 45° push terminals

Functions
_ Overtemperature protection
_ Overload protection
_ Short-circuit protection
_ No-load protection
_ Burst protection voltage 2 kV
_ Surge protection voltage 1 kV (L to N)

Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/28005610

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 28W 100-700mA 40V flexC T EXC

excite in-track series

Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Weight per pc.
LC 28/100-700/40 FlexC Ti-B EXC	**28005610**	Black	50 pc(s).	1,600 pc(s).	0.1 kg
LC 28/100-700/40 FlexC Ti-W EXC	**28005611**	White	50 pc(s).	1,600 pc(s).	0.1 kg
LC 28/100-700/40 FlexC Ti-G EXC	**28005612**	Grey	50 pc(s).	1,600 pc(s).	0.1 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.15 A
Mains frequency	50 / 60 Hz
Max. input power	33 W
Max. output power	28 W
Typ. efficiency (at 230 V, 50 Hz, full load)	86 %
λ (at 230 V, 50 Hz, full load)	0.96
In-rush current (peak / duration)	0.25 A / 15 ms
Output current tolerance	± 5 %
Max. output peak current	735 mA
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load)	< 20 %
Output LF current ripple (< 120 Hz)	± 0.2 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.5 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.5 s
Ambient temperature ta (at lifetime 100,000 h)	25 °C
Mains surge capability (between L - N)	1 kV
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	300 x 28.4 x 13.8 mm

Approval marks

IP20 SELV 120 RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384, EN 60598-1, EN 61000-4-4, EN 61000-4-5

Specific technical data

Type	Output current	Min. output voltage	Max. output voltage	Max. output power	tc point max.	Ambient temperature ta	I-out select
LC 28/100-700/40 FlexC Ti-B EXC	100 mA	12 V	40 V	4 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-B EXC	200 mA	12 V	40 V	8 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=on / 4=off
LC 28/100-700/40 FlexC Ti-B EXC	300 mA	12 V	40 V	12 W	85 °C	-20 … +35 °C	1=off / 2=on / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-B EXC	400 mA	12 V	40 V	16 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-B EXC	500 mA	12 V	40 V	20 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=on / 4=on
LC 28/100-700/40 FlexC Ti-B EXC	600 mA	12 V	40 V	24 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-B EXC	700 mA	12 V	40 V	28 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=on / 4=on
LC 28/100-700/40 FlexC Ti-W EXC	100 mA	12 V	40 V	4 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-W EXC	200 mA	12 V	40 V	8 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=on / 4=off
LC 28/100-700/40 FlexC Ti-W EXC	300 mA	12 V	40 V	12 W	85 °C	-20 … +35 °C	1=off / 2=on / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-W EXC	400 mA	12 V	40 V	16 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-W EXC	500 mA	12 V	40 V	20 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=on / 4=on
LC 28/100-700/40 FlexC Ti-W EXC	600 mA	12 V	40 V	24 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-W EXC	700 mA	12 V	40 V	28 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=on / 4=on
LC 28/100-700/40 FlexC Ti-G EXC	100 mA	12 V	40 V	4 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-G EXC	200 mA	12 V	40 V	8 W	85 °C	-20 … +35 °C	1=off / 2=off / 3=on / 4=off
LC 28/100-700/40 FlexC Ti-G EXC	300 mA	12 V	40 V	12 W	85 °C	-20 … +35 °C	1=off / 2=on / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-G EXC	400 mA	12 V	40 V	16 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-G EXC	500 mA	12 V	40 V	20 W	85 °C	-20 … +35 °C	1=on / 2=off / 3=on / 4=on
LC 28/100-700/40 FlexC Ti-G EXC	600 mA	12 V	40 V	24 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=off / 4=off
LC 28/100-700/40 FlexC Ti-G EXC	700 mA	12 V	40 V	28 W	85 °C	-20 … +35 °C	1=on / 2=on / 3=on / 4=on

ACU Retaining Collar M10

Accessory

ACU Retaining Collar M10

Product description
_ Suitable for M10 x 1 threaded nut
_ Smart slider for 360° rotation (max. torque 1.5 Nm)
_ Threaded sleeve for luminaire mounting
_ The accessory is not included and must be ordered separately.

Website
http://www.tridonic.com/28005690

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU RETAINING COLLAR M10	**28005690**	25 pc(s).	0.003 kg

ACU Retaining Rotary Stop

Accessory

Product description
_ Retaining rotary stop for luminaire mounting
_ Prevents output wires from unplugging when overwinded
_ We suggest the use of tweezers for installation
_ The accessory is not included and must be ordered separately.

Website
http://www.tridonic.com/28005691

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU RETAINING ROTARY STOP	**28005691**	25 pc(s).	0.001 kg

ACU Retaining Collar M10 & Rotary Stop

Accessory

ACU Retaining Collar M10

ACU Rotary Stop

Product description

_ Suitable for M10 x 1 threaded nut
_ Smart slider for 360° rotation (max. torque 1.5 Nm)
_ Threaded sleeve for luminaire mounting
_ Retaining rotary stop for luminaire mounting
_ Prevents output wires from unplugging when overwinded
_ We suggest the use of tweezers for installation
_ One set includes 1 pc. ACU Retaining Collar M10 and 1 pc. ACU Rotary Stop
_ The accessory is not included and must be ordered separately.

Website

http://www.tridonic.com/28006396

Ordering data

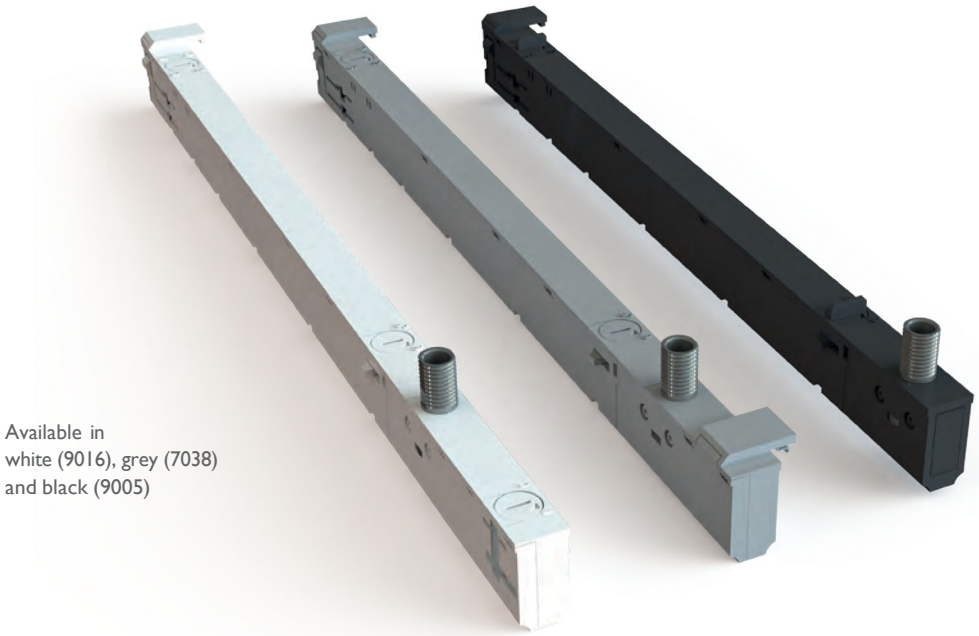
Type	Article number	Packaging, carton	Weight per pc.
ACU RETAINING COLLAR M10 & ROTARY STOP	**28006396**	500 pc(s).	0.013 kg

INVITRACK – THE INVISIBLE TRACK DRIVER

Nordic Power Converters have joined forces, and combined cutting- edge LED drivers with world-class track components to fix an industry eye-sore; the new InviTrack driver series puts the entire LED driver inside the track. The driver is virtually invisible, the only thing seen on the track is your perfectly designed luminaire. Set your design free and improve the Quality of Light at the same time.

Product Advantages

- **Completely in-track,** enabling a true no-compromise design.
- **Flicker free,** no visible or perceivable fiicker (IEEE1789 NOEL compliant, very low PstLM and SVM values).
- **Low temperature,** ensuring high reliability through high efficiency and good thermal design.
- **No inrush current,** enabling use of the full power rating of the main fuse.
- **Fits all major tracks,** including Global, Stucchi, PowerGear and more.



Available in
white (9016), grey (7038)
and black (9005)

Main specifications

Specification item	Value
Input voltage	220...240 V
PF	> 0.96
THD	< 20%
Inrush	>100 drivers on a MCB16A type B fuse
Efficiency	86%
Isolation	SELV/Class-II
Output power	28 W

Specification item	Value
Output current	100...700 mA
Output voltage	12...40 V
Size	300×13.8×28.4 mm
Luminaire weight, max	1.5 kg
Lifetime	50,000 hrs
Ambient temperature	-20 °C to 35 °C
Tcase max	85 °C

Electrical specifications

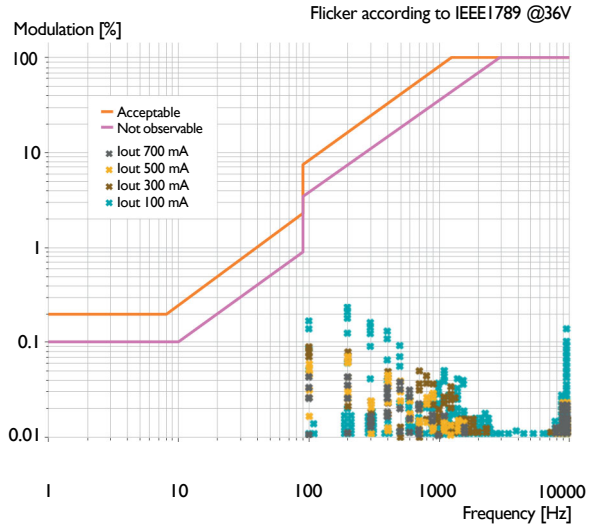
Input characteristics

Specification item	Value	Condition
Rated input voltage range	220…240 V_{AC}	Performance range
Rated input voltage	230 V_{AC}	
Rated input frequency range	50/60 Hz	Performance range
Rated input current	150 mA	@ 28 Wout and 230 Vac
Rated input power	33 W	@ 28 Wout and 230 Vac
Power factor	> 0.96	@ 28 Wout and 230 Vac
Total harmonic distortion	< 20%	@ 28 Wout and 230 Vac
Efficiency	86%	@ 28 Wout and 230 Vac
Standby	0.25 W	
EU Ecodesign	Compliant	Requirements of December 2019
Input voltage range	198…264 V_{AC}	Operational range
Input frequency range	47…63 Hz	Operational range
Isolation input to output	SELV	
Inrush current I_{PEAK}	0.25 A	@ rated input voltage
Inrush current T_{WIDTH}	15 ms	@ rated input voltage @ 50% I_{PEAK}
Drivers/MCB 16A type B	> 100 pcs	

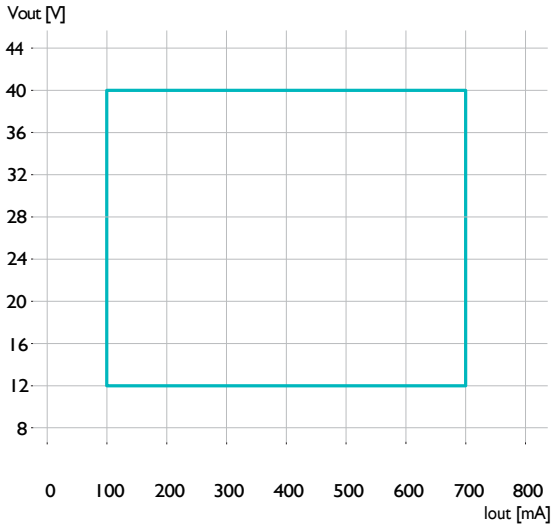
Output characteristics

Specification item	Value	Condition
Control method	Constant current	
Output voltage range	12…40 V_{DC}	
Output voltage (max)	60 V_{DC}	Peak voltage at open load
Output current range	100…700 mA	Set via dipswitch
Output current tolerance	±5%	@ 36 V_{DC}
Output flicker	IEEE1789 NOEL	Compliant with IEEE1789 No Observable Effect Limit
PstLM	< 0.1	@ 36 Vdc and 700 mA
SVM	< 0.05	@ 36 Vdc and 700 mA
Output current ripple, <120 Hz	0.2%	@ 36 V_{DC}
Output current ripple, <3 kHz	0.2%	@ 36 V_{DC}
Output power	28 W	@ 40 V_{DC}

Flicker measurement

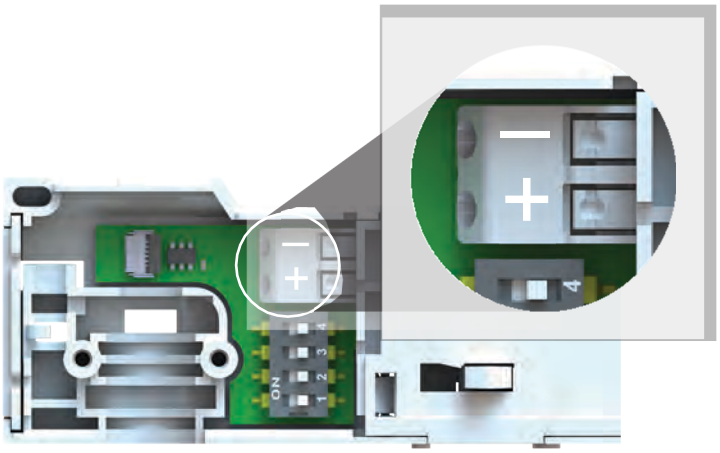


Output window



Wiring and connections

Specification item	Value	Condition
Output wire cross-section	0.2…0.75 mm2	Solid or strand wire
	24…18 AWG	Solid or strand wire
Output wire strip length	7…9 mm	
Screw size	Torx 6	
Maximum cable length	300 mm	Total length of wiring including LED module, one way
Maximum luminaire weight	1.5 kg	According to EN 60570

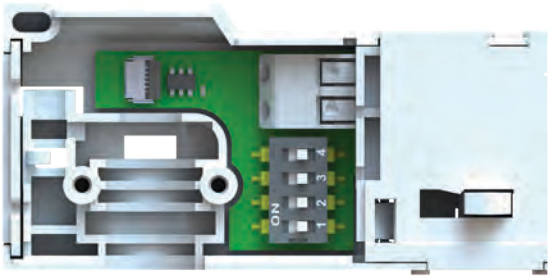


Set output current

Via dipswitch

Value	Switch 1	Switch 2	Switch 3	Switch 4
700 mA	ON	ON	ON	ON
650 mA	ON	ON	ON	–
600 mA	ON	ON	–	ON
550 mA	ON	ON	–	–
500 mA	ON	–	ON	ON
450 mA	ON	–	ON	–
425 mA	ON	–	–	ON
400 mA	ON	–	–	–

Value	Switch 1	Switch 2	Switch 3	Switch 4
375 mA	–	ON	ON	ON
350 mA	–	ON	ON	–
325 mA	–	ON	–	ON
300 mA	–	ON	–	–
250 mA	–	–	ON	ON
200 mA	–	–	ON	–
150 mA	–	–	–	ON
100 mA	–	–	–	–



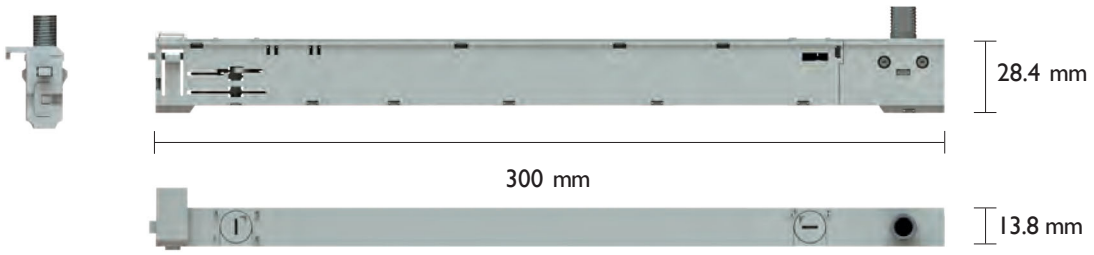
Compatible tracks

Manufacturer	Part number
Global	XTS Series, XTSF Series, XTSC Series, XTSCF Series
Stucchi	9000 ST, 9000A ST, 9000 R, 9000 H, 9000 ST15
PowerGear	PRO-04 Series, PRO-R4 Series, PRO-06 Series, PRO-R6 Series

Tests have been done with tracks taken from the market in 2020-2023.
Nordic Power Converters has no control or responsibility on any future or past possible changes made by different manufactures that could affect the compatibility between tracks and adapters.
When product is used, a clearance distance between the InviTrack casing and any of the track's non-insulated live parts (incl. DALI conductors) must be minimum 3 mm. The retaining collar is not intended to be electrically connected to the LED output terminals or protective earth.

Dimensions and weight

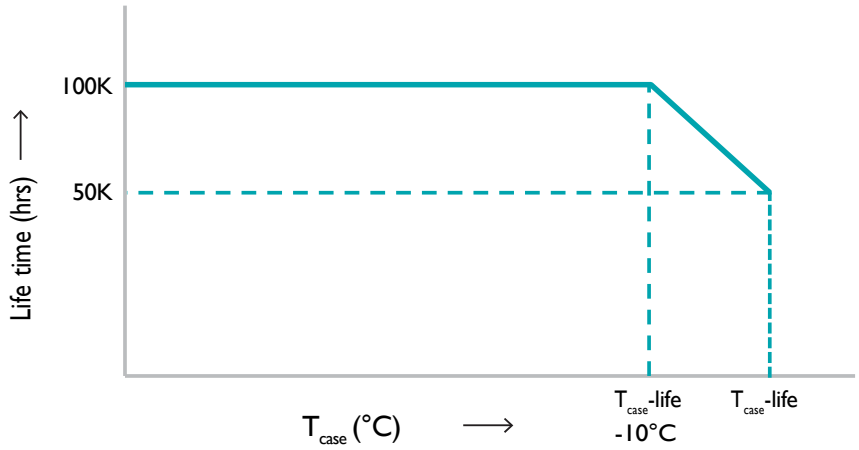
Specification item	Value	Condition
Length	300 mm	See below
Width	13.8 mm	
Height	28.4 mm	Without retaining collar
Weight	110 g	



LC 28/100-700/40 flexC Ti EXC

Operating Conditions

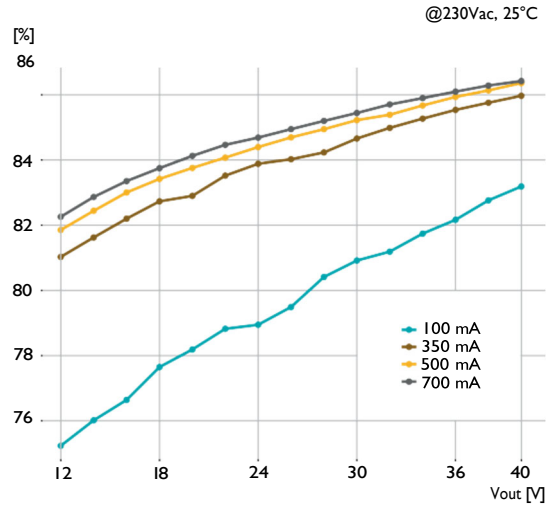
Specification item	Value	Condition
Ambient temperature	-20…+35 °C	Higher ambient temperature allowed as long as T_{case}-max is not exceeded
T_{case}-max	85 °C	Maximum temperature measured at T_{case}-point
T_{case}-life	85 °C	Measured at T_{case}-point
Relative humidity	5…85%	Non-condensing
Mains surge immunity (diff. mode)	1 kV	Acc. IEC61000-4-5 2 Ohm 1.2/50 us, 8/20 us
Mains surge immunity (comm. mode)	2 kV	Acc. IEC61000-4-5 2 Ohm 1.2/50 us, 8/20 us
Lifetime	50,000 hrs	Measured temperature at T_{case}-point is T_{case}-life. Maximum failures = 10%
Warranty	5 years	



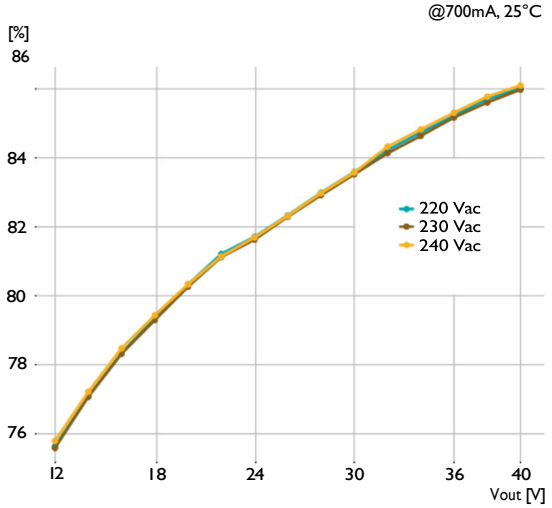
Conformity and standards

Specification item	Value	Condition
Protection class	Class II	
Isolation voltage	3 kV	
Casing class	IP20	
Approvals	CE	
EMC standards	EN 55015, EN 61547, EN 61000-3-2 (class C)	
CB certificate (safety standards)	IEC 61347-1, IEC 61347-2-13, IEC 60570, IEC 62384	The CB certificate includes EU group differences, AU and NZ

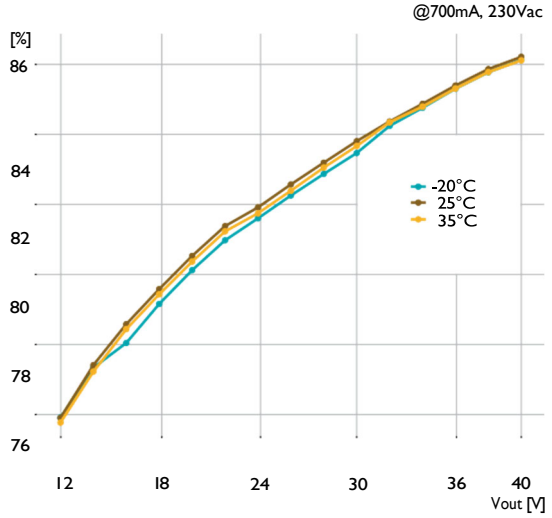
Efficiency vs. Output current



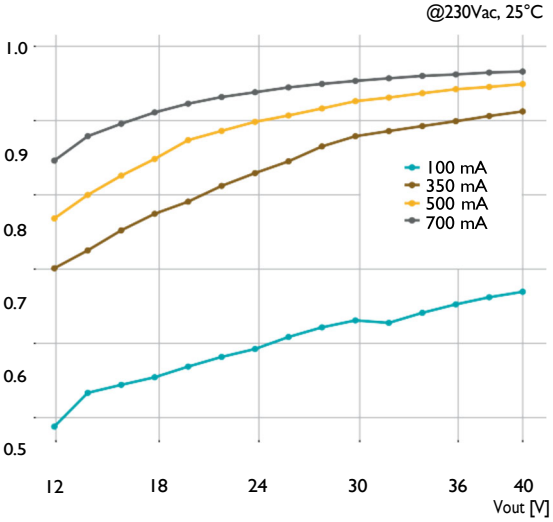
Efficiency vs. Input voltage



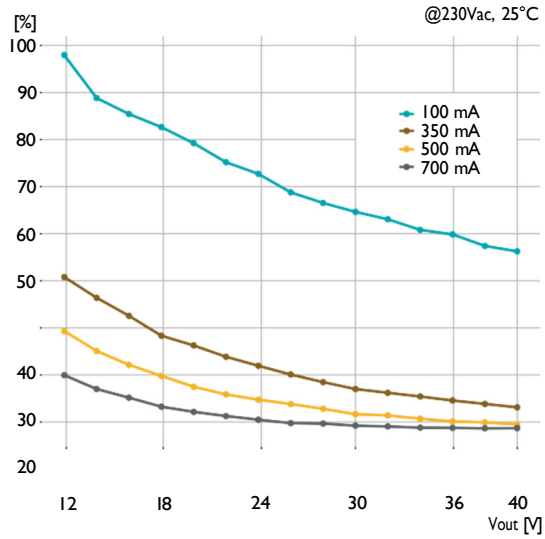
Efficiency vs. Temperature



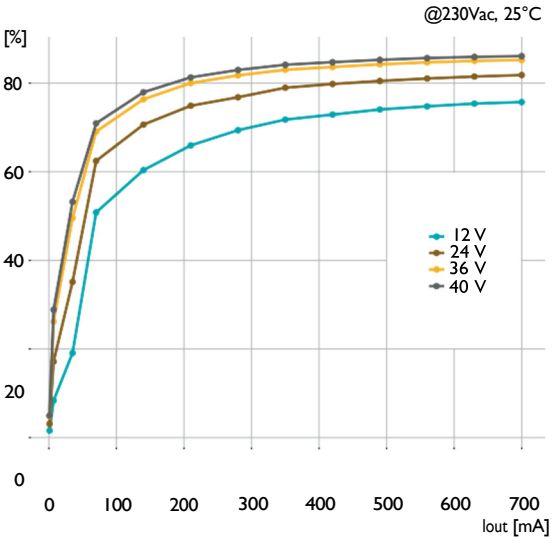
Power factor vs. Output current



THD vs. Output current



Dim Efficiency vs. Output voltage



TRIDONIC

Driver LC 34W 650-800mA flexC T SNC3

essence in-track series (3-phase system)

Black (RAL 9005)

White (RAL 9010)

Grey (RAL 7035)

Product description
_ Constant current / in-track LED driver
_ Optional accessory ACU ALU NIPPLE M10x1 for mounting the luminaire head
_ Compatible 3-phase system in-tracks, see data sheet chapter 3.8
_ For luminaires of protection class II
_ BIS approval mark for the white and black versions only
_ Temperature protection as per EN 61347-2-13 C5e
_ Selectable fixed output current via DIP switch 800, 750, 700 and 650 mA (pre-selected current 650 mA)
_ Max. output power 33.6 W
_ Up to 87.5 % efficiency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Functions
_ Overload protection
_ Short-circuit protection
_ No-load protection

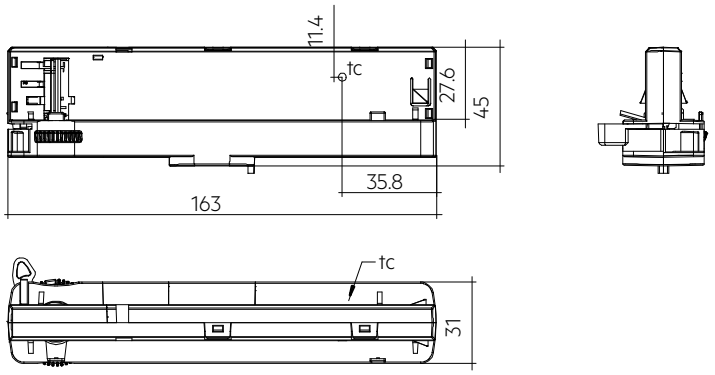
Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/87501151

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 34W 650-800mA flexC T SNC3

essence in-track series (3-phase system)



Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
LC 34/650-800/42 flexC T-B SNC3	**87501151**	Black	10 pc(s).	50 pc(s).	850 pc(s).	0.102 kg
LC 34/650-800/42 flexC T-W SNC3	**87501155**	White	10 pc(s).	50 pc(s).	850 pc(s).	0.102 kg
LC 34/650-800/42 flexC T-G SNC3	**87501159**	Grey	10 pc(s).	50 pc(s).	850 pc(s).	0.102 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.17 A
Leakage current (at 230 V, 50 Hz, full load)	< 450 µA
Touch current (equipotential connected) ①	< 450 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Typ. power consumption (at 230 V, 50 Hz, full load)	39 W
Min. output power	15.6 W
Max. output power	33.6 W
Typ. efficiency (at 230 V, 50 Hz, full load)	87.5 %
λ (at 230 V, 50 Hz, full load)	0.96
Output current tolerance ②	± 7.5 %
Max. output current peak ③	903 mA
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load)	< 15 %
Output LF current ripple (< 120 Hz) ②	± 5 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.5 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.5 s
Hold on time at power failure (output)	0 s
Ambient temperature ta (at lifetime 50,000 h)	35 °C
Storage temperature ts	-40 … +80 °C
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Surge voltage at output side (against PE)	< 3.5 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	163 x 31 x 45 mm

Approval marks

IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 61000-4-4, EN 61000-4-5

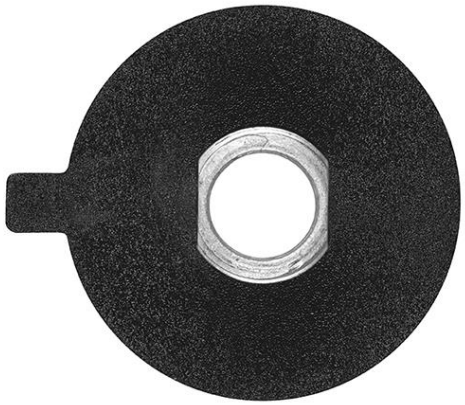
Specific technical data

Type	Output current④	Min. output voltage	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	tc point max.	Ambient temperature ta	I-out select
LC 34/650-800/42 flexC T-B SNC3	650 mA	24 V	42 V	27.3 W	31.5 W	145 mA	60 °C	-20 … +35 °C	1=off / 2=off
LC 34/650-800/42 flexC T-B SNC3	700 mA	24 V	42 V	29.4 W	33.5 W	155 mA	60 °C	-20 … +35 °C	1=off / 2=on
LC 34/650-800/42 flexC T-B SNC3	750 mA	24 V	42 V	31.5 W	36.5 W	165 mA	65 °C	-20 … +35 °C	1=on / 2=off
LC 34/650-800/42 flexC T-B SNC3	800 mA	24 V	42 V	33.6 W	39.0 W	170 mA	65 °C	-20 … +35 °C	1=on / 2=on
LC 34/650-800/42 flexC T-W SNC3	650 mA	24 V	42 V	27.3 W	31.5 W	145 mA	60 °C	-20 … +35 °C	1=off / 2=off
LC 34/650-800/42 flexC T-W SNC3	700 mA	24 V	42 V	29.4 W	33.5 W	155 mA	60 °C	-20 … +35 °C	1=off / 2=on
LC 34/650-800/42 flexC T-W SNC3	750 mA	24 V	42 V	31.5 W	36.5 W	165 mA	65 °C	-20 … +35 °C	1=on / 2=off
LC 34/650-800/42 flexC T-W SNC3	800 mA	24 V	42 V	33.6 W	39.0 W	170 mA	65 °C	-20 … +35 °C	1=on / 2=on
LC 34/650-800/42 flexC T-G SNC3	650 mA	24 V	42 V	27.3 W	31.5 W	145 mA	60 °C	-20 … +35 °C	1=off / 2=off
LC 34/650-800/42 flexC T-G SNC3	700 mA	24 V	42 V	29.4 W	33.5 W	155 mA	60 °C	-20 … +35 °C	1=off / 2=on
LC 34/650-800/42 flexC T-G SNC3	750 mA	24 V	42 V	31.5 W	36.5 W	165 mA	65 °C	-20 … +35 °C	1=on / 2=off
LC 34/650-800/42 flexC T-G SNC3	800 mA	24 V	42 V	33.6 W	39.0 W	170 mA	65 °C	-20 … +35 °C	1=on / 2=on

① Maximum of "perception and reaction" and "let go" values according to EN 60598-1.
② Test result at 25 °C.
③ Test result at max. current.
④ Output current is mean value.

ACU ALU NIPPLE M10x8

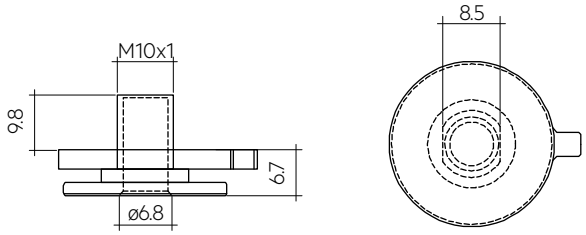
Accessory



Product description

_ Optional threaded sleeve for luminaire mounting
_ Suitable for M10x8 mm threaded nut
_ We suggest to use mechanical way(screw) to assemble the nipple and track light fixure, use glue may have potential risk to change the material charactoristics and destroy the plastic gasket and the nipple.

Website
http://www.tridonic.com/28005589



Ordering data

Type	Article number	Weight per pc.
ACU ALU NIPPLE M10x8 BK	**28005589**	0.005 kg
ACU ALU NIPPLE M10x8 WH	**28005590**	0.005 kg
ACU ALU NIPPLE M10x8 GR	**28005591**	0.005 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-13
EN 61547
EN 61000-4-4
EN 61000-4-5

1.1 Glow-wire test

According to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

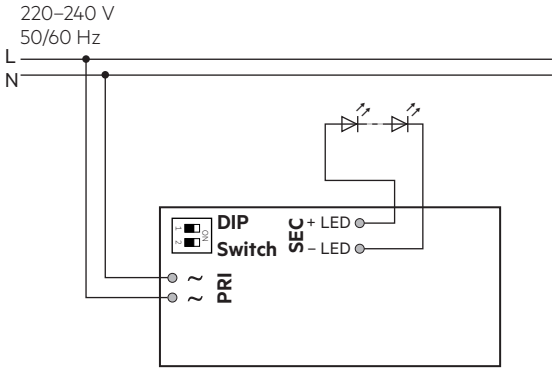
Type	Output current	ta	25 °C	35 °C
LC 34/650-800/42 flexC T SNC3	650 mA	Lifetime	> 100,000 h	> 50,000 h
	700 mA	Lifetime	> 100,000 h	> 50,000 h
	750 mA	Lifetime	> 100,000 h	> 50,000 h
	800 mA	Lifetime	> 100,000 h	> 50,000 h

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

Temperatures were measured with Tracktype PRO-310 from manufacturer powergear. Temperatures can deviate with tracks from other manufacturers.

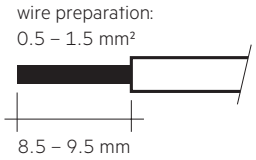
3. Installation / wiring

3.1 Circuit diagram



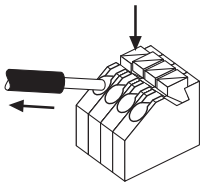
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.5–1.5 mm².
Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 30 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N)

3.8 Compatible tracks

Subject to be changed without notice.

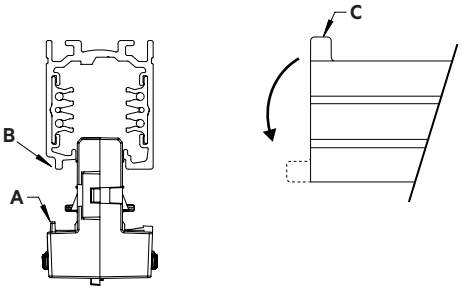
Manufacturer	Type	System	Intrack casing colour
EUTRAC	25-XX-XX / 26-XX-XX	3P	Black, white, grey
IVELA	7501 / 7511 / 7512	3P	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pro XTS 4xxx	3P	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pro XTSF 4xxx	3P	Black, white, grey
Stucchi	One track	3P	Black, white, grey
Powergear	PRO-04X0	3P	Black, white, grey

Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.

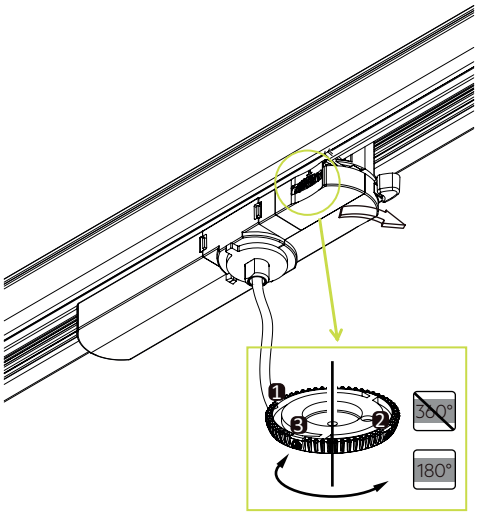
3.9 Adapter mounting into the track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C) until it reachs the locking position.
To open rotate the lever the opposite direction.



3.10 Phase selection

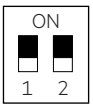
When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector of the adaptor.



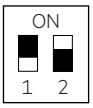
3.11 Current setting

Set the current by DIP switch after mains off.
Use of DIP switch only after mains off.

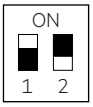
650 mA: Switch 1 = Off, Switch 2 = Off



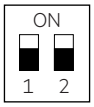
700 mA: Switch 1 = Off, Switch 2 = On



750 mA: Switch 1 = On, Switch 2 = Off

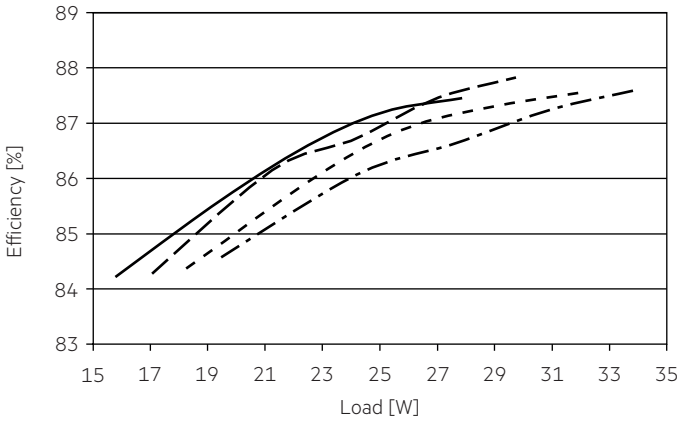


800 mA: Switch 1 = On, Switch 2 = On

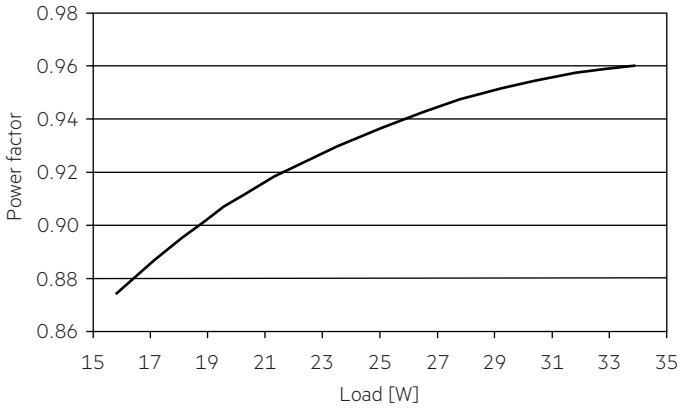


4. Electrical values

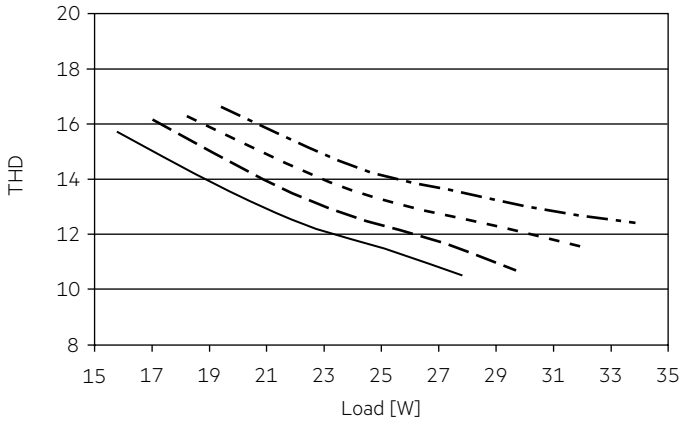
4.1 Efficiency vs load



4.2 Power factor vs load



4.3 THD vs load



650 mA
700 mA
750 mA
800 mA

4.6 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	I_{max}	Time
LC 34/650-800/42 flexC T SNC3	45	60	75	95	45	60	75	95	4 A	50 µs

These are max. values calculated out of inrush current! Please consider not to exceed the maximum rated continuous current of the circuit breaker.
Calculation uses typical values from ABB series S200 as a reference.
Actual values may differ due to used circuit breaker types and installation environment.

4.7 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 34/650-800/42 flexC T SNC3	< 15	< 15	< 10	< 5	< 5	< 3

5. Functions

5.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

5.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

5.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

6. Miscellaneous

6.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

6.2 Conditions of use and storage

Humidity: 5 % up to max. 85 %,
not condensed
(max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be within the specified temperature range (ta) before they can be operated.

6.3 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.

6.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

Driver LC 40W 500-1050mA 42V bDW NF T EXC3

excite NFC in-track series

Black (RAL 9005)

Grey (RAL 7035)

White (RAL 9010)

Product description
_ Can be integrated in Casambi systems (Casambi Ready)
_ Dimmable constant current / in-track LED driver
_ Optional accessory ACU ALU NIPPLE M10x1 for mounting the luminaire head
_ Compatible 3-phase system in-tracks, see data sheet chapter 3.8
_ Forms automatically a wireless communication network with up to 250 nodes
_ Dimming range 1 to 100 % (min. 5 mA)
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Adjustable output current between 500 and 1,050 mA via near field communication (NFC)
_ Max. output power 40 W
_ Up to 85 % efficiency
_ Power input on stand-by < 0.5 W
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ We will provide security updates for the next five years after the date of purchase of this product

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Interfaces
_ basicDIM Wireless
_ Near field communication (NFC)

Functions
_ Adjustable output current in 1-mA-steps (NFC)
_ Overtemperature protection
_ Overload protection
_ Short-circuit protection
_ No-load protection
_ Burst protection voltage 2 kV
_ Surge protection voltage 1 kV (L to N)

Benefits
_ Flexible configuration via companionSUITE (NFC)
_ Support NFC multiple programming (full carton box)

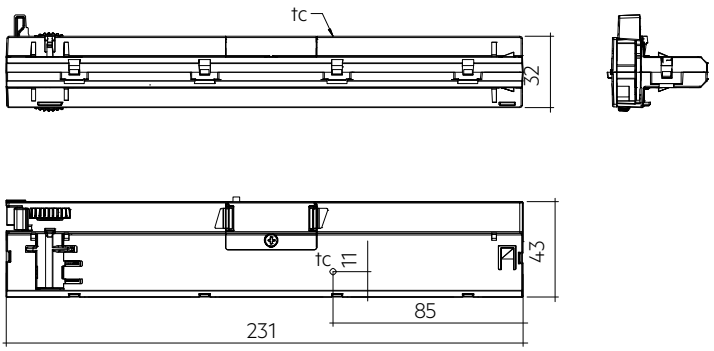
Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/28003057

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 40W 500-1050mA 42V bDW NF T EXC3

excite NFC in-track series



Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
LC 40/500-1050/42 bDW NF T-B EXC3	**28003057**	10 pc(s).	1,260 pc(s).	0.150 kg
LC 40/500-1050/42 bDW NF T-W EXC3	**28003058**	10 pc(s).	1,260 pc(s).	0.150 kg
LC 40/500-1050/42 bDW NF T-G EXC3	**28003059**	10 pc(s).	1,260 pc(s).	0.148 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.23 A
Leakage current (at 230 V, 50 Hz, full load)	< 700 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Max. input power ①	49 W
Typ. power consumption (at 230 V, 50 Hz, full load) ①	46.6 W
Min. output power	0.07 W
Max. output power	40 W
Typ. power consumption on stand-by ②	< 0.5 W
Typ. efficiency (at 230 V, 50 Hz, full load) ①	85 %
λ (over full operating range)	0.85C – 0.95
Output current tolerance ③	± 5 %
Max. output current peak ④	≤ output current + 20 %
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load) ①	< 10 %
Output LF current ripple (< 120 Hz)	± 3 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.66 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.03 s
Hold on time at power failure (output)	0 s
Dimming range	1 – 100 %
Ambient temperature ta (at lifetime 100,000 h)	25 °C
Storage temperature ts	-40 … +80 °C
Mains surge capability (between L - N)	1 kV
Radio transceiver operating frequencies	2.4 – 2.483 GHz
Max. output power radio transceiver (E.I. R.P.) ⑤	< + 20 dBm
Radio protocol	Bluetooth 4.0 or 5.0 Low Energy (BLE)
Capable for mesh network	Up to 250 nodes / Standard networks and Long Range
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	231 x 32 x 43 mm

Approval marks

NFC IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61000-4-4, EN 61000-4-5, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384, EN 62386 (acc. to DALI standard V1), ETSI EN 300 330, ETSI EN 301 489-1, ETSI EN 301 489-3, ETSI EN 300 328, ETSI EN 301 489-17

Specific technical data

Type	Output current ③	Min. output voltage ⑥	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	tc point max.	Ambient temperature ta
LC 40/500-1050/42 bDW NF T-B EXC3	500 mA	14 V	42.0 V	21.0 W	25.0 W	99 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-B EXC3	600 mA	14 V	42.0 V	25.2 W	30.0 W	117 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-B EXC3	700 mA	14 V	42.0 V	29.4 W	34.6 W	134 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-B EXC3	800 mA	14 V	42.0 V	33.6 W	38.9 W	150 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-B EXC3	900 mA	14 V	42.0 V	37.8 W	43.5 W	167 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-B EXC3	1,050 mA	14 V	38.1 V	40.0 W	46.6 W	179 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-W EXC3	500 mA	14 V	42.0 V	21.0 W	25.0 W	99 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-W EXC3	600 mA	14 V	42.0 V	25.2 W	30.0 W	117 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-W EXC3	700 mA	14 V	42.0 V	29.4 W	34.6 W	134 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-W EXC3	800 mA	14 V	42.0 V	33.6 W	38.9 W	150 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-W EXC3	900 mA	14 V	42.0 V	37.8 W	43.5 W	167 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-W EXC3	1,050 mA	14 V	38.1 V	40.0 W	46.6 W	179 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-G EXC3	500 mA	14 V	42.0 V	21.0 W	25.0 W	99 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-G EXC3	600 mA	14 V	42.0 V	25.2 W	30.0 W	117 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-G EXC3	700 mA	14 V	42.0 V	29.4 W	34.6 W	134 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-G EXC3	800 mA	14 V	42.0 V	33.6 W	38.9 W	150 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-G EXC3	900 mA	14 V	42.0 V	37.8 W	43.5 W	167 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 bDW NF T-G EXC3	1,050 mA	14 V	38.1 V	40.0 W	46.6 W	179 mA	80 °C	-20 … +35 °C

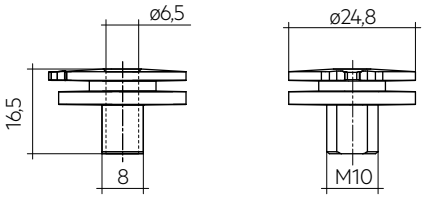
① Test result at 1,050 mA.
② Depending on the basicDIM Wireless traffic.
③ Output current is mean value.
④ Test result at 25 °C.
⑤ E.I.R.P.: Equivalent Isotropically Radiated Power.
⑥ Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

ACU ALU NIPPLE M10x1

Accessory

Product description
_ Optional threaded sleeve for luminaire mounting
_ Suitable for S-9009/D-M10 threaded nut
_ Additional mounting equipment, e.g. M13x1 available at AAG Stucchi (http://www.aagstucchi.it/en/)

Website
http://www.tridonic.com/28002398



Ordering data

Type	Article number	Packaging, bag	Weight per pc.
ACU ALU NIPPLE M10x1	**28002398**	100 pc(s).	0.007 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61000-4-4
EN 61000-4-5
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384
EN 62386
ETSI EN 300 330
ETSI EN 301 489-1
ETSI EN 301 489-3
ETSI EN 300 328
ETSI EN 301 489-17

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed (Grey RAL 7035 / White RAL 9010).
according to EN 61347-1 with increased temperature of 750 °C passed (Black RAL 9005).

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

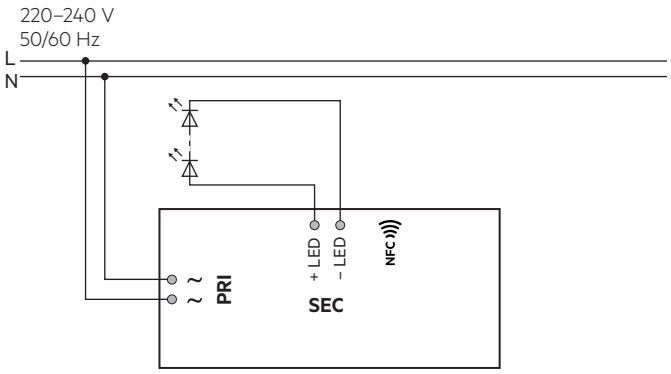
Type	ta	25 °C	35 °C
LC 40/500-1050/42 bDW NF T EXC3	Lifetime	100,000 h	50,000 h

① Test result at max. output voltage.

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

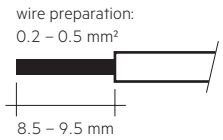
3. Installation / wiring

3.1 Circuit diagram



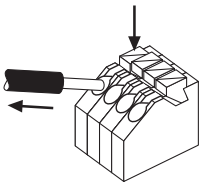
3.2 Wiring type and cross section

For wiring use stranded wire with ferrules or solid wire from 0.2–0.5 mm².
Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).
- The driver is a safety isolating device with SELV output.

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 10 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N).
This is valid for horizontal mounting of track system only.
For vertical installation please contact Tridonic for clarification.

3.8 Compatible tracks

Subject to be changed without notice.

Manufacturer	Type	System	Intrack casing colour
EUTRAC	25-XX-XX / 26-XX-XX	3P	Black, white, grey
iGuzzini	6771-6774	3P	Black, white, grey
iGuzzini	6779-6782	3P	Black, white, grey
IVELA	7501 / 7511 / 7512	3P	Black, white, grey
LUMISYS UNIPRO	T32 / T33 /34	3P	Black, white, grey
LUMISYS UNIPRO	T32F / T33F /34F	3P	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pro XTS 4xxx	3P	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pro XTSF 4xxx	3P	Black, white, grey
ERCO	783...	3P	Black, white, grey
SIDE	25101	3P	Black, white, grey
PHILIPS	RCS350 3C	3P	Black, white, grey
FOSNOVA	OMNITRACK	3P	Black, white, grey
Stucchi	ONETRACK	3P	Black, white, grey
Powergear	PRO-0610	3P	Black, white, grey
Unipro	T32W	3P	Black, white, grey
Unipro	T32FW	3P	Black, white, grey

Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.

3.9 Insulation between terminals

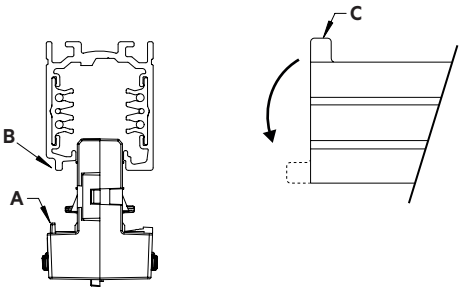
Insulation	Mains	–LED / +LED
Mains	–	double
–LED / +LED	double	–

basic ... represents basic insulation.

double ... represents double or reinforced insulation.

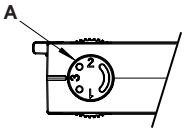
3.10 Adapter mounting into the track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C) until it reachs the locking position.
To open rotate the lever the opposite direction.



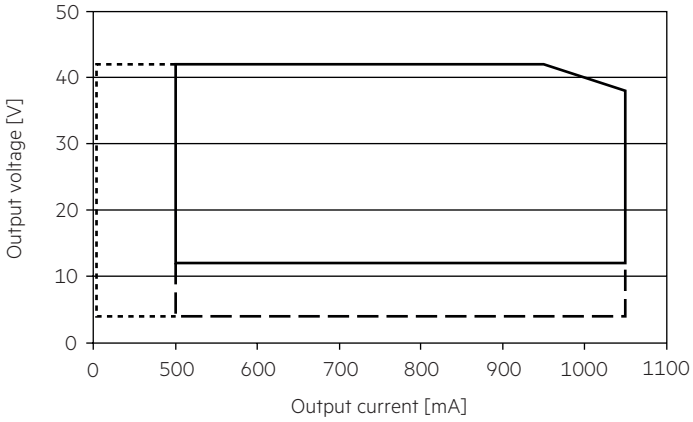
3.11 Phase selection

When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector (A) of the adaptor.



4. Electrical values

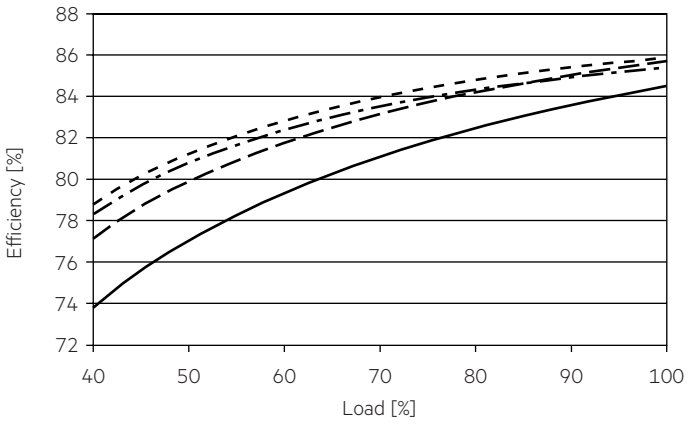
4.1 Operating window



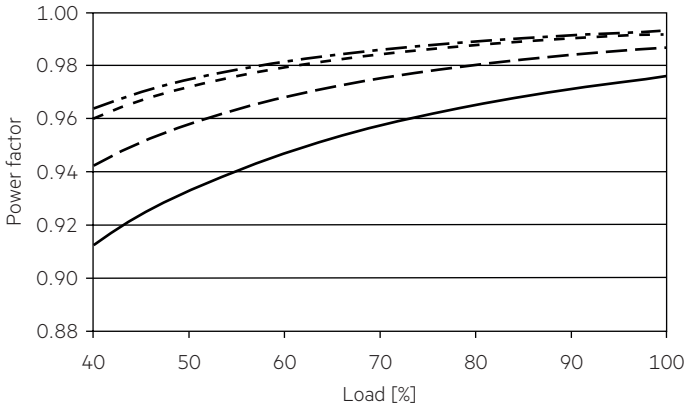
Operating window
Operating window dimmed
Operating window 4 V

Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

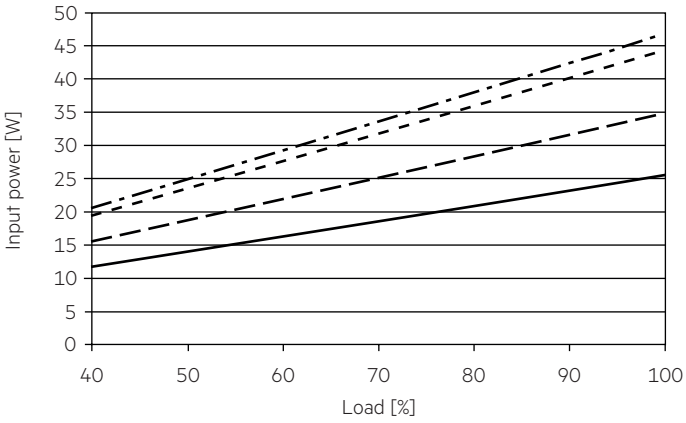
4.2 Efficiency vs load



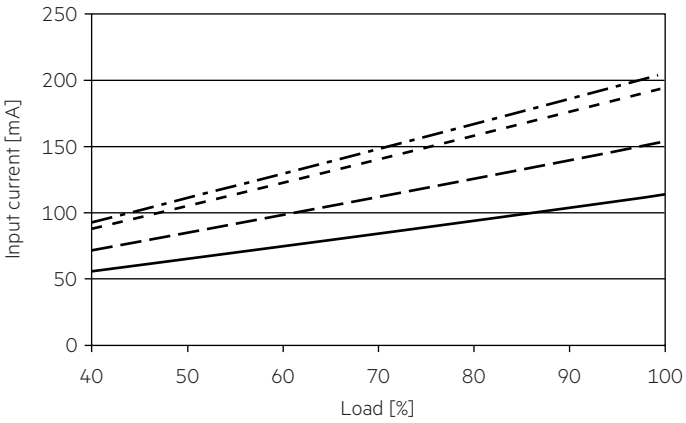
4.3 Power factor vs load



4.4 Input power vs load

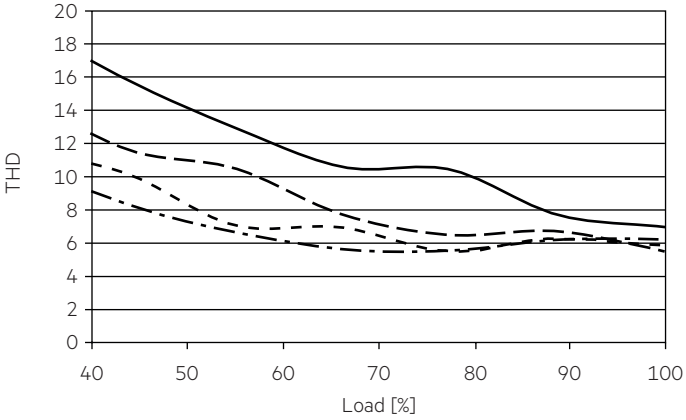


4.5 Input current vs load



4.6 THD vs load

THD without harmonic < 5 mA (0.6 %) of the input current:



500 mA
700 mA
900 mA
1050 mA

4.7 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	Time
LC 40/500-1050/42 bDW NF T EXC3	40	52	64	80	40	52	64	80	9.6 A	32 µs

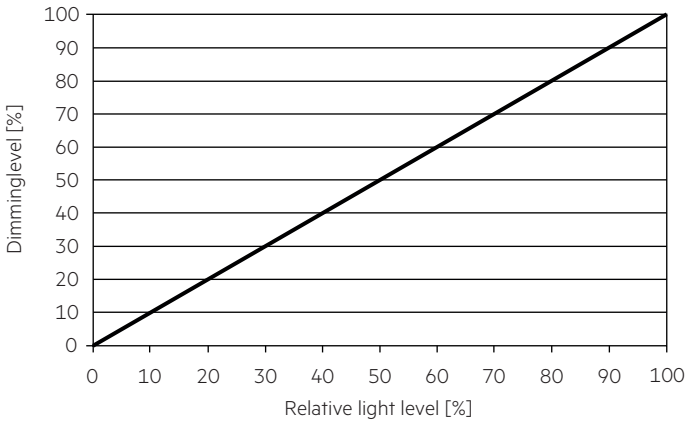
These are max. values calculated out of inrush current! Please consider not to exceed the maximum rated continuous current of the circuit breaker.
Calculation uses typical values from ABB series S200 as a reference.
Actual values may differ due to used circuit breaker types and installation environment.

4.8 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 40/500-1050/42 bDW NF T EXC3	< 11	< 9	< 3	< 3	< 4	< 3

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

4.9 Dimming characteristics



5. Software / Programming / Interfaces

5.1 Software / programming

With appropriate software and interface different functions can be activated and various parameters can be configured in the LED driver.
The Driver supports the following software and interfaces:

Software / hardware for configuration:
- companionSUITE (deviceGENERATOR, deviceCONFIGURATOR, deviceANALYSER)

Interfaces for data transfer:
- NFC

5.2 Nearfield communication (NFC)

The NFC Interface allows wireless communication with the LED driver.
This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.
A correct communication between the LED driver and the NFC antenna can only be guaranteed if the Driver is directly placed on the antenna.
Any material placed between the LED driver and the NFC antenna can cause a deterioration of the communication quality.
We recommend the use of following NFC antennas:
www.tridonic.com/nfc-readers

NFC is compliant with ISO/IEC 15963 standard.

Changing parameters via NFC shall be done by qualified engineers only.

6. Functions

⊙ companionSUITE:
NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	NFC
	OEM Identification	⊙
	OEM GTIN	⊙
	LED current	⊙
	corridorFUNCTION	⊙
	Constant light output (CLO)	⊙

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

6.2 Constant Light Output (CLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (CLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
CLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for CLO see product manual.

LED driver has a programmable constant light output function, but operates in all states within its specified rated operating window.

7. Protective features

7.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

7.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

7.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

7.4 Overtemperature protection

The LED driver is protected against temporary thermal overheating.
If the temperature limit is exceeded the LED driver will switch off.
It restarts automatically.
The temperature protection is activated above tc max.

Temperature declared thermally protected LED driver with integrated electronic protection means against overheating.

8. Miscellaneous

8.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

The equipotential terminal is used to connect the heat sink and the LED driver to reduce transients.

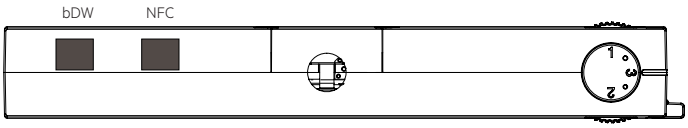
8.2 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

8.3 Placement

basicDIM Wireless has an integrated antenna for easy integration. In order to maximize the range in every direction some design guidelines should be taken into consideration when mounting the device.
The antenna is located on the housing side not covered by the track.
The device should be placed as far away from any vertical metal structures as possible.



The range of the communication signal is depending on the environment e.g. luminaire, construction of the building, furnitures or humans and needs to be tested and approved in the installation.

8.4 Network compatibility

This Driver is fully compatible with networks which support up to 250 nodes (Evolution networks). If the Driver is used with different types of basicDIM Wireless devices in an Evolution network, their compatibility has to be checked before. If a device is not compatible with Evolution networks, it can be only used in networks which support up to max. of 127 devices (Classic networks).

8.5 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

8.6 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

8.7 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

TRIDONIC

Driver LC 40W 500-1050mA 42V o4a NF T EXC3

excite NFC in-track series

Black (RAL 9005)

Grey (RAL 7035)

White (RAL 9010)

Product description
_ Dimmable constant current / in-track LED driver
_ Optional accessory ACU ALU NIPPLE M10x1 for mounting the luminaire head
_ Compatible with Global Trac PULSE from Nordic Aluminum and OneTrack from Stucchi, see data sheet chapter 3.8
_ Dimming range 1 to 100 % (min. 5 mA)
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Adjustable output current between 500 and 1,050 mA via near field communication (NFC)
_ Max. output power 40 W
_ Up to 85 % efficiency
_ Power input on stand-by < 0.5 W
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Interfaces
_ Near field communication (NFC)
_ one4all (DALI-2, switchDIM, corridorFUNCTION)

Functions
_ Adjustable output current in 1-mA-steps (NFC, DALI-2)
_ Overtemperature protection
_ Overload protection
_ Short-circuit protection
_ No-load protection
_ Burst protection voltage 2 kV
_ Surge protection voltage 1 kV (L to N)

Benefits
_ Flexible configuration via companionSUITE (NFC, DALI-2)
_ Support NFC multiple programming (full carton box)

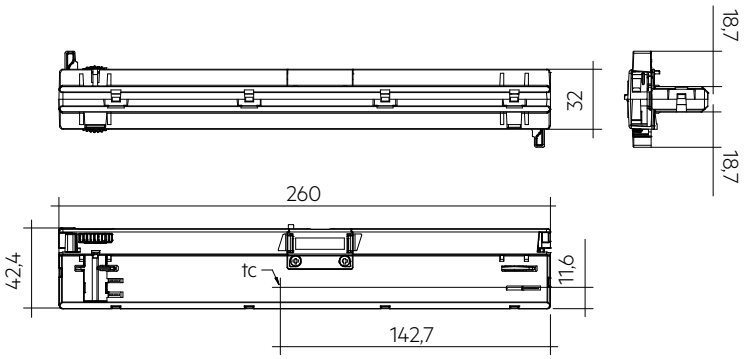
Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/87500899

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 40W 500-1050mA 42V o4a NF T EXC3

excite NFC in-track series



Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
LC 40/500-1050/42 o4a NF T-B EXC3	**87500899**	Black	10 pc(s).	130 pc(s).	1,170 pc(s).	0.164 kg
LC 40/500-1050/42 o4a NF T-W EXC3	**87500900**	White	10 pc(s).	130 pc(s).	1,170 pc(s).	0.167 kg
LC 40/500-1050/42 o4a NF T-G EXC3	**87500901**	Grey	10 pc(s).	130 pc(s).	1,170 pc(s).	0.164 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.23 A
Leakage current (at 230 V, 50 Hz, full load)	< 700 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Max. input power ①	49 W
Typ. power consumption (at 230 V, 50 Hz, full load) ①	46.6 W
Min. output power	0.07 W
Max. output power	40 W
Typ. power consumption on stand-by ②	< 0.5 W
Typ. efficiency (at 230 V, 50 Hz, full load) ①	83 %
λ (at 230 V, 50 Hz, full load) ①	0.95
Output current tolerance ③	± 5 %
Max. output current peak ④	≤ output current + 20 %
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load) ①	< 10 %
Output LF current ripple (< 120 Hz)	± 3 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.66 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.03 s
Hold on time at power failure (output)	0 s
Dimming range	1 – 100 %
Ambient temperature ta (at lifetime 100,000 h)	35 °C
Storage temperature ts	-40 … +80 °C
Mains surge capability (between L - N)	1 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	260 x 32 x 42.4 mm

Approval marks

NFC DALI IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384

Specific technical data

Type	Output current③	Min. output voltage②	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	tc point max.	Ambient temperature ta
LC 40/500-1050/42 o4a NF T-B EXC3	500 mA	14 V	42.0 V	21.0 W	25.0 W	99 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-B EXC3	600 mA	14 V	42.0 V	25.2 W	30.0 W	117 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-B EXC3	700 mA	14 V	42.0 V	29.4 W	34.6 W	134 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-B EXC3	800 mA	14 V	42.0 V	33.6 W	38.9 W	150 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-B EXC3	900 mA	14 V	42.0 V	37.8 W	43.5 W	167 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-B EXC3	1,050 mA	14 V	38.1 V	40.0 W	46.6 W	179 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-W EXC3	500 mA	14 V	42.0 V	21.0 W	25.0 W	99 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-W EXC3	600 mA	14 V	42.0 V	25.2 W	30.0 W	117 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-W EXC3	700 mA	14 V	42.0 V	29.4 W	34.6 W	134 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-W EXC3	800 mA	14 V	42.0 V	33.6 W	38.9 W	150 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-W EXC3	900 mA	14 V	42.0 V	37.8 W	43.5 W	167 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-W EXC3	1,050 mA	14 V	38.1 V	40.0 W	46.6 W	179 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-G EXC3	500 mA	14 V	42.0 V	21.0 W	25.0 W	99 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-G EXC3	600 mA	14 V	42.0 V	25.2 W	30.0 W	117 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-G EXC3	700 mA	14 V	42.0 V	29.4 W	34.6 W	134 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-G EXC3	800 mA	14 V	42.0 V	33.6 W	38.9 W	150 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-G EXC3	900 mA	14 V	42.0 V	37.8 W	43.5 W	167 mA	80 °C	-20 … +35 °C
LC 40/500-1050/42 o4a NF T-G EXC3	1,050 mA	14 V	38.1 V	40.0 W	46.6 W	179 mA	80 °C	-20 … +35 °C

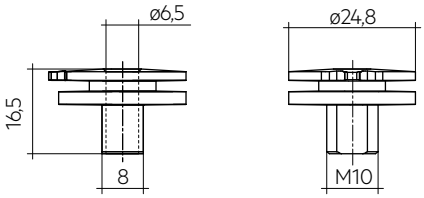
① Test result at 1,050 mA.
② Depending on the DALI traffic at the interface.
③ Output current is mean value.
④ Test result at 25 °C.
⑤ Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

ACU ALU NIPPLE M10x1

Accessory

Product description
_ Optional threaded sleeve for luminaire mounting
_ Suitable for S-9009/D-M10 threaded nut
_ Additional mounting equipment, e.g. M13x1 available at AAG Stucchi (http://www.aagstucchi.it/en/)

Website
http://www.tridonic.com/28002398



Ordering data

Type	Article number	Packaging, bag	Weight per pc.
ACU ALU NIPPLE M10x1	**28002398**	100 pc(s).	0.007 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61000-4-4
EN 61000-4-5
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384
EN 62386

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

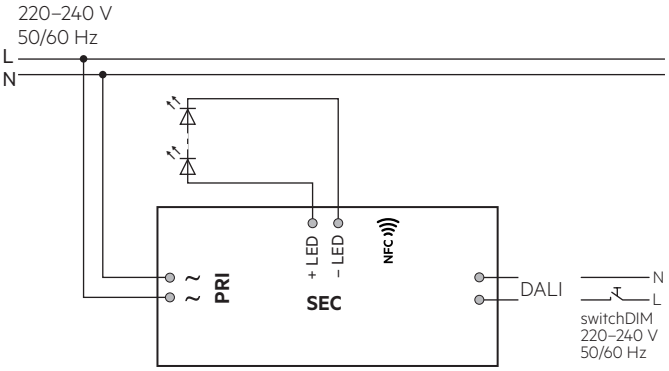
Type	ta	25 °C	35 °C
LC 40/500-1050/42 o4a NF T EXC3	Lifetime	100,000 h	50,000 h

① Test result at max. output voltage.

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

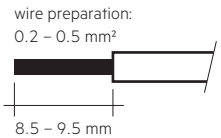
3. Installation / wiring

3.1 Circuit diagram



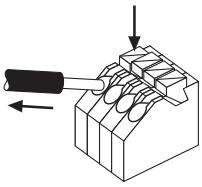
3.2 Wiring type and cross section

For wiring use stranded wire or solid wire from 0.2–0.5 mm². Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 10 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N).
This is valid for horizontal mounting of track system only.
For vertical installation please contact Tridonic for clarification.

3.8 Compatible tracks

Subject to be changed without notice.

Manufacturer	Type	System	Intrack casing colour
NORDIC ALUMINIUM	GLOBAL Trac Pulse XTSC 6xxx	3P + DALI	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pulse XTSCF 6xxx	3P + DALI	Black, white, grey
Stucchi	One track	3P + DALI	Black, white, grey
Powergear	PRO-0610	3P + DALI	Black, white, grey
Unipro	TC32W	3P + DALI	Black, white, grey
Unipro	TC32FW	3P + DALI	Black, white, grey

Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.
Please check compatibility of track system with switchDIM or corridorFUNCTION in advance.

3.9 Insulation between terminals

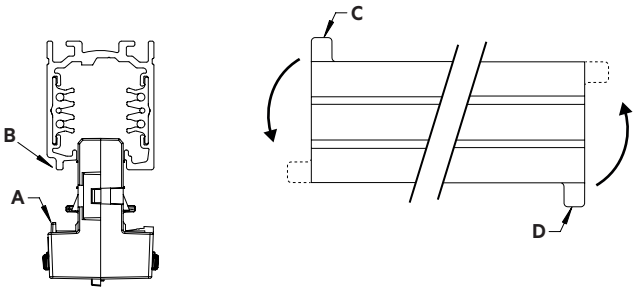
Insulation	Mains	–LED / +LED	one4all
Mains	–	double	basic
–LED / +LED	double	–	double
one4all	basic	double	–

basic ... represents basic insulation.

double ... represents double or reinforced insulation.

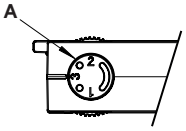
3.10 Adapter mounting into the track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C = mains and D = DALI-2) until it reachs the locking position.
To open rotate the lever the opposite direction.



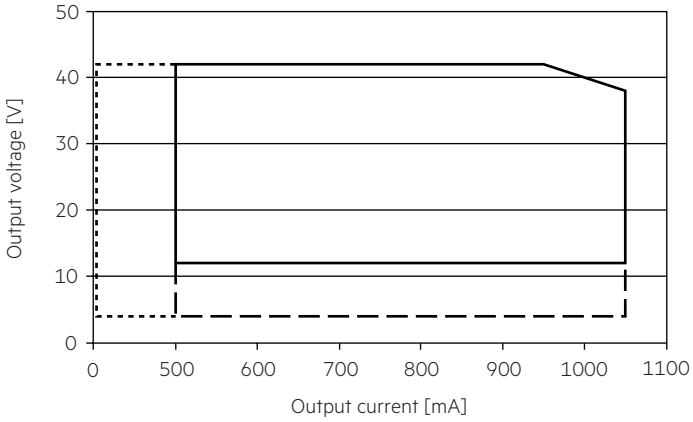
3.11 Phase selection

When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector (A) of the adaptor.



4. Electrical values

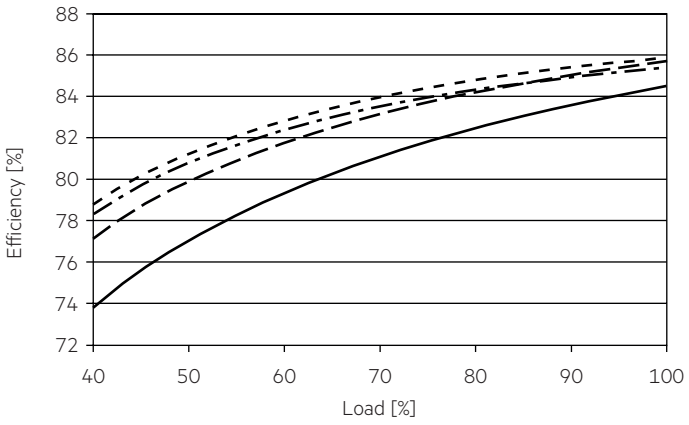
4.1 Operating window



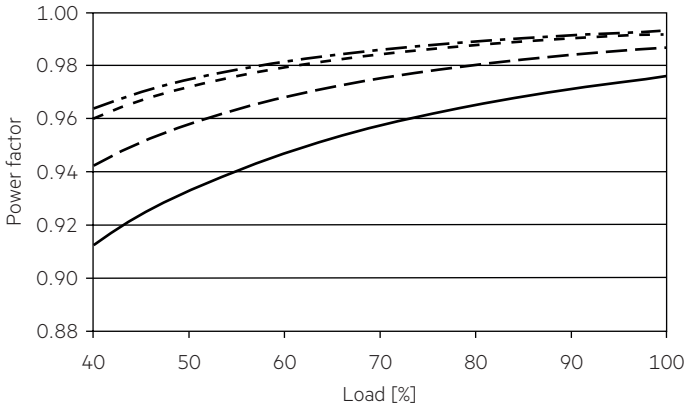
Operating window
Operating window dimmed
Operating window 4 V

Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

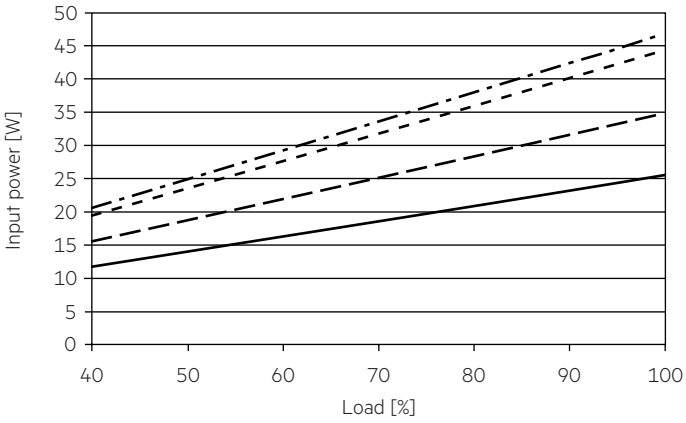
4.2 Efficiency vs load



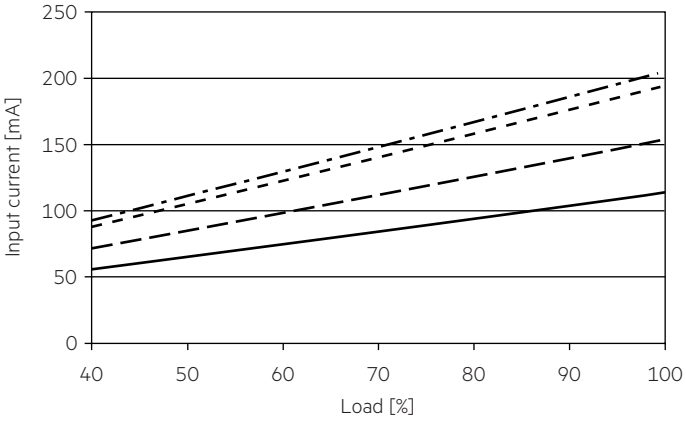
4.3 Power factor vs load



4.4 Input power vs load

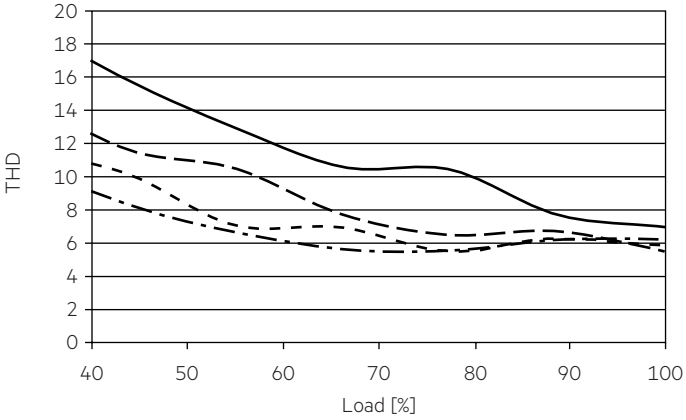


4.5 Input current vs load



4.6 THD vs load

THD without harmonic < 5 mA (0.6 %) of the input current:



500 mA
700 mA
900 mA
1050 mA

4.7 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	Time
LC 40/500-1050/42 o4a NF T EXC3	40	52	64	80	40	52	64	80	9.6 A	32 µs

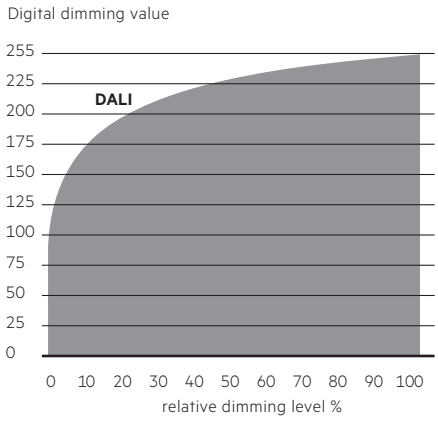
These are max. values calculated out of continuous current running the device on full load.
There is no limitation due to inrush current.
If load is smaller than full load for calculation only continuous current has to be considered.

4.8 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 40/500-1050/42 o4a NF T EXC3	< 11	< 9	< 3	< 3	< 4	< 3

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

4.9 Dimming characteristics



Dimming characteristics as seen by the human eye.

Dimming is realized by amplitude dimming.

5. Software / Programming / Interfaces

5.1 Software / programming

With appropriate software and interface different functions can be activated and various parameters can be configured in the LED driver. The Driver supports the following software and interfaces:

Software / hardware for configuration:
- companionSUITE (deviceGENERATOR, deviceCONFIGURATOR, deviceANALYSER)

Interfaces for data transfer:
- NFC

5.2 Nearfield communication (NFC)

The NFC Interface allows wireless communication with the LED driver. This interface offers the option to write configuration and to read configuration, errors and events with the companionSUITE.
A correct communication between the LED driver and the NFC antenna can only be guaranteed if the antenna is placed directly on the Driver.
Any material placed between the LED driver and the NFC antenna can cause a deterioration of the communication quality.
After programming the device via NFC power up the device one time for one second till the deviceANALYSER can read out the parameters.
We recommend the use of following NFC antenna:
www.tridonic.com/nfc-readers

NFC is complied with ISO/IEC 15963 standard.

Changing parameters via NFC shall be done by qualified engineers only.

6. Functions

⊙ companionSUITE:
NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	NFC	DALI-2
	OEM Identification	⊙	⊙
	OEM GTIN	⊙	⊙
	LED current	⊙	⊙
	Device operating mode	⊙	⊙
	corridorFUNCTION	⊙	⊙
	Constant light output (CLO)	⊙	⊙
	Enhanced power on level (ePOL)	⊙	⊙

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

6.2 switchDIM

Integrated switchDIM function allows a direct connection of a pushbutton for dimming and switching.
Brief push (< 0.6 s) switches LED driver ON and OFF. The dimm level is saved at power-down and restored at power-up. When the pushbutton is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction.
In installations with LED drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED drivers can be synchronized to 50 % dimming level by a 10 s push.
Use of pushbutton with indicator lamp is not permitted.

6.3 corridorFUNCTION

A motion detector (corridorFUNCTION) can be wired on the DALI track.
With the corridorFUNCTION and a commercially available motion detector, it is easy to adapt the lighting in one area to its use.
That is, when the area is entered by a person, the lighting dims instantly to a certain brightness and is available in desired strength.
After the area is left by the person, the brightness dims slowly to a smaller value or switches off completely.
The individual parameters of the desired profile, such as brightness values or delay times, can be adjusted flexibly and individually.

To activate the corridorFUNCTION without using software a voltage of 230 V has to be applied at the DALI track.
The unit will then switch automatically to the corridorFUNCTION.

corridorFUNCTION is a very simple tool for controlling gears with conventional pushbuttons or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings.
Serious mains faults may impair the operation of corridorFUNCTION.

Note:
By using corridorFUNCTION programming and monitoring via DALI is always possible.

6.4 Constant Light Output (CLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (CLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
CLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for CLO see product manual.

6.5 Enhanced power on level (ePOL)

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
Detailed description for ePOL see product manual.

7. Protective features

7.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

7.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

7.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

7.4 Overtemperature protection

The LED driver is protected against temporary thermal overheating.
If the temperature limit is exceeded the LED driver will switch off.
It restarts automatically.
The temperature protection is activated above tc max.

8. Miscellaneous

8.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

The equipotential terminal is used to connect the heat sink and the LED driver to reduce transients.

8.2 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

8.3 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

Driver LC 40W 500-1050mA 42V o4a T EXC3

excite in-track series

Black (RAL 9005)

Grey (RAL 7035)

White (RAL 9010)

Product description
_ Dimmable constant current / in-track LED driver
_ Optional accessory ACU ALU NIPPLE M10x1 for mounting the luminaire head
_ Compatible with Global Trac PULSE from Nordic Aluminum and OneTrack from Stucchi, see data sheet chapter 3.8
_ Dimming range 1 to 100 % (min. 5 mA)
_ For luminaires of protection class II
_ Temperature protection as per EN 61347-2-13 C5e
_ Adjustable output current between 500 and 1,050 mA via I-SELECT 2 plugs or DALI
_ Max. output power 40 W
_ Up to 85 % efficiency
_ Power input on stand-by < 0.5 W
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Housing properties
_ Casing: polycarbonate, black, white or grey
_ Type of protection IP20

Interfaces
_ one4all (DALI-2, switchDIM, corridorFUNCTION)
_ Terminal blocks: 45° push terminals

Functions
_ Adjustable output current in 1-mA-steps (DALI-2, I-SELECT 2)
_ Overtemperature protection
_ Overload protection
_ Short-circuit protection
_ No-load protection
_ Burst protection voltage 2 kV
_ Surge protection voltage 1 kV (L to N)

Benefits
_ Flexible configuration via companionSUITE (DALI-2)

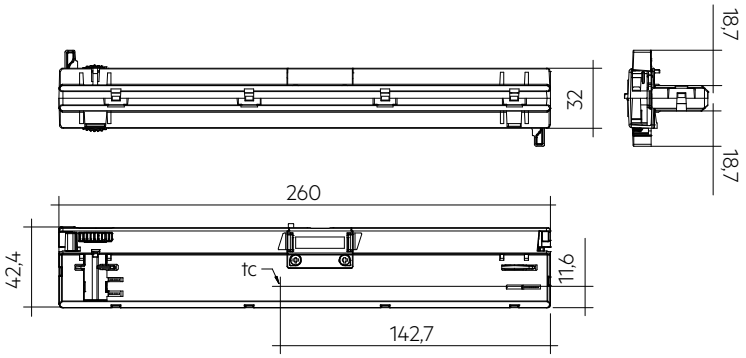
Typical applications
_ For spot light in retail and hospitality application

Website
http://www.tridonic.com/87500911

Linear | High bay | Decorative | Downlights | **Spotlights** | Free-standing | Area | Floor | Wall | Street

Driver LC 40W 500-1050mA 42V o4a T EXC3

excite in-track series



Ordering data

Type	Article number	Colour	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
LC 40/500-1050/42 o4a T-B EXC3	**87500911**	Black	10 pc(s).	130 pc(s).	1,170 pc(s).	0.166 kg
LC 40/500-1050/42 o4a T-W EXC3	**87500912**	White	10 pc(s).	130 pc(s).	1,170 pc(s).	0.164 kg
LC 40/500-1050/42 o4a T-G EXC3	**87500913**	Grey	10 pc(s).	130 pc(s).	1,170 pc(s).	0.164 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	0.23 A
Leakage current (at 230 V, 50 Hz, full load)	< 700 µA
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V AC, 48 h
Max. input power ①	49 W
Typ. power consumption (at 230 V, 50 Hz, full load) ①	46.6 W
Min. output power	0.07 W
Max. output power	40 W
Typ. power consumption on stand-by ②	< 0.5 W
Typ. efficiency (at 230 V, 50 Hz, full load) ①	85 %
λ (at 230 V, 50 Hz, full load) ①	0.95
Output current tolerance ③	± 5 %
Max. output current peak ④	≤ output current + 20 %
Max. output voltage (U-OUT)	60 V
THD (at 230 V, 50 Hz, full load) ①	< 10 %
Output LF current ripple (< 120 Hz)	± 3 %
Output P_ST_LM (at full load)	≤ 1
Output SVM (at full load)	≤ 0.4
Starting time (at 230 V, 50 Hz, full load)	< 0.66 s
Turn off time (at 230 V, 50 Hz, full load)	≤ 0.03 s
Hold on time at power failure (output)	0 s
Dimming range	1 – 100 % (min. 5 mA)
Ambient temperature ta (at lifetime 100,000 h)	25 °C
Storage temperature ts	-40 … +80 °C
Mains surge capability (between L - N)	1 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	260 x 32 x 42.4 mm

Approval marks

DALI 2 IP20 SELV RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384

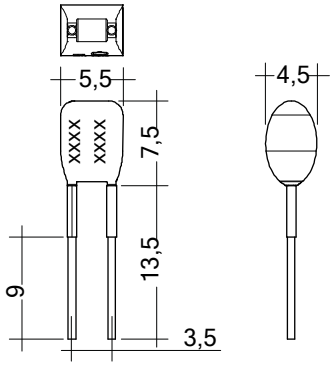
Specific technical data

Type	Output current③	Min. output voltage⑤	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	tc point max.	Ambient temperature ta	I-SELECT 2 resistor value⑥
LC 40/500-1050/42 o4a T-B EXC3	500 mA	14 V	42.0 V	21.0 W	25.0 W	99 mA	90 °C	-20 … +35 °C	–
LC 40/500-1050/42 o4a T-B EXC3	600 mA	14 V	42.0 V	25.2 W	30.0 W	117 mA	90 °C	-20 … +35 °C	8.3 kΩ
LC 40/500-1050/42 o4a T-B EXC3	700 mA	14 V	42.0 V	29.4 W	34.6 W	134 mA	90 °C	-20 … +35 °C	7.1 kΩ
LC 40/500-1050/42 o4a T-B EXC3	800 mA	14 V	42.0 V	33.6 W	38.9 W	150 mA	90 °C	-20 … +35 °C	6.3 kΩ
LC 40/500-1050/42 o4a T-B EXC3	900 mA	14 V	42.0 V	37.8 W	43.5 W	167 mA	90 °C	-20 … +35 °C	5.6 kΩ
LC 40/500-1050/42 o4a T-B EXC3	1,050 mA	14 V	38.1 V	40.0 W	46.6 W	179 mA	90 °C	-20 … +35 °C	0.0 kΩ
LC 40/500-1050/42 o4a T-W EXC3	500 mA	14 V	42.0 V	21.0 W	25.0 W	99 mA	90 °C	-20 … +35 °C	–
LC 40/500-1050/42 o4a T-W EXC3	600 mA	14 V	42.0 V	25.2 W	30.0 W	117 mA	90 °C	-20 … +35 °C	8.3 kΩ
LC 40/500-1050/42 o4a T-W EXC3	700 mA	14 V	42.0 V	29.4 W	34.6 W	134 mA	90 °C	-20 … +35 °C	7.1 kΩ
LC 40/500-1050/42 o4a T-W EXC3	800 mA	14 V	42.0 V	33.6 W	38.9 W	150 mA	90 °C	-20 … +35 °C	6.3 kΩ
LC 40/500-1050/42 o4a T-W EXC3	900 mA	14 V	42.0 V	37.8 W	43.5 W	167 mA	90 °C	-20 … +35 °C	5.6 kΩ
LC 40/500-1050/42 o4a T-W EXC3	1,050 mA	14 V	38.1 V	40.0 W	46.6 W	179 mA	90 °C	-20 … +35 °C	0.0 kΩ
LC 40/500-1050/42 o4a T-G EXC3	500 mA	14 V	42.0 V	21.0 W	25.0 W	99 mA	90 °C	-20 … +35 °C	–
LC 40/500-1050/42 o4a T-G EXC3	600 mA	14 V	42.0 V	25.2 W	30.0 W	117 mA	90 °C	-20 … +35 °C	8.3 kΩ
LC 40/500-1050/42 o4a T-G EXC3	700 mA	14 V	42.0 V	29.4 W	34.6 W	134 mA	90 °C	-20 … +35 °C	7.1 kΩ
LC 40/500-1050/42 o4a T-G EXC3	800 mA	14 V	42.0 V	33.6 W	38.9 W	150 mA	90 °C	-20 … +35 °C	6.3 kΩ
LC 40/500-1050/42 o4a T-G EXC3	900 mA	14 V	42.0 V	37.8 W	43.5 W	167 mA	90 °C	-20 … +35 °C	5.6 kΩ
LC 40/500-1050/42 o4a T-G EXC3	1,050 mA	14 V	38.1 V	40.0 W	46.6 W	179 mA	90 °C	-20 … +35 °C	0.0 kΩ

① Test result at 1,050 mA.
② Depending on the DALI traffic at the interface.
③ Output current is mean value.
④ Test result at 25 °C.
⑤ Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.
⑥ Not compatible with I-SELECT (generation 1). Calculated resistor value.

I-SELECT 2 PLUG PRE / EXC

Accessory



Product description

_ Ready-for-use resistor to set output current value
_ Compatible with LED driver featuring I-select 2 interface; not compatible with I-SELECT (generation 1)
_ Resistor is base insulated
_ Resistor power 0.25 W
_ Current tolerance ± 2 % additional to output current tolerance
_ Compatible with LED driver series PRE and EXC

Example of calculation

_ R [kΩ] = 5 V / I_out [mA] x 1000
_ E96 resistor value used
_ Resistor value tolerance ≤ 1 %; resistor power ≥ 0.1 W; base insulation necessary
_ When using a resistor value beyond the specified range, the output current will automatically be set to the minimum value (resistor value too big), respectively to the maximum value (resistor value too small)

Website

http://www.tridonic.com/28001114

Ordering data

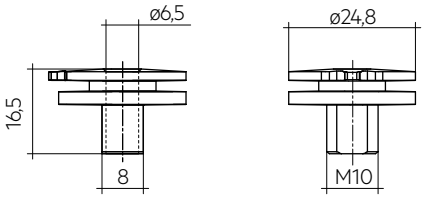
Type	Article number	Colour	Marking	Current	Resistor value	Packaging, bag	Weight per pc.
I-SELECT 2 PLUG 500MA BL	**28001114**	Blue	0500 mA	500 mA	10.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 525MA BL	**28001960**	Blue	0525 mA	525 mA	9.53 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 550MA BL	**28001115**	Blue	0550 mA	550 mA	9.09 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 600MA BL	**28001116**	Blue	0600 mA	600 mA	8.25 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 650MA BL	**28001117**	Blue	0650 mA	650 mA	7.68 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 700MA BL	**28001118**	Blue	0700 mA	700 mA	7.15 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 750MA BL	**28001119**	Blue	0750 mA	750 mA	6.65 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 800MA BL	**28001120**	Blue	0800 mA	800 mA	6.19 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 850MA BL	**28001121**	Blue	0850 mA	850 mA	5.90 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 900MA BL	**28001122**	Blue	0900 mA	900 mA	5.62 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 950MA BL	**28001123**	Blue	0950 mA	950 mA	5.23 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1000MA BL	**28001124**	Blue	1000 mA	1,000 mA	4.99 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1050MA BL	**28001125**	Blue	1050 mA	1,050 mA	4.75 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	**28001099**	Blue	MAX	MAX	0.00 kΩ	10 pc(s).	0.001 kg

ACU ALU NIPPLE M10x1

Accessory

Product description
_ Optional threaded sleeve for luminaire mounting
_ Suitable for S-9009/D-M10 threaded nut
_ Additional mounting equipment, e.g. M13x1 available at AAG Stucchi (http://www.aagstucchi.it/en/)

Website
http://www.tridonic.com/28002398



Ordering data

Type	Article number	Packaging, bag	Weight per pc.
ACU ALU NIPPLE M10x1	**28002398**	100 pc(s).	0.007 kg

1. Standards

EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61000-4-4
EN 61000-4-5
EN 61347-1
EN 61347-2-13
EN 61547
EN 62384
EN 62386

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

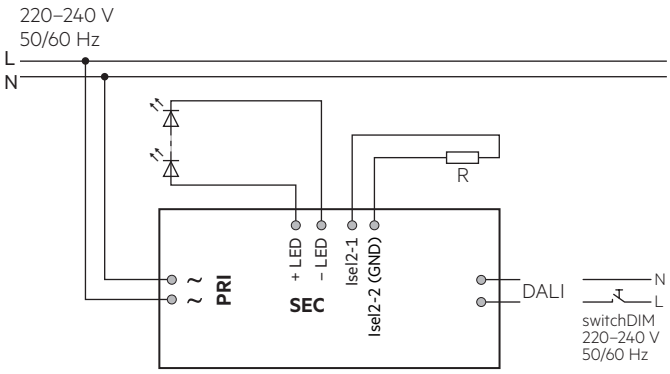
Type	ta	25 °C	35 °C
LC 40/500-1050/42 o4a T EXC3	Lifetime	100,000 h	50,000 h

① Test result at max. output voltage.

The LED drivers are designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

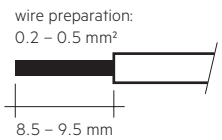
3. Installation / wiring

3.1 Circuit diagram



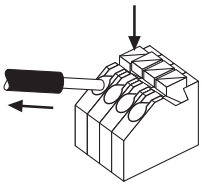
3.2 Wiring type and cross section

For wiring use stranded wire or solid wire from 0.2–0.5 mm². Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- All connections must be kept as short as possible to ensure good EMI behaviour.
- Max. length of output wires is 20 cm.
- Secondary switching is not permitted.
- Incorrect wiring can demage LED modules.
- To avoid damage of the Driver, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.6 Replace LED module

1. Mains off
2. Remove LED module
3. Wait for 10 seconds
4. Connect LED module again

Hot plug-in or secondary switching of LEDs is not permitted and may cause a very high current to the LEDs.

3.7 Mounting luminaire

Max. allowed weight of complete luminaire: 5 kg (50 N).
This is valid for horizontal mounting of track system only.
For vertical installation please contact Tridonic for clarification.

3.8 Compatible tracks

Subject to be changed without notice.

Manufacturer	Type	System	Intrack casing colour
NORDIC ALUMINIUM	GLOBAL Trac Pulse XTSC 6xxx	3P + DALI	Black, white, grey
NORDIC ALUMINIUM	GLOBAL Trac Pulse XTSCF 6xxx	3P + DALI	Black, white, grey
Stucchi	One track	3P + DALI	Black, white, grey
Powergear	PRO-0610	3P + DALI	Black, white, grey
Unipro	TC32W	3P + DALI	Black, white, grey
Unipro	TC32FW	3P + DALI	Black, white, grey

Tests have been done with in-tracks taken from the market in the first half of 2020.

Tridonic has no control or responibility on any future or past possible changes made by different manufactures that could affect the compatiblity between tracks and adapters.
Please check compatibility of track system with switchDIM or corridorFUNCTION in advance.

3.9 Insulation between terminals

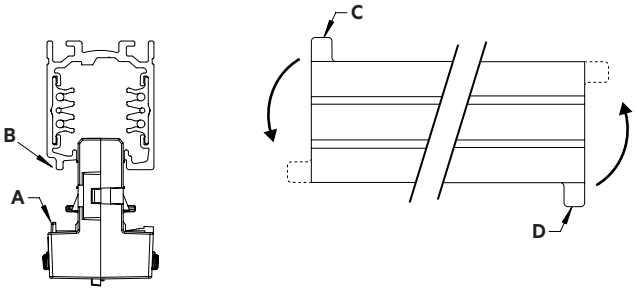
Insulation	Mains	–LED / +LED	one4all
Mains	–	double	basic
–LED / +LED	double	–	double
one4all	basic	double	–

basic ... represents basic insulation.

double ... represents double or reinforced insulation.

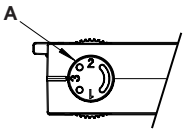
3.10 Adapter mounting into the track

Insert the adapter into the track, so that the mechanical key (A) in the adaptor matches the groove (B) in the track. Rotate of about 90° the lever of the cam (C = mains and D = DALI-2) until it reachs the locking position.
To open rotate the lever the opposite direction.



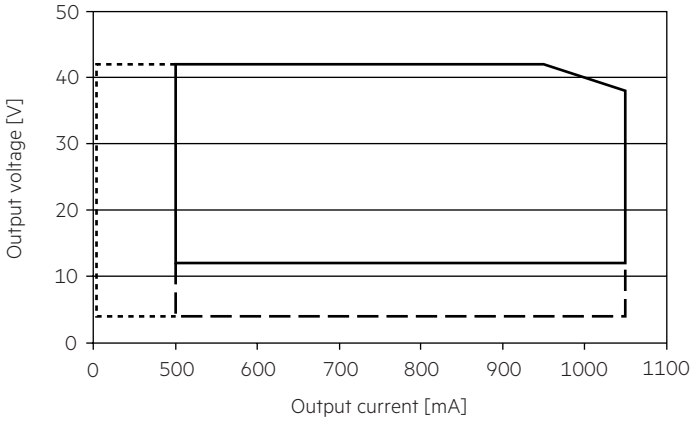
3.11 Phase selection

When the track is connected to a three-phase system it is possible to select the phase (L1, L2 or L3) to distribute the single luminaires in the system, by means of the proper selector (A) of the adaptor.



4. Electrical values

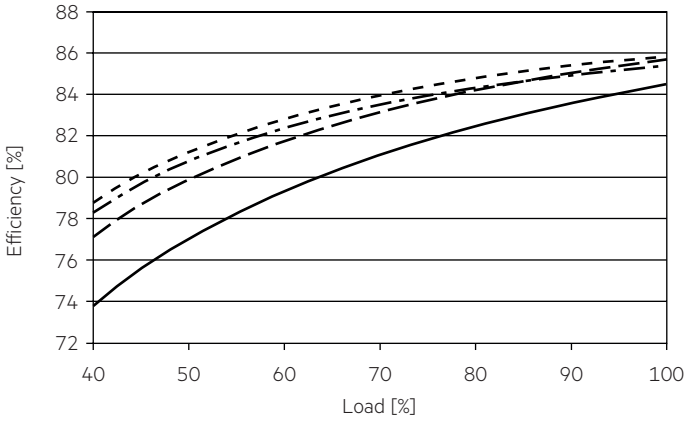
4.1 Operating window



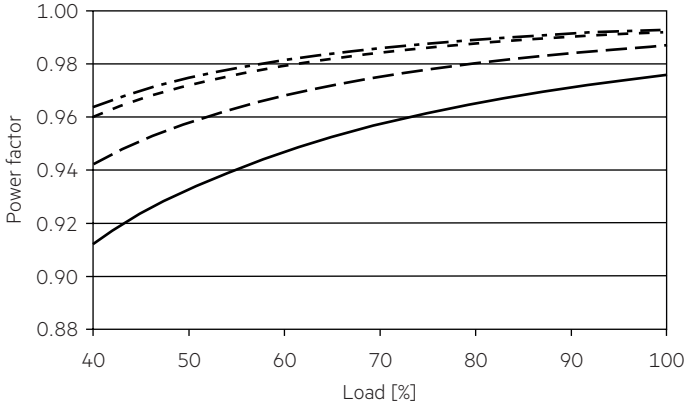
Operating window
Operating window dimmed
Operating window 4 V

Device operates down to 4 V output voltage. It cannot be guaranteed that harmonics and EMI stay inside the limits. This has to be checked individually.

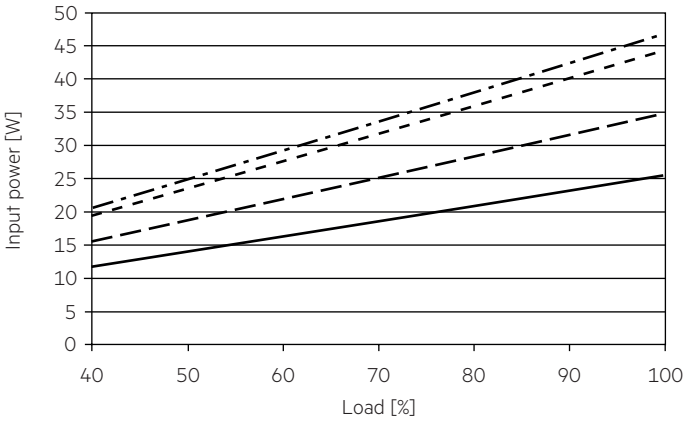
4.2 Efficiency vs load



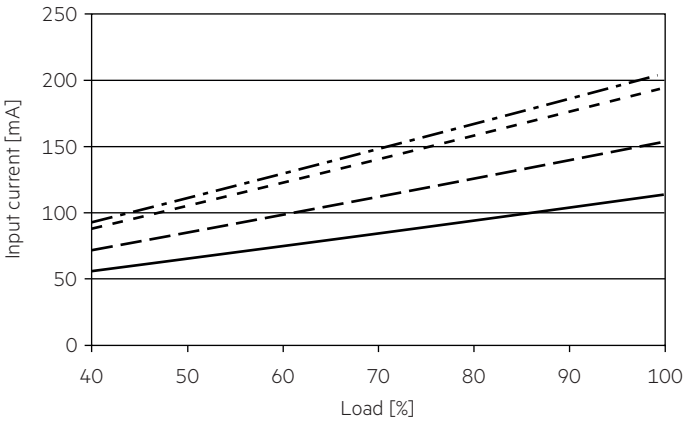
4.3 Power factor vs load



4.4 Input power vs load

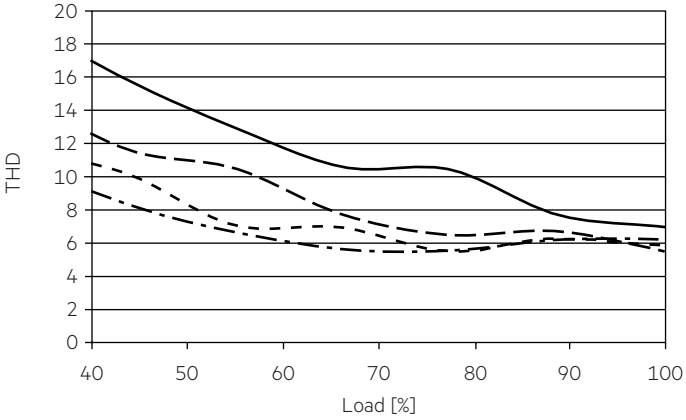


4.5 Input current vs load



4.6 THD vs load

THD without harmonic < 5 mA (0.6 %) of the input current:



500 mA
700 mA
900 mA
1050 mA

4.7 Maximum loading of automatic circuit breakers in relation to inrush current

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	Time
LC 40/500-1050/42 o4a T EXC3	40	52	64	80	40	52	64	80	9.6 A	34 µs

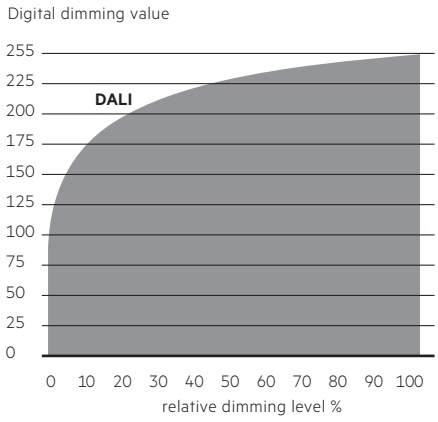
These are max. values calculated out of continuous current running the device on full load.
There is no limitation due to inrush current.
If load is smaller than full load for calculation only continuous current has to be considered.

4.8 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
LC 40/500-1050/42 o4a T EXC3	< 11	< 9	< 3	< 3	< 4	< 3

Acc. to 61000-3-2. Harmonics < 5 mA or < 0.6 % (whatever is greater) of the input current are not considered for calculation of THD.

4.9 Dimming characteristics



Dimming characteristics as seen by the human eye.

Dimming is realized by amplitude dimming.

5. Software / Programming / Interfaces

5.1 Software / programming

With appropriate software and interface different functions can be activated and various parameters can be configured in the LED driver. The Driver supports the following software and interface:

Software / hardware for configuration:
- companionSUITE (deviceGENERATOR, deviceCONFIGURATOR, deviceANALYSER)

6. Functions

⊙ companionSUITE:
DALI-2
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

Icon	Function	DALI-2
	OEM Identification	⊙
	OEM GTIN	⊙
	LED current	⊙
	Device operating mode	⊙
	corridorFUNCTION	⊙
	Constant light output (CLO)	⊙
	Enhanced power on level (ePOL)	⊙

6.1 LED current

The LED output current must be adapted to the connected LED module.
The value is limited by the current range of the respective device.

6.2 switchDIM

Integrated switchDIM function allows a direct connection of a pushbutton for dimming and switching.
Brief push (< 0.6 s) switches LED driver ON and OFF. The dimm level is saved at power-down and restored at power-up. When the pushbutton is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction.
In installations with LED drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED drivers can be synchronized to 50 % dimming level by a 10 s push.
Use of pushbutton with indicator lamp is not permitted.

6.3 corridorFUNCTION

A motion detector (corridorFUNCTION) can be wired on the DALI track.
With the corridorFUNCTION and a commercially available motion detector, it is easy to adapt the lighting in one area to its use.
That is, when the area is entered by a person, the lighting dims instantly to a certain brightness and is available in desired strength.
After the area is left by the person, the brightness dims slowly to a smaller value or switches off completely.
The individual parameters of the desired profile, such as brightness values or delay times, can be adjusted flexibly and individually.

To activate the corridorFUNCTION without using software a voltage of 230 V has to be applied at the DALI track.
The unit will then switch automatically to the corridorFUNCTION.

corridorFUNCTION is a very simple tool for controlling gears with conventional pushbuttons or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings.
Serious mains faults may impair the operation of corridorFUNCTION.

Note:
By using corridorFUNCTION programming and monitoring via DALI is always possible.

6.4 Constant Light Output (CLO)

With this function the light output of the LED module can be kept equal over the lifetime.
The light output of an LED module reduces over the course of its lifetime.
The Constant Light Output (CLO) function compensates for this natural decline by constantly increasing the output current of the LED driver throughout its lifetime.
CLO shall be achieved by limitation of the LED current at the commissioning of the LED driver and providing a linear interpolation of the current over the time, depending on the data points given by the user.
The user has to insert up to eight pairs of data (time, level).
The output curve is the result of connecting the user data points linear.
Detailed description for CLO see product manual.

6.5 Enhanced power on level (ePOL)

T

The Enhanced Power On Level parameter defines the power level that is set automatically when power is restored after a power failure.
Detailed description for ePOL see product manual.

7. Functions

7.1 Short-circuit behaviour

In case of a short circuit on the secondary side (LED) the LED driver switches off. After elimination of the short-circuit fault the LED driver will recover automatically.

7.2 No-load operation

The LED driver works in burst working mode to provide a constant output voltage regulation which allows the application to be able to work safely when LED string opens due to a failure.

7.3 Overload protection

If the maximum load is exceeded by a defined internal limit, the LED driver will protect itself and LED may flicker. After elimination of the overload the nominal operation will recover automatically.

7.4 Overtemperature protection

The LED driver is protected against temporary thermal overheating.
If the temperature limit is exceeded the LED driver will switch off.
It restarts automatically.
The temperature protection is activated above tc max.

7.5 Function: adjustable current

The output current of the LED driver can be adjusted in a certain range.

I-SELECT 2
By inserting a suitable resistor or third party resistor into the I-SELECT 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter "Accessories I-SELECT 2 Plugs".

Please note that the resistor values for I-SELECT 2 are not compatible with I-SELECT (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

8. Miscellaneous

8.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

The equipotential terminal is used to connect the heat sink and the LED driver to reduce transients.

8.2 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

8.3 Maximum number of switching cycles

All LED driver are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

DSI SMART Programmer

Accessory for DSI Smart

Product description

- Optional infrared programming unit for DSI-SMART PTM or basicDIM ILD
- Settings can be read and modified
- Programmable functions such as light level, time delay, P.I.R., bright-out, power-up
- 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

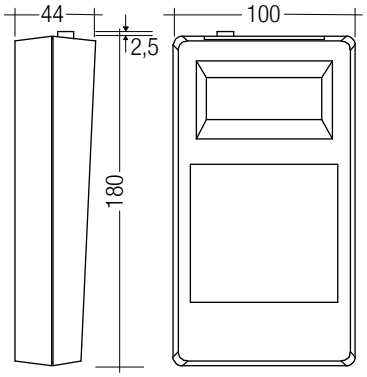
Website

http://www.tridonic.com/

TRIDONIC

DSI SMART Programmer

Accessory for DSI Smart



Approval marks

RoHS

TRIDONIC

EM converterLED BASIC 232 LiFePO4 50V 3h Kit

Ausführung BASIC

Product description
_ Kit with emergency lighting LED driver, battery for 3 h duration and indication LED
_ Self contained emergency lighting LED driver for manual testing
_ For LED modules with a forward voltage of 10 – 54 V
_ SELV for output voltage < 60 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ For luminaire installation
_ Compatible with Tridonic's LLE FLEX modules (ADV, EXC)
_ Nominal lifetime up to 100,000 h
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

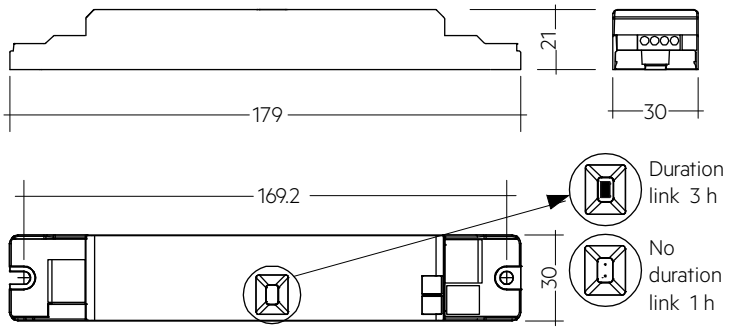
Properties
_ Non maintained operation
_ 3 h rated duration
_ Operating time selectable with plug (duration link)
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery provided by 3-pole connector

Batteries
_ High-temperature cells
_ LiFePO4 batteries
_ 18650 cells
_ LiFePO4: 4 – 8 years design life
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ LiFePO4 batteries with Tridonic LiFeGuard

Website
http://www.tridonic.com/89801257

EM converterLED BASIC 232 LiFePO4 50V 3h Kit

Ausführung BASIC



Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EMcLED BASIC 232 LiFePO4 50V KIT	**89801257**	3 h	10 pc(s).	640 pc(s).	0.220 kg	179 x 30 x 21 mm
EMcLED BASIC 232A LiFePO4 50V KIT	**89801258**	3 h	10 pc(s).	640 pc(s).	0.241 kg	179 x 30 x 21 mm
EMcLED BASIC 233 LiFePO4 50V KIT	**89801259**	3 h	10 pc(s).	640 pc(s).	0.313 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	10 – 54 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Battery charging time ①	24 h
Ambient temperature ta	-5 … +55 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

SELV EL 110 RoHS

Standards

according to EN 50172, according to EN 60598-2-22, EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30, EN 62384

Specific technical data

Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge	Fast recharge	Trickle charge	Initial charge	Fast recharge	Trickle charge
EMcLED BASIC 232 LiFePO4 50V KIT	LiFePO4	3 h	0.6C	1.5 W	20 mA	20 mA	20 / 12 mA	2.9 W	2.9 W	2.9 / 1.4 W
EMcLED BASIC 232A LiFePO4 50V KIT	LiFePO4	3 h	0.6C	2.3 W	20 mA	20 mA	20 / 12 mA	2.9 W	2.9 W	2.9 / 1.4 W
EMcLED BASIC 233 LiFePO4 50V KIT	LiFePO4	3 h	0.6C	3.2 W	24 mA	24 mA	24 / 12 mA	3.8 W	3.8 W	3.8 / 1.4 W

① 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- according to EN 50172
- according to EN 60598-2-22

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime with $LiFePO_4$ batteries

EMcLED BASIC 232 LiFePO4 50V KIT	tc	65 °C	70 °C	75 °C
	lifetime	> 100,000 h	> 100,000 h	97,000 h
EMcLED BASIC 232A LiFePO4 50V KIT	tc	65 °C	70 °C	75 °C
	lifetime	> 100,000 h	> 100,000 h	97,000 h
EMcLED BASIC 233 LiFePO4 50V KIT	tc	65 °C	70 °C	75 °C
	lifetime	> 100,000 h	> 100,000 h	89,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

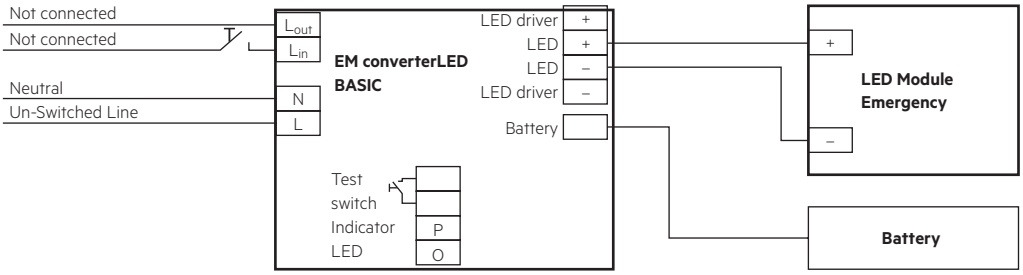
3. Installation / Wiring

3.1 Wiring diagram

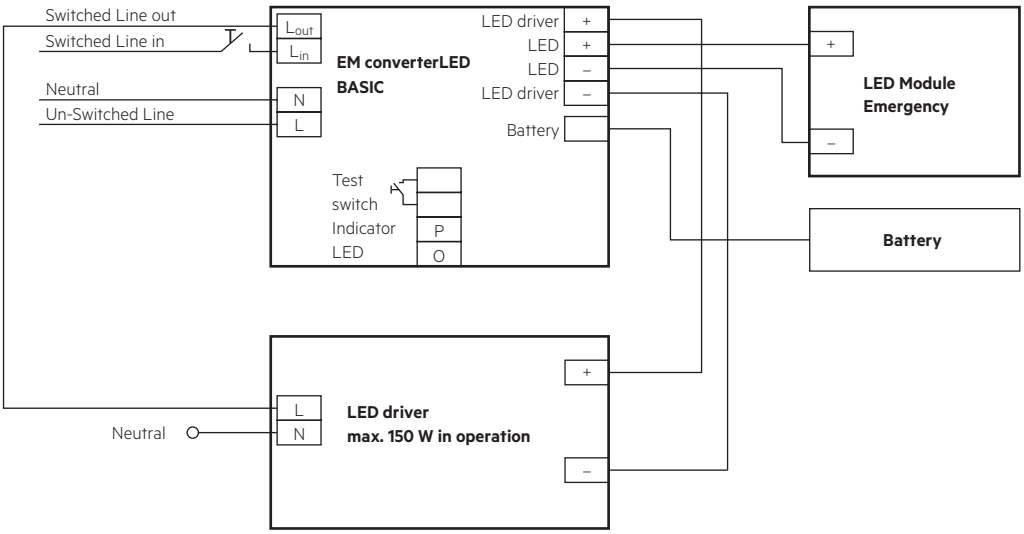
One or more LED modules with a total forward voltage of 10 to 54 V can be connected to the EM converterLED 50V module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the LED driver from the mains supply.

Use of the test switch:
For checking the device function press the test switch for a minimum of 3 seconds.

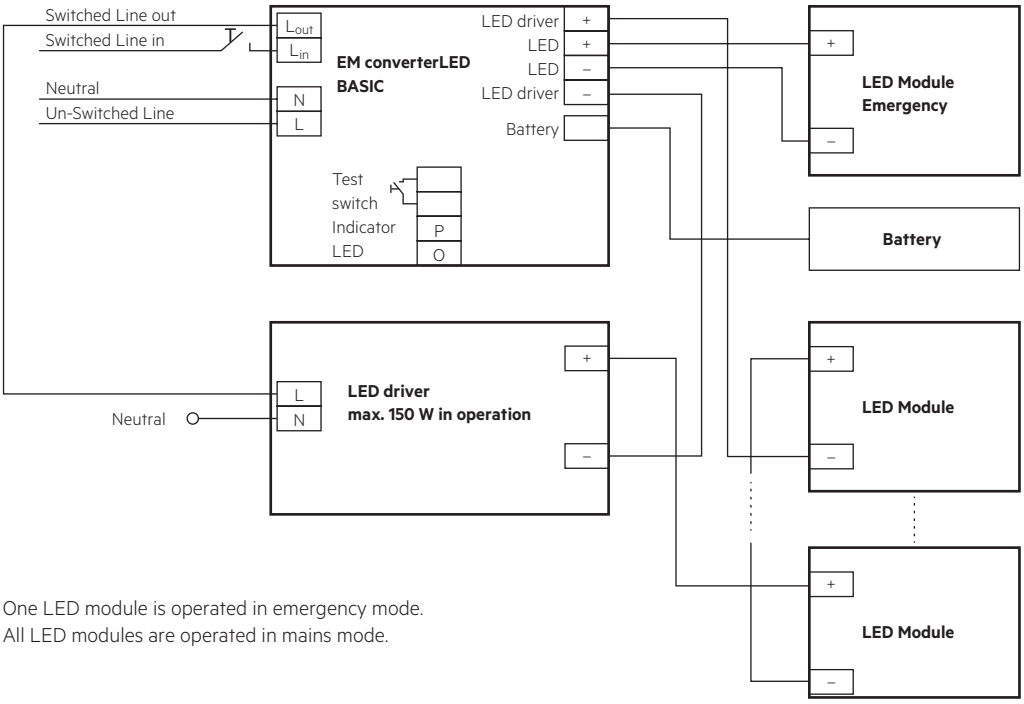
EM converterLED BASIC with one LED module for non-maintained emergency operation



EM converterLED BASIC with a standard LED driver and one LED module for mains and emergency operation

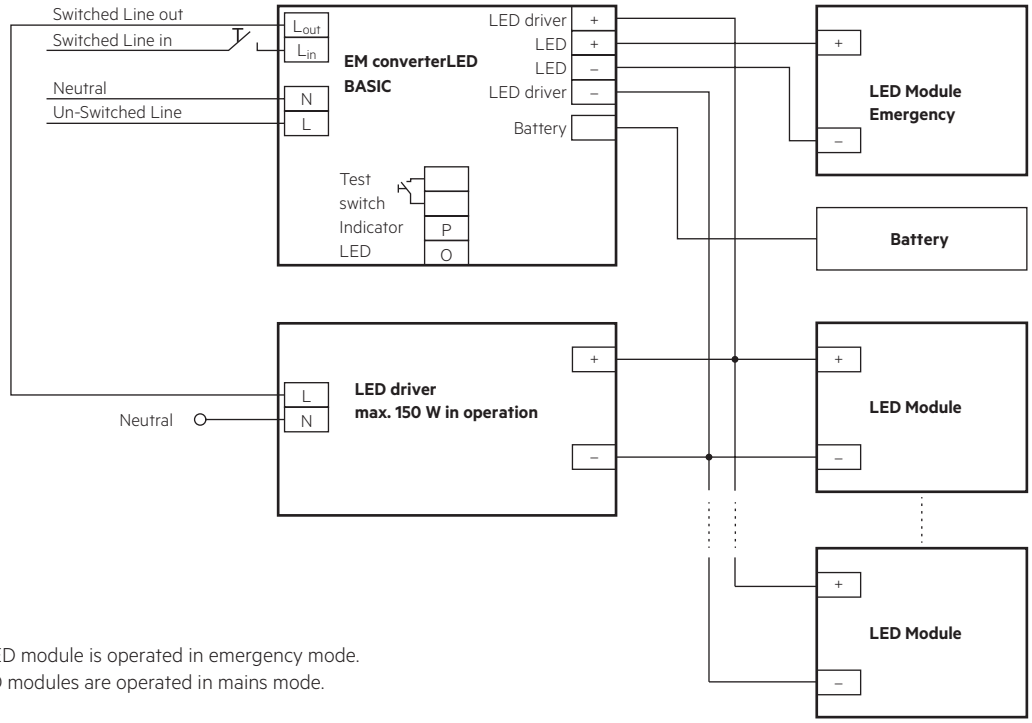


EM converterLED BASIC with a standard LED driver and <u>series</u> operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>parallel</u> operation of LED modules

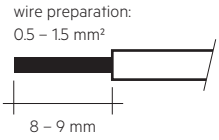


One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

3.2 Wiring type and cross section

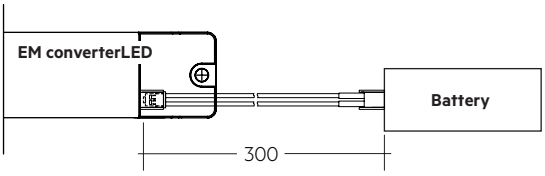
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply

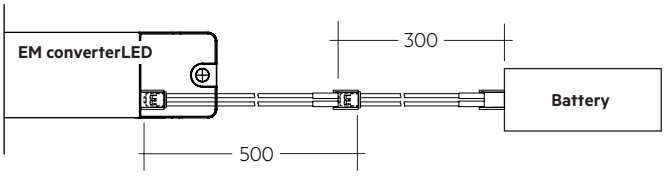


3.3 Battery connection

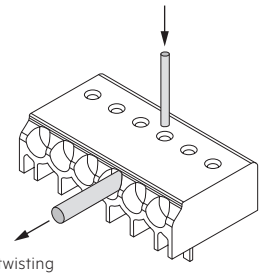
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

Do not exceed the max. length of LED leads to the LED module. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver.

3.6 Maximum lead length

LED	3 m (6 m loop)[①]
Status indication LED	1 m
Batteries	0.8 m

[①] Note: The length of LED leads to the LED module must not be exceeded. Note that the length of the EM converterLED leads is added to the length of the leads from the LED driver to the EM converterLED module when considering max. permitted lead length of the LED driver. Leads should always be kept as short as possible.

3.7 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

3.8 Compatibility with LLE FLEX modules

The EM converterLED can be used within certain restrictions to operate constant voltage LED loads from the Tridonic LLE FLEX (ADV, EXC) product range. A certain minimum length of the LLE FLEX is required for correct operation.
Detailed information in the download area of the ST and PRO product pages at www.tridonic.com (EM converterLED manual).

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C
- Plug connection

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m
- Plug connection

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
EMcLED BASIC LiFePO4 50V KIT	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	LED driver
Mains	–	•	••	••
Switched Live	•	–	••	••
Battery, LED, Test switch, Indicator LED	••	••	–	•
LED driver	••	••	–	–

• Represents basic insulation

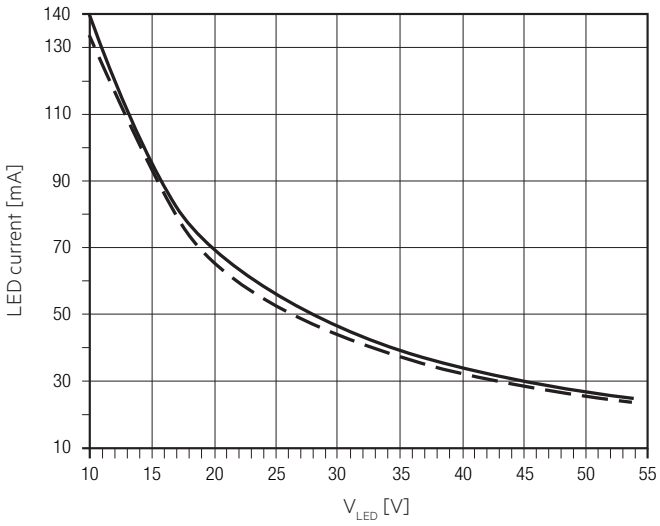
•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.

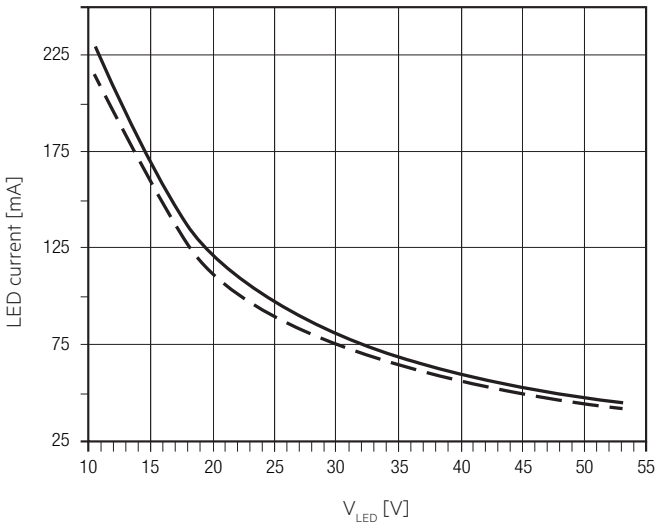
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

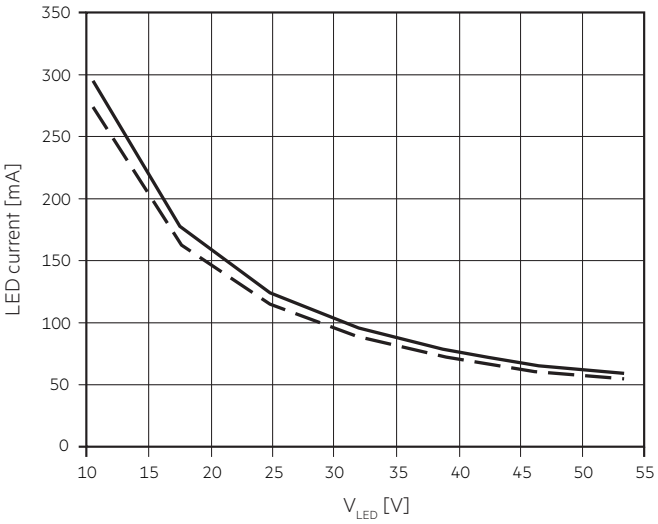
EMcLED BASIC 232 LiFePO4 50V KIT
Article number: 89801257
$LiFePO_4$ battery, 3.2 V battery voltage
550 – 590 mA battery discharge current (tolerance)



EMcLED BASIC 232A LiFePO4 50V KIT
Article number: 89801258
$LiFePO_4$ battery, 3.2 V battery voltage
880 – 950 mA battery discharge current (tolerance)



EMcLED BASIC 233 LiFePO4 50V KIT
Article number: 89801259
$LiFePO_4$ battery, 3.2 V battery voltage
1,150 – 1,250 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A eff (current rating of the terminals of EM converterLED) and 2.4 A peak (current rating of switching relays of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 84 A for 255 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 450 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 150 W in operation. The load must be an LED module.

Check compatibility with short function tests (duration of several seconds).

6. Functions

6.1 Duration link selection

Duration	Usage duration link
3 h	With link
1 h	Without link

Emergency lighting LED driver supplied with duration link in 3 hours position.

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.2 Status indication LED

System status is indicated by a green LED.

Note:
The status indication LED switches off if the battery does not reach the full capacity (3.6V battery voltage) within 20 – 24 hours.
If this occurs disconnect the mains voltage and operate the device in emergency mode for approximately one hour. Afterwards apply the mains voltage again and recharge the battery for 24 hours.
If the failure occurs again replace the battery.

7. Battery data

7.1 Battery selection

EMcLED BASIC, 3 h, LiFePO$_4$

				Type	EMcLED BASIC 232 LiFePO4 50V KIT	EMcLED BASIC 232A LiFe-PO4 50V KIT	EMcLED BASIC 233 LiFePO4 50V KIT
				Article no.	**89801257**	**89801258**	**89801259**
				Duration	**3 h**	**3 h**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**		
LiFePO$_4$ 1.5 Ah 18650 cells	stick	1 x 2	**Accu-LiFePO4 2A CON**	**28002318**	•		
	stick	1 x 3	**Accu-LiFePO4 3A CON**	**28002320**		•	
	stick	1 x 4	**Accu-LiFePO4 4A CON**	**28002322**			•

7.2 Battery charge / discharge data

EMcLED BASIC, 3 h, LiFePO$_4$

		Type	**EMcLED BASIC 232 LiFePO4 50V KIT**	**EMcLED BASIC 232A LiFePO4 50V KIT**	**EMcLED BASIC 233 LiFePO4 50V KIT**
		Article no.	**89801257**	**89801258**	**89801259**
		Duration	**3 h**	**3 h**	**3 h**
Battery charge time	Initial charge		24 h		
	Fast recharge		24 h		
	Trickle charge		continuously and battery voltage controlled		
Charging current	Initial charge		250 – 290 mA	250 – 290 mA	420 – 480 mA
	Fast recharge		250 – 290 mA	250 – 290 mA	420 – 480 mA
	Trickle charge[①]		250 – 290 mA / 0 mA	250 – 290 mA / 0 mA	420 – 480 mA / 0 mA
Discharge current			550 – 590 mA	880 – 950 mA	1,150 – 1,250 mA
Charge voltage range[②]			2.0 – 3.65 V		
Discharge voltage range			3.65 – 2.60 V		

[①] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[②] The battery will not be charged below 2.0 V.

7.3 Accu-LiFePO4

Capacity 1.5 Ah

International designation	lFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +55 °C
6 years design life	+5 °C to +45 °C
8 years design life	+5 °C to +35 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

7.4 Safety (LiFeGuard)

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.4.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.4.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.4.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.4.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

7.5 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.6 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

8.2 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.3 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED BASIC 232 LiFePO4 250V 3h Kit

Ausführung BASIC

Product description
_ Kit with emergency lighting LED driver, battery for 3 h duration and indication LED
_ Self contained emergency lighting LED driver for manual testing
_ For LED modules with a forward voltage of 50 – 250 V
_ Low profile casing (21 x 30 mm cross-section)
_ For luminaire installation
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Non maintained operation
_ 3 h rated duration
_ Operating time selectable with plug (duration link)
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery provided by 3-pole connector

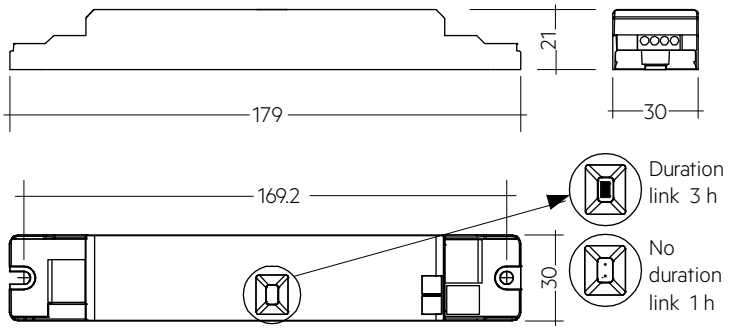
Batteries
_ High-temperature cells
_ LiFePO4 batteries
_ 18650 cells
_ LiFePO4: 4 – 8 years design life
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ LiFePO4 batteries with Tridonic LiFeGuard

Website
http://www.tridonic.com/89801260

TRIDONIC

EM converterLED BASIC 232 LiFePO4 250V 3h Kit

Ausführung BASIC



Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EMcLED BASIC 232A LiFePO4 250V KIT	**89801260**	3 h	10 pc(s).	640 pc(s).	0.241 kg	179 x 30 x 21 mm
EMcLED BASIC 233 LiFePO4 250V KIT	**89801261**	3 h	10 pc(s).	640 pc(s).	0.313 kg	179 x 30 x 21 mm
EMcLED BASIC 234 LiFePO4 250V KIT	**89801262**	3 h	10 pc(s).	400 pc(s).	0.353 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	50 – 250 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	280 V
Max. open circuit voltage	280 V
Battery charging time ①	24 h
Ambient temperature ta	-5 … +55 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

EL 110 RoHS

Standards

according to EN 50172, according to EN 60598-2-22, EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30, EN 62384

Specific technical data

Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge	Fast recharge	Trickle charge	Initial charge	Fast recharge	Trickle charge
EMcLED BASIC 232A LiFePO4 250V KIT	LiFePO4	3 h	0.60C	2.3 W	20 mA	20 mA	20 / 12 mA	2.9 W	2.9 W	2.9 / 1.4 W
EMcLED BASIC 233 LiFePO4 250V KIT	LiFePO4	3 h	0.60C	3.1 W	25 mA	25 mA	25 / 12 mA	3.9 W	3.9 W	3.9 / 1.4 W
EMcLED BASIC 234 LiFePO4 250V KIT	LiFePO4	3 h	0.65C	3.8 W	26 mA	26 mA	26 / 12 mA	3.9 W	3.9 W	3.9 / 1.4 W

① 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- according to EN 50172
- according to EN 60598-2-22

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime with $LiFePO_4$ batteries

EMcLED BASIC 232A LiFePO4 250V KIT	tc	65°C	70°C	75°C
	lifetime	> 100,000 h	> 100,000 h	97,000 h
EMcLED BASIC 233 LiFePO4 250V KIT	tc	65 °C	70 °C	75 °C
	lifetime	> 100,000 h	> 100,000 h	82,000 h
EMcLED BASIC 234 LiFePO4 250V KIT	tc	65 °C	70 °C	75 °C
	lifetime	> 100,000 h	> 100,000 h	82,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

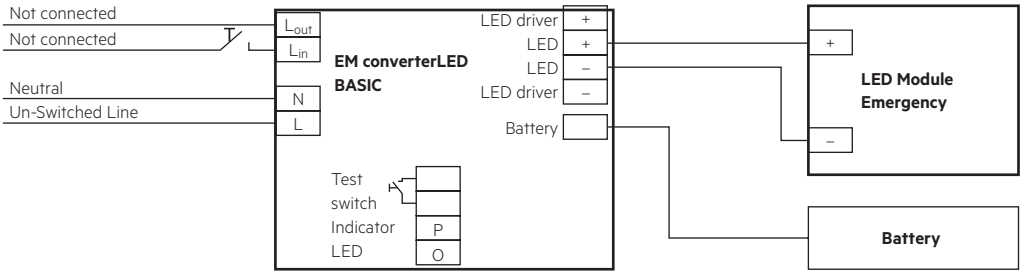
3. Installation / Wiring

3.1 Wiring diagram

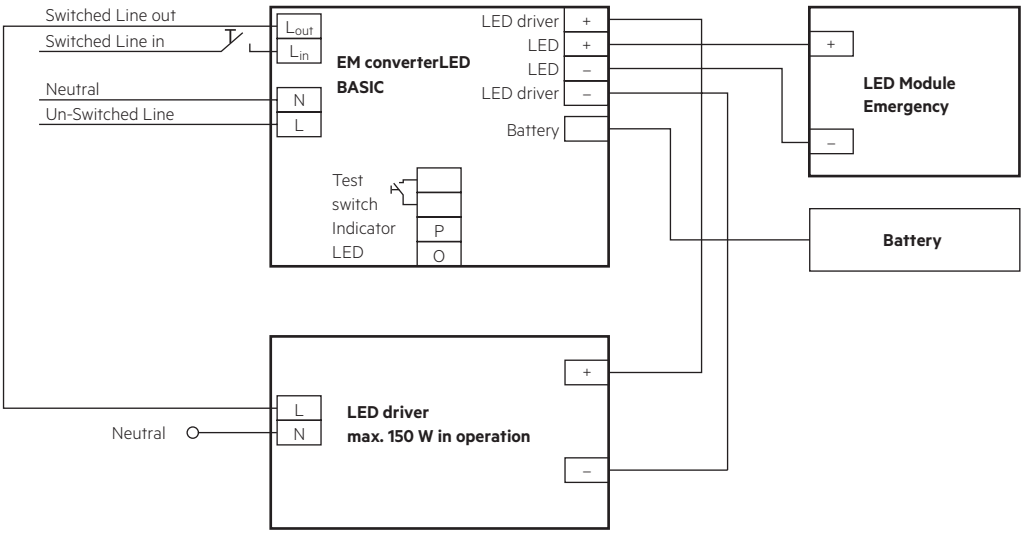
One or more LED modules with a total forward voltage of 50 to 250 V can be connected to the EM converterLED 250V module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the LED driver from the mains supply.

Use of the test switch:
For checking the device function press the test switch for a minimum of 3 seconds.

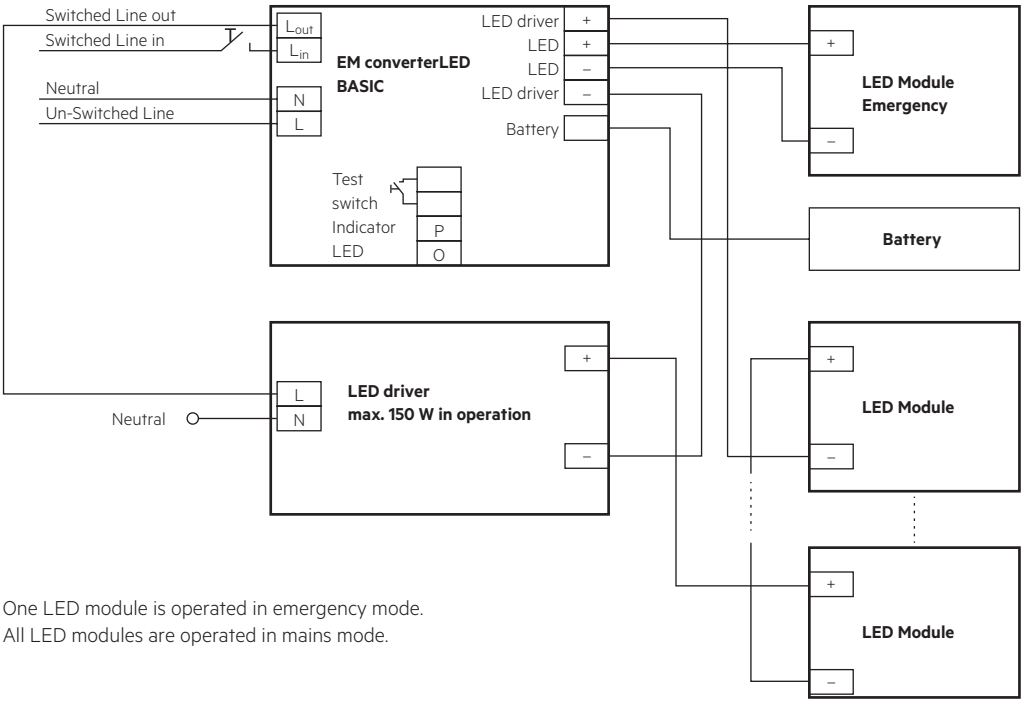
EM converterLED BASIC with one LED module for non-maintained emergency operation



EM converterLED BASIC with a standard LED driver and one LED module for mains and emergency operation

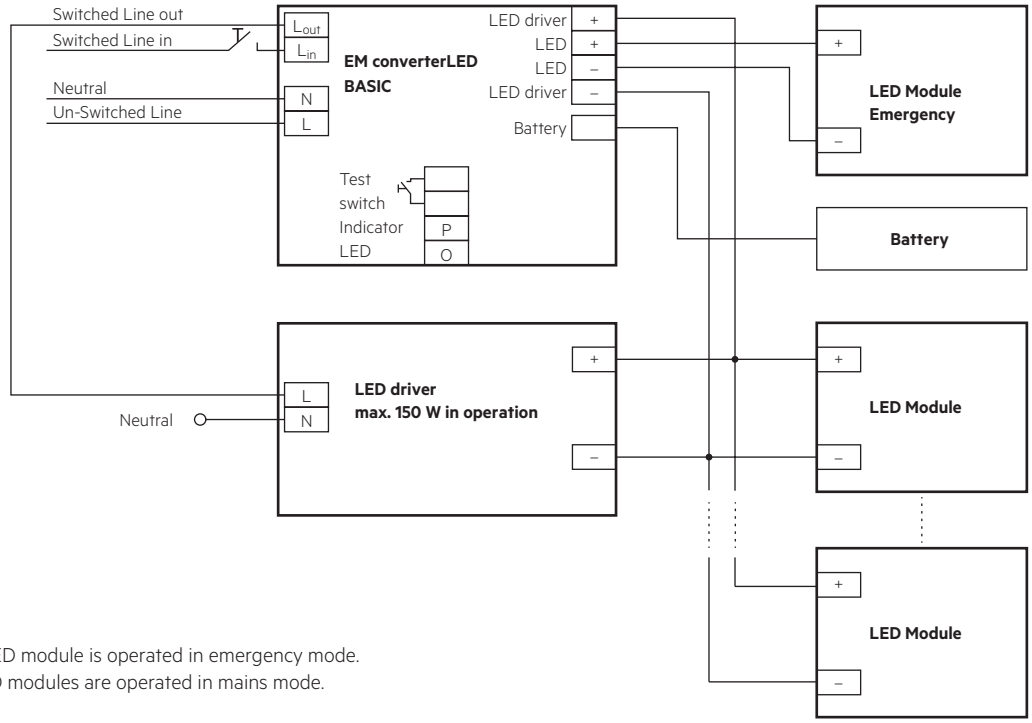


EM converterLED BASIC with a standard LED driver and <u>series</u> operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>parallel</u> operation of LED modules

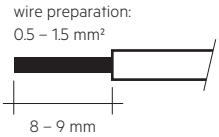


One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

3.2 Wiring type and cross section

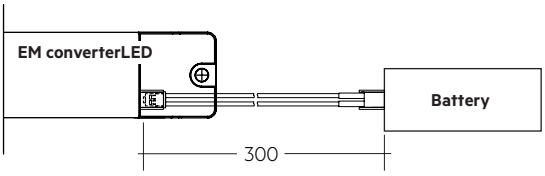
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply

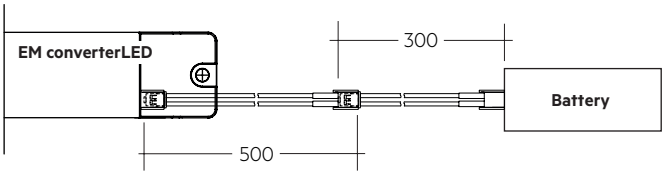


3.3 Battery connection

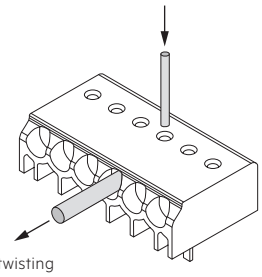
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Wiring guidelines

- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

Do not exceed the max. length of LED leads to the LED module. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver.

3.6 Maximum lead length

LED	3 m (6 m loop)[1]
Status indication LED	1 m
Batteries	0.8 m

[1] Note: The length of LED leads to the LED module must not be exceeded. Note that the length of the EM converterLED leads is added to the length of the leads from the LED driver to the EM converterLED module when considering max. permitted lead length of the LED driver. Leads should always be kept as short as possible.

3.7 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C
- Plug connection

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m
- Plug connection

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
EMcLED BASIC LiFePO4 250V KIT	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	LED driver
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, LED, Test switch, Indicator LED	••	••	–	–
LED driver	•	•	–	–

• Represents basic insulation

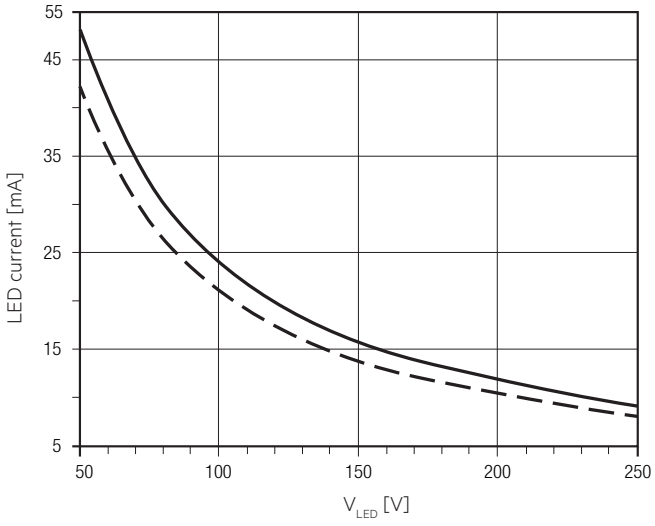
•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.

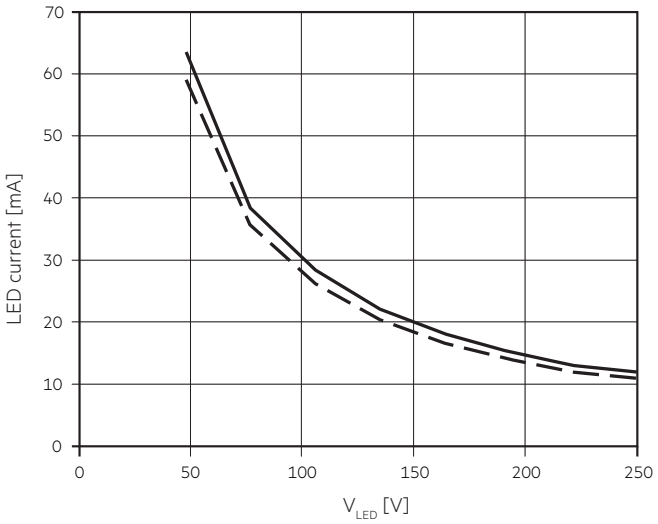
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

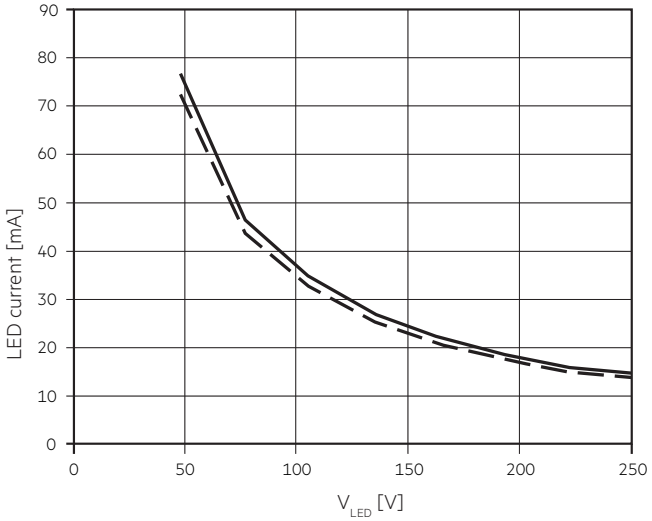
EMcLED BASIC 232A LiFePO4 250V KIT
Article number: 89801260
$LiFePO_4$ batteries, 3,2 V battery voltage
830 – 950 mA battery discharge current (tolerance)



EMcLED BASIC 233 LiFePO4 250V KIT
Article number: 89801261
$LiFePO_4$ batteries, 3,2 V battery voltage
955 – 1025 mA battery discharge current (tolerance)



EMcLED BASIC 234 LiFePO4 250V KIT
Article number: 89801262
$LiFePO_4$ batteries, 3.2 V battery voltage
1350 – 1450 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A eff (current rating of the terminals of EM converterLED) and 2.4 A peak (current rating of switching relays of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 84 A for 255 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 450 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 150 W in operation. The load must be an LED module.

Check compatibility with short function tests (duration of several seconds).

6. Functions

6.1 Duration link selection

Duration	Usage duration link
3 h	With link
1 h	Without link

Emergency lighting LED driver supplied with duration link in 3 hours position.

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.2 Status indication LED

System status is indicated by a green LED.

Note:
The status indication LED switches off if the battery does not reach the full capacity (3.6V battery voltage) within 20 – 24 hours.
If this occurs disconnect the mains voltage and operate the device in emergency mode for approximately one hour. Afterwards apply the mains voltage again and recharge the battery for 24 hours.
If the failure occurs again replace the battery.

7. Battery data

7.1 Battery selection

EMcLED BASIC, 3 h, $LiFePO_4$

			Type	EMcLED BASIC 232A LiFePO4 250V KIT	EMcLED BASIC 233 LiFePO4 250V KIT	EMcLED BASIC 234 LiFePO4 250V KIT
			Article no.	**89801260**	**89801261**	**89801262**
			Duration	**3 h**	**3 h**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**	
$LiFePO_4$ 1.5 Ah 18650 cells	stick	1 x 3	**Accu-LiFePO4 3A CON**	**28002320**	•	
	stick	1 x 4	**Accu-LiFePO4 4A CON**	**28002322**		•
	stick	1 x 5	**Accu-LiFePO4 5A CON**	**28002325**			•

7.2 Battery charge / discharge data

EMcLED BASIC, 3 h, $LiFePO_4$

	Type	EMcLED BASIC 232A LiFePO4 250V KIT	EMcLED BASIC 233 LiFePO4 250V KIT	EMcLED BASIC 234 LiFePO4 250V KIT
	Article no.	**89801260**	**89801261**	**89801262**
	Duration	**3 h**	**3 h**	**3 h**
Battery charge time	Initial charge	24 h		
	Fast recharge	24 h		
	Trickle charge	continuously and battery voltage controlled		
Charging current	Initial charge	250 – 290 mA	430 – 470 mA	430 – 470 mA
	Fast recharge	250 – 290 mA	430 – 470 mA	430 – 470 mA
	Trickle charge[1]	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA	430 – 470 mA / 0 mA
Discharge current		830 – 950 mA	1,150 – 1,250 mA	1,450 – 1,550 mA
Charge voltage range[2]		2.0 – 3.65 V		
Discharge voltage range		3.65 – 2.60 V		

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

7.3 Accu-LiFePO4

Capacity 1.5 Ah

International designation	lFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +55 °C
6 years design life	+5 °C to +45 °C
8 years design life	+5 °C to +35 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

7.4 Safety (LiFeGuard)

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.4.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.4.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.4.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.4.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

7.5 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.6 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

8.2 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.3 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED BASIC G2 LiFePo4 50 V Kit

Ausführung BASIC

Product description
_ Kit with emergency lighting LED driver, battery for 3 h duration and indication LED
_ For self-contained emergency lighting
_ For LED modules with a forward voltage of 10 – 54 V
_ SELV for output voltage < 60 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ For luminaire installation
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Non maintained operation
_ 3 h rated duration
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery

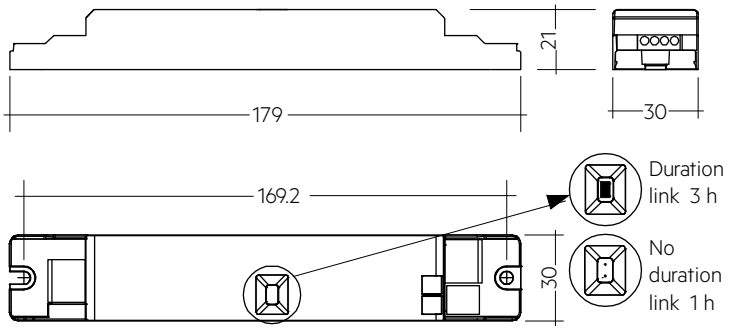
Batteries
_ High-temperature cells
_ LiFePO4 batteries with Tridonic LiFeGuard
_ 18650 cells
_ 4 – 8 years design life for LiFePO4 batteries
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

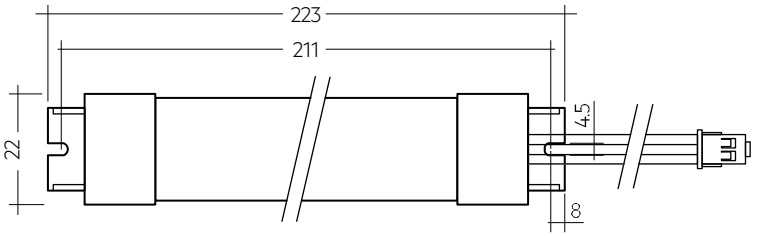
Website
http://www.tridonic.com/89801003

TRIDONIC

EM converterLED BASIC G2 LiFePo4 50 V Kit

Ausführung BASIC





Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EMcLED BASIC 202A LiFePO4 50V KIT	**89801003**	3 h	25 pc(s).	300 pc(s).	0.266 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage ①	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module EM converterLED 204 50V	10 – 54 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Battery charging time ②	24 h
Ambient temperature ta	-5 … +55 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

① These values are only valid for EM converterLED BASIC. For battery values see data sheet EM converterLED BASIC MH/LiFePO4 50V.
② 12 h battery charging time for 2 h emergency lighting function according to AS 2293.

Status indication green LED EM CON

Accessory

Product description

_ A green LED indicates that charging current is flowing into the battery
_ 0.3 / 1.0 m cable length
_ Plug connection

Website
http://www.tridonic.com/89800271

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green, HO 1.0 m CON	**89800271**	25 pc(s).	200 pc(s).	0.016 kg

TRIDONIC

EM converterLED BASIC HP 6/9 W 50 V

Ausführung BASIC

Product description
_ Self contained emergency lighting LED driver for manual testing
_ For LED modules with a forward voltage of 15 – 54 V
_ SELV for output voltage < 60 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ For luminaire installation
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Non maintained operation
_ 1 or 3 h rated duration
_ Operating time selectable with plug (duration link)
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery provided by 3-pole connector

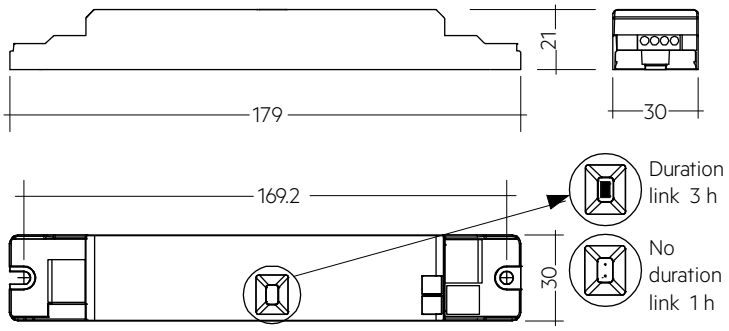
Batteries
_ LiFePO4 batteries with Tridonic LiFeGuard
_ High-temperature cells
_ 26650 cells
_ 10 year design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet, battery selection

Website
http://www.tridonic.com/89800828

TRIDONIC

EM converterLED BASIC HP 6/9 W 50 V

Ausführung BASIC



Note: Supply of control gear with duration link in 3 hours position. Remove duration link for duration of 1 h. Duration link must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EMcLED BASIC HP 6W 50V	**89800828**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm
EMcLED BASIC HP 9W 50V	**89800830**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Typ. λ (at 230 V, 50 Hz)	0.6C
Forward voltage range LED module	15 – 54 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Battery charging time ①	24 h
Ambient temperature ta	-25 … +55 °C
Max. casing temperature tc	80 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

SELV EL 110 RoHS

Standards

EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 62384, according to EN 50172, according to EN 60598-2-22

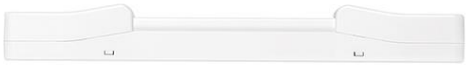
Specific technical data

Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge	Fast recharge	Trickle② charge	Initial charge	Fast recharge	Trickle② charge
EMcLED BASIC HP 6W 50V	LiFePO4	1 h	0.65C	6 W	32 mA	32 mA	32 / 12 mA	4.8 W	4.8 W	4.8 / 1.4 W
EMcLED BASIC HP 6W 50V	LiFePO4	3 h	0.65C	6 W	32 mA	32 mA	32 / 12 mA	4.8 W	4.8 W	4.8 / 1.4 W
EMcLED BASIC HP 9W 50V	LiFePO4	1 h	0.70C	9 W	32 mA	32 mA	32 / 12 mA	4.8 W	4.8 W	4.8 / 1.4 W
EMcLED BASIC HP 9W 50V	LiFePO4	3 h	0.70C	9 W	40 mA	40 mA	40 / 12 mA	6.2 W	6.2 W	6.2 / 1.4 W

① 16 h battery charging time for 2 h emergency lighting function according to AS 2293.
② Voltage dependent constant current charging is used.

EMcLED Strain-relief set 240x43x30mm

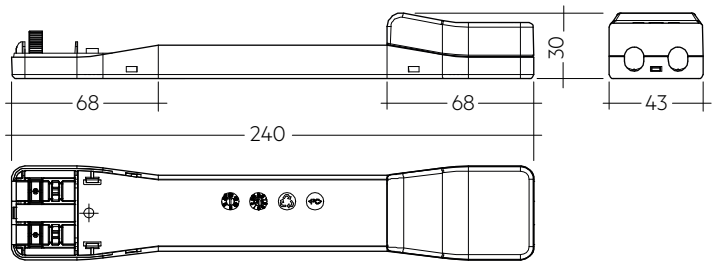
Accessory



Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

Website
http://www.tridonic.com/28003813



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

RoHS

Status indication green LED EM CON

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery
_ 0.3 / 1.0 m cable length
_ Plug connection

Website
http://www.tridonic.com/89800269

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green, 1.0 m CON	**89800269**	25 pc(s).	800 pc(s).	0.018 kg
LED EM green, HO 1.0 m CON	**89800271**	25 pc(s).	200 pc(s).	0.016 kg
LED EM green, 0.6 m CON	**89800472**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, HO 0.6 m CON	**89800473**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, 0.3 m CON	**89800270**	25 pc(s).	200 pc(s).	0.007 kg
LED EM green, HO 0.3 m CON	**89800272**	25 pc(s).	200 pc(s).	0.007 kg

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- according to EN 50172
- according to EN 60598-2-22

Meaning of marking ⧈
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

EMcLED BASIC HP 6W 50V	tc	70 °C	75 °C	80 °C
	lifetime	> 100,000 h	> 100,000 h	> 100,000 h
EMcLED BASIC HP 9W 50V	tc	70 °C	75 °C	80 °C
	lifetime	> 100,000 h	> 100,000 h	93,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

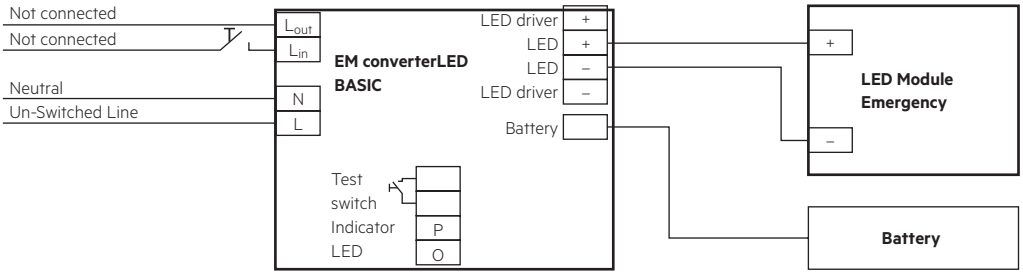
3. Installation / Wiring

3.1 Wiring diagram

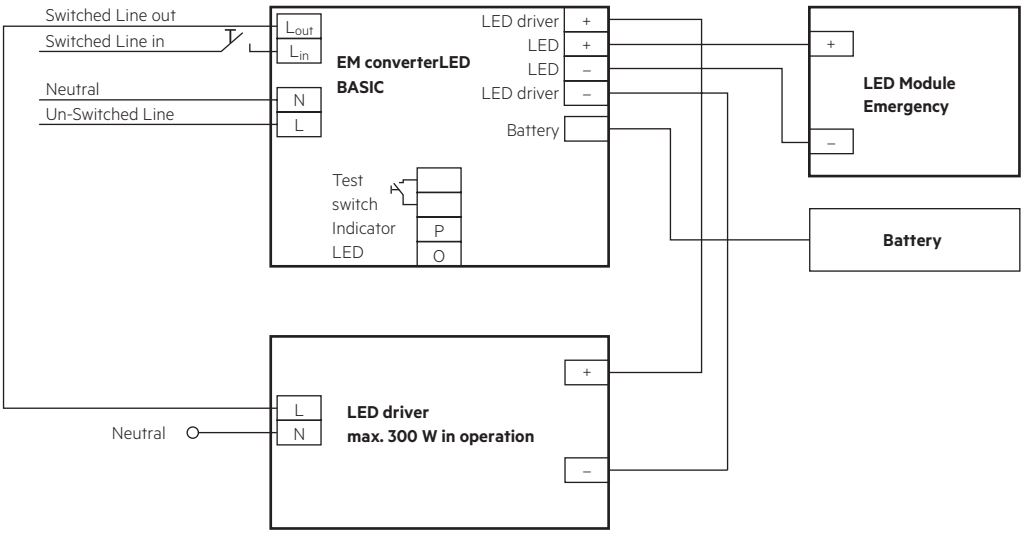
One or more LED modules with a total forward voltage of 15 to 54 V can be connected to the EM converterLED 50V module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the LED driver from the mains supply.

Use of the test switch:
For checking the device function press the test switch for a minimum of 3 seconds.

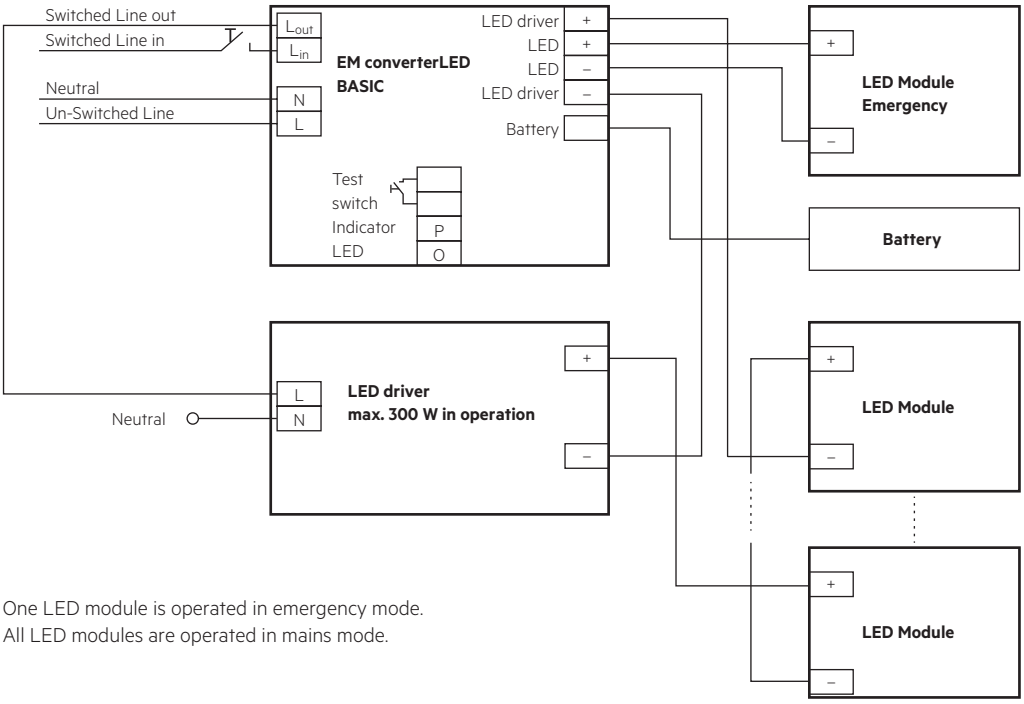
EM converterLED BASIC with one LED module for non-maintained emergency operation



EM converterLED BASIC with a standard LED driver and one LED module for mains and emergency operation

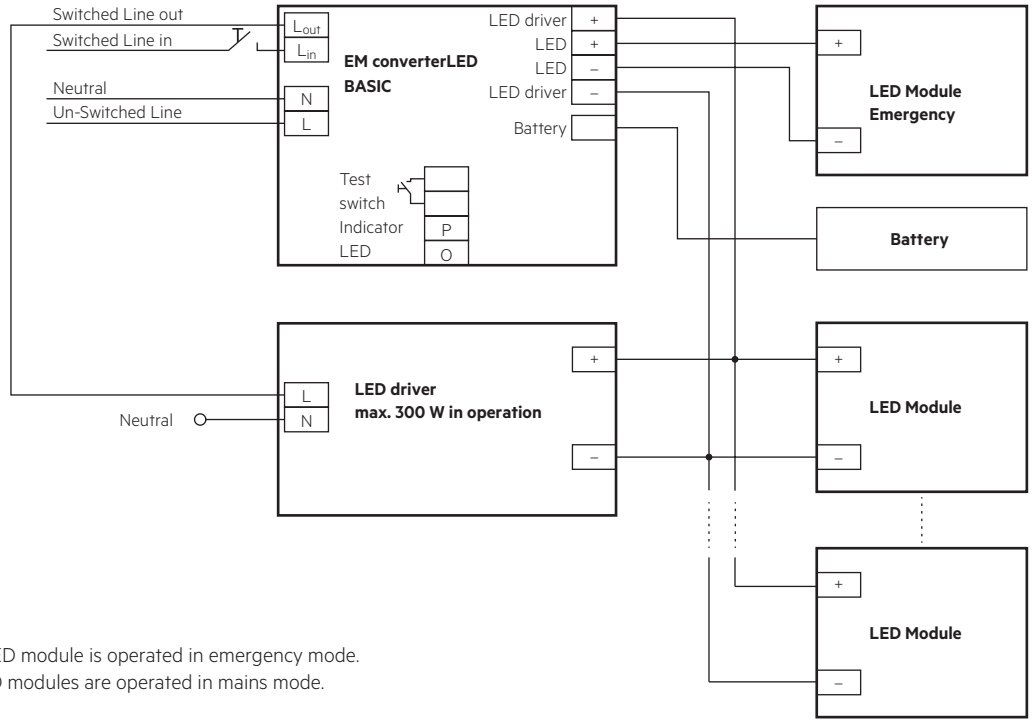


EM converterLED BASIC with a standard LED driver and <u>series</u> operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>parallel</u> operation of LED modules

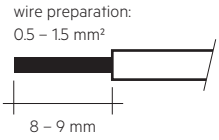


One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

3.2 Wiring type and cross section

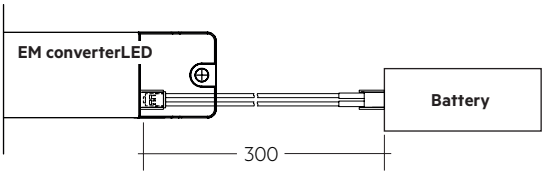
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply

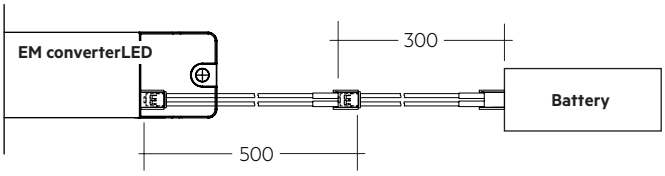


3.3 Battery connection

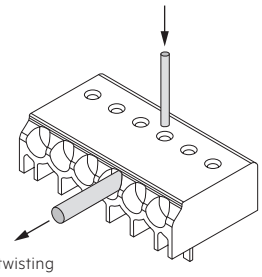
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

Do not exceed the max. length of LED leads to the LED module. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver.

3.6 Maximum lead length

LED	3 m (6 m loop)[①]
Status indication LED	1 m
Batteries	0.8 m

3.7 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C
- Plug connection

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m
- Plug connection

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
EMcLED BASIC	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	LED driver
Mains	–	•	••	••
Switched Live	•	–	••	••
Battery, LED, Test switch, Indicator LED	••	••	–	•
LED driver	••	••	–	–

• Represents basic insulation

•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.
DALI terminals are not SELV. Wire the terminals in accordance with the requirements of low voltage installations.

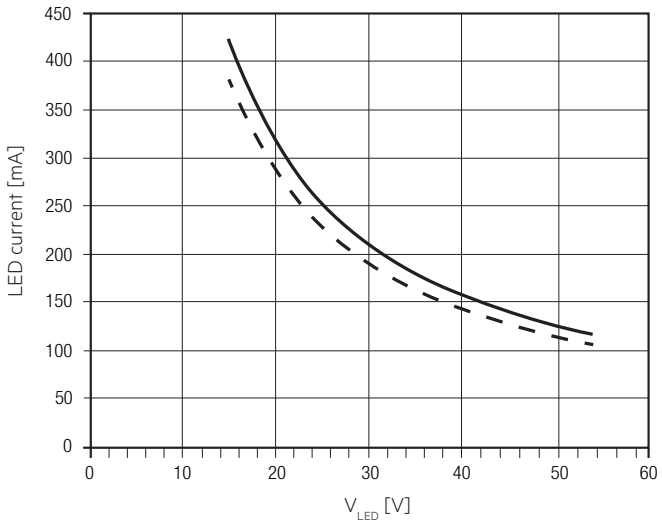
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

EMcLED BASIC HP 6W 50V
Article number: 89800828

1 h application
LiFePO4 battery 2S1P, 6.4 V battery voltage

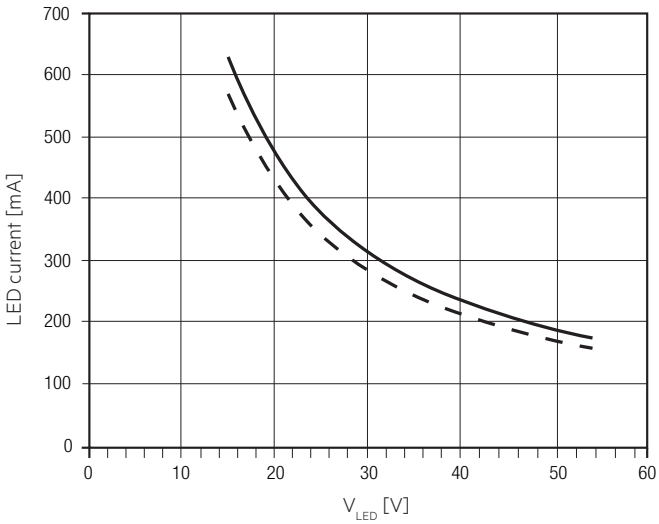
3 h application
LiFePO4 battery 2S2P, 6.4 V battery voltage



EMcLED BASIC HP 9W 50V
Article number: 89800830

1 h application
LiFePO4 battery 2S1P, 6.4 V battery voltage

3 h application
LiFePO4 battery 3S2P, 9.6 V battery voltage



Max. LED current at nominal battery voltage

Min. LED current at nominal battery voltage

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A peak (current rating of the terminals of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 120 A for 250 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 500 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 300 W in operation. The load must be an LED module.

Check compatibility with short function tests (duration of several seconds).

6. Functions

6.1 Duration link selection

Duration	Usage duration link
3 h	With link
1 h	Without link

Emergency lighting LED driver supplied with duration link in 3 hours position.

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.2 Status indication LED

System status is indicated by a green LED.

Note:
The status indication LED switches off if the battery does not reach the full capacity (3.6V battery voltage) within 20 – 24 hours.
If this occurs disconnect the mains voltage and operate the device in emergency mode for approximately one hour. Afterwards apply the mains voltage again and recharge the battery for 24 hours.
If the failure occurs again replace the battery.

7. Battery data

7.1 Battery selection

EM converterLED BASIC, 1 / 3 h

				Type	EMcLED BASIC HP 6W 50V		EMcLED BASIC HP 9W 50V	
				Article no.	89800828		89800830	
				Duration	1 h	3 h	1 h	3 h
Technology and capacity		Number of cells	**Type**	**Article no.**	**Assignable batteries**			
$LiFePO_4$ 3,6 Ah 26650 cells	Soft pack	2 x 1	**ACCU-LiFePO4 3.3Ah 2A 2S1P CON**	**28003814**	•		•	
	Soft pack	2 x 2	**ACCU-LiFePO4 6.6Ah 4A 2S2P CON**	**28003815**		•		
	Soft pack	3 x 2	**ACCU-LiFePO4 6.6Ah 6A 3S2P CON**	**28003816**				•
	Hard pack	2 x 2	**PACK-LiFePO4 6.6Ah 2S2P CON**	**28003809**		•		
	Hard pack	3 x 2	**PACK-LiFePO4 6.6Ah 3S2P CON**	**28003810**				•

7.2 Battery charge / discharge data

EM converterLED BASIC, 1 / 3 h, $LiFePO_4$

	Type	EMcLED BASIC HP 6W 50V		EMcLED BASIC HP 9W 50V	
	Article no.	89800828		89800830	
	Duration	1 h	3 h	1 h	3 h
Battery charge time	Initial charge	24 h			
	Fast recharge	24 h			
	Trickle charge	continuously and battery voltage controlled			
Charging current	Initial charge	350 – 390 mA	350 – 390 mA	350 – 390 mA	350 – 390 mA
	Fast recharge	350 – 390 mA	350 – 390 mA	350 – 390 mA	350 – 390 mA
	Trickle charge[1]	350 – 390 mA / 0 mA	350 – 390 mA / 0 mA	350 – 390 mA / 0 mA	350 – 390 mA / 0 mA
Discharge current range[3]		885 - 1,400 mA	885 - 1,400 mA	1,365 - 2,135 mA	925 - 1,340 mA
Charge voltage range[2]		2.0 – 3.65 V per cell			
Discharge voltage range		3.65 – 2.60 V per cell			

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < -5 °C or > 60 °C).

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

[3] The discharge current varies depending on the battery voltage and the LED voltage to maintain the constant output power.

7.3 Accu-LiFePO4

Capacity 3.6 Ah

International designation	IFpR 27/67
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure	
10 years design life	+35 °C
7 years design life	+45 °C
5 years design life	+55 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

7.4 Safety (LiFeGuard)

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.4.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.4.2 Overcharge protection

In case of an error or the use of a wrong driver the battery gets overcharged. The battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.4.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.4.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation.

7.5 Wiring batteries

For further information refer to corresponding battery datasheet.

7.6 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

8.2 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.3 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

8.4 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

8.5 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED BASIC HP 6/9 W 250 V

Ausführung BASIC

Product description
_ Self contained emergency lighting LED driver for manual testing
_ For LED modules with a forward voltage of 48 – 250 V
_ Low profile casing (21 x 30 mm cross-section)
_ For luminaire installation
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Non maintained operation
_ 1 or 3 h rated duration
_ Operating time selectable with plug (duration link)
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery provided by 3-pole connector

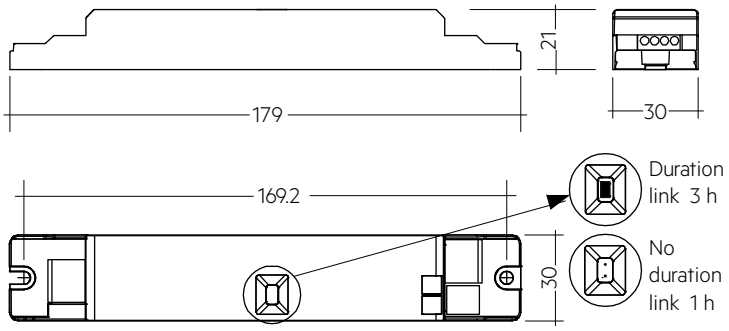
Batteries
_ LiFePO4 batteries with Tridonic LiFeGuard
_ High-temperature cells
_ 26650 cells
_ 10 year design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet, battery selection

Website
http://www.tridonic.com/89800829

TRIDONIC

EM converterLED BASIC HP 6/9 W 250 V

Ausführung BASIC



Note: Supply of control gear with duration link in 3 hours position. Remove duration link for duration of 1 h. Duration link must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EMcLED BASIC HP 6W 250V	**89800829**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm
EMcLED BASIC HP 9W 250V	**89800831**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Typ. λ (at 230 V, 50 Hz)	0.6C
Forward voltage range LED module	48 – 250 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	290 V
Max. open circuit voltage	290 V
Battery charging time ①	24 h
Ambient temperature ta	-25 … +55 °C
Max. casing temperature tc	80 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

EL 110 EAC CE RoHS

Standards

EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 62384, according to EN 50172, according to EN 60598-2-22

Specific technical data

Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge	Fast recharge	Trickle② charge	Initial charge	Fast recharge	Trickle② charge
EMcLED BASIC HP 6W 250V	LiFePO4	1 h	0.65C	6 W	32 mA	32 mA	32 / 12 mA	4.8 W	4.8 W	4.8 / 1.4 W
EMcLED BASIC HP 6W 250V	LiFePO4	3 h	0.65C	6 W	32 mA	32 mA	32 / 12 mA	4.8 W	4.8 W	4.8 / 1.4 W
EMcLED BASIC HP 9W 250V	LiFePO4	1 h	0.70C	9 W	32 mA	32 mA	32 / 12 mA	4.8 W	4.8 W	4.8 / 1.4 W
EMcLED BASIC HP 9W 250V	LiFePO4	3 h	0.70C	9 W	40 mA	40 mA	40 / 12 mA	6.2 W	6.2 W	6.2 / 1.4 W

① 16 h battery charging time for 2 h emergency lighting function according to AS 2293.
② Voltage dependent constant current charging is used.

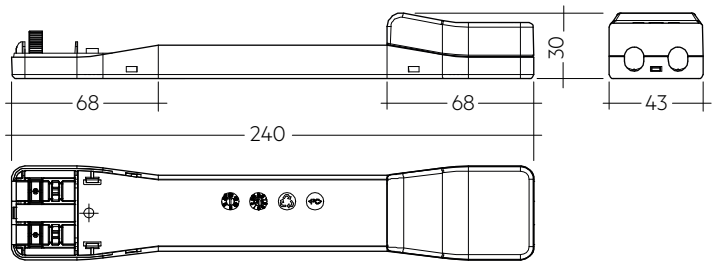
EMcLED Strain-relief set 240x43x30mm

Accessory

Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

Website
http://www.tridonic.com/28003813



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

RoHS

Status indication green LED EM CON

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery
_ 0.3 / 1.0 m cable length
_ Plug connection

Website
http://www.tridonic.com/89800269

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green, 1.0 m CON	**89800269**	25 pc(s).	800 pc(s).	0.018 kg
LED EM green, HO 1.0 m CON	**89800271**	25 pc(s).	200 pc(s).	0.016 kg
LED EM green, 0.6 m CON	**89800472**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, HO 0.6 m CON	**89800473**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, 0.3 m CON	**89800270**	25 pc(s).	200 pc(s).	0.007 kg
LED EM green, HO 0.3 m CON	**89800272**	25 pc(s).	200 pc(s).	0.007 kg

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- according to EN 50172
- according to EN 60598-2-22

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

EMcLED BASIC HP 6W 250V	tc	70 °C	75 °C	80 °C
	lifetime	> 100,000 h	> 100,000 h	> 100,000 h
EMcLED BASIC HP 9W 250V	tc	70 °C	75 °C	80 °C
	lifetime	> 100,000 h	> 100,000 h	93,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

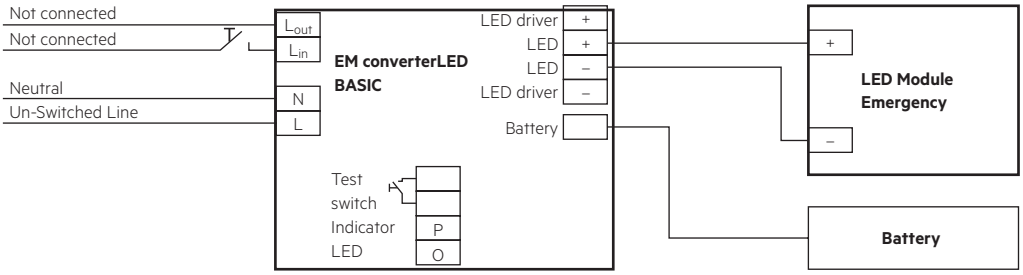
3. Installation / Wiring

3.1 Wiring diagram

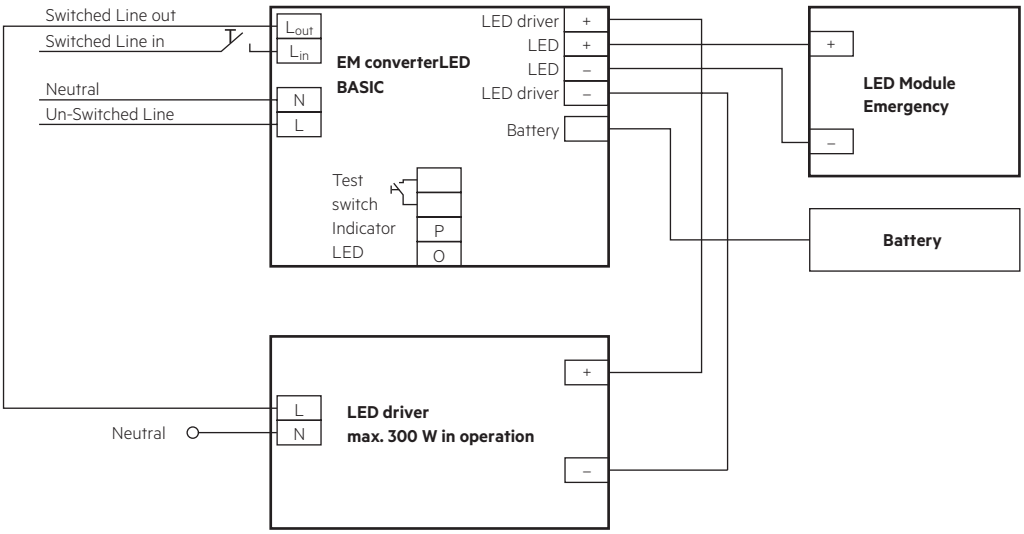
One or more LED modules with a total forward voltage of 48 to 250 V can be connected to the EMcLED module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the LED driver from the mains supply.

Use of the test switch:
For checking the device function press the test switch for a minimum of 3 seconds.

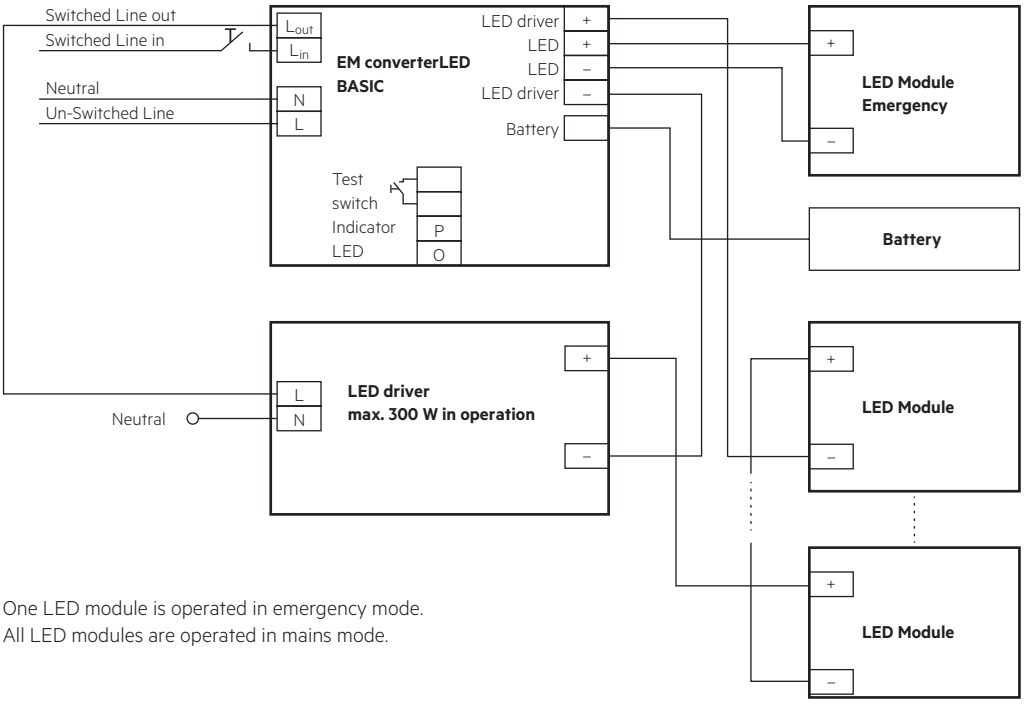
EM converterLED BASIC with one LED module for non-maintained emergency operation



EM converterLED BASIC with a standard LED driver and one LED module for mains and emergency operation

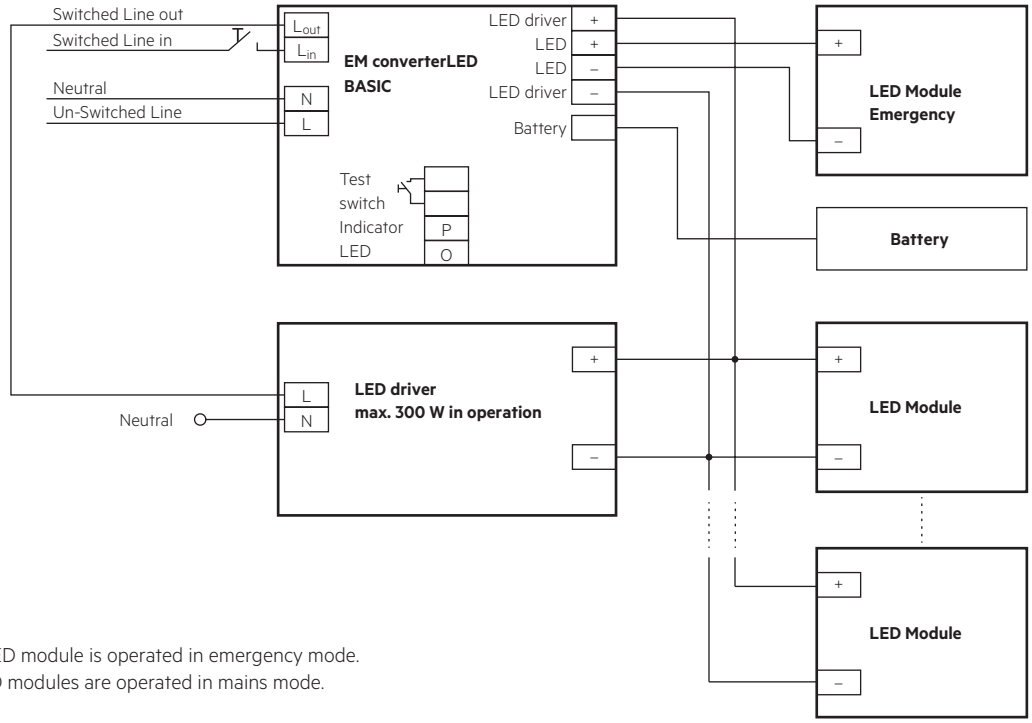


EM converterLED BASIC with a standard LED driver and <u>series</u> operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>parallel</u> operation of LED modules

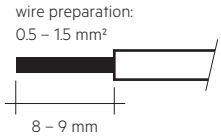


One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

3.2 Wiring type and cross section

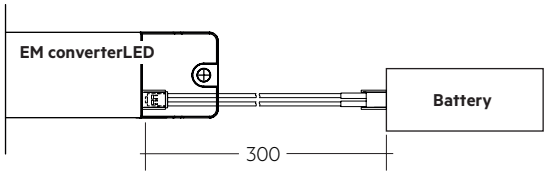
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply

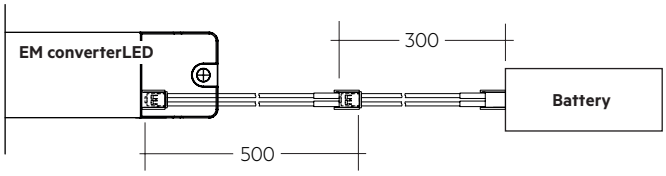


3.3 Battery connection

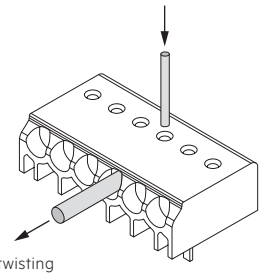
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Wiring guidelines

- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

Do not exceed the max. length of LED leads to the LED module. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver.

3.6 Maximum lead length

LED	3 m (6 m loop)[①]
Status indication LED	1 m
Batteries	0.8 m

3.7 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C
- Plug connection

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m
- Plug connection

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
EMcLED BASIC	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	LED driver
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, LED, Test switch, Indicator LED	••	••	–	–
LED driver	•	•	–	–

• Represents basic insulation

•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.
DALI terminals are not SELV. Wire the terminals in accordance with the requirements of low voltage installations.

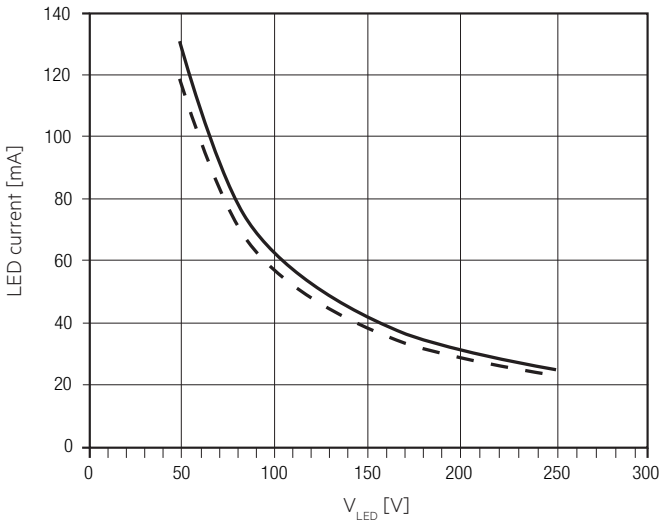
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

EMcLED BASIC HP 6W 250V
Article number: 89800829

1 h application
LiFePO4 battery 2S1P, 6.4 V battery voltage

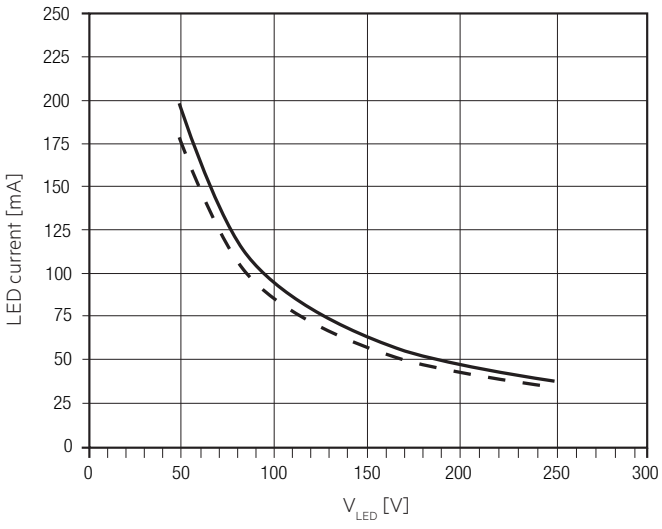
3 h application
LiFePO4 battery 2S2P, 6.4 V battery voltage



EMcLED BASIC HP 9W 250V
Article number: 89800831

1 h application
LiFePO4 battery 2S1P, 6.4 V battery voltage

3 h application
LiFePO4 battery 3S2P, 9.6 V battery voltage



Max. LED current at nominal battery voltage

Min. LED current at nominal battery voltage

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A peak (current rating of the terminals of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 120 A for 250 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 500 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 300 W in operation. The load must be an LED module.

Check compatibility with short function tests (duration of several seconds).

6. Functions

6.1 Duration link selection

Duration	Usage duration link
3 h	With link
1 h	Without link

Emergency lighting LED driver supplied with duration link in 3 hours position.

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.2 Status indication LED

System status is indicated by a green LED.

Note:
The status indication LED switches off if the battery does not reach the full capacity (3.6V battery voltage) within 20 – 24 hours.
If this occurs disconnect the mains voltage and operate the device in emergency mode for approximately one hour. Afterwards apply the mains voltage again and recharge the battery for 24 hours.
If the failure occurs again replace the battery.

7. Battery data

7.1 Battery selection

EM converterLED BASIC, 1 / 3 h

				Type	EMcLED BASIC HP 6W 250V		EMcLED BASIC HP 9W 250V	
				Article no.	89800829		89800831	
				Duration	1 h	3 h	1 h	3 h
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**			
$LiFePO_4$ 3,6 Ah 26650 cells	Soft pack	2 x 1	**ACCU-LiFePO4 3.3Ah 2A 2S1P CON**	**28003814**	•		•	
	Soft pack	2 x 2	**ACCU-LiFePO4 6.6Ah 4A 2S2P CON**	**28003815**		•		
	Soft pack	3 x 2	**ACCU-LiFePO4 6.6Ah 6A 3S2P CON**	**28003816**				•
	Hard pack	2 x 2	**PACK-LiFePO4 6.6Ah 2S2P CON**	**28003809**		•		
	Hard pack	3 x 2	**PACK-LiFePO4 6.6Ah 3S2P CON**	**28003810**				•

7.2 Battery charge / discharge data

EM converterLED BASIC, 1 / 3 h, $LiFePO_4$

		Type	EMcLED BASIC HP 6W 250V		EMcLED BASIC HP 9W 250V	
		Article no.	89800829		89800831	
		Duration	1 h	3 h	1 h	3 h
Battery charge time	Initial charge		24 h			
	Fast recharge		24 h			
	Trickle charge		continuously and battery voltage controlled			
Charging current	Initial charge		350 – 390 mA	350 – 390 mA	350 – 390 mA	350 – 390 mA
	Fast recharge		350 – 390 mA	350 – 390 mA	350 – 390 mA	350 – 390 mA
	Trickle charge[1]		350 – 390 mA / 0 mA	350 – 390 mA / 0 mA	350 – 390 mA / 0 mA	350 – 390 mA / 0 mA
Discharge current range[3]			885 - 1,400 mA	885 - 1,400 mA	1,365 - 2,135 mA	925 - 1,340 mA
Charge voltage range[2]			2.0 – 3.65 V per cell			
Discharge voltage range			3.65 – 2.60 V per cell			

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < -5 °C or > 60 °C).

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

[3] The discharge current varies depending on the battery voltage and the LED voltage to maintain the constant output power.

7.3 Accu-LiFePO4

Capacity 3.6 Ah

International designation	IFpR 27/67
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure	
10 years design life	+35 °C
7 years design life	+45 °C
5 years design life	+55 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

7.4 Safety (LiFeGuard)

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.4.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.4.2 Overcharge protection

In case of an error or the use of a wrong driver the battery gets overcharged. The battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.4.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.4.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation.

7.5 Wiring batteries

For further information refer to corresponding battery datasheet.

7.6 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

8.2 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.3 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

8.4 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

8.5 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED BASIC MH/LiFePO4 50 V

Ausführung BASIC

Product description

_ Self contained emergency lighting LED driver for manual testing
_ For LED modules with a forward voltage of 10 – 54 V
_ SELV for output voltage < 60 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ For luminaire installation
_ Compatible with Tridonic's LLE FLEX modules (ADV, EXC)
_ Nominal lifetime up to 100,000 h
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Non maintained operation
_ 1 or 3 h rated duration
_ Operating time selectable with plug (duration link)
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery provided by 3-pole connector
_ Automatic detection of the connected battery technology (NiMH or LiFePO4 batteries)

Batteries

_ High-temperature cells
_ NiMH or LiFePO4 batteries
_ 18650 cells or 26650 cells
_ NiMH: 4 years design life / 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ LiFePO4: up to 12 years design life
_ LiFePO4 batteries with Tridonic LiFeGuard
_ For battery compatibility refer to data sheet, battery selection
_ For guarantee conditions, see LiFePO4 battery data sheet (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

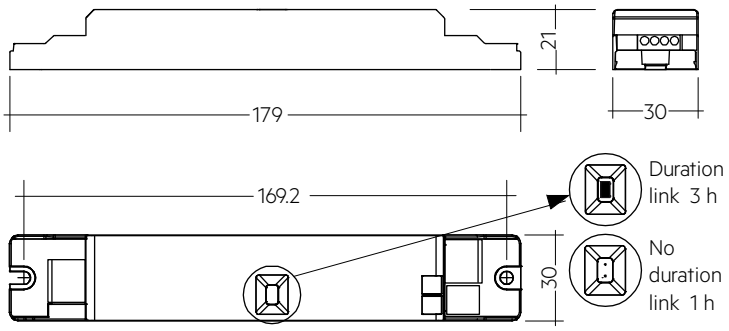
Website

http://www.tridonic.com/89800575

TRIDONIC

EM converterLED BASIC MH/LiFePO4 50 V

Ausführung BASIC



Note: Supply of control gear with duration link in 3 hours position. Remove duration link for duration of 1 h. Duration link must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterLED BASIC 202 MH/LiFePO4 50V	**89800575**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm
EM converterLED BASIC 202A MH/LiFePO4 50V	**89800708**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm
EM converterLED BASIC 203 MH/LiFePO4 50V	**89800576**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm
EM converterLED BASIC 204 MH/LiFePO4 50V	**89800577**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	10 – 54 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Battery charging time ①②	24 h
Ambient temperature ta	-5 … +55 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

SELV EL 110 RoHS

Standards

according to EN 50172, according to EN 60598-2-22, EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30, EN 62384

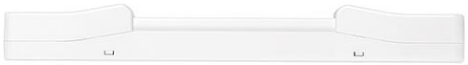
Specific technical data

Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge	Fast recharge	Trickle ③ charge	Initial charge	Fast recharge	Trickle ③ charge
EM converterLED BASIC 202 MH/LiFePO4 50V	NiMH	1 h	0.60C	1.5 W	17 mA	17 mA	17 / 12 mA	2.4 W	2.4 W	2.4 / 1.4 W
EM converterLED BASIC 202 MH/LiFePO4 50V	NiMH	3 h	0.60C	1.5 W	18 mA	18 mA	18 / 12 mA	2.6 W	2.6 W	2.6 / 1.4 W
EM converterLED BASIC 202 MH/LiFePO4 50V	LiFePO4	1 h	0.60C	1.5 W	17 mA	17 mA	17 / 12 mA	2.1 W	2.1 W	2.1 / 1.4 W
EM converterLED BASIC 202 MH/LiFePO4 50V	LiFePO4	3 h	0.60C	1.5 W	20 mA	20 mA	20 / 12 mA	2.9 W	2.9 W	2.9 / 1.4 W
EM converterLED BASIC 202A MH/LiFePO4 50V	NiMH	1 h	0.60C	2.3 W	17 mA	17 mA	17 / 12 mA	2.4 W	2.4 W	2.4 / 1.4 W
EM converterLED BASIC 202A MH/LiFePO4 50V	NiMH	3 h	0.60C	2.3 W	18 mA	18 mA	18 / 12 mA	2.6 W	2.6 W	2.6 / 1.4 W
EM converterLED BASIC 202A MH/LiFePO4 50V	LiFePO4	1 h	0.60C	2.3 W	17 mA	17 mA	17 / 12 mA	2.1 W	2.1 W	2.1 / 1.4 W
EM converterLED BASIC 202A MH/LiFePO4 50V	LiFePO4	3 h	0.60C	2.3 W	20 mA	20 mA	20 / 12 mA	2.9 W	2.9 W	2.9 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 50V	NiMH	1 h	0.60C	2.5 W	17 mA	17 mA	17 / 12 mA	2.4 W	2.4 W	2.4 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 50V	NiMH	3 h	0.60C	2.5 W	19 mA	19 mA	19 / 12 mA	2.9 W	2.9 W	2.9 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 50V	LiFePO4	1 h	0.60C	3.2 W	20 mA	20 mA	20 / 12 mA	2.8 W	2.8 W	2.8 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 50V	LiFePO4	3 h	0.60C	3.2 W	24 mA	24 mA	24 / 12 mA	3.8 W	3.8 W	3.8 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 50V	NiMH	1 h	0.65C	3.5 W	17 mA	17 mA	17 / 12 mA	2.4 W	2.4 W	2.4 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 50V	NiMH	3 h	0.65C	3.5 W	20 mA	20 mA	20 / 12 mA	3.0 W	3.0 W	3.0 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 50V	LiFePO4	1 h	0.65C	3.9 W	20 mA	20 mA	20 / 12 mA	2.8 W	2.8 W	2.8 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 50V	LiFePO4	3 h	0.65C	3.9 W	25 mA	25 mA	25 / 12 mA	3.9 W	3.9 W	3.9 / 1.4 W

① 16 h battery charging time for 2 h emergency lighting function according to AS 2293.
② 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.
③ In case of NiMH batteries: Intermittent charge is used. Value 1 is for 4 min. charge on / Value 2 is for 16 min. charge off. In case of LiFePO4 batteries voltage dependent constant current charging is used.

EMcLED Strain-relief set 240x43x30mm

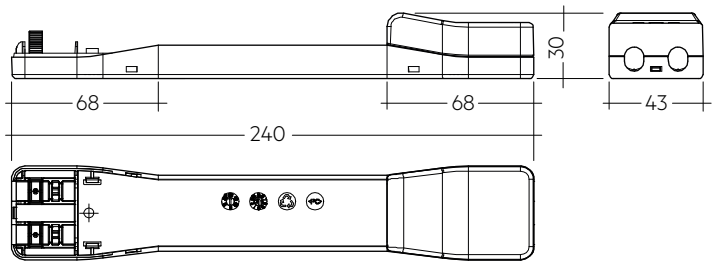
Accessory



Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

Website
http://www.tridonic.com/28003813



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

RoHS

Status indication green LED EM CON

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery
_ 0.3 / 1.0 m cable length
_ Plug connection

Website
http://www.tridonic.com/89800269

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green, 1.0 m CON	**89800269**	25 pc(s).	800 pc(s).	0.018 kg
LED EM green, HO 1.0 m CON	**89800271**	25 pc(s).	200 pc(s).	0.016 kg
LED EM green, 0.6 m CON	**89800472**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, HO 0.6 m CON	**89800473**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, 0.3 m CON	**89800270**	25 pc(s).	200 pc(s).	0.007 kg
LED EM green, HO 0.3 m CON	**89800272**	25 pc(s).	200 pc(s).	0.007 kg

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

Connection cable NiMH

Accessory

Product description
_ Connection cable for NiMH batteries
_ Cable length 500 mm
_ 2-pole plug connection for batteries and 3-pole plug connection for LED driver

Website
http://www.tridonic.com/28002462

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
CONNECTION CABLE NiMH 500mm	**28002462**	10 pc(s).	200 pc(s).	0.01 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- according to EN 50172
- according to EN 60598-2-22

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime with NiMH batteries				
EM converterLED BASIC 202	tc	65 °C	70 °C	75 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	93,000 h
EM converterLED BASIC 202A	tc	65 °C	70 °C	75 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	94,000 h
EM converterLED BASIC 203	tc	65 °C	70 °C	75 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	94,000 h
EM converterLED BASIC 204	tc	65 °C	70 °C	75 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	90,000 h

Expected lifetime with $LiFePO_4$ batteries				
EM converterLED BASIC 202	tc	65 °C	70 °C	75 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	97,000 h
EM converterLED BASIC 202A	tc	65 °C	70 °C	75 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	97,000 h
EM converterLED BASIC 203	tc	65 °C	70 °C	75 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	89,000 h
EM converterLED BASIC 204	tc	65 °C	70 °C	75 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	89,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

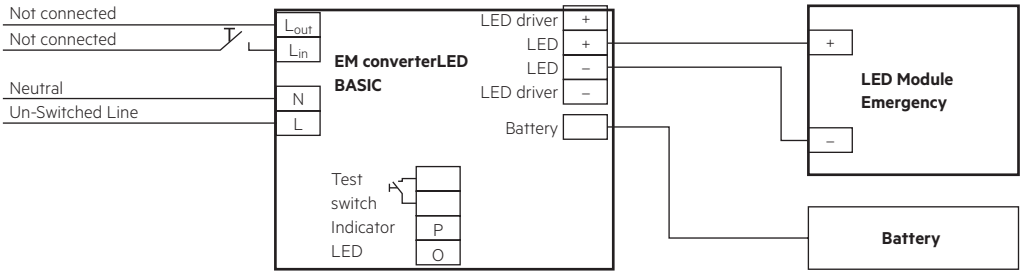
3. Installation / Wiring

3.1 Wiring diagram

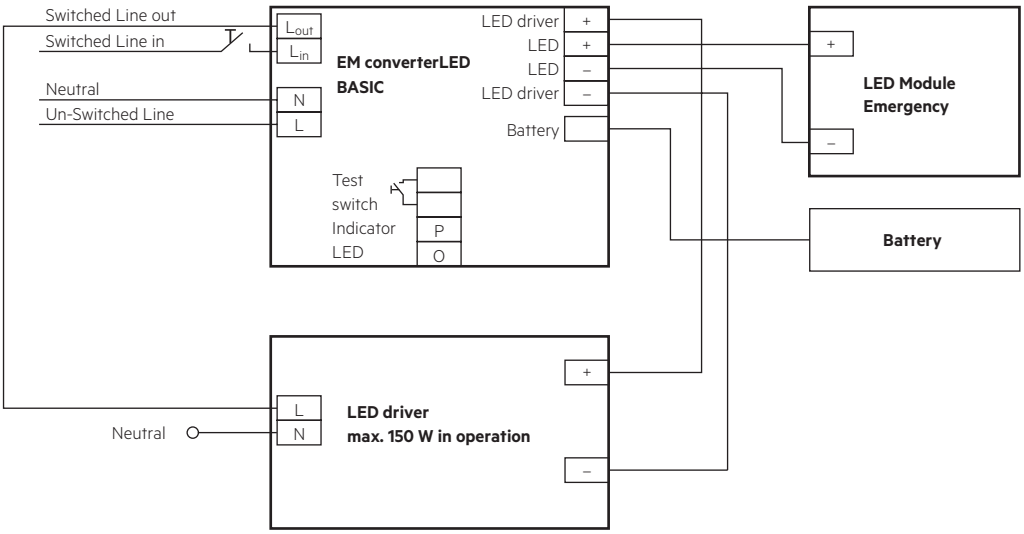
One or more LED modules with a total forward voltage of 10 to 54 V can be connected to the EM converterLED 50V module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the LED driver from the mains supply.

Use of the test switch:
For checking the device function press the test switch for a minimum of 3 seconds.

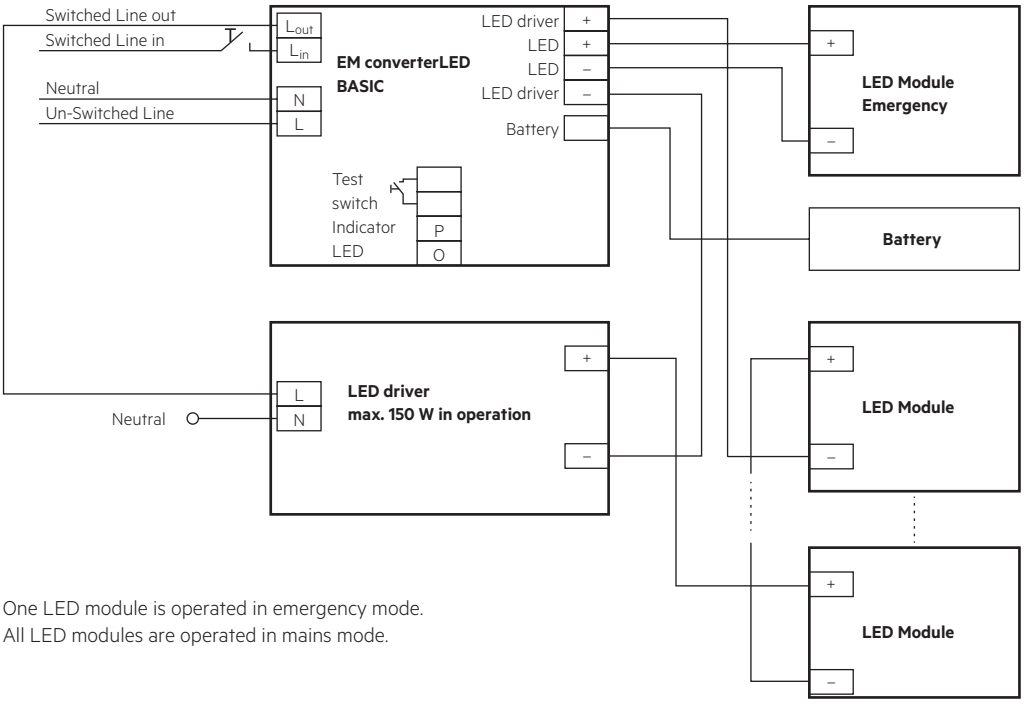
EM converterLED BASIC with one LED module for non-maintained emergency operation



EM converterLED BASIC with a standard LED driver and one LED module for mains and emergency operation

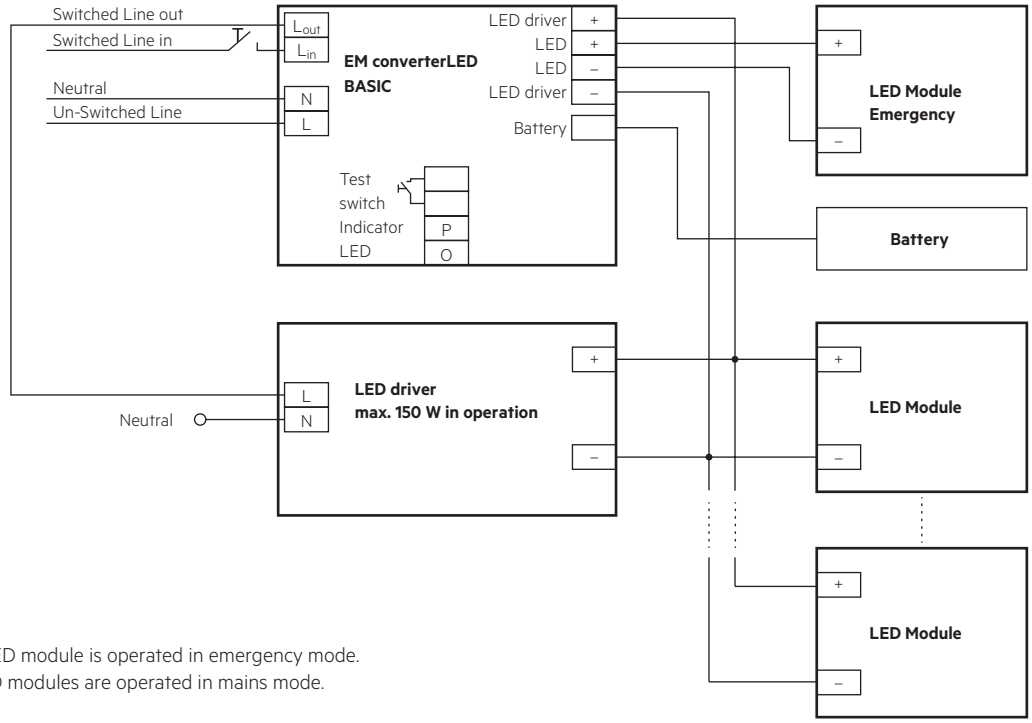


EM converterLED BASIC with a standard LED driver and <u>series</u> operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>parallel</u> operation of LED modules

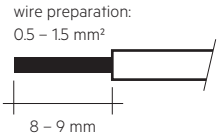


One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

3.2 Wiring type and cross section

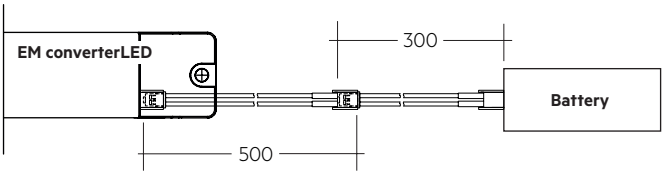
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply



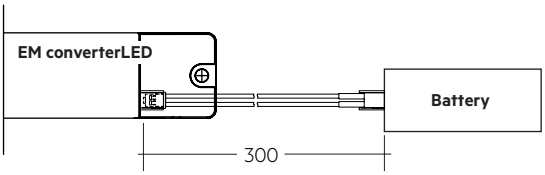
3.3 Battery connection

NiMH: Connection with extension

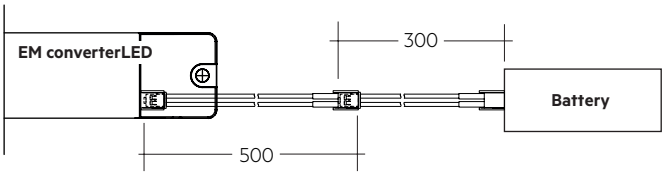


When using an EM converterLED in combination with a NiMH battery, order the CONNECTION CABLE NiMH 500mm seperately.

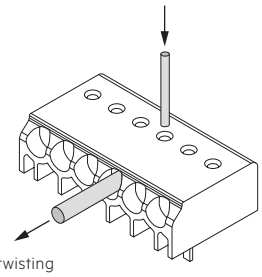
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

Do not exceed the max. length of LED leads to the LED module. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver.

3.6 Maximum lead length

LED	3 m (6 m loop)[①]
Status indication LED	1 m
Batteries	0.8 m

[①] Note: The length of LED leads to the LED module must not be exceeded. Note that the length of the EM converterLED leads is added to the length of the leads from the LED driver to the EM converterLED module when considering max. permitted lead length of the LED driver. Leads should always be kept as short as possible.

3.7 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

3.8 Compatibility with LLE FLEX modules

The EM converterLED can be used within certain restrictions to operate constant voltage LED loads from the Tridonic LLE FLEX (ADV, EXC) product range. A certain minimum length of the LLE FLEX is required for correct operation.
Detailed information in the download area of the ST and PRO product pages at www.tridonic.com (EM converterLED manual).

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C
- Plug connection

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m
- Plug connection

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
EM converterLED BASIC MH/LiFePO4 50V	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	LED driver
Mains	–	•	••	••
Switched Live	•	–	••	••
Battery, LED, Test switch, Indicator LED	••	••	–	•
LED driver	••	••	–	–

• Represents basic insulation

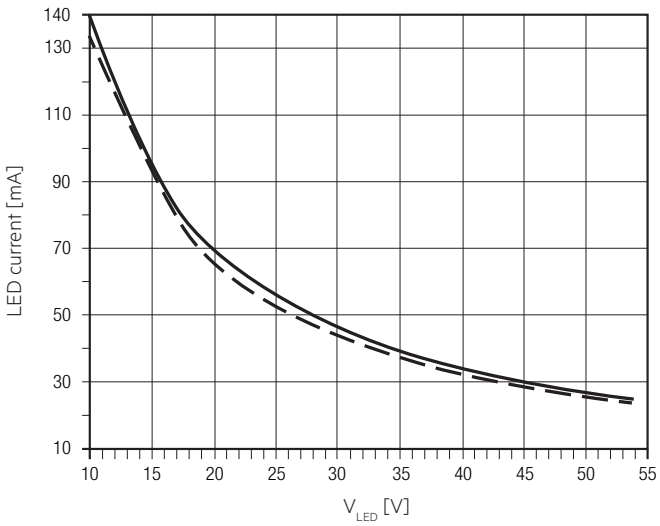
•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.

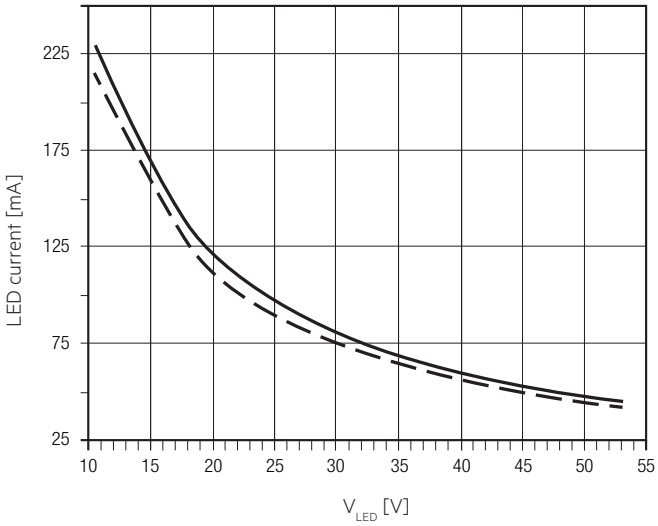
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

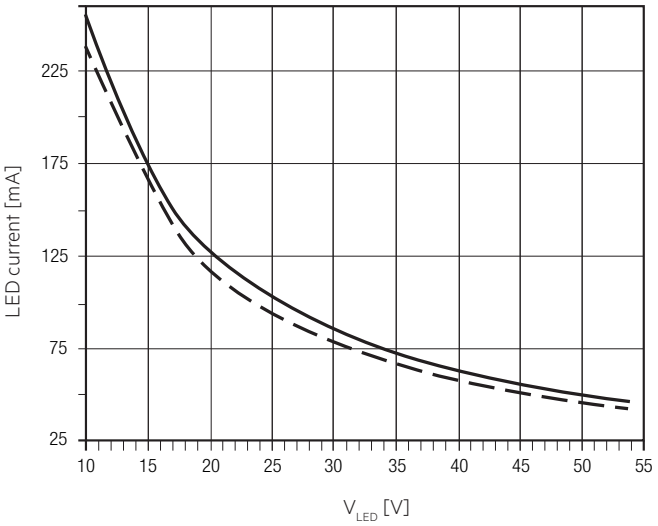
EM converterLED BASIC 202 MH/LiFePO4 50V
Article number: 89800575
NiMH battery, 2.4 V battery voltage
725 – 775 mA battery discharge current (tolerance)
$LiFePO_4$ battery, 3.2 V battery voltage
550 – 590 mA battery discharge current (tolerance)



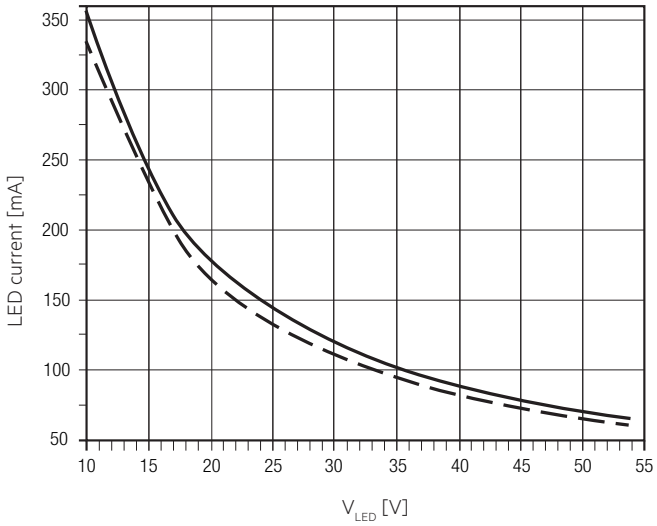
EM converterLED BASIC 202A MH/LiFePO4 50V
Article number: 89800708
NiMH battery, 3.6 V battery voltage
770 – 830 mA battery discharge current (tolerance)
$LiFePO_4$ battery, 3.2 V battery voltage
880 – 950 mA battery discharge current (tolerance)



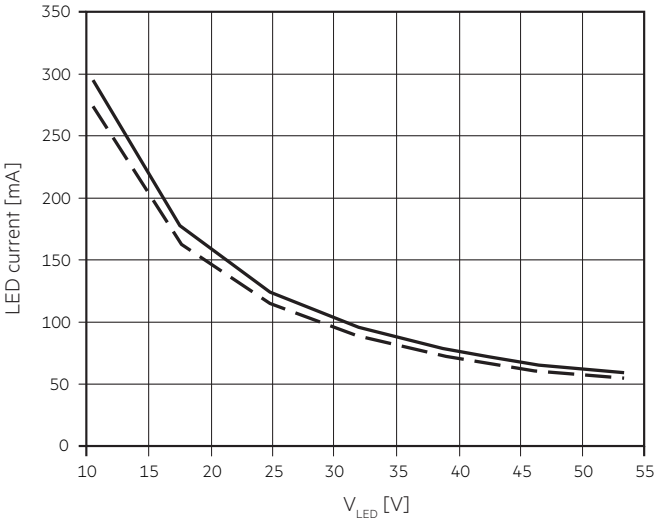
EM converterLED BASIC 203 MH/LiFePO4 50V
Article number: 89800576
NiMH battery, 3.6 V battery voltage
810 – 870 mA battery discharge current (tolerance)



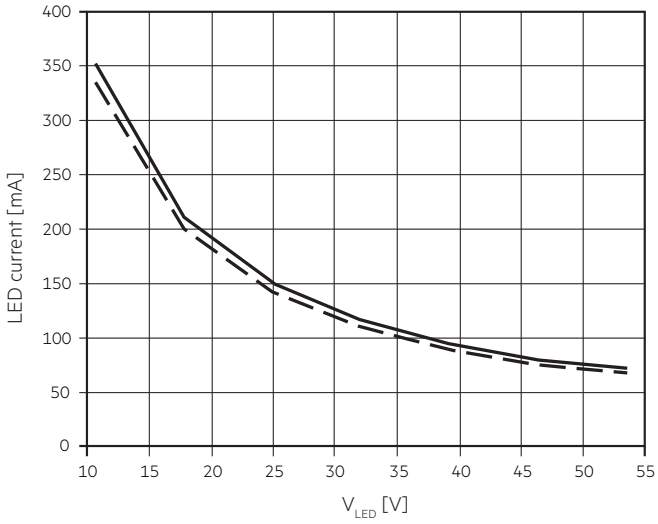
EM converterLED BASIC 204 MH/LiFePO4 50V
Article number: 89800577
NiMH battery, 4.8 V battery voltage
825 – 885 mA battery discharge current (tolerance)



EM converterLED BASIC 203 MH/LiFePO4 50V
Article number: 89800576
$LiFePO_4$ battery, 3.2 V battery voltage
1,150 – 1,250 mA battery discharge current (tolerance)



EM converterLED BASIC 204 MH/LiFePO4 50V
Article number: 89800577
$LiFePO_4$ battery, 3.2 V battery voltage
1,450 – 1,550 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A eff (current rating of the terminals of EM converterLED) and 2.4 A peak (current rating of switching relays of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 84 A for 255 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 450 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 150 W in operation. The load must be an LED module.

Check compatibility with short function tests (duration of several seconds).

6. Functions

6.1 Duration link selection

Duration	Usage duration link
3 h	With link
1 h	Without link

Emergency lighting LED driver supplied with duration link in 3 hours position.

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.2 Status indication LED

System status is indicated by a green LED.

Note:
The status indication LED switches off if the battery does not reach the full capacity (3.6V battery voltage) within 20 – 24 hours.
If this occurs disconnect the mains voltage and operate the device in emergency mode for approximately one hour. Afterwards apply the mains voltage again and recharge the battery for 24 hours.
If the failure occurs again replace the battery.

7. Battery data

7.1 Battery selection

EM converterLED BASIC, 1 / 3 h

					EM converterLED BASIC 202 MH/LiFePO4 50V		EM converterLED BASIC 202A MH/LiFePO4 50V		EM converterLED BASIC 203 MH/LiFePO4 50V		EM converterLED BASIC 204 MH/LiFePO4 50V	
				Article no.	89800575		89800708		89800576		89800577	
				Duration	**1 h**	**3 h**	**1 h**	**3 h**	**1 h**	**3 h**	**1 h**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**							
NiMH 4.0 Ah LA cells	stick	1 x 2	**Accu-NiMH 2A CON**	**28002316**		•						
	stick	1 x 3	**Accu-NiMH 3A CON**	**89800441**				•		•		
	stick	1 x 4	**Accu-NiMH 4A CON**	**89800442**								•
	stick + stick	2 + 2	**Accu-NiMH 4C CON**	**89800438**								•
	remote box	1 x 3	**Pack-NiMH 4Ah 3 CON**	**28001896**				•		•		
	remote box	1 x 4	**Pack-NiMH 4Ah 4 CON**	**28001897**								•
$LiFePO_4$ 1.5 Ah 18650 cells	stick	1 x 1	**Accu-LiFePO4 1A CON**	**28002317**	•		•					
	stick	1 x 2	**Accu-LiFePO4 2A CON**	**28002318**		•			•		•	
	stick	1 x 3	**Accu-LiFePO4 3A CON**	**28002320**				•				
	stick	1 x 4	**Accu-LiFePO4 4A CON**	**28002322**						•		
	stick	1 x 5	**Accu-LiFePO4 5A CON**	**28002325**								•
	stick + stick	2 + 2	**Accu-LiFePO4 4C CON**	**28002324**						•		
	stick + stick	3 + 2	**Accu-LiFePO4 5C CON**	**28002327**								•
	side by side	2 x 1	**Accu-LiFePO4 2B CON**	**28002319**		•			•		•	
	side by side	3 x 1	**Accu-LiFePO4 3B CON**	**28002321**				•				
	side by side	4 x 1	**Accu-LiFePO4 4B CON**	**28002323**						•		
	side by side	5 x 1	**Accu-LiFePO4 5B CON**	**28002326**								•
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28003805**		•			•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28003806**				•				
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28005854**		•			•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28005855**				•				
	remote box	1 x 4	**PACK-LiFePO4 6.0Ah 4 CON**	**28005856**						•		
	remote box	1 x 5	**PACK-LiFePO4 7.5Ah 5 CON**	**28005857**								•
	stick	1 x 1	**Accu-LiFePO4 1.5 1A CON BAS**	**28006317**	•		•					
	stick	1 x 2	**Accu-LiFePO4 3.0 2A CON BAS**	**28006318**		•			•		•	
	stick	1 x 3	**Accu-LiFePO4 4.5 3A CON BAS**	**28006319**				•				
	stick	1 x 4	**Accu-LiFePO4 6.0 4A CON BAS**	**28006320**						•		
	stick + stick	2 + 3	**Accu-LiFePO4 7.5 5C CON BAS**	**28006321**								•
$LiFePO_4$ 3.3 Ah 26650 cells	stick	1S1P	**Accu-LiFePO4 1A CON**	**28006323**		•			•		•	
	stick	1S2P	**Accu-LiFePO4 2A CON**	**28006324**						•		
	remote box	1S1P	**PACK-LiFePO4 3.3Ah 1 CON**	**28005859**		•			•		•	

7.2 Battery charge / discharge data

EM converterLED BASIC, 1 / 3 h, NiMH

	Type	EM converterLED BASIC 202 MH/LiFePO4 50V		EM converterLED BASIC 202A MH/LiFePO4 50V		EM converterLED BASIC 203 MH/LiFePO4 50V		EM converterLED BASIC 204 MH/LiFePO4 50V	
	Article no.	89800575		89800708		89800576		89800577	
	Duration	1 h	3 h	1 h	3 h	1 h	3 h	1 h	3 h
Battery charge time	Initial charge	24 h							
	Fast recharge	24 h							
	Trickle charge	continuously							
Charging current	Initial charge	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA
	Fast recharge	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA
	Trickle charge	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.
Discharge current		725 – 775 mA	725 – 775 mA	770 – 830 mA	770 – 830 mA	810 – 870 mA	810 – 870 mA	825 – 885 mA	825 – 885 mA
Charge voltage range[1]		0.9 – 1.65 V per cell							
Discharge voltage range		1.65 – 1.05 V per cell							

[1] The battery will be charged below 0.9 V. The EM converterLED will indicate a battery fault.

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

EM converterLED BASIC, 1 / 3 h, $LiFePO_4$

	Type	EM converterLED BASIC 202 MH/LiFePO4 50V		EM converterLED BASIC 202A MH/LiFePO4 50V		EM converterLED BASIC 203 MH/LiFePO4 50V		EM converterLED BASIC 204 MH/LiFePO4 50V	
	Article no.	89800575		89800708		89800576		89800577	
	Duration	1 h	3 h	1 h	3 h	1 h	3 h	1 h	3 h
Battery charge time	Initial charge	24 h							
	Fast recharge	24 h							
	Trickle charge	continuously and battery voltage controlled							
Charging current	Initial charge	115 – 155 mA	250 – 290 mA	115 – 155 mA	250 – 290 mA	250 – 290 mA	420 – 480 mA	250 – 290 mA	420 – 480 mA
	Fast recharge	115 – 155 mA	250 – 290 mA	115 – 155 mA	250 – 290 mA	250 – 290 mA	420 – 480 mA	250 – 290 mA	420 – 480 mA
	Trickle charge[1]	115 – 155 mA / 0 mA	250 – 290 mA / 0 mA	115 – 155 mA / 0 mA	250 – 290 mA / 0 mA	250 – 290 mA / 0 mA	420 – 480 mA / 0 mA	250 – 290 mA / 0 mA	420 – 480 mA / 0 mA
Discharge current		550 – 590 mA	550 – 590 mA	880 – 950 mA	880 – 950 mA	1,150 – 1,250 mA	1,150 – 1,250 mA	1,450 – 1,550 mA	1,450 – 1,550 mA
Charge voltage range[2]		2.0 – 3.65 V							
Discharge voltage range		3.65 – 2.60 V							

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

7.3 Accu-NiMH

Capacity 4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months at -20 °C to +25 °C

7.4 Accu-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.5 Accupack-NiMH

Capacity 4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

7.6 Accupack-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

7.7 Accu / Accupack-LiFePO4

Capacity 3.3 / 6.6 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.8 Accu-LiFePO4 BAS

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.8 Safety (LiFeGuard)

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.8.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.8.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.8.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.8.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

7.9 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.10 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

8.2 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.3 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED BASIC MH/LiFePO4 90 V

Ausführung BASIC

Product description

_ Self contained emergency lighting LED driver for manual testing
_ For LED modules with a forward voltage of 40 – 97 V
_ SELV for output voltage < 120 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ For luminaire installation
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Non maintained operation
_ 1 or 3 h rated duration
_ Operating time selectable with plug (duration link)
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery provided by 3-pole connector
_ Automatic detection of the connected battery technology (NiMH or LiFePO4 batteries)

Batteries

_ High-temperature cells
_ NiMH or LiFePO4 batteries
_ 18650 cells or 26650 cells
_ NiMH: 4 years design life / 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ LiFePO4: up to 12 years design life
_ LiFePO4 batteries with Tridonic LiFeGuard
_ For battery compatibility refer to data sheet, battery selection
_ For guarantee conditions, see LiFePO4 battery data sheet (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

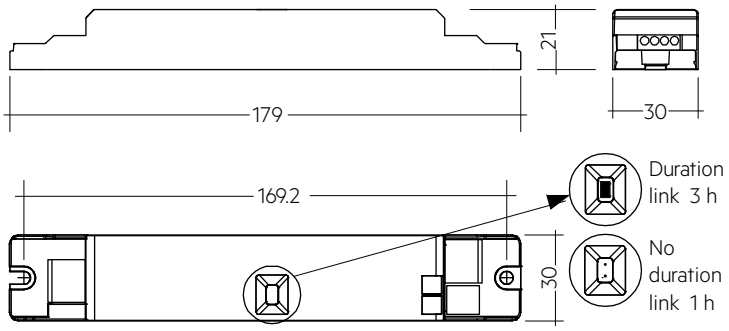
Website

http://www.tridonic.com/89800578

TRIDONIC

EM converterLED BASIC MH/LiFePO4 90 V

Ausführung BASIC



Note: Supply of control gear with duration link in 3 hours position. Remove duration link for duration of 1 h. Duration link must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterLED BASIC 203 MH/LiFePO4 90V	**89800578**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm
EM converterLED BASIC 204 MH/LiFePO4 90V	**89800579**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	40 – 97 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	120 V
Max. open circuit voltage	120 V
Battery charging time ①②	24 h
Ambient temperature ta	-5 … +55 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

SELV EL 110 RoHS

Standards

according to EN 50172, according to EN 60598-2-22, EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30, EN 62384

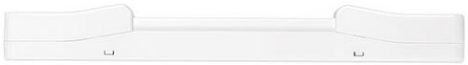
Specific technical data

Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge	Fast recharge	Trickle[3] charge	Initial charge	Fast recharge	Trickle[3] charge
EM converterLED BASIC 203 MH/LiFePO4 90V	NiMH	1 h	0.60C	2.5 W	18 mA	18 mA	18 / 12 mA	2.6 W	2.6 W	2.6 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 90V	NiMH	3 h	0.60C	2.5 W	21 mA	21 mA	21 / 12 mA	3.3 W	3.3 W	3.3 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 90V	LiFePO4	1 h	0.60C	3.1 W	20 mA	20 mA	20 / 12 mA	2.8 W	2.8 W	2.8 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 90V	LiFePO4	3 h	0.60C	3.1 W	25 mA	25 mA	25 / 12 mA	3.9 W	3.9 W	3.9 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 90V	NiMH	1 h	0.65C	3.5 W	18 mA	18 mA	18 / 12 mA	2.6 W	2.6 W	2.6 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 90V	NiMH	3 h	0.65C	3.5 W	21 mA	21 mA	21 / 12 mA	3.3 W	3.3 W	3.3 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 90V	LiFePO4	1 h	0.65C	3.8 W	20 mA	20 mA	20 / 12 mA	2.8 W	2.8 W	2.8 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 90V	LiFePO4	3 h	0.65C	3.8 W	25 mA	25 mA	25 / 12 mA	3.9 W	3.9 W	3.9 / 1.4 W

① 16 h battery charging time for 2 h emergency lighting function according to AS 2293.
② 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.
③ In case of NiMH batteries: Intermittent charge is used. Value 1 is for 4 min. charge on / Value 2 is for 16 min. charge off. In case of LiFePO4 batteries voltage dependent constant current charging is used.

EMcLED Strain-relief set 240x43x30mm

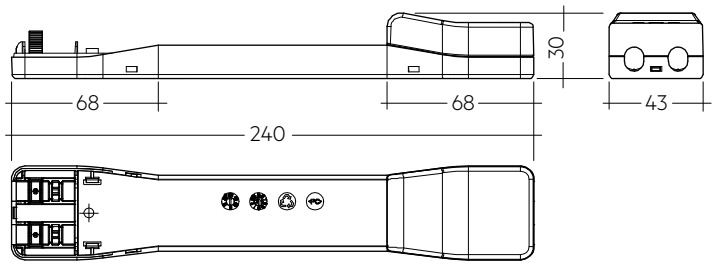
Accessory



Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

Website
http://www.tridonic.com/28003813



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

RoHS

Status indication green LED EM CON

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery
_ 0.3 / 1.0 m cable length
_ Plug connection

Website
http://www.tridonic.com/89800269

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green, 1.0 m CON	**89800269**	25 pc(s).	800 pc(s).	0.018 kg
LED EM green, HO 1.0 m CON	**89800271**	25 pc(s).	200 pc(s).	0.016 kg
LED EM green, 0.6 m CON	**89800472**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, HO 0.6 m CON	**89800473**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, 0.3 m CON	**89800270**	25 pc(s).	200 pc(s).	0.007 kg
LED EM green, HO 0.3 m CON	**89800272**	25 pc(s).	200 pc(s).	0.007 kg

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

Connection cable NiMH

Accessory

Product description
_ Connection cable for NiMH batteries
_ Cable length 500 mm
_ 2-pole plug connection for batteries and 3-pole plug connection for LED driver

Website
http://www.tridonic.com/28002462

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
CONNECTION CABLE NiMH 500mm	**28002462**	10 pc(s).	200 pc(s).	0.01 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- according to EN 50172
- according to EN 60598-2-22

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime with NiMH batteries				
EM converterLED BASIC 203	tc	65 °C	70 °C	75 °C
MH/LiFePO4 90V	lifetime	> 100,000 h	> 100,000 h	82,000 h
EM converterLED BASIC 204	tc	65 °C	70 °C	75 °C
MH/LiFePO4 90V	lifetime	> 100,000 h	> 100,000 h	82,000 h

Expected lifetime with $LiFePO_4$ batteries				
EM converterLED BASIC 203	tc	65 °C	70 °C	75 °C
MH/LiFePO4 90V	lifetime	> 100,000 h	> 100,000 h	89,000 h
EM converterLED BASIC 204	tc	65 °C	70 °C	75 °C
MH/LiFePO4 90V	lifetime	> 100,000 h	> 100,000 h	89,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

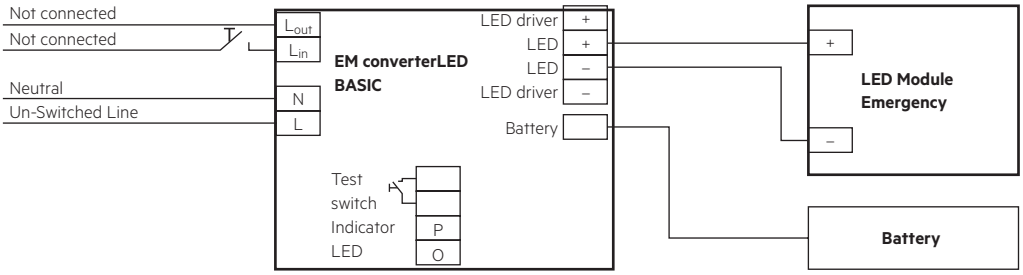
3. Installation / Wiring

3.1 Wiring diagram

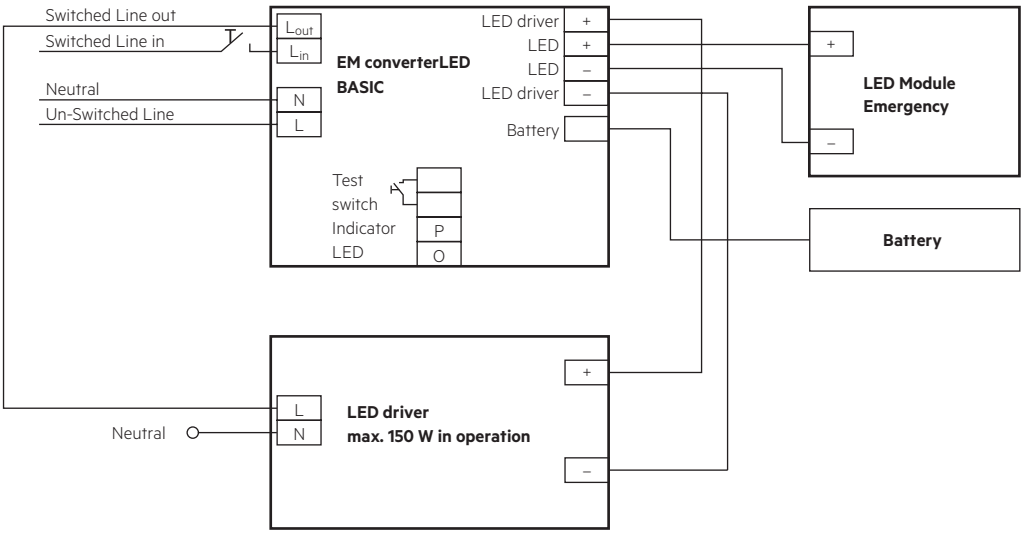
One or more LED modules with a total forward voltage of 40 to 97 V can be connected to the EM converterLED 90V module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the LED driver from the mains supply.

Use of the test switch:
For checking the device function press the test switch for a minimum of 3 seconds.

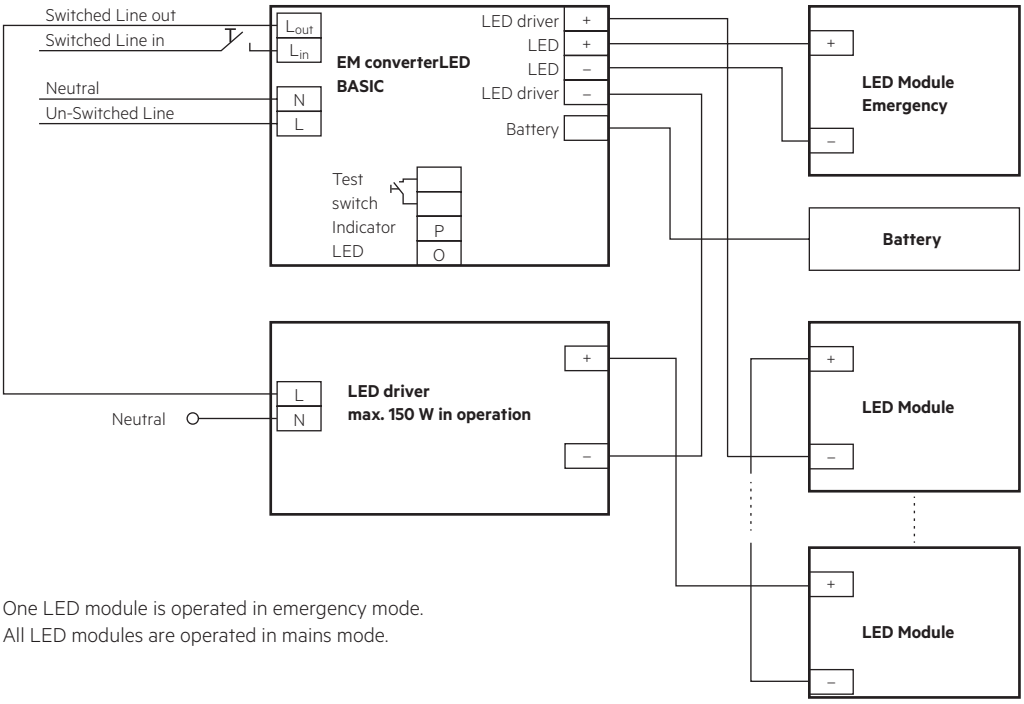
EM converterLED BASIC with one LED module for non-maintained emergency operation



EM converterLED BASIC with a standard LED driver and one LED module for mains and emergency operation

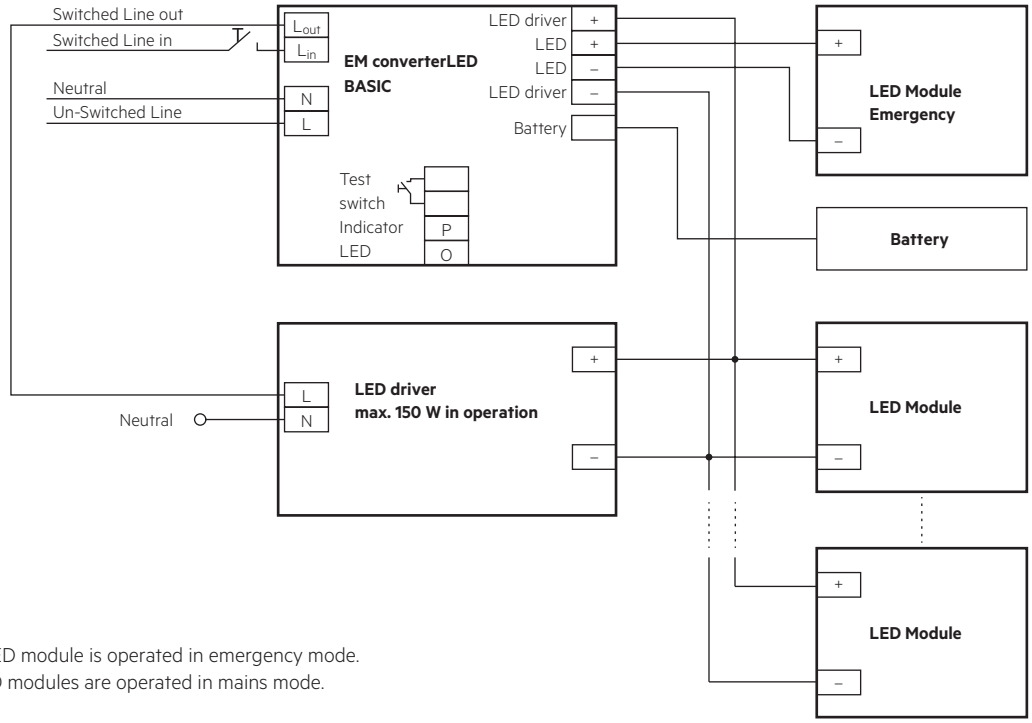


EM converterLED BASIC with a standard LED driver and <u>series</u> operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>parallel</u> operation of LED modules

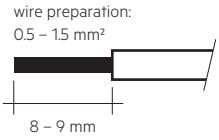


One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

3.2 Wiring type and cross section

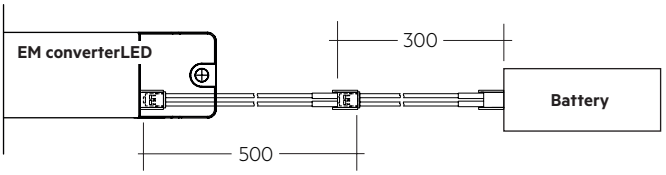
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply



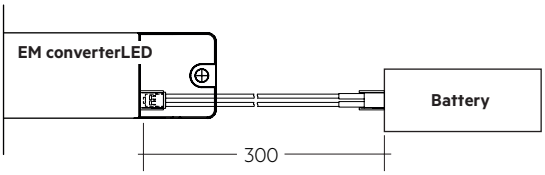
3.3 Battery connection

NiMH: Connection with extension

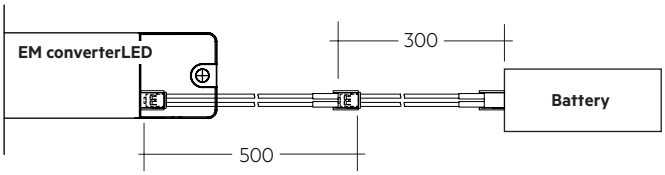


When using an EM converterLED in combination with a NiMH battery, order the CONNECTION CABLE NiMH 500mm seperately.

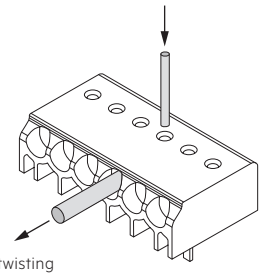
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 120 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

Do not exceed the max. length of LED leads to the LED module. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver.

3.6 Maximum lead length

LED	3 m (6 m loop)[①]
Status indication LED	1 m
Batteries	0.8 m

[①] Note: The length of LED leads to the LED module must not be exceeded. Note that the length of the EM converterLED leads is added to the length of the leads from the LED driver to the EM converterLED module when considering max. permitted lead length of the LED driver. Leads should always be kept as short as possible.

3.7 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C
- Plug connection

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m
- Plug connection

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
EM converterLED BASIC MH/LiFePO4 90V	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	LED driver
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, LED, Test switch, Indicator LED	••	••	–	–
LED driver	•	•	–	–

• Represents basic insulation

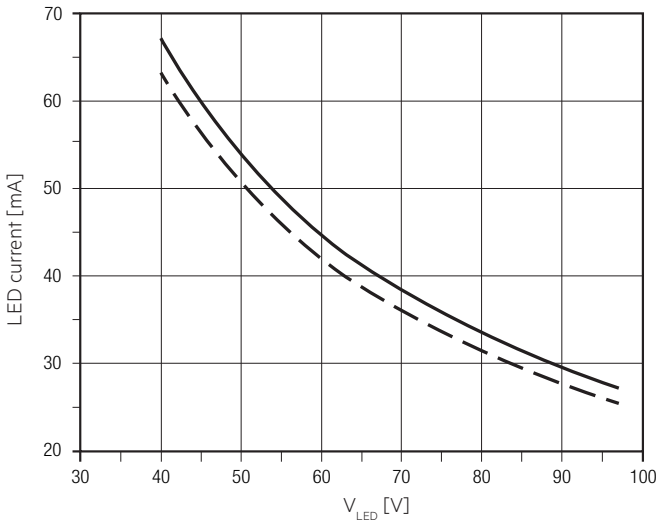
•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.

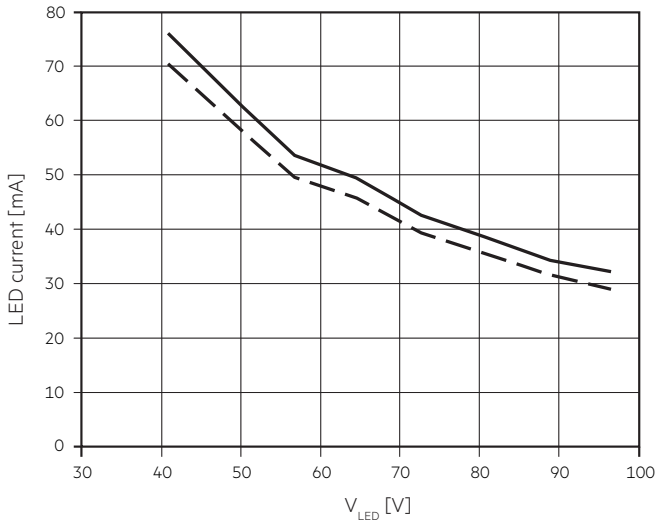
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

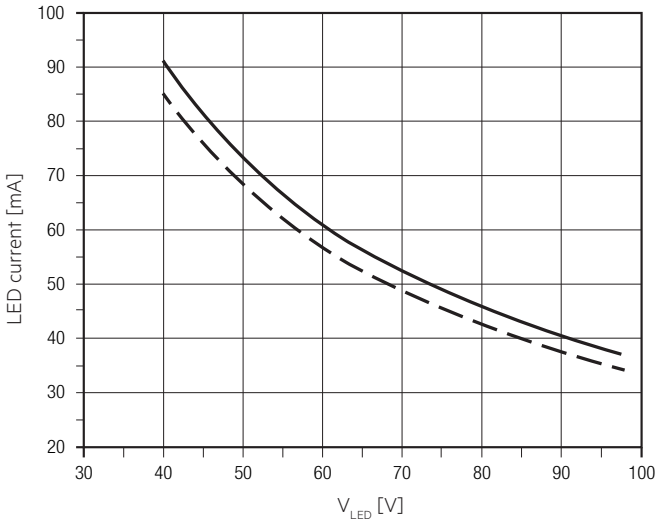
EM converterLED BASIC 203 MH/LiFePO4 90V
Article number: 89800578
NiMH battery, 3.6 V battery voltage
840 – 900 mA battery discharge current (tolerance)



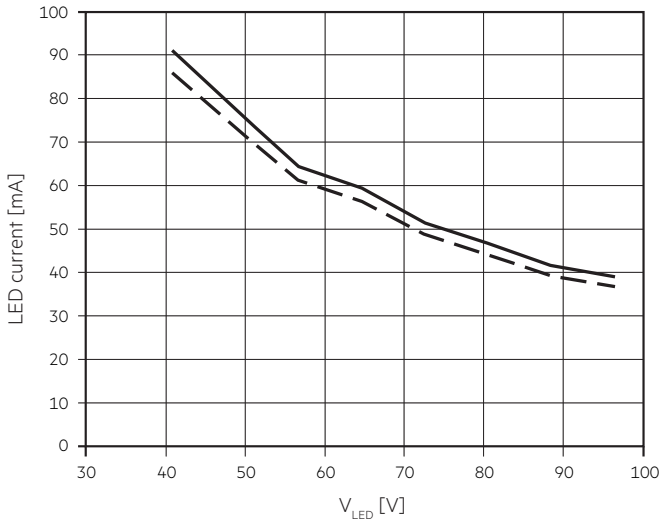
EM converterLED BASIC 203 MH/LiFePO4 90V
Article number: 89800578
$LiFePO_4$ battery, 3.2 V battery voltage
1,150 – 1,250 mA battery discharge current (tolerance)



EM converterLED BASIC 204 MH/LiFePO4 90V
Article number: 89800579
NiMH battery, 4.8 V battery voltage
830 – 890 mA battery discharge current (tolerance)



EM converterLED BASIC 204 MH/LiFePO4 90V
Article number: 89800579
$LiFePO_4$ battery, 3.2 V battery voltage
1,450 – 1,550 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A eff (current rating of the terminals of EM converterLED) and 2.4 A peak (current rating of switching relays of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 84 A for 255 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 450 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 150 W in operation. The load must be an LED module.

Check compatibility with short function tests (duration of several seconds).

6. Functions

6.1 Duration link selection

Duration	Usage duration link
3 h	With link
1 h	Without link

Emergency lighting LED driver supplied with duration link in 3 hours position.

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.2 Status indication LED

System status is indicated by a green LED.

Note:
The status indication LED switches off if the battery does not reach the full capacity (3.6V battery voltage) within 20 – 24 hours.
If this occurs disconnect the mains voltage and operate the device in emergency mode for approximately one hour. Afterwards apply the mains voltage again and recharge the battery for 24 hours.
If the failure occurs again replace the battery.

7. Battery data

7.1 Battery selection

EM converterLED BASIC, 1 / 3 h

				Type	**EM converterLED BASIC 203 MH/LiFePO4 90V**		**EM converterLED BASIC 204 MH/LiFePO4 90V**	
				Article no.	**89800578**		**89800579**	
				Duration	**1 h**	**3 h**	**1 h**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**			
NiMH 4.0 Ah LA cells	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**		•		
	stick	1 x 4	**Accu-NiMH 4Ah 4A CON**	**89800442**				•
	stick + stick	2 + 2	**Accu-NiMH 4Ah 4C CON**	**89800438**				•
	remote box	1 x 3	**Pack-NiMH 4Ah 3 CON**	**28001896**		•		
	remote box	1 x 4	**Pack-NiMH 4Ah 4 CON**	**28001897**				•
LiFePO$_4$ 1,5 Ah 18650 cells	stick	1 x 1	**Accu-LiFePO4 1A CON**	**28002317**				
	stick	1 x 2	**Accu-LiFePO4 2A CON**	**28002318**	•		•	
	stick	1 x 4	**Accu-LiFePO4 4A CON**	**28002322**		•		
	stick	1 x 5	**Accu-LiFePO4 5A CON**	**28002325**				•
	stick + stick	2 + 2	**Accu-LiFePO4 4C CON**	**28002324**		•		
	stick + stick	2 + 3	**Accu-LiFePO4 5C CON**	**28002327**				•
	side by side	2 x 1	**Accu-LiFePO4 2B CON**	**28002319**	•		•	
	side by side	4 x 1	**Accu-LiFePO4 4B CON**	**28002323**		•		
	side by side	5 x 1	**Accu-LiFePO4 5B CON**	**28002326**				•
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28003805**	•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28003806**				
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28005854**	•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28005855**				
	remote box	1 x 4	**PACK-LiFePO4 6.0Ah 4 CON**	**28005856**		•		
	remote box	1 x 5	**PACK-LiFePO4 7.5Ah 5 CON**	**28005857**				•
	stick	1 x 2	**Accu-LiFePO4 3.0 2A CON BAS**	**28006318**	•		•	
	stick	1 x 4	**Accu-LiFePO4 6.0 4A CON BAS**	**28006320**		•		
	stick + stick	2 + 3	**Accu-LiFePO4 7.5 5C CON BAS**	**28006321**				•
LiFePO$_4$ 3.3 Ah 26650 cells	stick	1S1P	**Accu-LiFePO4 1A CON**	**28006323**	•		•	
	stick	1S2P	**Accu-LiFePO4 2A CON**	**28006324**		•		
	remote box	1S1P	**PACK-LiFePO4 3.3Ah 1 CON**	**28005859**	•		•	

7.2 Battery charge / discharge data

EM converterLED BASIC, 1 / 3 h, NiMH

	Type	EM converterLED BASIC 203 MH/LiFePO4 90V		EM converterLED BASIC 204 MH/LiFePO4 90V	
	Article no.	**89800578**		**89800579**	
	Duration	**1 h**	**3 h**	**1 h**	**3 h**
Battery charge time	Initial charge	24 h			
	Fast recharge	24 h			
	Trickle charge	continuously			
Charging current	Initial charge	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA
	Fast recharge	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA
	Trickle charge	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.
Discharge current		840 – 900 mA	840 – 900 mA	830 – 890 mA	830 – 890 mA
Charge voltage range[1]		0.9 – 1.65 V per cell			
Discharge voltage range		1.65 – 1.05 V per cell			

[1] The battery will be charged below 0.9 V. The EM converterLED will indicate a battery fault.

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

EM converterLED BASIC, 1 / 3 h, $LiFePO_4$

	Type	EM converterLED BASIC 203 MH/LiFePO4 90V		EM converterLED BASIC 204 MH/LiFePO4 90V	
	Article no.	**89800578**		**89800579**	
	Duration	**1 h**	**3 h**	**1 h**	**3 h**
Battery charge time	Initial charge	24 h			
	Fast recharge	24 h			
	Trickle charge	continuously and battery voltage controlled			
Charging current	Initial charge	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA
	Fast recharge	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA
	Trickle charge[1]	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA
Discharge current		1,150 – 1,250 mA	1,150 – 1,250 mA	1,450 – 1,550 mA	1,450 – 1,550 mA
Charge voltage range[2]		2.0 – 3.65 V			
Discharge voltage range		3.65 – 2.60 V			

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

7.3 Accu-NiMH

Capacity 4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months at -20 °C to +25 °C

7.4 Accu-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.5 Accupack-NiMH

Capacity 4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

7.6 Accupack-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

7.7 Accu / Accupack-LiFePO4

Capacity 3.3 / 6.6 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.8 Accupack-LiFePO4

Capacity 3.3 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.9 Accu-LiFePO4 BAS

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.10 Safety (LiFeGuard)

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.10.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.10.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.10.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.10.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

7.11 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.12 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

8.2 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.3 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED BASIC MH/LiFePO4 90 V

Ausführung BASIC

Product description

_ Self contained emergency lighting LED driver for manual testing
_ For LED modules with a forward voltage of 40 – 97 V
_ SELV for output voltage < 120 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ For luminaire installation
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Non maintained operation
_ 1 or 3 h rated duration
_ Operating time selectable with plug (duration link)
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery provided by 3-pole connector
_ Automatic detection of the connected battery technology (NiMH or LiFePO4 batteries)

Batteries

_ High-temperature cells
_ NiMH or LiFePO4 batteries
_ 18650 cells or 26650 cells
_ NiMH: 4 years design life / 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ LiFePO4: up to 12 years design life
_ LiFePO4 batteries with Tridonic LiFeGuard
_ For battery compatibility refer to data sheet, battery selection
_ For guarantee conditions, see LiFePO4 battery data sheet (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

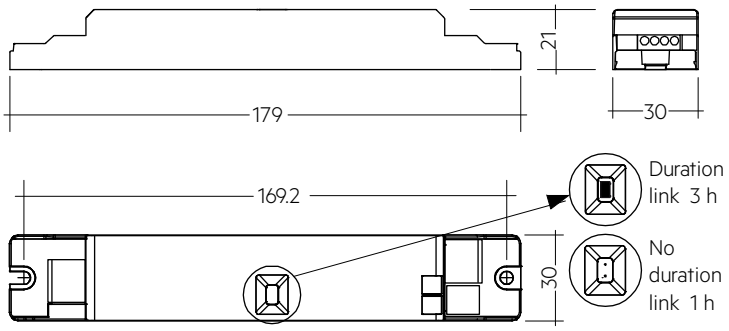
Website

http://www.tridonic.com/89800578

TRIDONIC

EM converterLED BASIC MH/LiFePO4 90 V

Ausführung BASIC



Note: Supply of control gear with duration link in 3 hours position. Remove duration link for duration of 1 h. Duration link must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterLED BASIC 203 MH/LiFePO4 90V	**89800578**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm
EM converterLED BASIC 204 MH/LiFePO4 90V	**89800579**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	40 – 97 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	120 V
Max. open circuit voltage	120 V
Battery charging time ①②	24 h
Ambient temperature ta	-5 … +55 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

SELV EL 110 RoHS

Standards

according to EN 50172, according to EN 60598-2-22, EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30, EN 62384

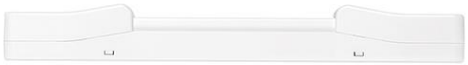
Specific technical data

Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge	Fast recharge	Trickle[3] charge	Initial charge	Fast recharge	Trickle[3] charge
EM converterLED BASIC 203 MH/LiFePO4 90V	NiMH	1 h	0.60C	2.5 W	18 mA	18 mA	18 / 12 mA	2.6 W	2.6 W	2.6 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 90V	NiMH	3 h	0.60C	2.5 W	21 mA	21 mA	21 / 12 mA	3.3 W	3.3 W	3.3 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 90V	LiFePO4	1 h	0.60C	3.1 W	20 mA	20 mA	20 / 12 mA	2.8 W	2.8 W	2.8 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 90V	LiFePO4	3 h	0.60C	3.1 W	25 mA	25 mA	25 / 12 mA	3.9 W	3.9 W	3.9 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 90V	NiMH	1 h	0.65C	3.5 W	18 mA	18 mA	18 / 12 mA	2.6 W	2.6 W	2.6 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 90V	NiMH	3 h	0.65C	3.5 W	21 mA	21 mA	21 / 12 mA	3.3 W	3.3 W	3.3 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 90V	LiFePO4	1 h	0.65C	3.8 W	20 mA	20 mA	20 / 12 mA	2.8 W	2.8 W	2.8 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 90V	LiFePO4	3 h	0.65C	3.8 W	25 mA	25 mA	25 / 12 mA	3.9 W	3.9 W	3.9 / 1.4 W

① 16 h battery charging time for 2 h emergency lighting function according to AS 2293.
② 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.
③ In case of NiMH batteries: Intermittent charge is used. Value 1 is for 4 min. charge on / Value 2 is for 16 min. charge off. In case of LiFePO4 batteries voltage dependent constant current charging is used.

EMcLED Strain-relief set 240x43x30mm

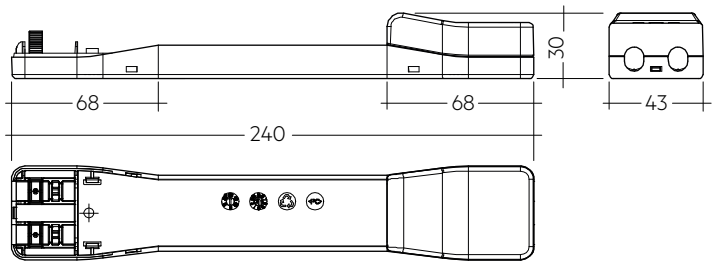
Accessory



Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

Website
http://www.tridonic.com/28003813



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

RoHS

Status indication green LED EM CON

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery
_ 0.3 / 1.0 m cable length
_ Plug connection

Website
http://www.tridonic.com/89800269

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green, 1.0 m CON	**89800269**	25 pc(s).	800 pc(s).	0.018 kg
LED EM green, HO 1.0 m CON	**89800271**	25 pc(s).	200 pc(s).	0.016 kg
LED EM green, 0.6 m CON	**89800472**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, HO 0.6 m CON	**89800473**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, 0.3 m CON	**89800270**	25 pc(s).	200 pc(s).	0.007 kg
LED EM green, HO 0.3 m CON	**89800272**	25 pc(s).	200 pc(s).	0.007 kg

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

Connection cable NiMH

Accessory

Product description
_ Connection cable for NiMH batteries
_ Cable length 500 mm
_ 2-pole plug connection for batteries and 3-pole plug connection for LED driver

Website
http://www.tridonic.com/28002462

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
CONNECTION CABLE NiMH 500mm	**28002462**	10 pc(s).	200 pc(s).	0.01 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- according to EN 50172
- according to EN 60598-2-22

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime with NiMH batteries				
EM converterLED BASIC 203	tc	65 °C	70 °C	75 °C
MH/LiFePO4 90V	lifetime	> 100,000 h	> 100,000 h	82,000 h
EM converterLED BASIC 204	tc	65 °C	70 °C	75 °C
MH/LiFePO4 90V	lifetime	> 100,000 h	> 100,000 h	82,000 h

Expected lifetime with $LiFePO_4$ batteries				
EM converterLED BASIC 203	tc	65 °C	70 °C	75 °C
MH/LiFePO4 90V	lifetime	> 100,000 h	> 100,000 h	89,000 h
EM converterLED BASIC 204	tc	65 °C	70 °C	75 °C
MH/LiFePO4 90V	lifetime	> 100,000 h	> 100,000 h	89,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

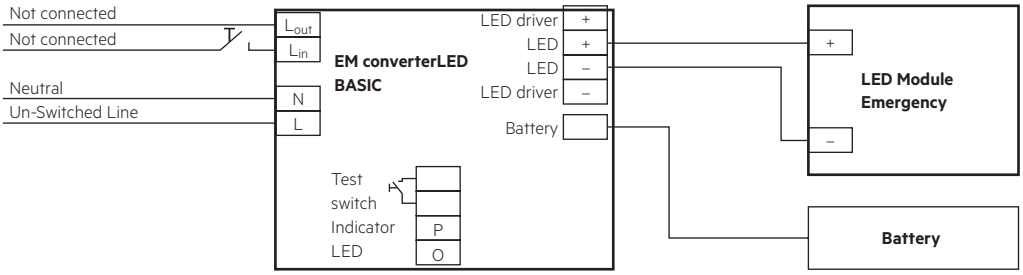
3. Installation / Wiring

3.1 Wiring diagram

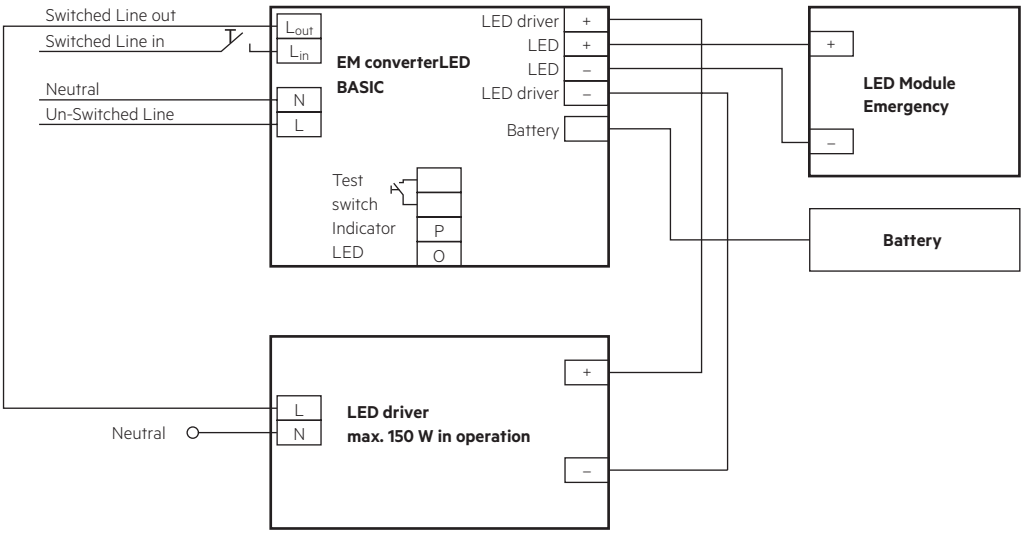
One or more LED modules with a total forward voltage of 40 to 97 V can be connected to the EM converterLED 90V module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the LED driver from the mains supply.

Use of the test switch:
For checking the device function press the test switch for a minimum of 3 seconds.

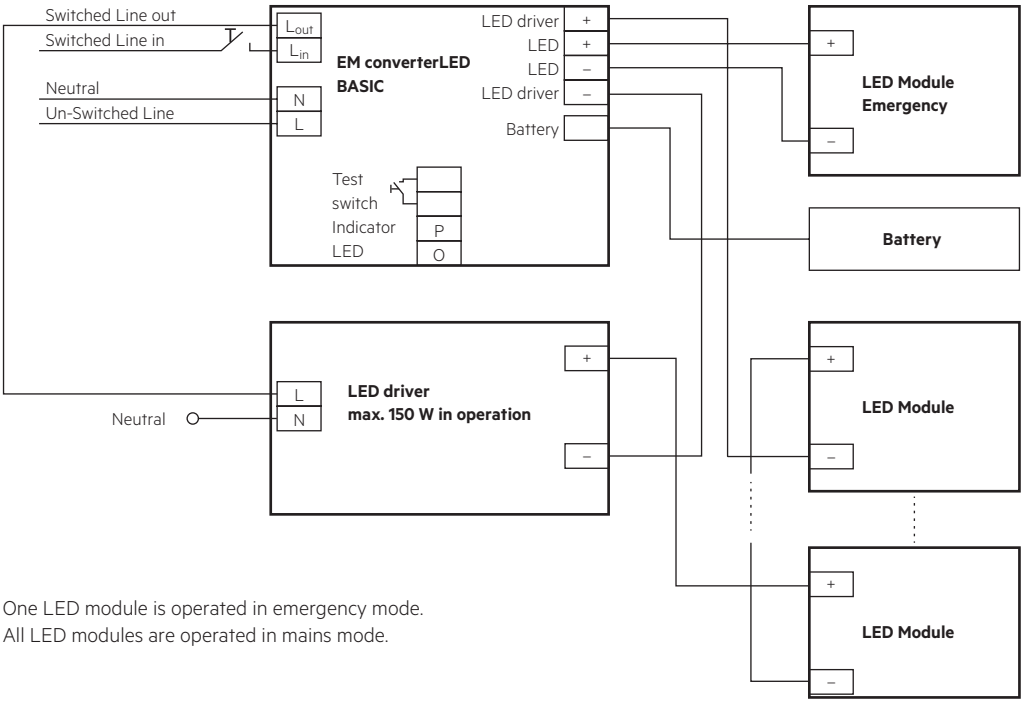
EM converterLED BASIC with one LED module for non-maintained emergency operation



EM converterLED BASIC with a standard LED driver and one LED module for mains and emergency operation

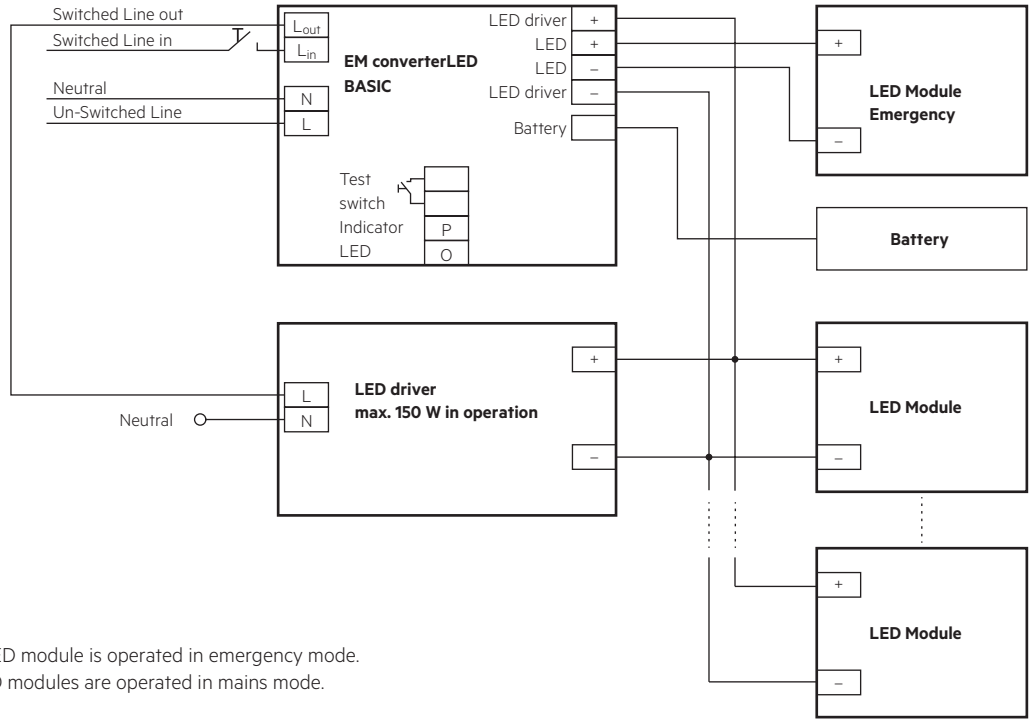


EM converterLED BASIC with a standard LED driver and <u>series</u> operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>parallel</u> operation of LED modules

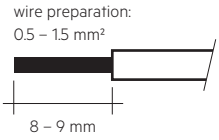


One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

3.2 Wiring type and cross section

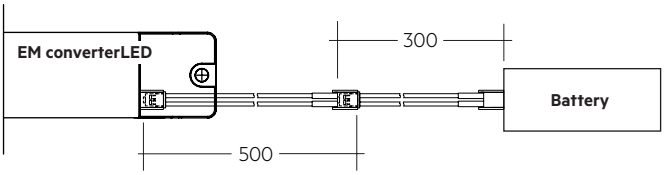
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply



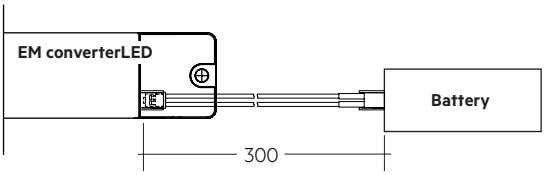
3.3 Battery connection

NiMH: Connection with extension

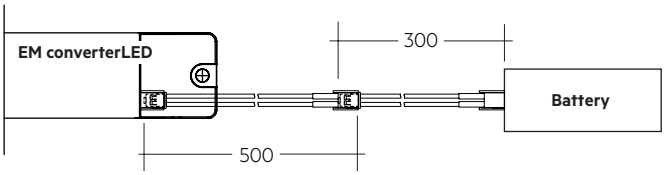


When using an EM converterLED in combination with a NiMH battery, order the CONNECTION CABLE NiMH 500mm seperately.

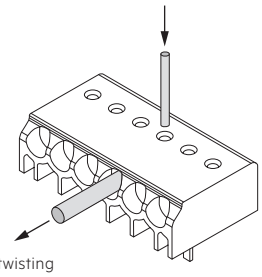
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 120 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

Do not exceed the max. length of LED leads to the LED module. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver.

3.6 Maximum lead length

LED	3 m (6 m loop)[①]
Status indication LED	1 m
Batteries	0.8 m

[①] Note: The length of LED leads to the LED module must not be exceeded. Note that the length of the EM converterLED leads is added to the length of the leads from the LED driver to the EM converterLED module when considering max. permitted lead length of the LED driver. Leads should always be kept as short as possible.

3.7 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C
- Plug connection

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m
- Plug connection

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
EM converterLED BASIC MH/LiFePO4 90V	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	LED driver
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, LED, Test switch, Indicator LED	••	••	–	–
LED driver	•	•	–	–

• Represents basic insulation

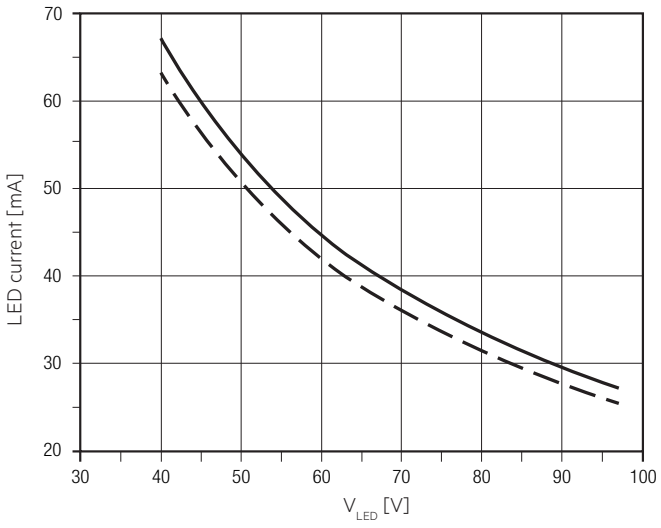
•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.

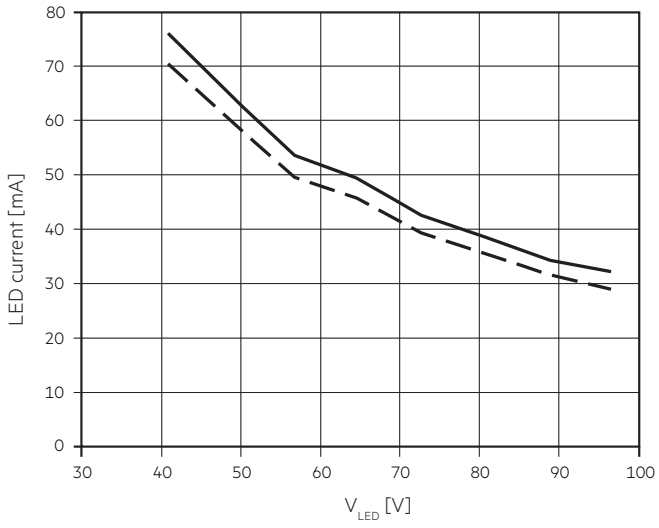
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

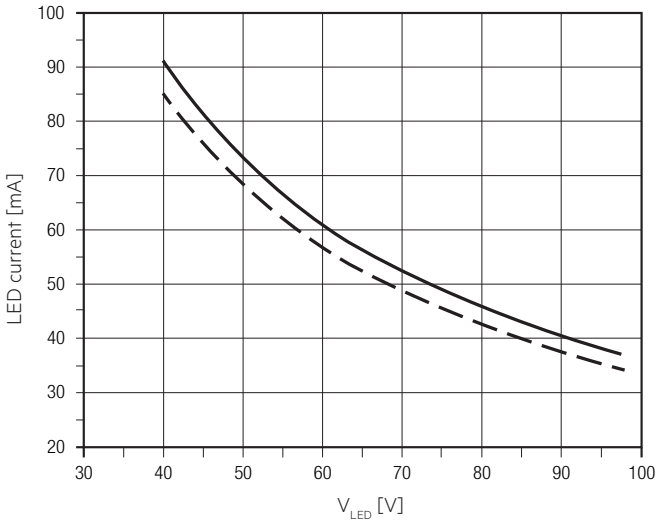
EM converterLED BASIC 203 MH/LiFePO4 90V
Article number: 89800578
NiMH battery, 3.6 V battery voltage
840 – 900 mA battery discharge current (tolerance)



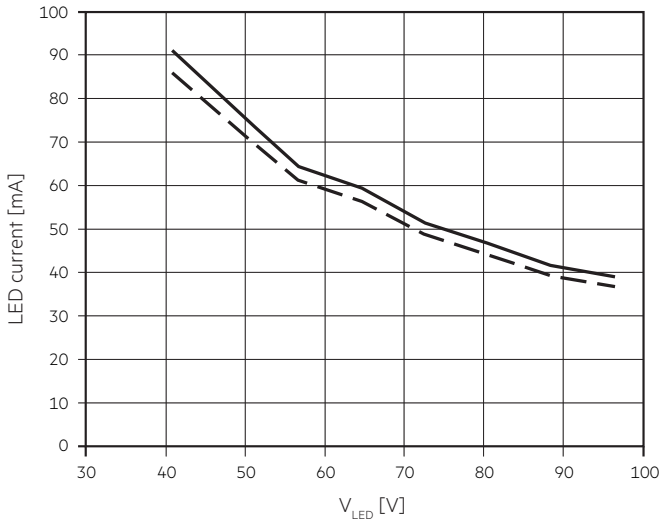
EM converterLED BASIC 203 MH/LiFePO4 90V
Article number: 89800578
$LiFePO_4$ battery, 3.2 V battery voltage
1,150 – 1,250 mA battery discharge current (tolerance)



EM converterLED BASIC 204 MH/LiFePO4 90V
Article number: 89800579
NiMH battery, 4.8 V battery voltage
830 – 890 mA battery discharge current (tolerance)



EM converterLED BASIC 204 MH/LiFePO4 90V
Article number: 89800579
$LiFePO_4$ battery, 3.2 V battery voltage
1,450 – 1,550 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A eff (current rating of the terminals of EM converterLED) and 2.4 A peak (current rating of switching relays of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 84 A for 255 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 450 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 150 W in operation. The load must be an LED module.

Check compatibility with short function tests (duration of several seconds).

6. Functions

6.1 Duration link selection

Duration	Usage duration link
3 h	With link
1 h	Without link

Emergency lighting LED driver supplied with duration link in 3 hours position.

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.2 Status indication LED

System status is indicated by a green LED.

Note:
The status indication LED switches off if the battery does not reach the full capacity (3.6V battery voltage) within 20 – 24 hours.
If this occurs disconnect the mains voltage and operate the device in emergency mode for approximately one hour. Afterwards apply the mains voltage again and recharge the battery for 24 hours.
If the failure occurs again replace the battery.

7. Battery data

7.1 Battery selection

EM converterLED BASIC, 1 / 3 h

				Type	**EM converterLED BASIC 203 MH/LiFePO4 90V**		**EM converterLED BASIC 204 MH/LiFePO4 90V**	
				Article no.	**89800578**		**89800579**	
				Duration	**1 h**	**3 h**	**1 h**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**			
NiMH 4.0 Ah LA cells	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**		•		
	stick	1 x 4	**Accu-NiMH 4Ah 4A CON**	**89800442**				•
	stick + stick	2 + 2	**Accu-NiMH 4Ah 4C CON**	**89800438**				•
	remote box	1 x 3	**Pack-NiMH 4Ah 3 CON**	**28001896**		•		
	remote box	1 x 4	**Pack-NiMH 4Ah 4 CON**	**28001897**				•
LiFePO$_4$ 1,5 Ah 18650 cells	stick	1 x 1	**Accu-LiFePO4 1A CON**	**28002317**				
	stick	1 x 2	**Accu-LiFePO4 2A CON**	**28002318**	•		•	
	stick	1 x 4	**Accu-LiFePO4 4A CON**	**28002322**		•		
	stick	1 x 5	**Accu-LiFePO4 5A CON**	**28002325**				•
	stick + stick	2 + 2	**Accu-LiFePO4 4C CON**	**28002324**		•		
	stick + stick	2 + 3	**Accu-LiFePO4 5C CON**	**28002327**				•
	side by side	2 x 1	**Accu-LiFePO4 2B CON**	**28002319**	•		•	
	side by side	4 x 1	**Accu-LiFePO4 4B CON**	**28002323**		•		
	side by side	5 x 1	**Accu-LiFePO4 5B CON**	**28002326**				•
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28003805**	•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28003806**				
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28005854**	•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28005855**				
	remote box	1 x 4	**PACK-LiFePO4 6.0Ah 4 CON**	**28005856**		•		
	remote box	1 x 5	**PACK-LiFePO4 7.5Ah 5 CON**	**28005857**				•
	stick	1 x 2	**Accu-LiFePO4 3.0 2A CON BAS**	**28006318**	•		•	
	stick	1 x 4	**Accu-LiFePO4 6.0 4A CON BAS**	**28006320**		•		
	stick + stick	2 + 3	**Accu-LiFePO4 7.5 5C CON BAS**	**28006321**				•
LiFePO$_4$ 3.3 Ah 26650 cells	stick	1S1P	**Accu-LiFePO4 1A CON**	**28006323**	•		•	
	stick	1S2P	**Accu-LiFePO4 2A CON**	**28006324**		•		
	remote box	1S1P	**PACK-LiFePO4 3.3Ah 1 CON**	**28005859**	•		•	

7.2 Battery charge / discharge data

EM converterLED BASIC, 1 / 3 h, NiMH

	Type	EM converterLED BASIC 203 MH/LiFePO4 90V		EM converterLED BASIC 204 MH/LiFePO4 90V	
	Article no.	**89800578**		**89800579**	
	Duration	**1 h**	**3 h**	**1 h**	**3 h**
Battery charge time	Initial charge	24 h			
	Fast recharge	24 h			
	Trickle charge	continuously			
Charging current	Initial charge	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA
	Fast recharge	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA
	Trickle charge	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.
Discharge current		840 – 900 mA	840 – 900 mA	830 – 890 mA	830 – 890 mA
Charge voltage range[1]		0.9 – 1.65 V per cell			
Discharge voltage range		1.65 – 1.05 V per cell			

[1] The battery will be charged below 0.9 V. The EM converterLED will indicate a battery fault.

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

EM converterLED BASIC, 1 / 3 h, $LiFePO_4$

	Type	EM converterLED BASIC 203 MH/LiFePO4 90V		EM converterLED BASIC 204 MH/LiFePO4 90V	
	Article no.	**89800578**		**89800579**	
	Duration	**1 h**	**3 h**	**1 h**	**3 h**
Battery charge time	Initial charge	24 h			
	Fast recharge	24 h			
	Trickle charge	continuously and battery voltage controlled			
Charging current	Initial charge	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA
	Fast recharge	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA
	Trickle charge[1]	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA
Discharge current		1,150 – 1,250 mA	1,150 – 1,250 mA	1,450 – 1,550 mA	1,450 – 1,550 mA
Charge voltage range[2]		2.0 – 3.65 V			
Discharge voltage range		3.65 – 2.60 V			

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

7.3 Accu-NiMH

Capacity 4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months at -20 °C to +25 °C

7.4 Accu-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.5 Accupack-NiMH

Capacity 4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

7.6 Accupack-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

7.7 Accu / Accupack-LiFePO4

Capacity 3.3 / 6.6 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.8 Accupack-LiFePO4

Capacity 3.3 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.9 Accu-LiFePO4 BAS

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.10 Safety (LiFeGuard)

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.10.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.10.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.10.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.10.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

7.11 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.12 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

8.2 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.3 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED BASIC MH/LiFePO4 250 V

Ausführung BASIC

Product description

_ Self contained emergency lighting LED driver for manual testing
_ For LED modules with a forward voltage of 50 – 250 V
_ Low profile casing (21 x 30 mm cross-section)
_ For luminaire installation
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Non maintained operation
_ 1 or 3 h rated duration
_ Operating time selectable with plug (duration link)
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery provided by 3-pole connector
_ Automatic detection of the connected battery technology (NiMH or LiFePO4 batteries)

Batteries

_ High-temperature cells
_ NiMH or LiFePO4 batteries
_ 18650 cells or 26650 cells
_ NiMH: 4 years design life / 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ LiFePO4: up to 12 years design life
_ LiFePO4 batteries with Tridonic LiFeGuard
_ For battery compatibility refer to data sheet, battery selection
_ For guarantee conditions, see LiFePO4 battery data sheet (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

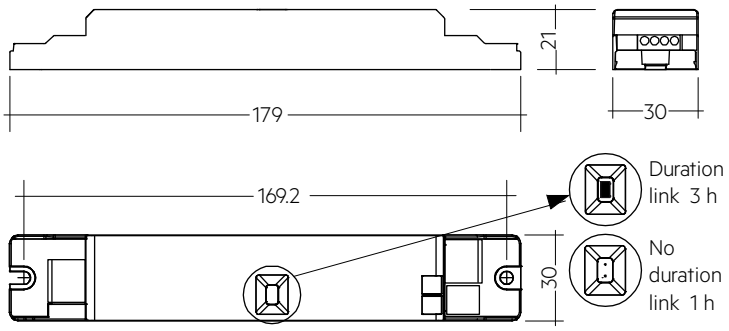
Website

http://www.tridonic.com/89800709

TRIDONIC

EM converterLED BASIC MH/LiFePO4 250 V

Ausführung BASIC



Note: Supply of control gear with duration link in 3 hours position. Remove duration link for duration of 1 h. Duration link must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterLED BASIC 202A MH/LiFePO4 250	**89800709**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm
EM converterLED BASIC 203 MH/LiFePO4 250V	**89800592**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm
EM converterLED BASIC 204 MH/LiFePO4 250V	**89800581**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm
EM converterLED BASIC 205 MH/LiFePO4 250V	**89800582**	1/3 h	10 pc(s).	1,600 pc(s).	0.07 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	50 – 250 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	280 V
Max. open circuit voltage	280 V
Battery charging time ①②	24 h
Ambient temperature ta	-5 … +55 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

EL 110 RoHS

Standards

according to EN 50172, according to EN 60598-2-22, EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30, EN 62384

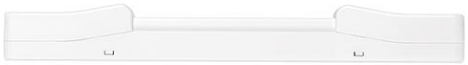
Specific technical data

Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge	Fast recharge	Trickle③ charge	Initial charge	Fast recharge	Trickle③ charge
EM converterLED BASIC 202A MH/LiFePO4 250	NiMH	1 h	0.60C	2.3 W	17 mA	17 mA	17 / 12 mA	2.4 W	2.4 W	2.4 / 1.4 W
EM converterLED BASIC 202A MH/LiFePO4 250	NiMH	3 h	0.60C	2.3 W	18 mA	18 mA	18 / 12 mA	2.6 W	2.6 W	2.6 / 1.4 W
EM converterLED BASIC 202A MH/LiFePO4 250	LiFePO4	1 h	0.60C	2.3 W	17 mA	17 mA	17 / 12 mA	2.1 W	2.1 W	2.1 / 1.4 W
EM converterLED BASIC 202A MH/LiFePO4 250	LiFePO4	3 h	0.60C	2.3 W	20 mA	20 mA	20 / 12 mA	2.9 W	2.9 W	2.9 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 250V	NiMH	1 h	0.60C	2.5 W	17 mA	17 mA	17 / 12 mA	2.4 W	2.4 W	2.4 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 250V	NiMH	3 h	0.60C	2.5 W	19 mA	19 mA	19 / 12 mA	2.9 W	2.9 W	2.9 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 250V	LiFePO4	1 h	0.60C	3.1 W	20 mA	20 mA	20 / 12 mA	2.8 W	2.8 W	2.8 / 1.4 W
EM converterLED BASIC 203 MH/LiFePO4 250V	LiFePO4	3 h	0.60C	3.1 W	25 mA	25 mA	25 / 12 mA	3.9 W	3.9 W	3.9 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 250V	NiMH	1 h	0.65C	3.5 W	18 mA	18 mA	18 / 12 mA	2.5 W	2.5 W	2.5 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 250V	NiMH	3 h	0.65C	3.5 W	21 mA	21 mA	21 / 12 mA	3.2 W	3.2 W	3.2 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 250V	LiFePO4	1 h	0.65C	3.8 W	20 mA	20 mA	20 / 12 mA	2.8 W	2.8 W	2.8 / 1.4 W
EM converterLED BASIC 204 MH/LiFePO4 250V	LiFePO4	3 h	0.65C	3.8 W	26 mA	26 mA	26 / 12 mA	3.9 W	3.9 W	3.9 / 1.4 W
EM converterLED BASIC 205 MH/LiFePO4 250V	NiMH	1 h	0.65C	4.5 W	19 mA	19 mA	19 / 12 mA	2.7 W	2.7 W	2.7 / 1.4 W
EM converterLED BASIC 205 MH/LiFePO4 250V	NiMH	3 h	0.65C	4.5 W	22 mA	22 mA	22 / 12 mA	3.3 W	3.3 W	3.3 / 1.4 W
EM converterLED BASIC 205 MH/LiFePO4 250V	LiFePO4	1 h	0.65C	4.5 W	20 mA	20 mA	20 / 12 mA	2.8 W	2.8 W	2.8 / 1.4 W
EM converterLED BASIC 205 MH/LiFePO4 250V	LiFePO4	3 h	0.65C	4.5 W	26 mA	26 mA	26 / 12 mA	3.9 W	3.9 W	3.9 / 1.4 W

① 16 h battery charging time for 2 h emergency lighting function according to AS 2293.
② 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.
③ In case of NiMH batteries: Intermittent charge is used. Value 1 is for 4 min. charge on / Value 2 is for 16 min. charge off. In case of LiFePO4 batteries voltage dependent constant current charging is used.

EMcLED Strain-relief set 240x43x30mm

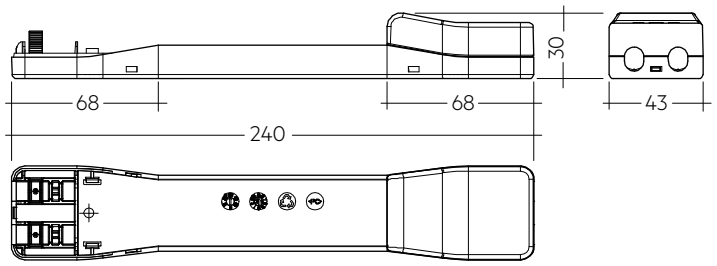
Accessory



Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

Website
http://www.tridonic.com/28003813



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

RoHS

Status indication green LED EM CON

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery
_ 0.3 / 1.0 m cable length
_ Plug connection

Website
http://www.tridonic.com/89800269

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green, 1.0 m CON	**89800269**	25 pc(s).	800 pc(s).	0.018 kg
LED EM green, HO 1.0 m CON	**89800271**	25 pc(s).	200 pc(s).	0.016 kg
LED EM green, 0.6 m CON	**89800472**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, HO 0.6 m CON	**89800473**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, 0.3 m CON	**89800270**	25 pc(s).	200 pc(s).	0.007 kg
LED EM green, HO 0.3 m CON	**89800272**	25 pc(s).	200 pc(s).	0.007 kg

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

Connection cable NiMH

Accessory

Product description
_ Connection cable for NiMH batteries
_ Cable length 500 mm
_ 2-pole plug connection for batteries and 3-pole plug connection for LED driver

Website
http://www.tridonic.com/28002462

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
CONNECTION CABLE NiMH 500mm	**28002462**	10 pc(s).	200 pc(s).	0.01 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- according to EN 50172
- according to EN 60598-2-22

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime with NiMH batteries				
EM converterLED BASIC 202A	tc	65°C	70°C	75°C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	94,000 h
EM converterLED BASIC 203	tc	65 °C	70 °C	75 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	87,000 h
EM converterLED BASIC 204	tc	65 °C	70 °C	75 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	84,000 h
EM converterLED BASIC 205	tc	65 °C	70 °C	75 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	80,000 h

Expected lifetime with $LiFePO_4$ batteries				
EM converterLED BASIC 202A	tc	65°C	70°C	75°C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	97,000 h
EM converterLED BASIC 203	tc	65 °C	70 °C	75 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	82,000 h
EM converterLED BASIC 204	tc	65 °C	70 °C	75 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	82,000 h
EM converterLED BASIC 205	tc	65 °C	70 °C	75 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	81,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

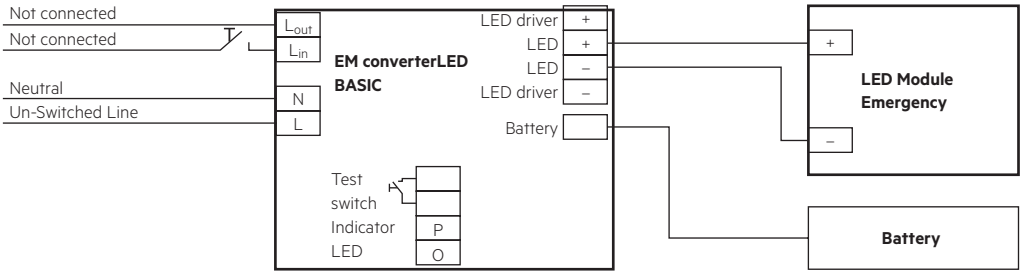
3. Installation / Wiring

3.1 Wiring diagram

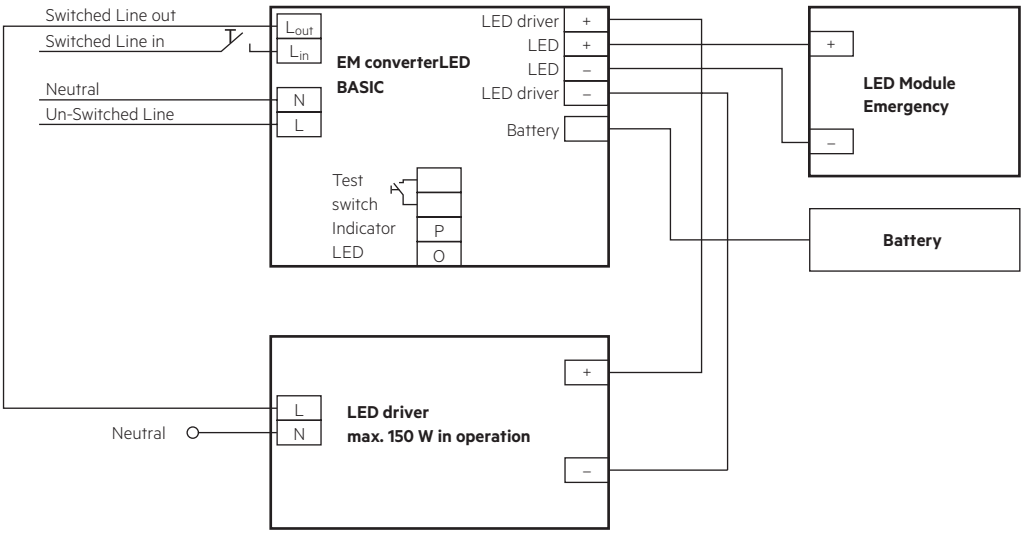
One or more LED modules with a total forward voltage of 50 to 250 V can be connected to the EM converterLED 250V module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the LED driver from the mains supply.

Use of the test switch:
For checking the device function press the test switch for a minimum of 3 seconds.

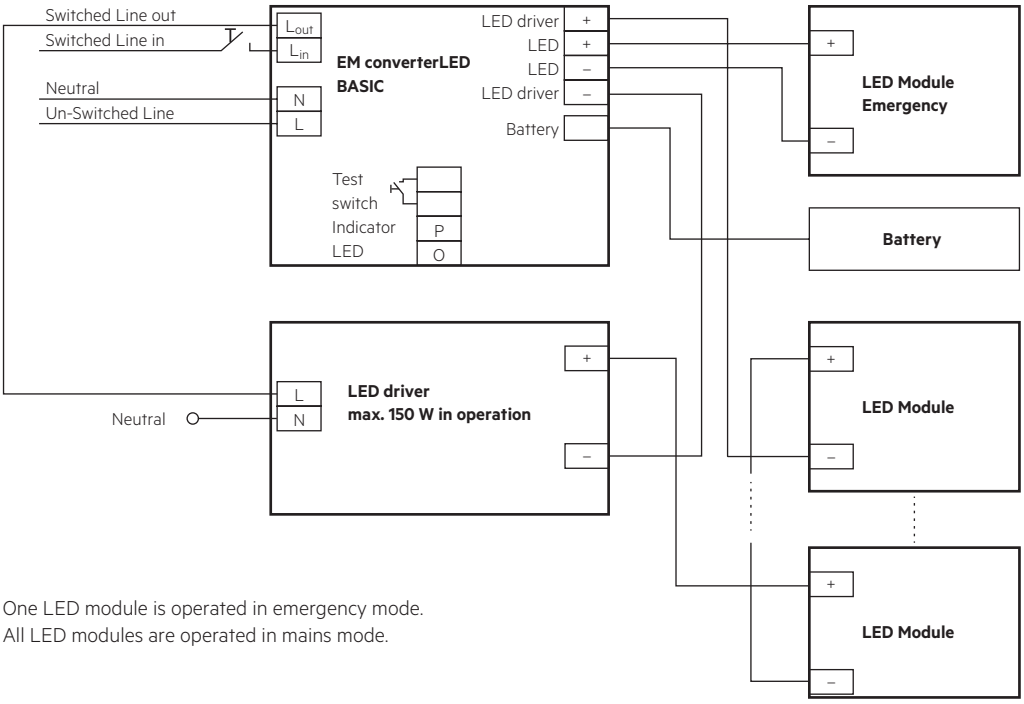
EM converterLED BASIC with one LED module for non-maintained emergency operation



EM converterLED BASIC with a standard LED driver and one LED module for mains and emergency operation

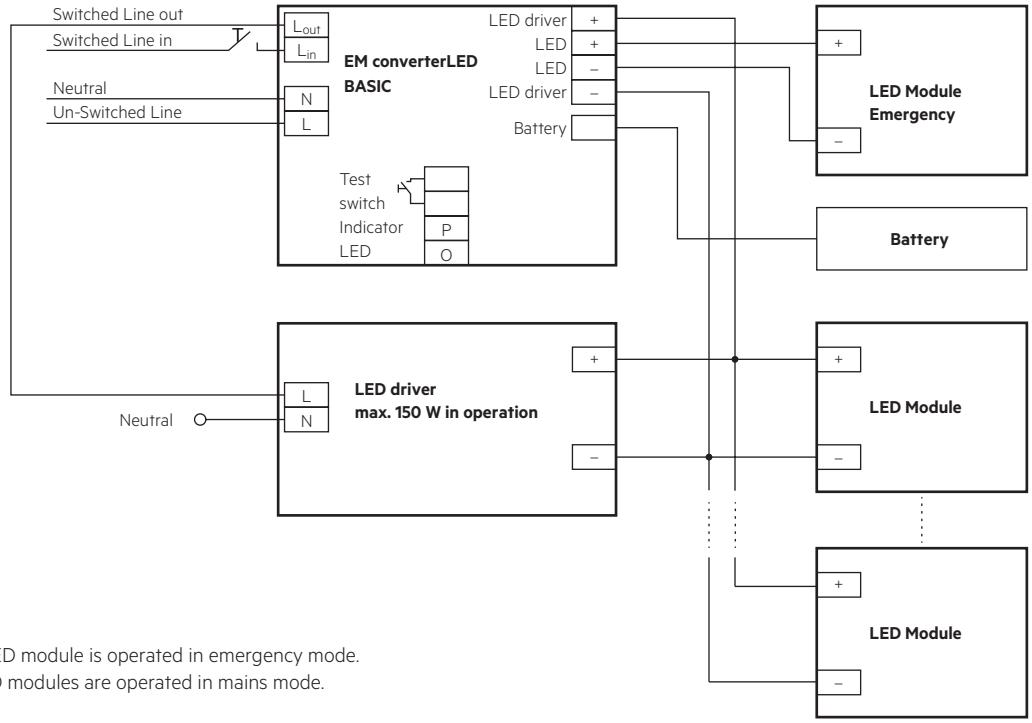


EM converterLED BASIC with a standard LED driver and <u>series</u> operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>parallel</u> operation of LED modules

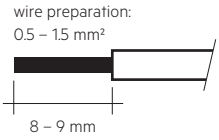


One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

3.2 Wiring type and cross section

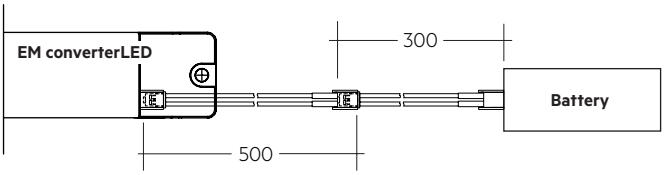
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply



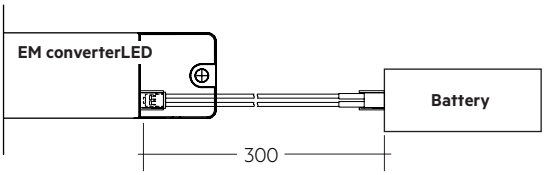
3.3 Battery connection

NiMH: Connection with extension

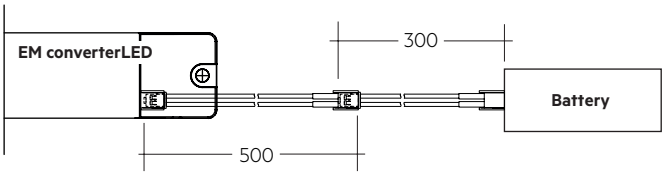


When using an EM converterLED in combination with a NiMH battery, order the CONNECTION CABLE NiMH 500mm seperately.

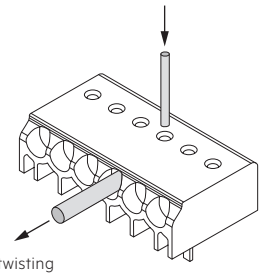
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Wiring guidelines

- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

Do not exceed the max. length of LED leads to the LED module. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver.

3.6 Maximum lead length

LED	3 m (6 m loop)[1]
Status indication LED	1 m
Batteries	0.8 m

[1] Note: The length of LED leads to the LED module must not be exceeded. Note that the length of the EM converterLED leads is added to the length of the leads from the LED driver to the EM converterLED module when considering max. permitted lead length of the LED driver. Leads should always be kept as short as possible.

3.7 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C
- Plug connection

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m
- Plug connection

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
EM converterLED BASIC MH/LiFePO4 250V	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	LED driver
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, LED, Test switch, Indicator LED	••	••	–	–
LED driver	•	•	–	–

• Represents basic insulation

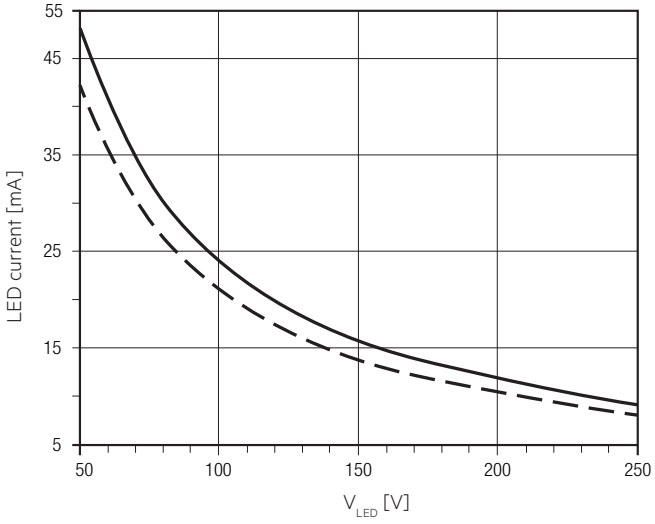
•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.

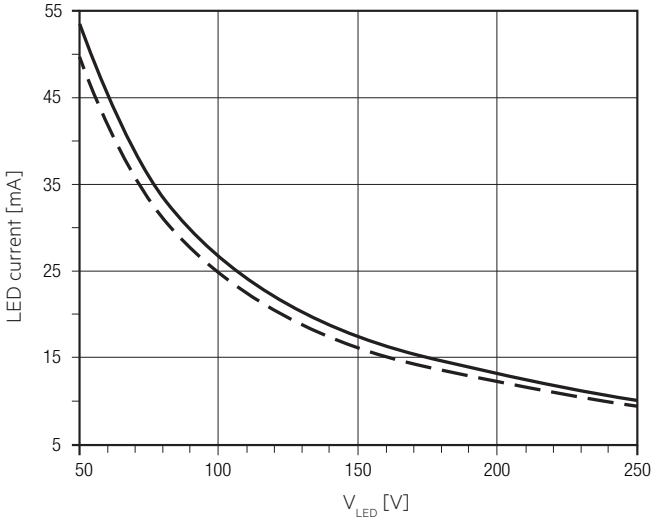
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

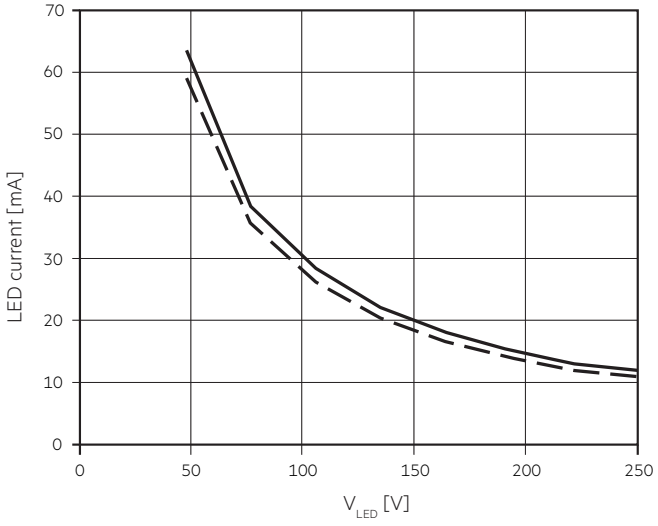
EM converterLED BASIC 202A MH/LiFePO4 250V
Article number: 89800709
NiMH batteries, 3,6 V battery voltage
780 – 840 mA battery discharge current (tolerance)
$LiFePO_4$ batteries, 3,2 V battery voltage
830 – 950 mA battery discharge current (tolerance)



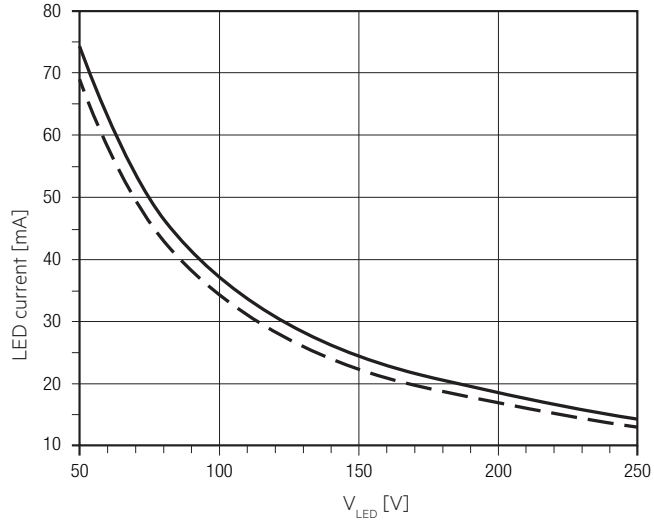
EM converterLED BASIC 203 MH/LiFePO4 250V
Article number: 89800592
NiMH batteries, 3,6 V battery voltage
840 – 900 mA battery discharge current (tolerance)



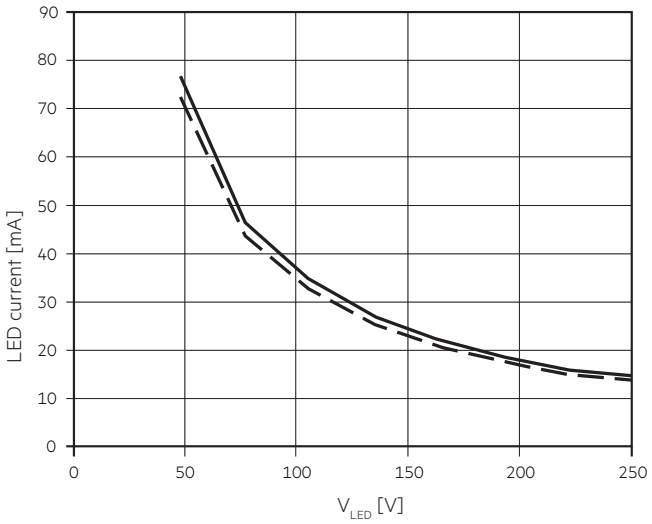
EM converterLED BASIC 203 MH/LiFePO4 250V
Article number: 89800592
$LiFePO_4$ batteries, 3,2 V battery voltage
955 – 1025 mA battery discharge current (tolerance)



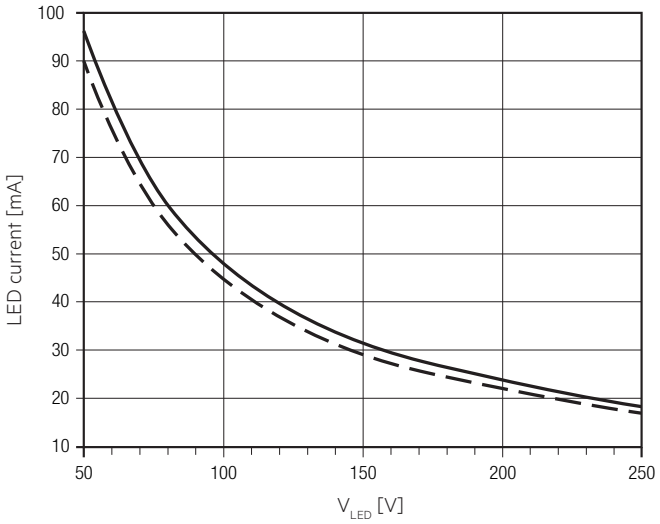
EM converterLED BASIC 204 MH/LiFePO4 250V
Article number: 89800581
NiMH batteries, 4,8 V battery voltage
850 – 910 mA battery discharge current (tolerance)



EM converterLED BASIC 204 MH/LiFePO4 250V
Article number: 89800581
$LiFePO_4$ batteries, 3,2 V battery voltage
1350 – 1450 mA battery discharge current (tolerance)



EM converterLED BASIC 205 MH/LiFePO4 250V
Article number: 89800582
NiMH batteries, 6,0 V battery voltage
860 – 920 mA battery discharge current (tolerance)
$LiFePO_4$ batteries, 3,2 V battery voltage
1770 – 1900 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A eff (current rating of the terminals of EM converterLED) and 2.4 A peak (current rating of switching relays of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 84 A for 255 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 450 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 150 W in operation. The load must be an LED module.

Check compatibility with short function tests (duration of several seconds).

6. Functions

6.1 Duration link selection

Duration	Usage duration link
3 h	With link
1 h	Without link

Emergency lighting LED driver supplied with duration link in 3 hours position.

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.2 Status indication LED

System status is indicated by a green LED.

Note:
The status indication LED switches off if the battery does not reach the full capacity (3.6V battery voltage) within 20 – 24 hours.
If this occurs disconnect the mains voltage and operate the device in emergency mode for approximately one hour. Afterwards apply the mains voltage again and recharge the battery for 24 hours.
If the failure occurs again replace the battery.

7. Battery data

7.1 Battery selection

EM converterLED BASIC, 1 / 3 h

				Type	EM converterLED BASIC 202A MH/LiFePO4 250V		EM converterLED BASIC 203 MH/LiFePO4 250V		EM converterLED BASIC 204 MH/LiFePO4 250V		EM converterLED BASIC 205 MH/LiFePO4 250V	
				Article no.	89800709		89800592		89800581		89800582	
				Duration	1 h	3 h	1 h	3 h	1 h	3 h	1 h	3 h
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	Assignable batteries							
NiMH 4 Ah LA cells	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**		•		•				
	stick	1 x 4	**Accu-NiMH 4Ah 4A CON**	**89800442**						•		
	stick + stick	2 + 2	**Accu-NiMH 4Ah 4C CON**	**89800438**						•		
	stick + stick	2 + 3	**Accu-NiMH 4Ah 5C CON**	**89800439**								•
	remote box	1 x 3	**Pack-NiMH 4Ah 3 CON**	**28001896**		•		•				
	remote box	1 x 4	**Pack-NiMH 4Ah 4 CON**	**28001897**						•		
$LiFePO_4$ 1.5 Ah 18650 cells	stick	1 x 1	**Accu-LiFePO4 1A CON**	**28002317**	•							
	stick	1 x 2	**Accu-LiFePO4 2A CON**	**28002318**			•		•		•	
	stick	1 x 3	**Accu-LiFePO4 3A CON**	**28002320**		•						
	stick	1 x 4	**Accu-LiFePO4 4A CON**	**28002322**				•				
	stick	1 x 5	**Accu-LiFePO4 5A CON**	**28002325**						•		
	stick	1 x 6	**Accu-LiFePO4 6A CON**	**28002328**								•
	stick + stick	2 + 2	**Accu-LiFePO4 4C CON**	**28002324**				•				
	stick + stick	2 + 3	**Accu-LiFePO4 5C CON**	**28002327**						•		
	stick + stick	3 + 3	**Accu-LiFePO4 6C CON**	**28002330**								•
	side by side	2 x 1	**Accu-LiFePO4 2B CON**	**28002319**			•		•		•	
	side by side	3 x 1	**Accu-LiFePO4 3B CON**	**28002321**		•						
	side by side	4 x 1	**Accu-LiFePO4 4B CON**	**28002323**				•				
	side by side	5 x 1	**Accu-LiFePO4 5B CON**	**28002326**						•		
	side by side	6 x 1	**Accu-LiFePO4 6B CON**	**28002329**								•
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28003805**			•		•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28003806**		•						
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28005854**			•		•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28005855**		•						
	remote box	1 x 4	**PACK-LiFePO4 6.0Ah 4 CON**	**28005856**				•				
	remote box	1 x 5	**PACK-LiFePO4 7.5Ah 5 CON**	**28005857**						•		
	stick	1 x 1	**Accu-LiFePO4 1.5 1A CON BAS**	**28006317**	•							
	stick	1 x 2	**Accu-LiFePO4 3.0 2A CON BAS**	**28006318**			•		•		•	
	stick	1 x 3	**Accu-LiFePO4 4.5 3A CON BAS**	**28006319**		•						
	stick	1 x 4	**Accu-LiFePO4 6.0 4A CON BAS**	**28006320**				•				
	stick + stick	2 + 3	**Accu-LiFePO4 7.5 5C CON BAS**	**28006321**						•		
	stick + stick	3 + 3	**Accu-LiFePO4 9.0 5C CON BAS**	**28006322**								•
$LiFePO_4$ 3.3 Ah 26650 cells	stick	1S1P	**Accu-LiFePO4 1A CON**	**28006323**			•		•		•	
	stick	1S2P	**Accu-LiFePO4 2A CON**	**28006324**				•				
	remote box	1S1P	**PACK-LiFePO4 3.3Ah 1 CON**	**28005859**			•		•		•	

7.2 Battery charge / discharge data

EM converterLED BASIC, 1 / 3 h, NiMH

	Type	EM converterLED BASIC 202A MH/ LiFePO4 250V		EM converterLED BASIC 203 MH/ LiFePO4 250V		EM converterLED BASIC 204 MH/ LiFePO4 250V		EM converterLED BASIC 205 MH/ LiFePO4 250V	
	Article no.	89800709		89800592		89800581		89800582	
	Duration	1 h	3 h	1 h	3 h	1 h	3 h	1 h	3 h
Battery charge time	Initial charge	24 h							
	Fast recharge	24 h							
	Trickle charge	continuously							
Charging current	Initial charge	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA
	Fast recharge	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA	110 – 150 mA	190 – 230 mA
	Trickle charge	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	190 – 230 mA / 4 min. 0 mA / 16 min.
Discharge current		780 – 840 mA	780 – 840 mA	840 – 900 mA	840 – 900 mA	850 – 910 mA	850 – 910 mA	860 – 920 mA	860 – 920 mA
Charge voltage range[1]		0.9 – 1.65 V per cell							
Discharge voltage range		1.65 – 1.05 V per cell							

[1] The battery will be charged below 0.9 V. The EM converterLED will indicate a battery fault.

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

EM converterLED BASIC, 1 / 3 h, $LiFePO_4$

	Type	EM converterLED BASIC 202A MH/ LiFePO4 250V		EM converterLED BASIC 203 MH/ LiFePO4 250V		EM converterLED BASIC 204 MH/ LiFePO4 250V		EM converterLED BASIC 205 MH/ LiFePO4 250V	
	Article no.	89800709		89800592		89800581		89800582	
	Duration	1 h	3 h	1 h	3 h	1 h	3 h	1 h	3 h
Battery charge time	Initial charge	24 h							
	Fast recharge	24 h							
	Trickle charge	continuously and battery voltage controlled							
Charging current	Initial charge	115 – 155 mA	250 – 290 mA	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA
	Fast recharge	115 – 155 mA	250 – 290 mA	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA
	Trickle charge[1]	115 – 155 mA / 0 mA	250 – 290 mA / 0 mA	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA
Discharge current		830 – 950 mA	830 – 950 mA	1,150 – 1,250 mA	1,150 – 1,250 mA	1,450 – 1,550 mA	1,450 – 1,550 mA	1,770 – 1,900 mA	1,770 – 1,900 mA
Charge voltage range[2]		2.0 – 3.65 V							
Discharge voltage range		3.65 – 2.60 V							

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

7.3 Accu-NiMH

Capacity 4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months at -20 °C to +25 °C

7.4 Accu-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.5 Accupack-NiMH

Capacity 4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

7.6 Accupack-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

7.7 Accu / Accupack-LiFePO4

Capacity 3.3 / 6.6 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.8 Accupack-LiFePO4

Capacity 3.3 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.9 Accu-LiFePO4 BAS

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

7.10 Safety (LiFeGuard)

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.10.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.10.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.10.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.10.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

7.11 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.12 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

8.2 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.3 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

8.4 Additional information

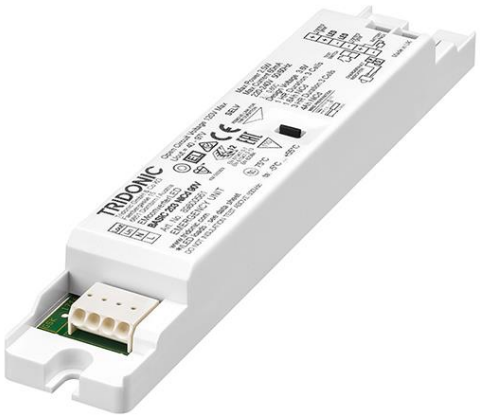
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED BASIC NiCd/NiMH 250 V

Ausführung BASIC



Product description
_ Emergency lighting LED driver for manual testing
_ For self-contained emergency lighting
_ For LED modules with a forward voltage of 50 – 250 V
_ Low profile cross-section (21 x 30 mm)
_ For luminaire installation
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Non maintained operation
_ 1 or 3 h rated duration
_ Operating time selectable with plug (duration link)
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery

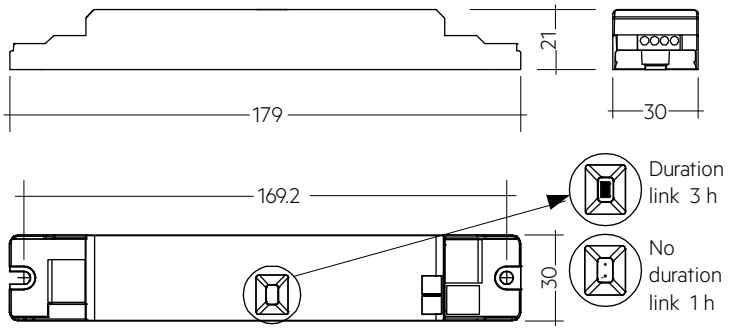
Batteries
_ High-temperature cells
_ NiCd or NiMH batteries
_ D, Cs or LA cells
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet

Website
http://www.tridonic.com/89800574

TRIDONIC

EM converterLED BASIC NiCd/NiMH 250 V

Ausführung BASIC



Note: Supply of control gear with duration link in 3 hours position. Remove duration link for duration of 1 h. Duration link must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterLED BASIC 203 NiCd/NiMH 250V	**89800574**	1/3 h	3	10 pc(s).	1,600 pc(s).	0.065 kg	179 x 30 x 21 mm
EM converterLED BASIC 204 NiCd/NiMH 250V	**89800563**	1/3 h	4	10 pc(s).	1,600 pc(s).	0.065 kg	179 x 30 x 21 mm
EM converterLED BASIC 205 NiCd/NiMH 250V	**89800564**	1/3 h	5	10 pc(s).	1,600 pc(s).	0.065 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	50 – 250 V
Output current	Refer to data sheet
Starting time	< 0.25 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	280 V
Max. open circuit voltage	280 V
Battery charging time ①②	24 h
Ambient temperature ta	-5 … +55 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

EL 110 RoHS

Standards

according to EN 50172, according to EN 60598-2-22, EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30, EN 62384

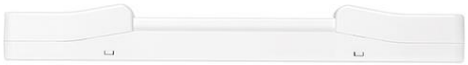
Specific technical data

Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge	Fast recharge	Trickle charge	Initial charge	Fast recharge	Trickle charge
EM converterLED BASIC 203 NiCd/NiMH 250V	NiCd	1 h	0.60C	2.5 W	17 mA	17 mA	15 mA	2.3 W	2.3 W	1.9 W
EM converterLED BASIC 203 NiCd/NiMH 250V	NiCd	3 h	0.65C	2.5 W	21 mA	21 mA	17 mA	3.2 W	3.2 W	2.3 W
EM converterLED BASIC 204 NiCd/NiMH 250V	NiCd	1 h	0.60C	3.5 W	18 mA	18 mA	16 mA	2.4 W	2.4 W	2.1 W
EM converterLED BASIC 204 NiCd/NiMH 250V	NiCd	3 h	0.65C	3.5 W	22 mA	22 mA	18 mA	3.5 W	3.5 W	2.4 W
EM converterLED BASIC 205 NiCd/NiMH 250V	NiCd	1 h	0.60C	4.5 W	19 mA	19 mA	17 mA	2.6 W	2.6 W	2.2 W
EM converterLED BASIC 205 NiCd/NiMH 250V	NiCd	3 h	0.65C	4.5 W	24 mA	24 mA	19 mA	3.7 W	3.7 W	2.6 W

① 16 h battery charging time for 2 h emergency lighting function according to AS 2293.
② 12 h battery charging time for 2 h emergency lighting function when used with NiCd and NiMH batteries.

EMcLED Strain-relief set 240x43x30mm

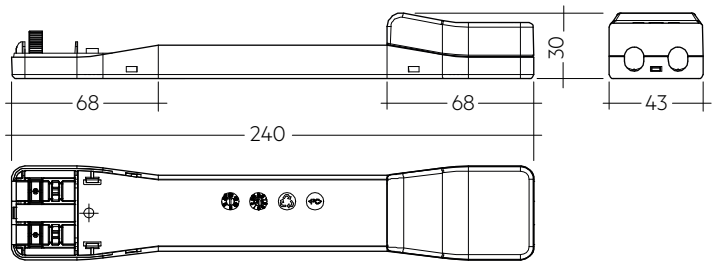
Accessory



Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

Website
http://www.tridonic.com/28003813



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

Test switch EM3

Accessory

Product description

_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website

http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

RoHS

Status indication green LED EM CON

Accessory

Product description

_ A green LED indicates that charging current is flowing into the battery
_ 0.3 / 1.0 m cable length
_ Plug connection

Website
http://www.tridonic.com/89800269

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green, 1.0 m CON	**89800269**	25 pc(s).	800 pc(s).	0.018 kg
LED EM green, HO 1.0 m CON	**89800271**	25 pc(s).	200 pc(s).	0.016 kg
LED EM green, 0.6 m CON	**89800472**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, HO 0.6 m CON	**89800473**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, 0.3 m CON	**89800270**	25 pc(s).	200 pc(s).	0.007 kg
LED EM green, HO 0.3 m CON	**89800272**	25 pc(s).	200 pc(s).	0.007 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- according to EN 50172
- according to EN 60598-2-22

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1,000 operating hours.

Expected lifetime				
EM converterLED BASIC 203	tc	65 °C	70 °C	75 °C
NiCd/NiMH 250V	lifetime	> 100,000 h	73,000 h	51,000 h
EM converterLED BASIC 204	tc	65 °C	70 °C	75 °C
NiCd/NiMH 250V	lifetime	> 100,000 h	87,000 h	61,000 h
EM converterLED BASIC 205	tc	65 °C	70 °C	75 °C
NiCd/NiMH 250V	lifetime	> 100,000 h	79,000 h	56,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

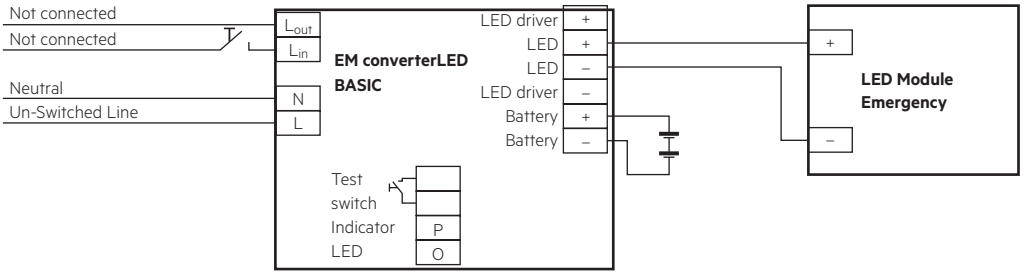
3. Installation / Wiring

3.1 Wiring diagram

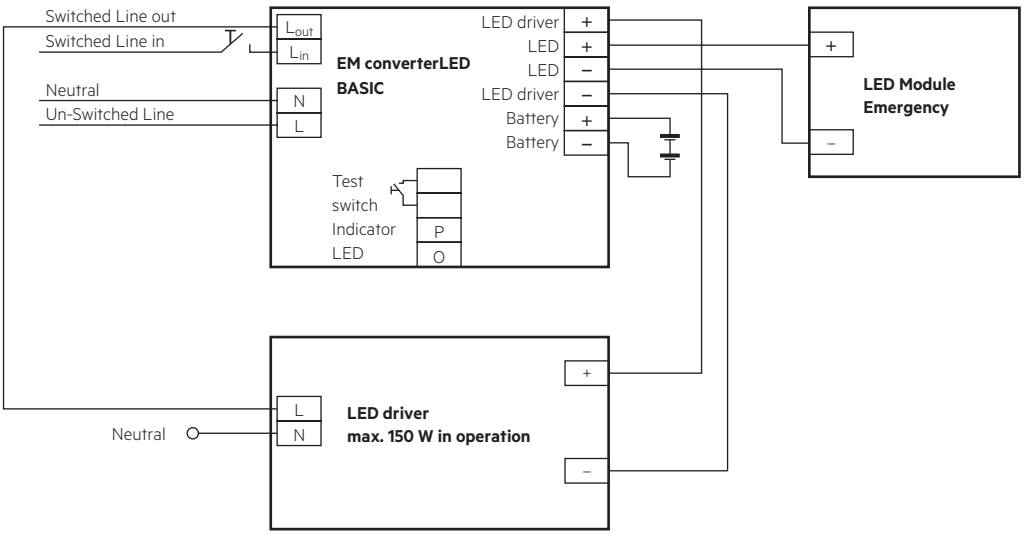
One or more LED modules with a total forward voltage of 50 to 250 V can be connected to the EM converterLED 250V module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the LED driver from the mains supply.

Use of the test switch:
For checking the device function press the test switch for a minimum of 3 seconds.

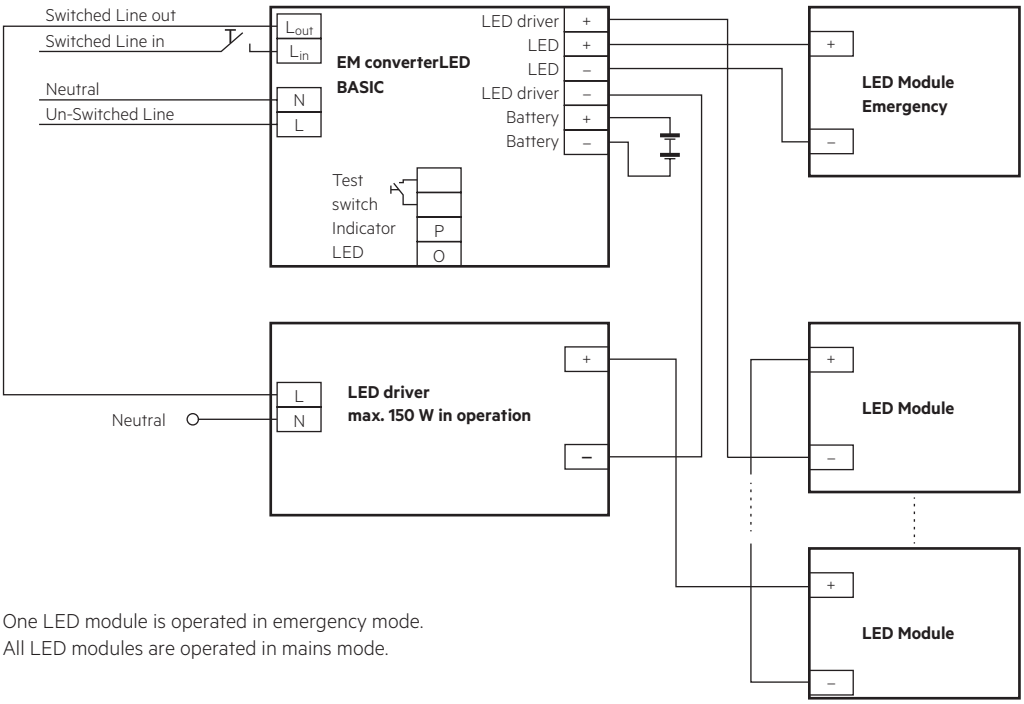
EM converterLED BASIC with one LED module for non-maintained emergency operation



EM converterLED BASIC with a standard LED driver and one LED module for mains and emergency operation

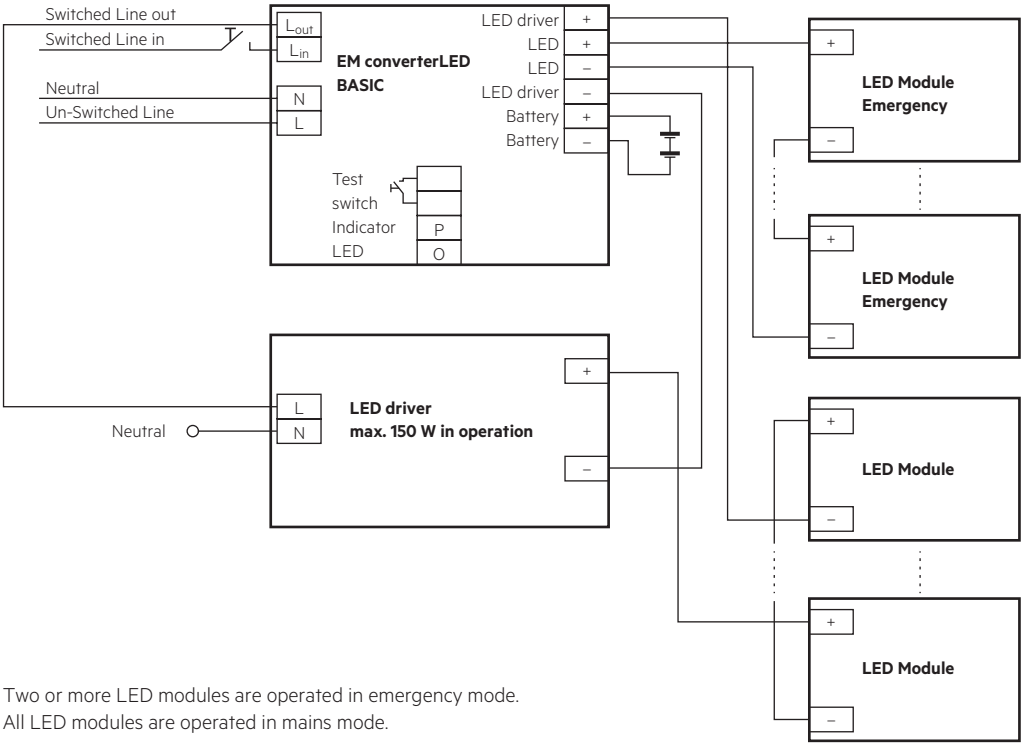


EM converterLED BASIC with a standard LED driver and <u>series</u> operation of LED modules



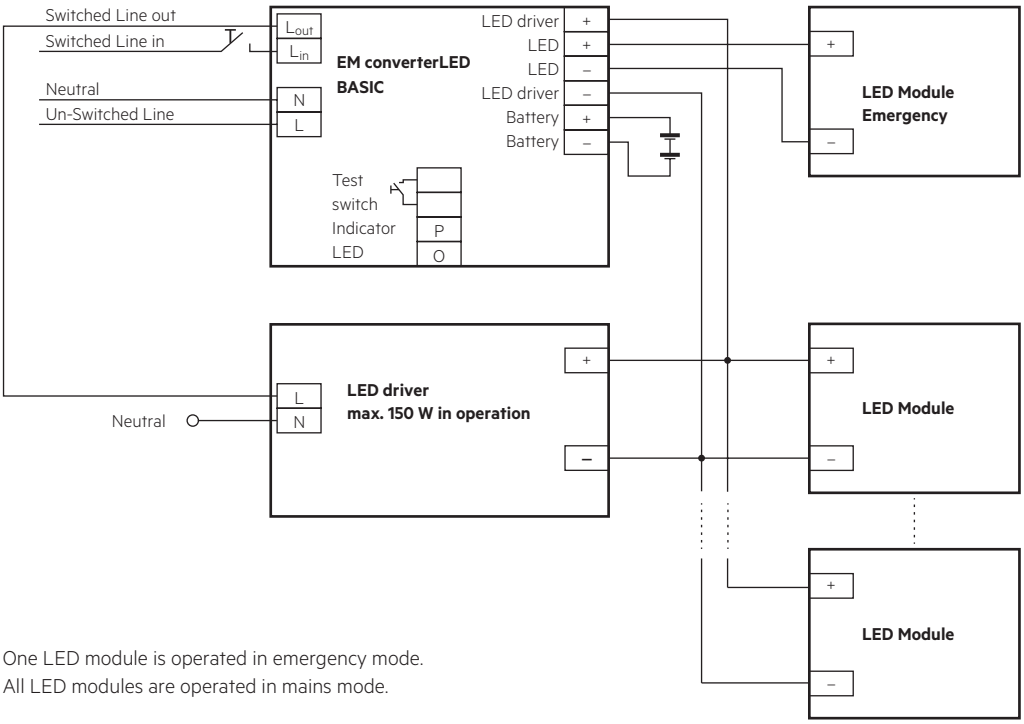
One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>series</u> operation of LED modules



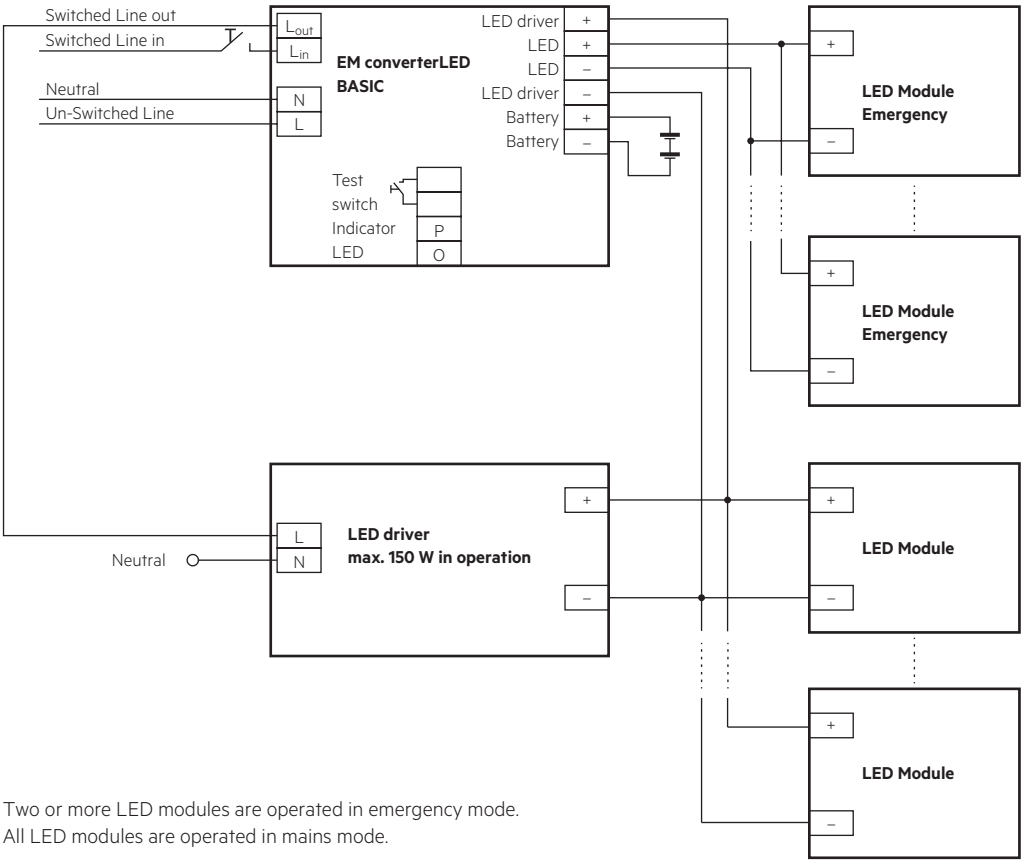
Two or more LED modules are operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>parallel</u> operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED BASIC with a standard LED driver and <u>parallel</u> operation of LED modules

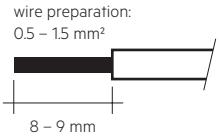


Two or more LED modules are operated in emergency mode.
All LED modules are operated in mains mode.

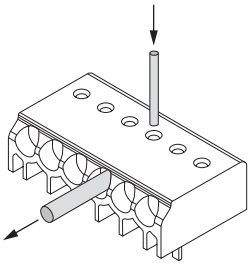
3.2 Wiring type and cross section

Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply



3.3 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.4 Wiring guidelines

- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 1.3 m
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

Do not exceed the max. length of LED leads to the LED module. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver.

3.5 Maximum lead length

LED	3 m (6 m loop)
Status indication LED	1 m
Batteries	1.3 m

3.6 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C
- Plug connection

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m
- Plug connection

Battery leads
- All NiCd and NiMH 2 Ah:
  - Quantity: 1 red and 1 black
  - Length: 1.3 m
  - Wire type: 0.5 mm^2 solid conductor
  - Insulation rating: 90 °C
- NiMH 4 Ah:
  - Quantity: 1 red and 1 black lead with plug-in connection suitable for the plug-in connection of the battery
  - Total length: 1,000mm (100 mm on battery side / 900 mm on device side)
  - Wire type: 0.5mm^2 solid conductor
  - Insulation temperature rating: 90°C

Battery end termination
- All NiCd and NiMH 2 Ah: push on 4.8 mm receptacle to suit battery spade fitted with insulating cover
- NiMH 4 Ah: lead with connector

Module end termination
8.0 mm stripped insulation

Two-piece batteries
- All NiCd and NiMH 2 Ah: are supplied with a 200 mm lead with 4.8 mm receptacle at each end and insulting covers to connect the separate sticks together.
- NiMH 4 Ah: are supplied with a 100mm firmly welded lead to connect the separate sticks together. A lockable plug connection is used to connect the battery on the battery side. On the device side the cable has a strip length of 8 mm from factory

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	1.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	I_{max}	time
EM converterLED BASIC 203 NiCd/NiMH 250V	90	130	130	130	180	260	260	260	10 A	120 µs
EM converterLED BASIC 204 NiCd/NiMH 250V	90	130	130	130	180	260	260	260	10 A	120 µs
EM converterLED BASIC 205 NiCd/NiMH 250V	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	LED driver
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, LED, Test switch, Indicator LED	••	••	–	–
LED driver	•	•	–	–

• Represents basic insulation

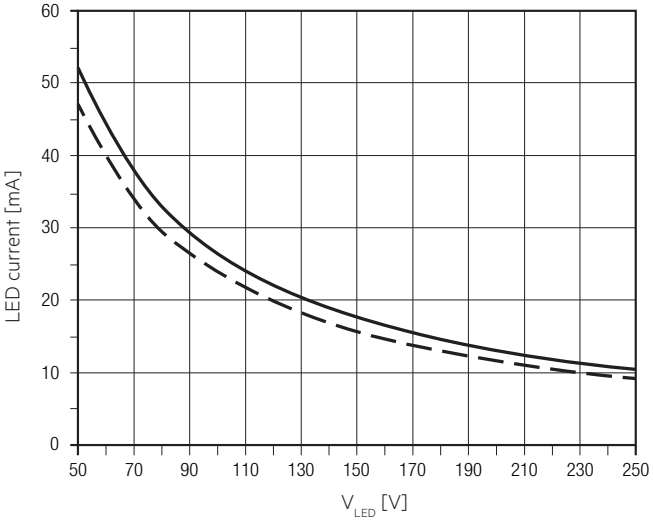
•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.

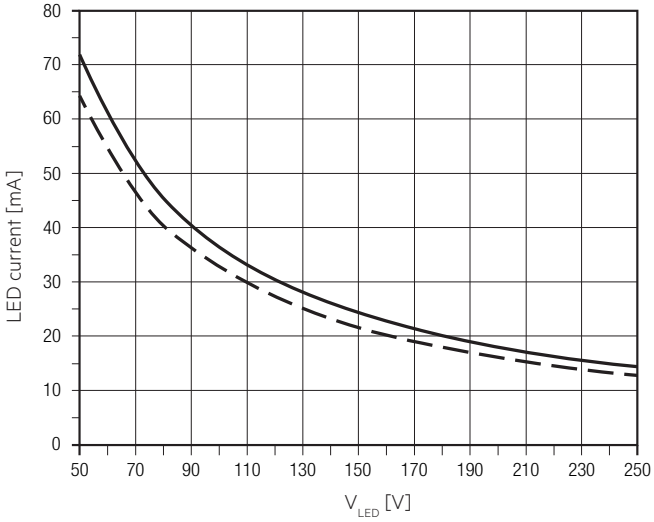
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

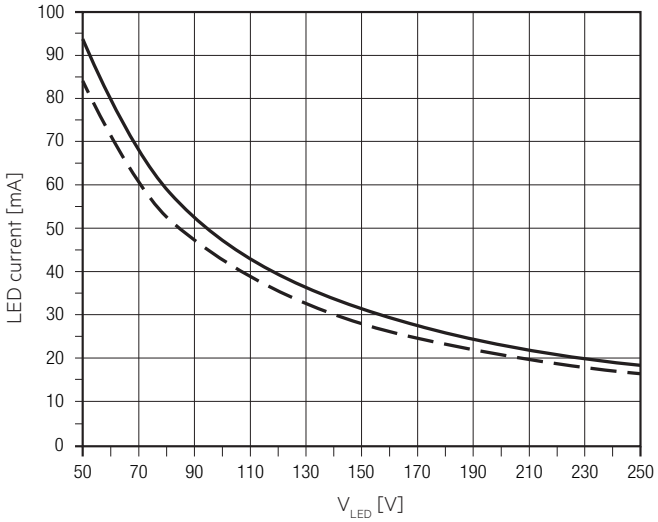
EM converterLED BASIC 203 NiCd/NiMH 250V
Article number: 89800574
3.6 V battery voltage
850 – 960 mA battery discharge current (tolerance)



EM converterLED BASIC 204 NiCd/NiMH 250V
Article number: 89800563
4.8 V battery voltage
850 – 960 mA battery discharge current (tolerance)



EM converterLED BASIC 205 NiCd/NiMH 250V
Article number: 89800564
6.0 V battery voltage
850 – 960 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A eff (current rating of the terminals of EM converterLED) and 2.4 A peak (current rating of switching relays of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 84 A for 255 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 450 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 150 W in operation. The load must be an LED module.

Check compatibility with short function tests (duration of several seconds).

6. Functions

6.1 Duration link selection

Duration	Usage duration link
3 h	With link
1 h	Without link

Emergency lighting LED driver supplied with duration link in 3 hours position.

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.2 Status indication LED

System status is indicated by a green LED.

Note:
The status indication LED switches off if the battery does not reach the full capacity (3.6V battery voltage) within 20 – 24 hours.
If this occurs disconnect the mains voltage and operate the device in emergency mode for approximately one hour. Afterwards apply the mains voltage again and recharge the battery for 24 hours.
If the failure occurs again replace the battery.

7. Battery data

7.1 Battery selection

EM converterLED BASIC, 1 / 3 h

				Type	EM converterLED BASIC 203 NiCd/NiMH 250V		EM converterLED BASIC 204 NiCd/NiMH 250V		EM converterLED BASIC 205 NiCd/NiMH 250V	
				Article no.	89800574		89800563		89800564	
				Cells	3 cells		4 cells		5 cells	
				Duration	1 h	3 h	1 h	3 h	1 h	3 h
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**					
NiCd 4 Ah D cells	stick	1 x 3	**Accu-NiCd 3A 55**	**28002773**		•				
	stick	1 x 4	**Accu-NiCd 4A 55**	**89800089**				•		
	stick	1 x 5	**Accu-NiCd 5A 55**	**28002774**						•
	side by side	3 x 1	**Accu-NiCd 3B 55**	**89800384**		•				
	side by side	4 x 1	**Accu-NiCd 4B 55**	**89800385**				•		
	stick + stick	2 + 2	**Accu-NiCd 4C 55**	**28002775**				•		
	stick + stick	3 + 2	**Accu-NiCd 5C 55**	**89800090**						•
	remote box	1 x 3	**Pack-NiCd 3D CON**	**89800389**		•				
	remote box	1 x 4	**Pack-NiCd 4D CON**	**89800390**				•		
	remote box	1 x 5	**Pack-NiCd 5D CON**	**28001181**						•
NiMH 2.2 Ah Cs cells	stick	1 x 3	**Accu-NiMH 3A**	**28002088**	•					
	stick	1 x 4	**Accu-NiMH 4A**	**28002089**			•			
	stick	1 x 5	**Accu-NiMH 5A**	**28002090**					•	
	side by side	5 x 1	**Accu-NiMH 5B**	**28002093**					•	
	remote box	1 x 3	**Pack-NiMH 2.2Ah 3 CON**	**28001898**	•					
	remote box	1 x 4	**Pack-NiMH 2.2Ah 4 CON**	**28001899**			•			
NiMH 4 Ah LA cells	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**		•				
	stick	1 x 4	**Accu-NiMH 4Ah 4A CON**	**89800442**				•		
	stick + stick	2 + 2	**Accu-NiMH 4Ah 4C CON**	**89800438**				•		
	stick + stick	2 + 3	**Accu-NiMH 4Ah 5C CON**	**89800439**						•
	remote box	1 x 3	**Pack-NiMH 4Ah 3 CON**	**28001896**		•				
	remote box	1 x 4	**Pack-NiMH 4Ah 4 CON**	**28001897**				•		

7.2 Battery charge / discharge data

EM converterLED BASIC, 1 / 3 h

	Type	EM converterLED BASIC 203 NiCd/NiMH 250V		EM converterLED BASIC 204 NiCd/NiMH 250V		EM converterLED BASIC 205 NiCd/NiMH 250V	
	Article no.	**89800574**		**89800563**		**89800564**	
	Cells	**3 cells**		**4 cells**		**5 cells**	
	Duration	**1 h**	**3 h**	**1 h**	**3 h**	**1 h**	**3 h**
Battery charge time	Initial charge	24 h					
	Fast recharge	24 h					
	Trickle charge	continuously					
Charging current	Initial charge	80 – 130 mA	170 – 220 mA	80 – 130 mA	170 – 220 mA	80 – 130 mA	170 – 220 mA
	Fast recharge	80 – 130 mA	170 – 220 mA	80 – 130 mA	170 – 220 mA	80 – 130 mA	170 – 220 mA
	Trickle charge	45 – 95 mA	80 – 130 mA	45 – 95 mA	80 – 130 mA	45 – 95 mA	80 – 130 mA
Discharge current		850 – 960 mA	850 – 960 mA	850 – 960 mA	850 – 960 mA	850 – 960 mA	850 – 960 mA
Charge voltage range[1]		0.9 – 1.65 V per cell					
Discharge voltage range		1.65 – 0.90 V per cell					

[1] The battery will be charged below 0.9 V. The EM converterLED will indicate a battery fault.

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

7.3 Accu-NiCd

4.2 / 4.5 Ah

International designation	KRMU 33/62
Battery voltage/cell	1.2 V
Cell type	D
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	12 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

7.4 Accu-NiMH

2.2 Ah

International designation	HRMU 23/43
Battery voltage/cell	1.2 V
Cell type	Cs
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

7.5 Accupack-NiCd

4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

7.6 Accupack-NiMH

2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

For a higher battery temperature rating for NiMH 4 Ah refer to the EM converterLED xx MH/LiFePO4 product range.

7.7 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

8.2 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.3 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

8.4 Additional information

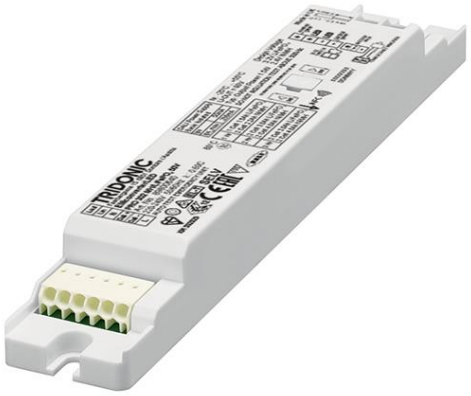
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED PRO NFC MH/LiFePO4 50 V

Powered DALI PRO NFC version



LiFeGuard

Product description
_ Self-contained emergency lighting LED driver with DALI interface and automatic test function
_ For LED modules with a forward voltage of 10 – 54 V
_ For luminaire installation
_ Compatible with Tridonic's LLE FLEX modules (ADV, EXC)
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Functions
_ Non maintained operation
_ SELV for output voltage < 60 V DC
_ Integrated DALI bus power supply
_ 1, 2 or 3 h rated duration selectable with duration link
_ Compatible with most constant current LED drivers (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Constant power output
_ Two-colour status display LED
_ Black Box data recording

Interfaces
_ DALI interface for controlled testing and monitoring
_ Near field communication (NFC)

Battery management
NiMH/LiFePO4:
_ Intelligent charge system
_ Deep discharge protection
_ Polarity reversal protection for battery via polarised connector plug
_ Automatic detection of the connected battery technology (NiMH or LiFePO4 batteries)
LiFePO4:
_ Tridonic LiFeGuard ensures safety in use (refer to data sheet, Safety LiFePO4)
_ Temperature protection

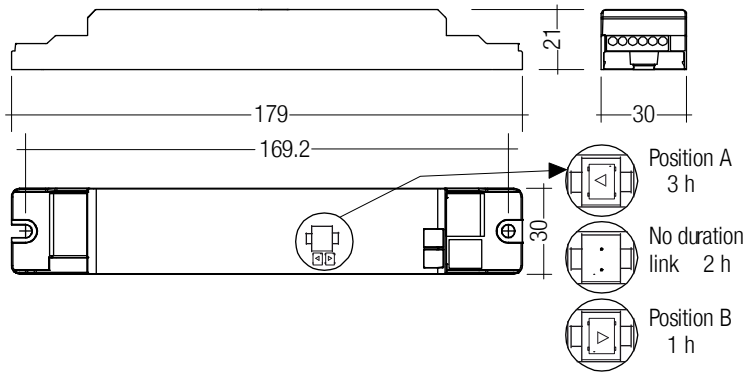
Batteries
_ NiMH or LiFePO4 batteries
_ NiMH: 4 years design life / 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions) ①
_ LiFePO4 batteries with Tridonic LiFeGuard
_ For battery compatibility refer to data sheet, battery selection

① 28005859 - 5-year guarantee.

Website
http://www.tridonic.com/89800640

EM converterLED PRO NFC MH/LiFePO4 50 V

Powered DALI PRO NFC version



Note: LED driver supplied with duration link in 3 hours position. Duration link must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterLED PRO 302 MH/LiFePO4 50V	**89800640**	1/2/3 h	10 pc(s).	1,600 pc(s).	0.075 kg	179 x 30 x 21 mm
EM converterLED PRO 303 MH/LiFePO4 50V	**89800641**	1/2/3 h	10 pc(s).	1,600 pc(s).	0.075 kg	179 x 30 x 21 mm
EM converterLED PRO 304 MH/LiFePO4 50V	**89800642**	1/2/3 h	10 pc(s).	1,600 pc(s).	0.075 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	10 – 54 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Ambient temperature ta	-25 … +55 °C
Max. casing temperature tc	80 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Integrated DALI bus power supply IPS	50 mA
Type of protection	IP20
Functional test	Weekly 5s test
Duration test	Yearly 1 h / 2 h / 3 h test
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

NFC DALI SELV 130 EL-T RoHS

Standards

EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30, EN 62384, EN 62386-101, EN 62386-102, EN 62386-202, according to EN 50172, according to EN 60598-2-22, acc. to EN 62034

Specific technical data

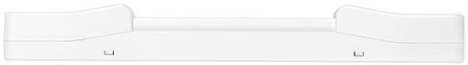
Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge ②	Fast recharge ②	Trickle ③② charge	Initial charge ②	Fast recharge ②	Trickle ③② charge
EM converterLED PRO 302 MH/LiFePO4 50V	NiMH	1 h	0.6C	1.5 W	16 mA	18 mA	16 / 12 mA	2.1 W	2.5 W	2.1 / 1.6 W
EM converterLED PRO 302 MH/LiFePO4 50V	NiMH	2 h	0.6C	1.5 W	21 mA	22 mA	18 / 12 mA	2.8 W	3.0 W	2.4 / 1.6 W
EM converterLED PRO 302 MH/LiFePO4 50V	NiMH	3 h	0.6C	1.5 W	21 mA	22 mA	18 / 12 mA	2.8 W	3.0 W	2.4 / 1.6 W
EM converterLED PRO 302 MH/LiFePO4 50V	LiFePO4	1 h	0.6C	1.5 W	16 mA	16 mA	16 / 12 mA	2.3 W	2.3 W	2.3 / 1.6 W
EM converterLED PRO 302 MH/LiFePO4 50V	LiFePO4	2 h	0.6C	1.5 W	22 mA	22 mA	22 / 12 mA	3.0 W	3.0 W	3.0 / 1.6 W
EM converterLED PRO 302 MH/LiFePO4 50V	LiFePO4	3 h	0.6C	1.5 W	22 mA	22 mA	22 / 12 mA	3.0 W	3.0 W	3.0 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 50V	NiMH	1 h	0.6C	2.5 W	17 mA	20 mA	17 / 12 mA	2.3 W	2.8 W	2.3 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 50V	NiMH	2 h	0.6C	2.5 W	24 mA	25 mA	20 / 12 mA	3.2 W	3.4 W	2.7 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 50V	NiMH	3 h	0.6C	2.5 W	24 mA	25 mA	20 / 12 mA	3.2 W	3.4 W	2.7 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 50V	LiFePO4	1 h	0.6C	3.3 W	22 mA	22 mA	22 / 12 mA	3.0 W	3.0 W	3.0 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 50V	LiFePO4	2 h	0.6C	3.3 W	27 mA	27 mA	27 / 12 mA	4.0 W	4.0 W	4.0 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 50V	LiFePO4	3 h	0.6C	3.3 W	27 mA	27 mA	27 / 12 mA	4.0 W	4.0 W	4.0 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 50V	NiMH	1 h	0.6C	3.5 W	18 mA	22 mA	18 / 12 mA	2.5 W	3.1 W	2.5 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 50V	NiMH	2 h	0.6C	3.5 W	26 mA	27 mA	22 / 12 mA	3.8 W	4.1 W	3.0 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 50V	NiMH	3 h	0.6C	3.5 W	26 mA	27 mA	22 / 12 mA	3.8 W	4.1 W	3.0 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 50V	LiFePO4	1 h	0.6C	4.1 W	22 mA	22 mA	22 / 12 mA	3.0 W	3.0 W	3.0 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 50V	LiFePO4	2 h	0.6C	4.1 W	27 mA	27 mA	27 / 12 mA	4.0 W	4.0 W	4.0 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 50V	LiFePO4	3 h	0.6C	4.1 W	27 mA	27 mA	27 / 12 mA	4.0 W	4.0 W	4.0 / 1.6 W

② Integrated DALI bus power supply is switched OFF. With the Integrated DALI bus power supply switched ON and fully loaded the input power and current is increased by 1 W and 6 mA in any charging mode.

③ In case of NiMH batteries: Intermittent charge is used. Value 1 is for 4 min. charge on / Value 2 is for 16 min. charge off. In case of LiFePO4 batteries voltage dependent constant current charging is used. Value 1 is for charge on / Value 2 is for charge off.

EMcLED Strain-relief set 240x43x30mm

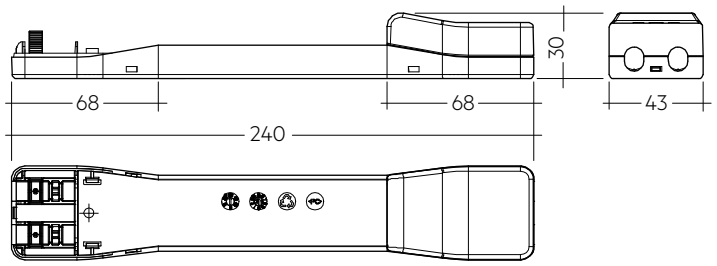
Accessory



Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

Website
http://www.tridonic.com/28003813



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

RoHS

Status indication bi-colour LED EM CON

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault
_ Plug connection

Website
http://www.tridonic.com/89800273

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour, 1.0 m CON	**89800273**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness HO 1.0 m CON	**89800275**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, 0.6 m CON	**89800474**	25 pc(s).	200 pc(s).	0.010 kg
LED EM bi-colour, high brightness HO 0.6 m CON	**89800475**	25 pc(s).	200 pc(s).	0.011 kg
LED EM bi-colour, 0.3 m CON	**89800274**	25 pc(s).	200 pc(s).	0.007 kg
LED EM bi-colour, high brightness HO 0.3 m CON	**89800276**	25 pc(s).	200 pc(s).	0.007 kg

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

Connection cable NiMH

Accessory

Product description
_ Connection cable for NiMH batteries
_ Cable length 500 mm
_ 2-pole plug connection for batteries and 3-pole plug connection for LED driver

Website
http://www.tridonic.com/28002462

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
CONNECTION CABLE NiMH 500mm	**28002462**	10 pc(s).	200 pc(s).	0.01 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- EN 62386-101 (DALI-2), only IPS relevant requirements
- EN 62386-102 (DALI-2), only IPS relevant requirements
- EN 62386-202
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

Meaning of marking ⧈
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-Drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime with NiMH batteries, DALI power supply off

Type	ta	40 °C	45 °C	50 °C	55 °C
EM converterLED PRO 302	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	73,000 h
EM converterLED PRO 303	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	99,000 h	70,000 h
EM converterLED PRO 304	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	96,000 h	68,000 h

Expected lifetime with NiMH batteries, DALI power supply on, load 50 mA

Type	ta	40 °C	45 °C	50 °C	55 °C
EM converterLED PRO 302	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	96,000 h	68,000 h
EM converterLED PRO 303	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	93,000 h	66,000 h
EM converterLED PRO 304	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	91,000 h	64,000 h

Expected lifetime with $LiFePO_4$ batteries, DALI power supply off

Type	ta	40 °C	45 °C	50 °C	55 °C
EM converterLED PRO 302	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	> 79,000 h
EM converterLED PRO 303	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	> 78,000 h
EM converterLED PRO 304	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	> 78,000 h

Expected lifetime with $LiFePO_4$ batteries, DALI power supply on, load 50 mA

Type	ta	40 °C	45 °C	50 °C	55 °C
EM converterLED PRO 302	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	> 76,000 h
EM converterLED PRO 303	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	> 75,000 h
EM converterLED PRO 304	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 50V	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	> 75,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

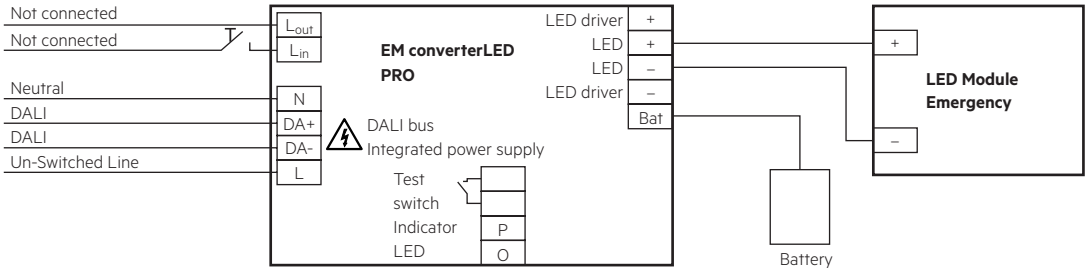
The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

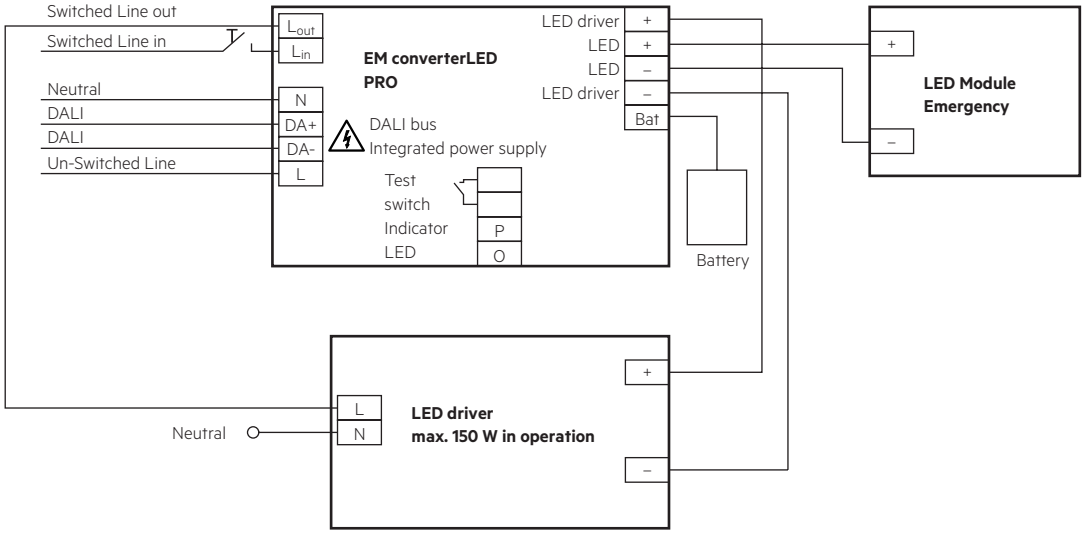
3.1 Wiring diagram

One or more LED modules with a total forward voltage of 10 to 54 V can be connected to the EM converterLED. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the mains LED driver.

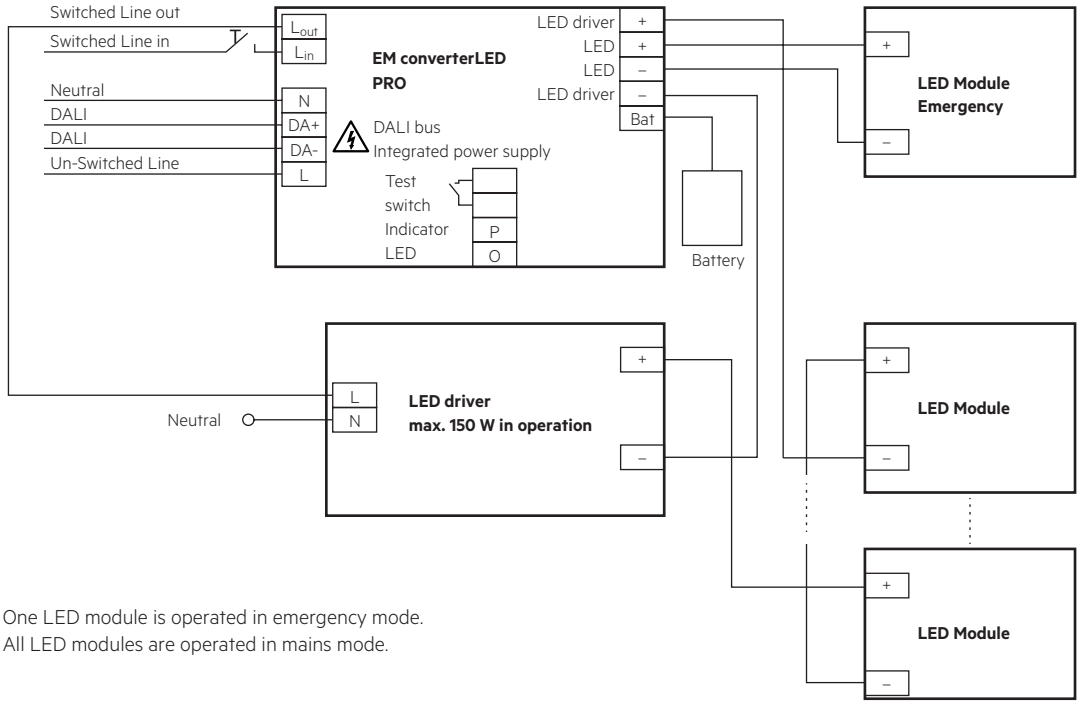
EM converterLED PRO with one LED module for non-maintained emergency operation



EM converterLED PRO with a standard LED LED driver and one LED module for mains and emergency operation

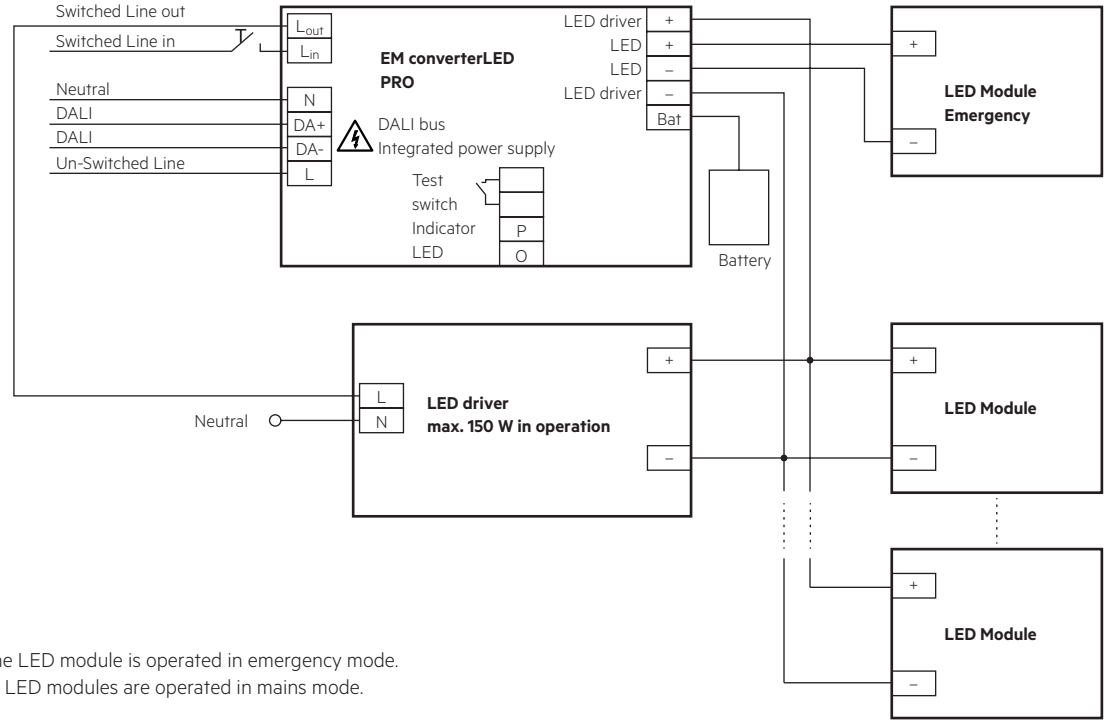


EM converterLED PRO with a standard LED LED driver and <u>series</u> operation of LED modules



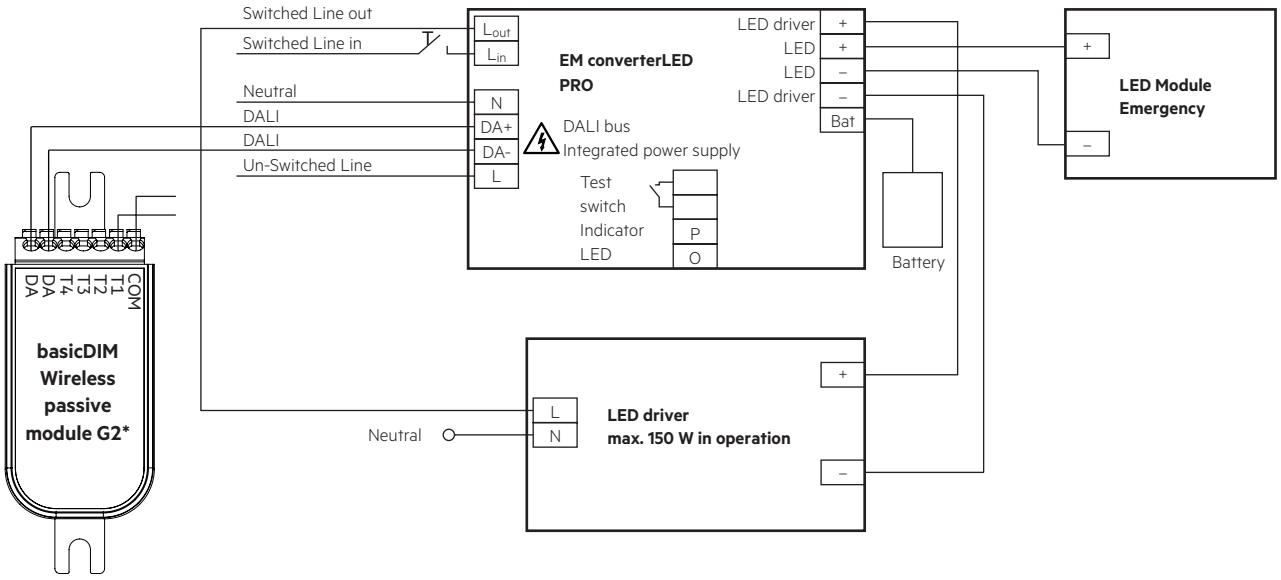
One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED PRO with a standard LED LED driver and parallel operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

Wireless set-up for EM converterLED PRO with a standard LED driver and one LED module for mains and emergency operation

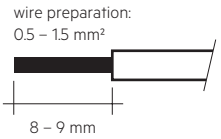


* For further information see basicDIM Wireless datasheet at www.tridonic.com

3.2 Wiring type and cross section

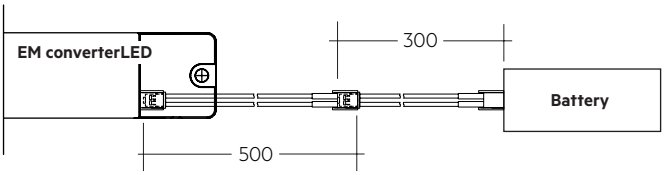
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply



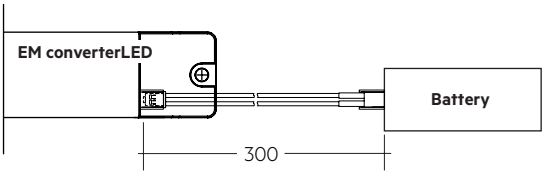
3.3 Battery connection

NiMH: Connection with extension cable

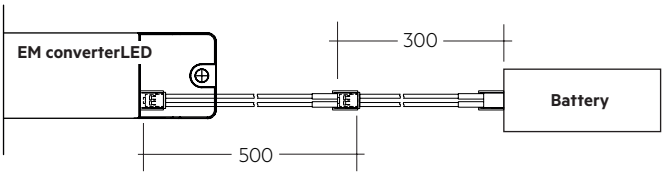


When using an EM converterLED in combination with a NiMH battery, order the CONNECTION CABLE NiMH 500mm separately.

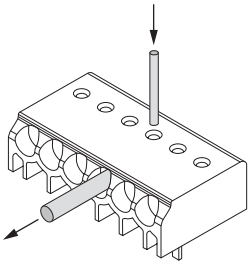
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension cable



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Wiring guidelines

- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- DALI terminals are mains proof.
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

3.6 Maximum lead length

LED	3 m (6 m loop)[1]
Status indication LED	1 m
Batteries	0.8 m

[1] Note: The length of LED leads to the LED module must not be exceeded. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver. Keep the leads always as short as possible.

3.7 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

3.8 Compatibility with LLE FLEX modules

The EM converterLED can be used within certain restrictions to operate constant voltage LED loads from the Tridonic LLE FLEX (ADV, EXC) product range. A certain minimum length of the LLE FLEX is required for correct operation.
Detailed information in the download area of the ST and PRO product pages at www.tridonic.com (EM converterLED manual).

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
• Bi-colour
• Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
• Lead length 0.3 m / 0.6 m / 1.0 m
• Insulation rating: 90 °C
• Plug connection

Test switch
• Mounting hole 7.0 mm diameter
• Lead length 0.55 m
• Plug connection

Battery connection
- Plug connection 0.3 m
- Extension cable 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	1.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	I_{max}	time
EM converterLED PRO MH/LiFePO4 50V	90	130	130	130	180	260	260	260	3.6 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	DALI	LED driver
Mains	–	•	••	•	••
Switched Live	•	–	••	•	••
Battery, LED, Test switch, Indicator LED	••	••	–	•	•
DALI	•	•	•	–	••
LED driver	••	••	–	••	–

• Represents basic insulation

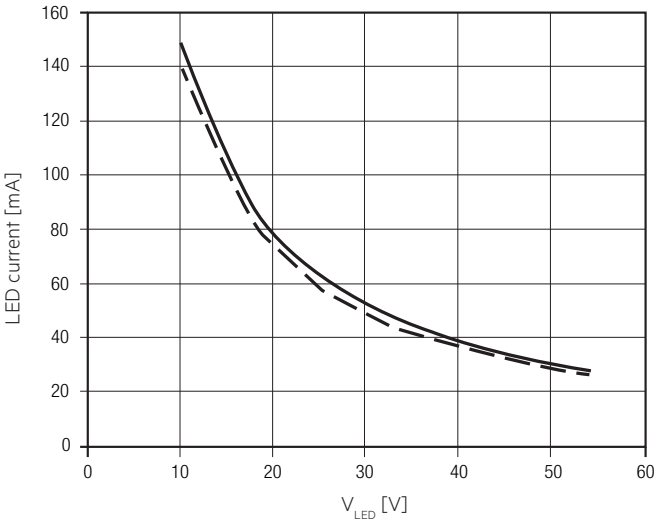
•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.

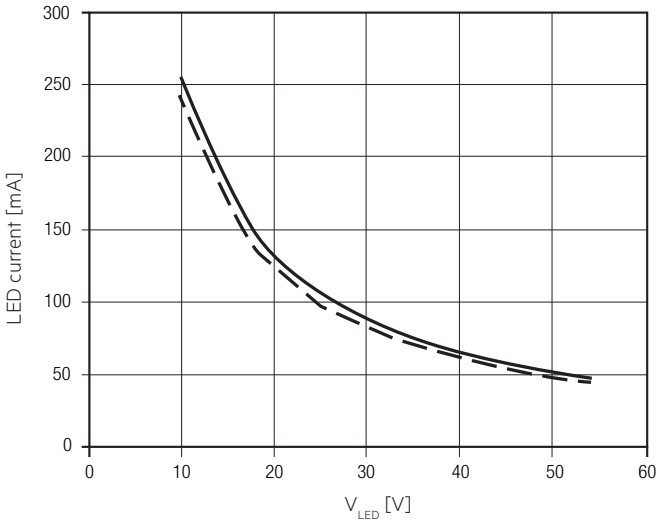
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

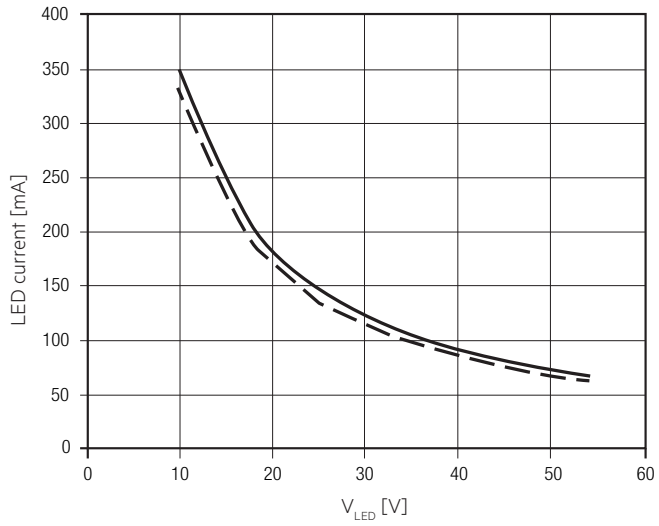
EM converterLED PRO 302 MH/LiFePO4 50V
Article number: 89800640
NiMH battery, 2.4 V battery voltage
730 – 790 mA battery discharge current (tolerance)
$LiFePO_4$ battery, 3.2 V battery voltage
530 – 570 mA battery discharge current (tolerance)



EM converterLED PRO 303 MH/LiFePO4 50V
Article number: 89800641
NiMH battery, 3.6 V battery voltage
770 – 830 mA battery discharge current (tolerance)



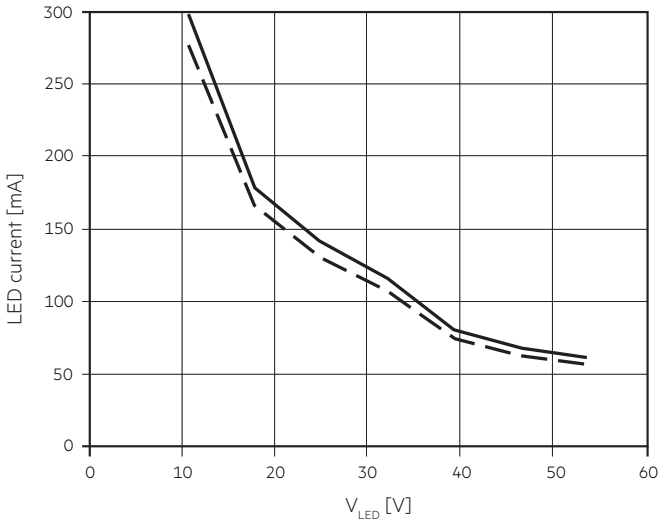
EM converterLED PRO 304 MH/LiFePO4 50V
Article number: 89800642
NiMH battery, 4.8 V battery voltage
790 – 850 mA battery discharge current (tolerance)



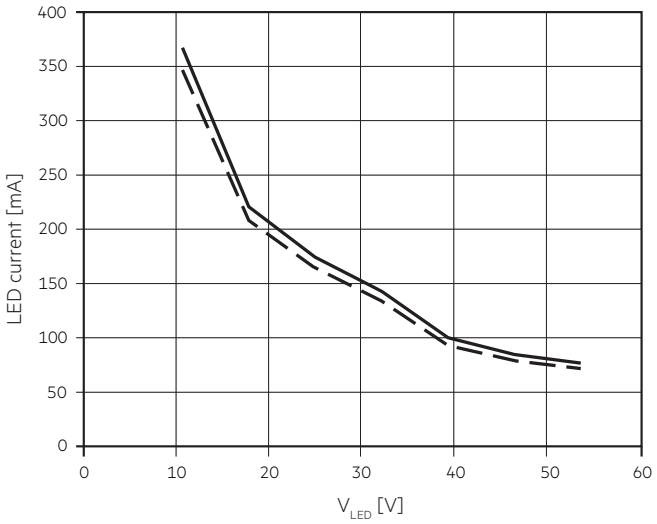
LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

EM converterLED PRO 303 MH/LiFePO4 50V
Article number: 89800641
$LiFePO_4$ battery, 3.2 V battery voltage
1,150 – 1,250 mA battery discharge current (tolerance)



EM converterLED PRO 304 MH/LiFePO4 50V
Article number: 89800642
$LiFePO_4$ battery, 3.2 V battery voltage
1,450 – 1,550 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A eff (current rating of the terminals of EM converterLED) and 2.4 A peak (current rating of switching relays of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 84 A for 255 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 450 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 150 W in operation. The load must be an LED module.

Check compatibility with the carried out function test (duration at least 5 seconds) individually for each device.

6. Software / Programming / Interfaces

6.1 Software / programming

With appropriate software and interface different functions can be activated and various parameters can be configured in the LED driver. The Driver supports the following software and interfaces:

Software / hardware for configuration:
- companionSUITE (deviceGENERATOR, deviceCONFIGURATOR, deviceANALYSER)
- masterCONFIGURATOR

Interfaces for data transfer:
- Control input DALI
- NFC

6.2 Control input (DA+, DA–)

The DALI Interface allows communication with the Driver via a suitable DALI control unit. The DALI interface is not SELV. Install the control cable (DALI bus) in accordance to the requirements of low voltage installations.
DALI terminals are mains voltage proof.

6.3 Nearfield communication (NFC)

The NFC Interface allows wireless communication with the LED driver in unpowered state. This interface offers the option to write configuration and to read configuration, errors and events via a suitable NFC antenna and the companionSUITE software.
Place the NFC antenna directly on the LED driver to guarantee a correct communication between the LED driver and the NFC antenna. Any material placed between the LED driver and the NFC antenna can cause a deterioration of the communication quality. We recommend the use of following NFC antennas:
www.tridonic.com/nfc-readers.

NFC is complied with ISO/IEC 15963 standard.

After programming the device via NFC power up the device one time for one second till the deviceANALYSER can read out the parameters.

Changing parameters via NFC shall be done by qualified engineers only.

7. Functions

⊙ companionSUITE:
DALI-USB, NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

◈ masterCONFIGURATOR:
DALI-USB
The masterCONFIGURATOR is available via our WEB page:
https://www.tridonic.com/com/en/software-masterconfigurator.asp

Icon	Function	DALI	NFC
	OEM Identification	⊙ ◈	⊙
	OEM GTIN	⊙ ◈	⊙
	Label information	⊙ ◈	⊙
	Factory reset	⊙ ◈	⊙
	Device operating mode	⊙ ◈	⊙
	Prolong time	⊙ ◈	⊙
	Autotest	⊙ ◈	⊙
	Test window	⊙ ◈	⊙
	Integrated DALI bus power supply voltage (IPS)	⊙ ◈	⊙

7.1 OEM Identification

The OEM (Original Equipment Manufacturer) can set his own identification number.

7.2 OEM GTIN

The Original Equipment Manufacturer (OEM) can set his own Global Trade Item Number (GTIN).

7.3 Label information

In production, an individual label can be printed out for each device.
For this there are different default values (Batch No., Production Date, ...) available.
In addition, you can use these two text input fields to insert your own luminaire information and print it out.

- Article number (48 characters)
- Description (6 x 48 characters)

This information is not stored on the device, it is only used for the label print function in the deviceCONFIGURATOR.

7.4 Prolong time

Prolong time can be set by the DALI controller.
Here you can set how long the emergency operation will be maintained after power recovery.
The module exits the PROLONG mode as soon as the cut-off threshold of the battery voltage has been reached (total discharge protection), that is when the total operating time has been exceeded.
The default prolong time is set as 0 minutes as specified within the DALI standard.
Indicator LED will stay off for the duration of the prolong time.

7.5 Autotest

7.5.1 Functional test

The time of day and frequency of the 5 seconds function test can be set by the DALI controller. The default setting is a 5 seconds test on a weekly basis.

7.5.2 Duration test

The time of day and frequency of the duration test can be set by the DALI controller. The default setting is a duration test conducted every 52 weeks.

For 2 h operation:
The first commissioning duration test has a time of 120 minutes, subsequent through life tests are conducted for 90 minutes. When the battery is changed or disconnected and re-connected the unit will next conduct a 120 minute test.

7.6 Test window

The test window sets the maximum time between the scheduled start time or test request via DALI and the actual execution of the test.
If the test cannot be executed in the test window, the TEST EXECUTION TIMEOUT bit in the FAILURE STATUS is set.

7.7 Integrated DALI bus power supply voltage (IPS)

This feature can optionally be activated (by default it is disabled).

IPS = 50 mA and IPS_max = 250 mA.
The minimum guaranteed output current is 50 mA.
Imax = 250 mA

Note: The voltage drop in the DALI wires must not exceed 2 V.

No other DALI power supply is allowed to be connected in parallel.

If the IPS function is activated, do not integrate the Driver into an existing DALI network with active DALI bus power supply.

7.8 Duration link selection

Duration	Link position
3 hr	Position A
2 hr	No duration link
1 hr	Position B

Emergency lighting LED driver supplied with duration link in 3 hours position (position A).

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

7.9 Status indication

System status is indicated by a bi-colour LED and by a DALI status flag.

LED indication	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage / battery outside operating temp
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

7.10 Testing

DALI Control
A DALI command from a suitable control unit can be used to initiate function and duration tests at individually selected times. Status flags are set for report back and data logging of results.

When a DALI bus has not been connected or when a DALI bus is connected but the DALI default DELAY and INTERVAL times have not been re-set by sending appropriate DALI commands, then the EM converterLED PRO will conduct self-tests in accordance with the default times set within the EEPROM.
These default times are factory pre-set, in accordance with the DALI standard EN 62386-202, to conduct an automatic function test every 7 days and a duration test every 52 weeks. Since the DELAY time is factory pre-set to Zero, all units are tested at the same time. Test times can be changed with a command over the DALI bus.

The DELAY and INTERVAL time values must be re-set when the emergency system test times are to be scheduled by a DALI control and monitoring system.
Note that once the default values have been set to Zero, tests will only be conducted following a command from the control system. If the DALI bus is disconnected the EM converterLED PRO does not revert to self-testing mode.

Addressing
The EM converterLED PRO includes the EZ easy addressing system which allows addressing and identification by using the bi-colour LED in conjunction with the EM PRO addressing tool. Binary address codes given by the LED can be simply converted to the DALI addresses 0 to 63. For single handed addressing using this method it is necessary to send a broadcast ident command every 3 to 9 seconds. During this command the LEDs will be switched off and the indication LED will flash the 6 bit binary address preceded by a 3 second start indication period.

Commissioning
After installation of the luminaire and initial connection of the mains and battery supply to the EM converterLED PRO the device starts with the 20 hours initial charge followed by a 4 hours trickle charge for NiCd/NiMH batteries or with a 24 hours initial charge for LiFePO4 batteries.
Afterwards the device conducts a commissioning test for the full duration. The 20 hours recharge for NiCd/NiMH batteries or 24 hours recharge for LiFePO4 batteries occurs also with the connection of a new battery. The following automatic commissioning duration test only takes place when a battery is replaced and fully charged and the interval time is not set to zero. In case the interval time is set to zero the device expects the DALI system to request the testing.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically switched on if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by the DALI controller. The REST command has to be sent after the mains supply has been disconnected and whilst the EM converterLED PRO is in emergency operation. The INHIBIT command has to be sent while the EM converterLED PRO is supplied by mains.
After a mains reset the EM converterLED PRO exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by sending the RE-LIGHT/ RESET INHIBIT command. Rest Mode / Inhibit Mode are not supported from EM converterLED in case of combination with a 1-cell LiFePO4 battery and 2-cell NiMH battery.

Test switch
An optional test switch can be wired to each EM converterLED.
This can be used to to:
- Initiate a 5 seconds function test: press 200 ms < T < 1 s
- Execute function test as long as switch pressed: press > 1 s
- Reset selftest timer (adjust local timing): press > 10 s

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

BlackBox data recording
Parameters providing information about the application and use are stored in the EM converterLED PRO. The parameters stored provide information on the mains, battery, LED output and emergency operation.
The BlackBox can be read out with the masterCONFIGURATOR and deviceANALYSER.

DALI Controller
DALI controllers and hardware/software solutions are available from Tridonic. Please refer to the Lighting controls section.

8. Battery data

8.1 Battery selection

EM converterLED PRO, 1 / 2 / 3 h

				Type	EM converterLED PRO 302 MH/LiFePO4 50V		EM converterLED PRO 303 MH/LiFePO4 50V		EM converterLED PRO 304 MH/LiFePO4 50V	
				Article no.	89800640		89800641		89800642	
				Duration	1 h	2/3 h	1 h	2/3 h	1 h	2/3 h
Technology and capacity	Design	Number of cells	Type	Article no.	Assignable batteries					
NiMH 4.0 Ah LA cells	stick	1 x 2	**Accu-NiMH 2A CON**	**28002316**		•				
	stick	1 x 3	**Accu-NiMH 3A CON**	**89800441**				•		
	stick	1 x 4	**Accu-NiMH 4A CON**	**89800442**						•
	stick + stick	2 + 2	**Accu-NiMH 4C CON**	**89800438**						•
$LiFePO_4$ 1.5 Ah 18650 cells	stick	1 x 1	**Accu-LiFePO4 1A CON**	**28002317**	•					
	stick	1 x 2	**Accu-LiFePO4 2A CON**	**28002318**		•	•		•	
	stick	1 x 4	**Accu-LiFePO4 4A CON**	**28002322**				•		
	stick	1 x 5	**Accu-LiFePO4 5A CON**	**28002325**						•
	stick + stick	2 + 2	**Accu-LiFePO4 4C CON**	**28002324**				•		
	stick + stick	3 + 2	**Accu-LiFePO4 5C CON**	**28002327**						•
	side by side	5 x 1	**Accu-LiFePO4 5B CON**	**28002326**						•
	side by side	2 x 1	**Accu-LiFePO4 2B CON**	**28002319**		•	•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28003806**						
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28005854**		•	•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28005855**						
	remote box	1 x 4	**PACK-LiFePO4 6.0Ah 4 CON**	**28005856**				•		
	remote box	1 x 5	**PACK-LiFePO4 7.5Ah 5 CON**	**28005857**						•
	remote box	1S1P	**PACK-LiFePO4 3.3Ah 1 CON**	**28005859**		•	•		•	

8.2 Battery charge / discharge data

EM converterLED PRO, 1 / 2 / 3 h, NiMH

	Type	EM converterLED PRO 302 MH/LiFePO4 50V		EM converterLED PRO 303 MH/LiFePO4 50V		EM converterLED PRO 304 MH/LiFePO4 50V	
	Article no.	89800640		89800641		89800642	
	Duration	1 h	2/3 h	1 h	2/3 h	1 h	2/3 h
Battery charge time	Initial charge	20 h					
	Fast recharge	10 h	15 h	10 h	15 h	10 h	15 h
	Trickle charge	continuously					
Charging current	Initial charge	110 – 150 mA	280 – 320 mA	110 – 150 mA	280 – 320 mA	110 – 150 mA	280 – 320 mA
	Fast recharge	190 – 230 mA	310 – 350 mA	190 – 230 mA	310 – 350 mA	190 – 230 mA	310 – 350 mA
	Trickle charge	110 – 150 mA / 4 min. 0 mA / 16 min.	180 – 220 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	180 – 220 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	180 – 220 mA / 4 min. 0 mA / 16 min.
Discharge current		730 – 790 mA	730 – 790 mA	770 – 830 mA	770 – 830 mA	790 – 850 mA	790 – 850 mA
Charge voltage range[1]		0.9 – 1.65 V per cell					
Discharge voltage range		1.65 – 1.05 V per cell					

[1] The battery will be charged below 0.9 V. The EM converterLED will indicate a battery fault.

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

EM converterLED PRO, 1 / 2 / 3 h, $LiFePO_4$

	Type	EM converterLED PRO 302 MH/LiFePO4 50V		EM converterLED PRO 303 MH/LiFePO4 50V		EM converterLED PRO 304 MH/LiFePO4 50V	
	Article no.	**89800640**		**89800641**		**89800642**	
	Duration	**1 h**	**2/3 h**	**1 h**	**2/3 h**	**1 h**	**2/3 h**
Battery charge time	Initial charge	24 h					
	Fast recharge	24 h					
	Trickle charge	continuously and battery voltage controlled					
Charging current	Initial charge	115 – 155 mA	250 – 290 mA	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA
	Fast recharge	115 – 155 mA	250 – 290 mA	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA
	Trickle charge[1]	115 – 155 mA / 0 mA	250 – 290 mA / 0 mA	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA
Discharge current		530 – 570 mA	530 – 570 mA	1,150 – 1,250 mA	1,150 – 1,250 mA	1,450 – 1,550 mA	1,450 – 1,550 mA
Charge voltage range[2]		2.0 – 3.65 V					
Discharge voltage range		3.65 – 2.60 V					

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

8.3 Accu-NiMh

Capacity 4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months at -20 °C to +25 °C

8.4 Accu-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

8.5 Accupack-NiMH

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

8.6 Accupack-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

8.7 Accu / Accupack-LiFePO4

Capacity 3.3 / 6.6 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

8.8 Safety $LiFePO_4$

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

8.8.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

8.8.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

8.8.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

8.8.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

8.9 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

Activating NiMH batteries:
In order to activate new batteries, 2-3 full charge-discharge cycles could be needed. This activating process is defined by charging (24 h) and discharging (1/2/3 h) of the batteries. If the first duration test fails, please repeat the test after a 24 hour charging period.

9. Miscellaneous

9.1 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

9.2 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

9.3 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

9.4 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

9.5 Black Box data recording

Several parameters in respect to the application and use of the product are stored in the EM converterLED. The parameters provide information about the mains, battery, LED output and emergency operation.
The Black Box can be read out with the masterCONFIGURATOR and deviceANALYSER via DALI and NFC.

In order to allow a safe detection of a battery replacement through the “Black Box data recording” follow the below described process.

Battery replacement
1. Disconnect mains
2. Disconnect battery
3. Reconnect and disconnect mains while no battery is not connected[①]
4. Connect new battery
5. Connect mains[②]

[①] Battery fault is safely recorded by the EM converterLED
[②] Connection of new battery is recorded by the EM converterLED

9.6 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

9.7 Additional information

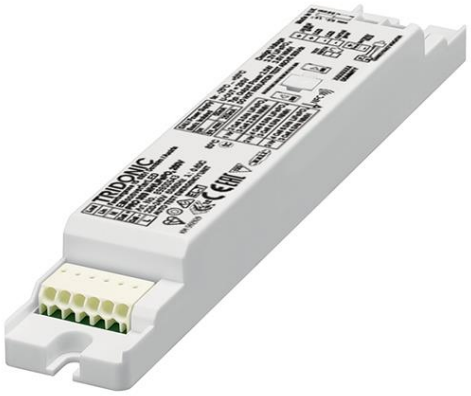
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED PRO NFC MH/LiFePO4 250 V

Powered DALI PRO NFC version



LiFeGuard

Product description
_ Self-contained emergency lighting LED driver with DALI interface and automatic test function
_ For LED modules with a forward voltage of 48 – 250 V
_ For luminaire installation
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Functions
_ Non maintained operation
_ Integrated DALI bus power supply
_ 1, 2 or 3 h rated duration selectable with duration link
_ Compatible with most constant current LED drivers (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Constant power output
_ Two-colour status display LED
_ Black Box data recording

Interfaces
_ DALI interface for controlled testing and monitoring
_ Near field communication (NFC)

Battery management
NiMH/LiFePO4:
_ Intelligent charge system
_ Deep discharge protection
_ Polarity reversal protection for battery via polarised connector plug
_ Automatic detection of the connected battery technology (NiMH or LiFePO4 batteries)
LiFePO4:
_ Tridonic LiFeGuard ensures safety in use (refer to data sheet, Safety LiFePO4)
_ Temperature protection

Batteries
_ NiMH or LiFePO4 batteries
_ NiMH: 4 years design life / 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions) ①
_ LiFePO4 batteries with Tridonic LiFeGuard
_ For battery compatibility refer to data sheet, battery selection

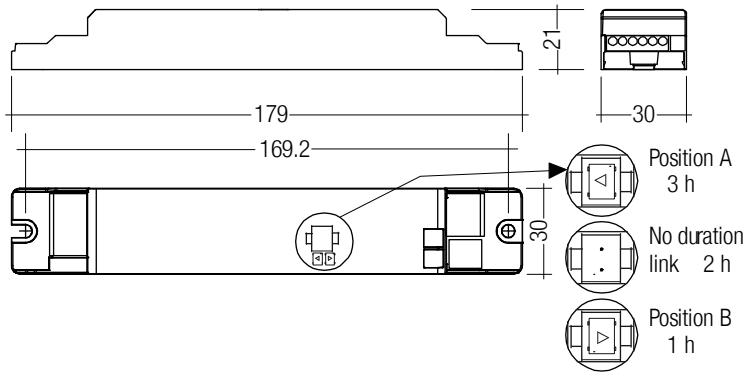
① 28005859 - 5-year guarantee.

Website
http://www.tridonic.com/89800643

TRIDONIC

EM converterLED PRO NFC MH/LiFePO4 250 V

Powered DALI PRO NFC version



Note: Supply of control gear with duration link in 3 hours position. Duration link must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterLED PRO 303 MH/LiFePO4 250V	**89800643**	1/2/3 h	10 pc(s).	1,600 pc(s).	0.075 kg	179 x 30 x 21 mm
EM converterLED PRO 304 MH/LiFePO4 250V	**89800644**	1/2/3 h	10 pc(s).	1,600 pc(s).	0.075 kg	179 x 30 x 21 mm
EM converterLED PRO 305 MH/LiFePO4 250V	**89800645**	1/2/3 h	10 pc(s).	1,600 pc(s).	0.075 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	48 – 250 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	300 V
Max. open circuit voltage	300 V
Ambient temperature ta	-25 … +55 °C
Max. casing temperature tc	80 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Integrated DALI bus power supply IPS	50 mA
Type of protection	IP20
Functional test	Weekly 5s test
Duration test	Yearly 1 h / 2 h / 3 h test
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

NFC DALI 130 EL-T RoHS

Standards

EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30, EN 62384, EN 62386-101, EN 62386-102, EN 62386-202, according to EN 50172, according to EN 60598-2-22, acc. to EN 62034

Specific technical data

Type	Battery technology	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge ②	Fast recharge ②	Trickle ③② charge	Initial charge ②	Fast recharge ②	Trickle ③② charge
EM converterLED PRO 303 MH/LiFePO4 250V	NiMH	1 h	0.6C	2.5 W	17 mA	20 mA	17 / 12 mA	2.3 W	2.8 W	2.3 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 250V	NiMH	2 h	0.6C	2.5 W	24 mA	25 mA	20 / 12 mA	3.2 W	3.4 W	2.7 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 250V	NiMH	3 h	0.6C	2.5 W	24 mA	25 mA	20 / 12 mA	3.2 W	3.4 W	2.7 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 250V	LiFePO4	1 h	0.6C	3.3 W	22 mA	22 mA	22 / 12 mA	3.0 W	3.0 W	3.0 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 250V	LiFePO4	2 h	0.6C	3.3 W	27 mA	27 mA	27 / 12 mA	4.0 W	4.0 W	4.0 / 1.6 W
EM converterLED PRO 303 MH/LiFePO4 250V	LiFePO4	3 h	0.6C	3.3 W	27 mA	27 mA	27 / 12 mA	4.0 W	4.0 W	4.0 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 250V	NiMH	1 h	0.6C	3.5 W	18 mA	22 mA	18 / 12 mA	2.5 W	3.1 W	2.5 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 250V	NiMH	2 h	0.6C	3.5 W	26 mA	27 mA	22 / 12 mA	3.8 W	4.1 W	3.0 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 250V	NiMH	3 h	0.6C	3.5 W	26 mA	27 mA	22 / 12 mA	3.8 W	4.1 W	3.0 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 250V	LiFePO4	1 h	0.6C	4.0 W	22 mA	22 mA	22 / 12 mA	3.0 W	3.0 W	3.0 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 250V	LiFePO4	2 h	0.6C	4.0 W	27 mA	27 mA	27 / 12 mA	4.0 W	4.0 W	4.0 / 1.6 W
EM converterLED PRO 304 MH/LiFePO4 250V	LiFePO4	3 h	0.6C	4.0 W	27 mA	27 mA	27 / 12 mA	4.0 W	4.0 W	4.0 / 1.6 W
EM converterLED PRO 305 MH/LiFePO4 250V	NiMH	1 h	0.6C	4.5 W	20 mA	24 mA	20 / 12 mA	2.8 W	3.5 W	2.8 / 1.6 W
EM converterLED PRO 305 MH/LiFePO4 250V	NiMH	2 h	0.6C	4.5 W	28 mA	30 mA	24 / 12 mA	4.4 W	4.7 W	3.3 / 1.6 W
EM converterLED PRO 305 MH/LiFePO4 250V	NiMH	3 h	0.6C	4.5 W	28 mA	30 mA	24 / 12 mA	4.4 W	4.7 W	3.3 / 1.6 W
EM converterLED PRO 305 MH/LiFePO4 250V	LiFePO4	1 h	0.6C	4.5 W	22 mA	22 mA	22 / 12 mA	3.0 W	3.0 W	3.0 / 1.6 W
EM converterLED PRO 305 MH/LiFePO4 250V	LiFePO4	2 h	0.6C	4.5 W	27 mA	27 mA	27 / 12 mA	4.0 W	4.0 W	4.0 / 1.6 W
EM converterLED PRO 305 MH/LiFePO4 250V	LiFePO4	3 h	0.6C	4.5 W	27 mA	27 mA	27 / 12 mA	4.0 W	4.0 W	4.0 / 1.6 W

② Integrated DALI bus power supply is switched OFF. With the Integrated DALI bus power supply switched ON and fully loaded the input power and current is increased by 1 W and 6 mA in any charging mode.

③ In case of NiMH batteries: Intermittent charge is used. Value 1 is for 4 min. charge on / Value 2 is for 16 min. charge off. In case of LiFePO4 batteries voltage dependent constant current charging is used. Value 1 is for charge on / Value 2 is for charge off.

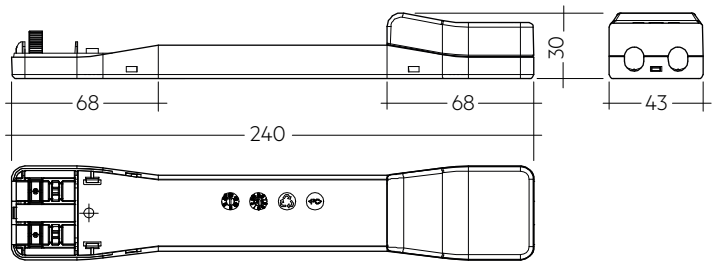
EMcLED Strain-relief set 240x43x30mm

Accessory

Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

Website
http://www.tridonic.com/28003813



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

RoHS

Status indication bi-colour LED EM CON

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault
_ Plug connection

Website
http://www.tridonic.com/89800273

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour, 1.0 m CON	**89800273**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness HO 1.0 m CON	**89800275**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, 0.6 m CON	**89800474**	25 pc(s).	200 pc(s).	0.010 kg
LED EM bi-colour, high brightness HO 0.6 m CON	**89800475**	25 pc(s).	200 pc(s).	0.011 kg
LED EM bi-colour, 0.3 m CON	**89800274**	25 pc(s).	200 pc(s).	0.007 kg
LED EM bi-colour, high brightness HO 0.3 m CON	**89800276**	25 pc(s).	200 pc(s).	0.007 kg

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

Connection cable NiMH

Accessory

Product description
_ Connection cable for NiMH batteries
_ Cable length 500 mm
_ 2-pole plug connection for batteries and 3-pole plug connection for LED driver

Website
http://www.tridonic.com/28002462

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
CONNECTION CABLE NiMH 500mm	**28002462**	10 pc(s).	200 pc(s).	0.01 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- EN 62386-101 (DALI-2), only IPS relevant requirements
- EN 62386-102 (DALI-2), only IPS relevant requirements
- EN 62386-202
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

Meaning of marking ⓞ
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-Drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime with NiMH batteries, DALI power supply off

Type	ta	40 °C	45 °C	50 °C	55 °C
EM converterLED PRO 303	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	80,000 h	56,000 h
EM converterLED PRO 304	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	79,000 h	56,000 h
EM converterLED PRO 305	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	78,000 h	55,000 h

Expected lifetime with NiMH batteries, DALI power supply on, load 50 mA

Type	ta	40 °C	45 °C	50 °C	55 °C
EM converterLED PRO 303	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	78,000 h	55,000 h
EM converterLED PRO 304	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	76,000 h	53,000 h
EM converterLED PRO 305	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	72,000 h	51,000 h

Expected lifetime with $LiFePO_4$ batteries, DALI power supply off

Type	ta	40 °C	45 °C	50 °C	55 °C
EM converterLED PRO 303	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	82,000 h	58,000 h
EM converterLED PRO 304	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	82,000 h	58,000 h
EM converterLED PRO 305	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	82,000 h	58,000 h

Expected lifetime with $LiFePO_4$ batteries, DALI power supply on, load 50 mA

Type	ta	40 °C	45 °C	50 °C	55 °C
EM converterLED PRO 303	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	80,000 h	56,000 h
EM converterLED PRO 304	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	80,000 h	56,000 h
EM converterLED PRO 305	tc	65 °C	70 °C	75 °C	80 °C
MH/LiFePO4 250V	lifetime	> 100,000 h	> 100,000 h	79,000 h	56,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

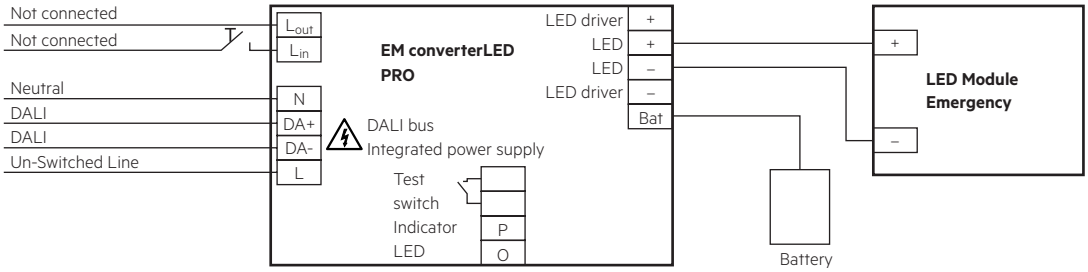
The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

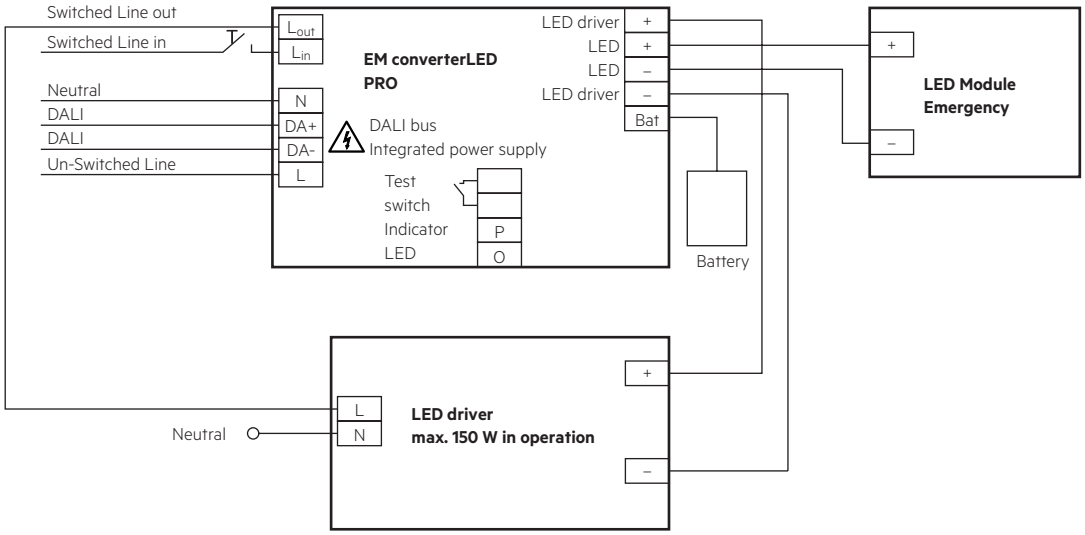
3.1 Wiring diagram

One or more LED modules with a total forward voltage of 48 to 250 V can be connected to the EM converterLED module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the mains LED driver.

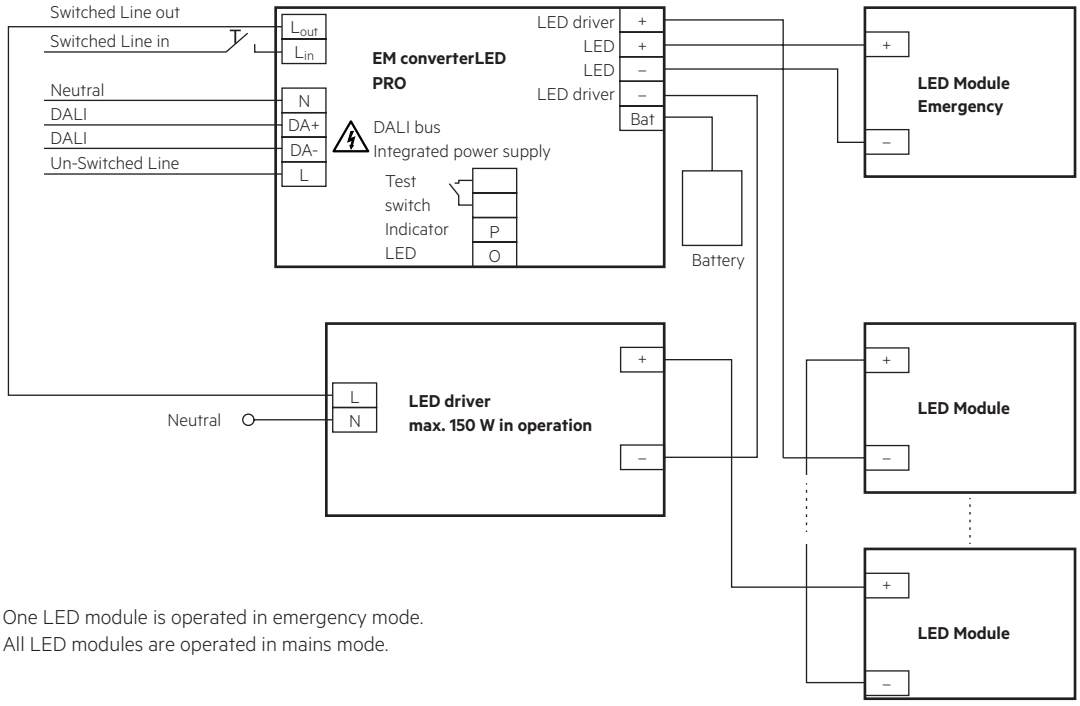
EM converterLED PRO with one LED module for non-maintained emergency operation



EM converterLED PRO with a standard LED LED driver and one LED module for mains and emergency operation

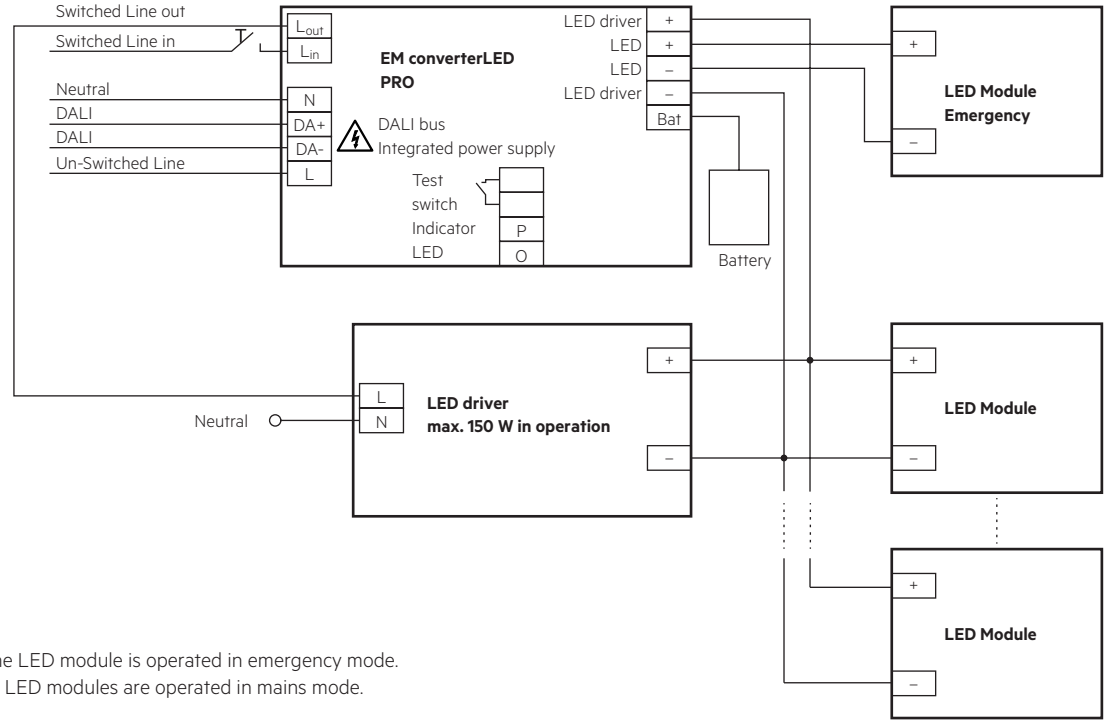


EM converterLED PRO with a standard LED LED driver and series operation of LED modules



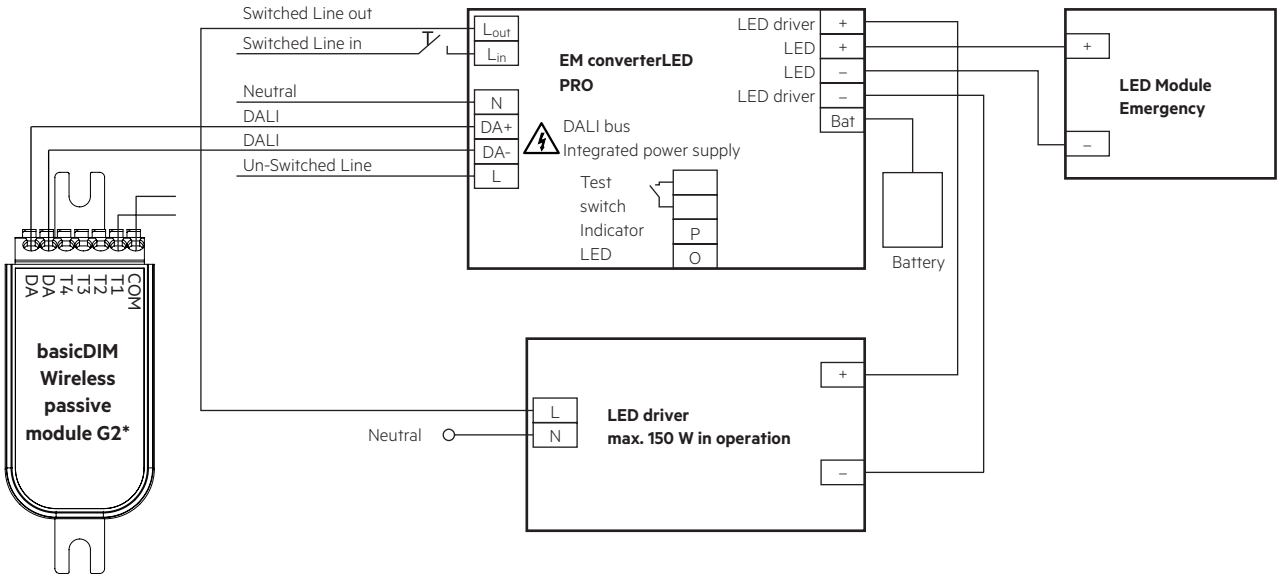
One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

EM converterLED PRO with a standard LED LED driver and parallel operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

Wireless set-up for EM converterLED PRO with a standard LED driver and one LED module for mains and emergency operation

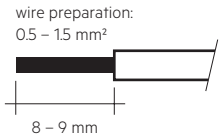


* For further information see basicDIM Wireless datasheet at www.tridonic.com

3.2 Wiring type and cross section

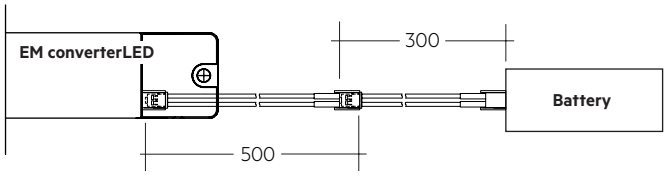
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED driver/supply



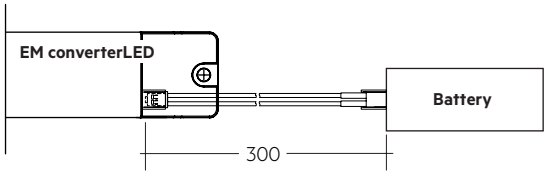
3.3 Battery connection

NiMH: Connection with extension cable

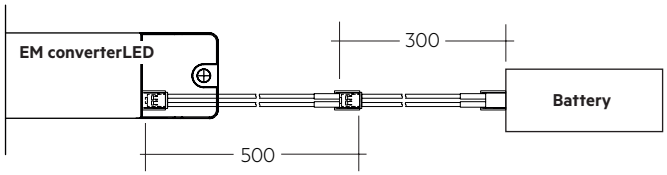


When using an EM converterLED in combination with a NiMH battery, order the CONNECTION CABLE NiMH 500mm separately.

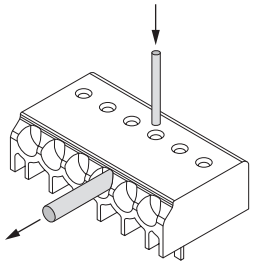
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension cable



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Wiring guidelines

- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- DALI terminals are mains proof.
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

3.6 Maximum lead length

LED	3 m (6 m loop)[1]
Status indication LED	1 m
Batteries	0.8 m

[1] Note: The length of LED leads to the LED module must not be exceeded. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver. Keep the leads always as short as possible.

3.7 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
• Bi-colour
• Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
• Lead length 0.3 m / 0.6 m / 1.0 m
• Insulation rating: 90 °C
• Plug connection

Test switch
• Mounting hole 7.0 mm diameter
• Lead length 0.55 m
• Plug connection

Battery connection
- Plug connection 0.3 m
- Extension cable 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	1.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	I_{max}	time
EM converterLED PRO MH/LiFePO4 250V	90	130	130	130	180	260	260	260	3.6 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	DALI	LED driver
Mains	–	•	••	•	•
Switched Live	•	–	••	•	•
Battery, LED, Test switch, Indicator LED	••	••	–	•	•
DALI	•	•	•	–	•
LED driver	•	•	–	•	–

• Represents basic insulation

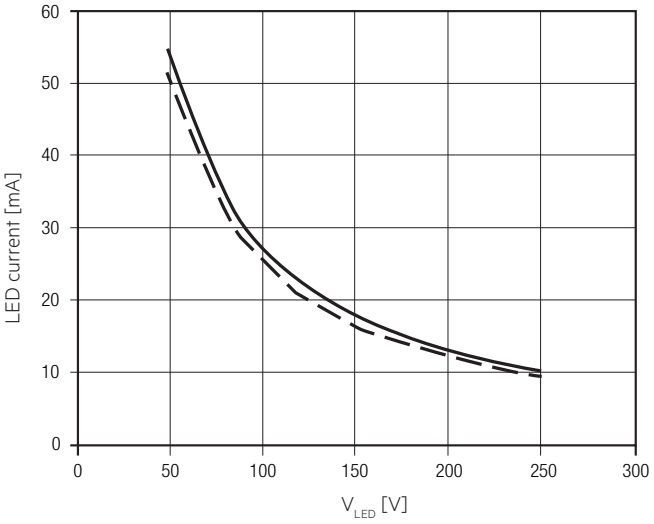
•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.

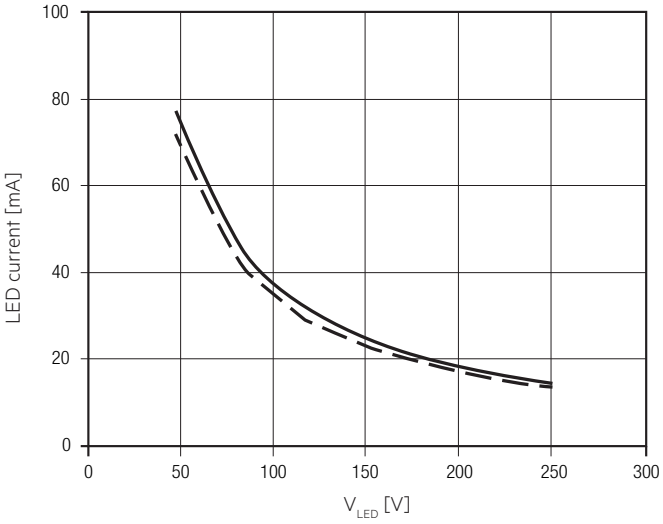
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

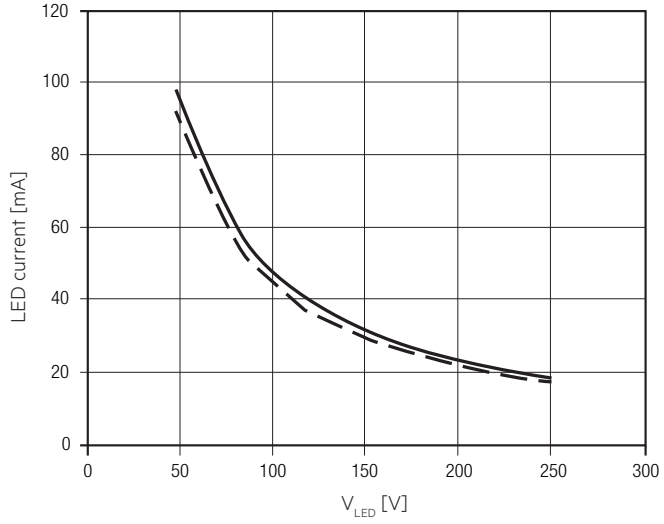
EM converterLED PRO 303 MH/LiFePO4 250V
Article number: 89800643
NiMH battery, 3.6 V battery voltage
800 – 860 mA battery discharge current (tolerance)



EM converterLED PRO 304 MH/LiFePO4 250V
Article number: 89800644
NiMH battery, 4.8 V battery voltage
810 – 870 mA battery discharge current (tolerance)



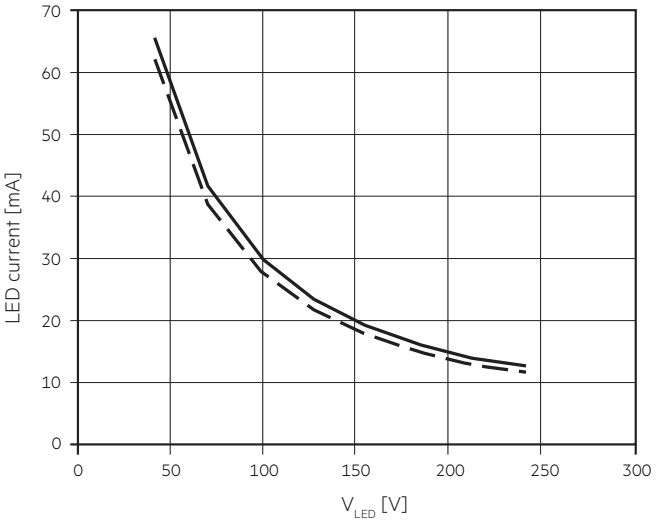
EM converterLED PRO 305 MH/LiFePO4 250V
Article number: 89800645
NiMH battery, 6.0 V battery voltage
820 – 880 mA battery discharge current (tolerance)
$LiFePO_4$ battery, 3.2 V battery voltage
1,700 – 1,820 mA battery discharge current (tolerance)



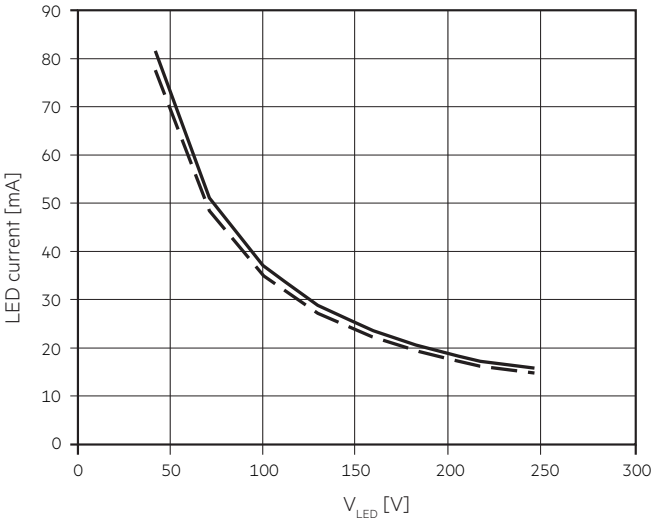
LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

EM converterLED PRO 303 MH/LiFePO4 250V
Article number: 89800643
$LiFePO_4$ battery, 3.2 V battery voltage
1,150 – 1,250 mA battery discharge current (tolerance)



EM converterLED PRO 304 MH/LiFePO4 250V
Article number: 89800644
$LiFePO_4$ battery, 3.2 V battery voltage
1,450 – 1,550 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A eff (current rating of the terminals of EM converterLED) and 2.4 A peak (current rating of switching relays of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 84 A for 255 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 450 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 150 W in operation. The load must be an LED module.

Check compatibility with the carried out function test (duration at least 5 seconds) individually for each device.

6. Software / Programming / Interfaces

6.1 Software / programming

With appropriate software and interface different functions can be activated and various parameters can be configured in the LED driver. The Driver supports the following software and interfaces:

Software / hardware for configuration:
- companionSUITE (deviceGENERATOR, deviceCONFIGURATOR, deviceANALYSER)
- masterCONFIGURATOR

Interfaces for data transfer:
- Control input DALI
- NFC

6.2 Control input (DA+, DA–)

The DALI Interface allows communication with the Driver via a suitable DALI control unit. The DALI interface is not SELV. Install the control cable (DALI bus) in accordance to the requirements of low voltage installations.
DALI terminals are mains voltage proof.

6.3 Nearfield communication (NFC)

The NFC Interface allows wireless communication with the LED driver in unpowered state. This interface offers the option to write configuration and to read configuration, errors and events via a suitable NFC antenna and the companionSUITE software.
Place the NFC antenna directly on the LED driver to guarantee a correct communication between the LED driver and the NFC antenna. Any material placed between the LED driver and the NFC antenna can cause a deterioration of the communication quality. We recommend the use of following NFC antennas:
www.tridonic.com/nfc-readers.

NFC is complied with ISO/IEC 15963 standard.

After programming the device via NFC power up the device one time for one second till the deviceANALYSER can read out the parameters.

Changing parameters via NFC shall be done by qualified engineers only.

7. Functions

⊙ companionSUITE:
DALI-USB, NFC
The companionSUITE with deviceGENERATOR, deviceCONFIGURATOR and deviceANALYSER is available via our WEB page:
https://www.tridonic.com/com/en/products/companionsuite.asp

◈ masterCONFIGURATOR:
DALI-USB
The masterCONFIGURATOR is available via our WEB page:
https://www.tridonic.com/com/en/software-masterconfigurator.asp

Icon	Function	DALI	NFC
	OEM Identification	⊙ ◈	⊙
	OEM GTIN	⊙ ◈	⊙
	Label information	⊙ ◈	⊙
	Factory reset	⊙ ◈	⊙
	Device operating mode	⊙ ◈	⊙
	Prolong time	⊙ ◈	⊙
	Autotest	⊙ ◈	⊙
	Test window	⊙ ◈	⊙
	Integrated DALI bus power supply voltage (IPS)	⊙ ◈	⊙

7.1 OEM Identification

The OEM (Original Equipment Manufacturer) can set his own identification number.

7.2 OEM GTIN

The Original Equipment Manufacturer (OEM) can set his own Global Trade Item Number (GTIN).

7.3 Label information

In production, an individual label can be printed out for each device.
For this there are different default values (Batch No., Production Date, ...) available.
In addition, you can use these two text input fields to insert your own luminaire information and print it out.

- Article number (48 characters)
- Description (6 x 48 characters)

This information is not stored on the device, it is only used for the label print function in the deviceCONFIGURATOR.

7.4 Prolong time

Prolong time can be set by the DALI controller.
Here you can set how long the emergency operation will be maintained after power recovery.
The module exits the PROLONG mode as soon as the cut-off threshold of the battery voltage has been reached (total discharge protection), that is when the total operating time has been exceeded.
The default prolong time is set as 0 minutes as specified within the DALI standard.
Indicator LED will stay off for the duration of the prolong time.

7.5 Autotest

7.5.1 Functional test

The time of day and frequency of the 5 seconds function test can be set by the DALI controller. The default setting is a 5 seconds test on a weekly basis.

7.5.2 Duration test

The time of day and frequency of the duration test can be set by the DALI controller. The default setting is a duration test conducted every 52 weeks.

For 2 h operation:
The first commissioning duration test has a time of 120 minutes, subsequent through life tests are conducted for 90 minutes. When the battery is changed or disconnected and re-connected the unit will next conduct a 120 minute test.

7.6 Test window

The test window sets the maximum time between the scheduled start time or test request via DALI and the actual execution of the test.
If the test cannot be executed in the test window, the TEST EXECUTION TIMEOUT bit in the FAILURE STATUS is set.

7.7 Integrated DALI bus power supply voltage (IPS)

This feature can optionally be activated (by default it is disabled).

IPS = 50 mA and IPS_max = 250 mA.
The minimum guaranteed output current is 50 mA.
Imax = 250 mA

Note: The voltage drop in the DALI wires must not exceed 2 V.

No other DALI power supply is allowed to be connected in parallel.

If the IPS function is activated, do not integrate the Driver into an existing DALI network with active DALI bus power supply.

7.8 Duration link selection

Duration	Link position
3 hr	Position A
2 hr	No duration link
1 hr	Position B

Emergency lighting LED driver supplied with duration link in 3 hours position (position A).

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

7.9 Status indication

System status is indicated by a bi-colour LED and by a DALI status flag.

LED indication	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage / battery outside operating temp
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

7.10 Testing

DALI Control
A DALI command from a suitable control unit can be used to initiate function and duration tests at individually selected times. Status flags are set for report back and data logging of results.

When a DALI bus has not been connected or when a DALI bus is connected but the DALI default DELAY and INTERVAL times have not been re-set by sending appropriate DALI commands, then the EM converterLED PRO will conduct self-tests in accordance with the default times set within the EEPROM.
These default times are factory pre-set, in accordance with the DALI standard EN 62386-202, to conduct an automatic function test every 7 days and a duration test every 52 weeks. Since the DELAY time is factory pre-set to Zero, all units are tested at the same time. Test times can be changed with a command over the DALI bus.

The DELAY and INTERVAL time values must be re-set when the emergency system test times are to be scheduled by a DALI control and monitoring system.
Note that once the default values have been set to Zero, tests will only be conducted following a command from the control system. If the DALI bus is disconnected the EM converterLED PRO does not revert to self-testing mode.

Addressing
The EM converterLED PRO includes the EZ easy addressing system which allows addressing and identification by using the bi-colour LED in conjunction with the EM PRO addressing tool. Binary address codes given by the LED can be simply converted to the DALI addresses 0 to 63. For single handed addressing using this method it is necessary to send a broadcast ident command every 3 to 9 seconds. During this command the LEDs will be switched off and the indication LED will flash the 6 bit binary address preceded by a 3 second start indication period.

Commissioning
After installation of the luminaire and initial connection of the mains and battery supply to the EM converterLED PRO the device starts with the 20 hours initial charge followed by a 4 hours trickle charge for NiCd/NiMH batteries or with a 24 hours initial charge for LiFePO4 batteries.
Afterwards the device conducts a commissioning test for the full duration. The 20 hours recharge for NiCd/NiMH batteries or 24 hours recharge for LiFePO4 batteries occurs also with the connection of a new battery. The following automatic commissioning duration test only takes place when a battery is replaced and fully charged and the interval time is not set to zero. In case the interval time is set to zero the device expects the DALI system to request the testing.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically switched on if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by the DALI controller. The REST command has to be sent after the mains supply has been disconnected and whilst the EM converterLED PRO is in emergency operation. The INHIBIT command has to be sent while the EM converterLED PRO is supplied by mains.
After a mains reset the EM converterLED PRO exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by sending the RE-LIGHT/ RESET INHIBIT command. Rest Mode / Inhibit Mode are not supported from EM converterLED in case of combination with a 1-cell LiFePO4 battery and 2-cell NiMH battery.

Test switch
An optional test switch can be wired to each EM converterLED.
This can be used to to:
- Initiate a 5 seconds function test: press 200 ms < T < 1 s
- Execute function test as long as switch pressed: press > 1 s
- Reset selftest timer (adjust local timing): press > 10 s

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

BlackBox data recording
Parameters providing information about the application and use are stored in the EM converterLED PRO. The parameters stored provide information on the mains, battery, LED output and emergency operation.
The BlackBox can be read out with the masterCONFIGURATOR and deviceANALYSER.

DALI Controller
DALI controllers and hardware/software solutions are available from Tridonic. Please refer to the Lighting controls section.

8. Battery data

8.1 Battery selection

EM converterLED PRO, 1 / 2 / 3 h

				Type	EM converterLED PRO 303 MH/LiFePO4 250V		EM converterLED PRO 304 MH/LiFePO4 250V		EM converterLED PRO 305 MH/LiFePO4 250V	
				Article no.	89800643		89800644		89800645	
				Duration	1 h	2/3 h	1 h	2/3 h	1 h	2/3 h
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**					
NiMH 4,0 Ah LA cells	stick	1 x 3	**Accu-NiMH 3A CON**	**89800441**		•				
	stick	1 x 4	**Accu-NiMH 4A CON**	**89800442**				•		
	stick + stick	2 + 2	**Accu-NiMH 4C CON**	**89800438**				•		
	stick + stick	2 + 3	**Accu-NiMH 5C CON**	**89800439**						•
$LiFePO_4$ 1,5 Ah 18650 cells	stick	1 x 2	**Accu-LiFePO4 2A CON**	**28002318**	•		•		•	
	stick	1 x 4	**Accu-LiFePO4 4A CON**	**28002322**		•				
	stick	1 x 5	**Accu-LiFePO4 5A CON**	**28002325**				•		
	stick + stick	2 + 2	**Accu-LiFePO4 4C CON**	**28002324**		•				
	stick + stick	2 + 3	**Accu-LiFePO4 5C CON**	**28002327**				•		
	stick + stick	3 + 3	**Accu-LiFePO4 6C CON**	**28002330**						•
	side by side	5 x 1	**Accu-LiFePO4 5B CON**	**28002326**				•		
	side by side	2 x 1	**Accu-LiFePO4 2B CON**	**28002319**	•		•		•	
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28005854**	•		•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28005855**						
	remote box	1 x 4	**PACK-LiFePO4 6.0Ah 4 CON**	**28005856**		•				
	remote box	1 x 5	**PACK-LiFePO4 7.5Ah 5 CON**	**28005857**				•		
	remote box	1S1P	**PACK-LiFePO4 3.3Ah 1 CON**	**28005859**	•		•		•	

8.2 Battery charge / discharge data

EM converterLED PRO, 1 / 2 / 3 h, NiMH

	Type	EM converterLED PRO 303 MH/LiFePO4 250V		EM converterLED PRO 304 MH/LiFePO4 250V		EM converterLED PRO 305 MH/LiFePO4 250V	
	Article no.	89800643		89800644		89800645	
	Duration	1 h	2/3 h	1 h	2/3 h	1 h	2/3 h
Battery charge time	Initial charge	20 h					
	Fast recharge	10 h	15 h	10 h	15 h	10 h	15 h
	Trickle charge	continuously					
Charging current	Initial charge	110 – 150 mA	280 – 320 mA	110 – 150 mA	280 – 320 mA	110 – 150 mA	280 – 320 mA
	Fast recharge	190 – 230 mA	310 – 350 mA	190 – 230 mA	310 – 350 mA	190 – 230 mA	310 – 350 mA
	Trickle charge	110 – 150 mA / 4 min. 0 mA / 16 min.	180 – 220 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	180 – 220 mA / 4 min. 0 mA / 16 min.	110 – 150 mA / 4 min. 0 mA / 16 min.	180 – 220 mA / 4 min. 0 mA / 16 min.
Discharge current		800 – 860 mA	800 – 860 mA	810 – 870 mA	810 – 870 mA	820 – 880 mA	820 – 880 mA
Charge voltage range[1]		0.9 – 1.65 V per cell					
Discharge voltage range		1.65 – 1.05 V per cell					

[1] The battery will be charged below 0.9 V. The EM converterLED will indicate a battery fault.

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

EM converterLED PRO, 1 / 2 / 3 h, $LiFePO_4$

	Type	EM converterLED PRO 303 MH/LiFePO4 250V		EM converterLED PRO 304 MH/LiFePO4 250V		EM converterLED PRO 305 MH/LiFePO4 250V	
	Article no.	**89800643**		**89800644**		**89800645**	
	Duration	**1 h**	**2/3 h**	**1 h**	**2/3 h**	**1 h**	**2/3 h**
Battery charge time	Initial charge	24 h					
	Fast recharge	24 h					
	Trickle charge	continuously and battery voltage controlled					
Charging current	Initial charge	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA
	Fast recharge	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA	250 – 290 mA	430 – 470 mA
	Trickle charge[1]	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA	250 – 290 mA / 0 mA	430 – 470 mA / 0 mA
Discharge current		1,150 – 1,250 mA	1,150 – 1,250 mA	1,450 – 1,550 mA	1,450 – 1,550 mA	1,700 – 1,820 mA	1,700 – 1,820 mA
Charge voltage range[2]		2.0 – 3.65 V					
Discharge voltage range		3.65 – 2.60 V					

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

8.3 Accu-NiMh

Capacity 4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months at -20 °C to +25 °C

8.4 Accu-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

8.5 Accupack-NiMH

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

8.6 Accupack-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

8.7 Accu / Accupack-LiFePO4

Capacity 3.3 / 6.6 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

8.8 Safety $LiFePO_4$

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

8.8.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

8.8.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

8.8.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

8.8.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

8.9 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

Activating NiMH batteries:
In order to activate new batteries, 2-3 full charge-discharge cycles could be needed. This activating process is defined by charging (24 h) and discharging (1/2/3 h) of the batteries. If the first duration test fails, please repeat the test after a 24 hour charging period.

9. Miscellaneous

9.1 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

9.2 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

9.3 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

9.4 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

9.5 Black Box data recording

Several parameters in respect to the application and use of the product are stored in the EM converterLED. The parameters provide information about the mains, battery, LED output and emergency operation.
The Black Box can be read out with the masterCONFIGURATOR and deviceANALYSER via DALI and NFC.

In order to allow a safe detection of a battery replacement through the “Black Box data recording” follow the below described process.

Battery replacement
1. Disconnect mains
2. Disconnect battery
3. Reconnect and disconnect mains while no battery is not connected[①]
4. Connect new battery
5. Connect mains[②]

[①] Battery fault is safely recorded by the EM converterLED
[②] Connection of new battery is recorded by the EM converterLED

9.6 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

9.7 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED ST 60 V UNV

SELFTEST version (US applications)

Product description
_ Emergency lighting LED driver with selftest function
_ Only for US applications
_ Battery pack enclosed
_ For self-contained emergency lighting
_ For LED modules with a forward voltage up to 57 V
_ Class 2
_ UL certified
_ For luminaire installation
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Non maintained operation
_ Self-test
_ 90 minutes rated duration
_ Compatible with most constant current LED drivers (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Combined status display LED and test switch
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery
Self-test:
_ Status of the battery
_ Status of the LED
_ Function test
_ Duration test

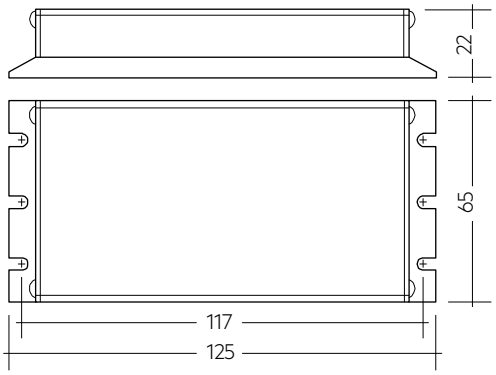
Batteries
_ High-temperature cells
_ NiMH batteries
_ 5 years guarantee for NiMH batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website
http://www.tridonic.com/28002863

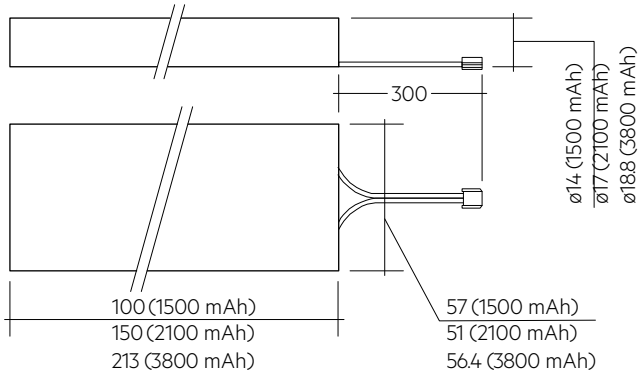
TRIDONIC

EM converterLED ST 60 V UNV

SELFTEST version (US applications)



Note: Do not change the position of the DIP switches.



Dimensions in mm

Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterLED ST 1-9-5 60V UNV	**28002863**	1.5 h	16 pc(s).	960 pc(s).	0.42 kg	125 x 65 x 22 mm
EM converterLED ST 1-9-9 60V UNV	**28002866**	1.5 h	16 pc(s).	960 pc(s).	0.54 kg	125 x 65 x 22 mm
EM converterLED ST 1-9-15 60V UNV	**28002869**	1.5 h	12 pc(s).	720 pc(s).	0.82 kg	125 x 65 x 22 mm

Technical data

Rated supply voltage ①	120 – 277 V
Mains frequency	50 / 60 Hz
Typ. λ	0.5C
Output current	Refer to data sheet
Starting time	< 0.25 s from detection of emergency event
Overvoltage protection	305 V
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Ambient temperature ta	0 … +50 °C
Max. casing temperature tc	70 °C
Mains voltage changeover threshold emergency mode	30 V
Mains voltage changeover threshold mains mode	70 V
Type of protection	IP20
Functional test	Monthly 30 s test
Duration test	Yearly 90 minutes test
Lifetime	50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	125 x 65 x 22 mm

Approval marks

Standards

UL 924, FCC PART 15, ICES-005

Specific technical data

Type	Battery technology	Mains voltage	LED module forward voltage range	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
					Initial charge	Fast recharge	Trickle charge	Initial charge	Fast recharge	Trickle charge
EM converterLED ST 1-9-5 60V UNV	NiMH	120 V	13 – 57 V	5 W	40 mA	36 mA	5.1 mA	2.1 W	1.8 W	0.5 W
EM converterLED ST 1-9-5 60V UNV	NiMH	277 V	13 – 57 V	5 W	25 mA	22 mA	3.7 mA	2.5 W	2.0 W	0.5 W
EM converterLED ST 1-9-9 60V UNV	NiMH	120 V	14 – 57 V	9 W	51 mA	50 mA	5.9 mA	2.9 W	2.8 W	0.5 W
EM converterLED ST 1-9-9 60V UNV	NiMH	277 V	14 – 57 V	9 W	30 mA	29 mA	4.2 mA	3.2 W	2.8 W	0.6 W
EM converterLED ST 1-9-15 60V UNV	NiMH	120 V	15 – 57 V	15 W	62 mA	68 mA	6.9 mA	3.9 W	3.9 W	0.6 W
EM converterLED ST 1-9-15 60V UNV	NiMH	277 V	15 – 57 V	15 W	38 mA	39 mA	4.8 mA	4.0 W	4.0 W	0.6 W

① Tolerance range voltage: ±10 %.

1. Standards

UL 924
FCC Part 15, Class A
ICES-005

Product not designed for European Economic Area.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	**ta**	**40 °C**	**50 °C**	**55 °C**	**60 °C**
EM converterLED ST 1-9-x 60V UNV	tc	55 °C	65 °C	70 °C	75 °C
	lifetime	65,000 h	55,000 h	50,000 h	45,000 h

The emergency lighting LED Driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

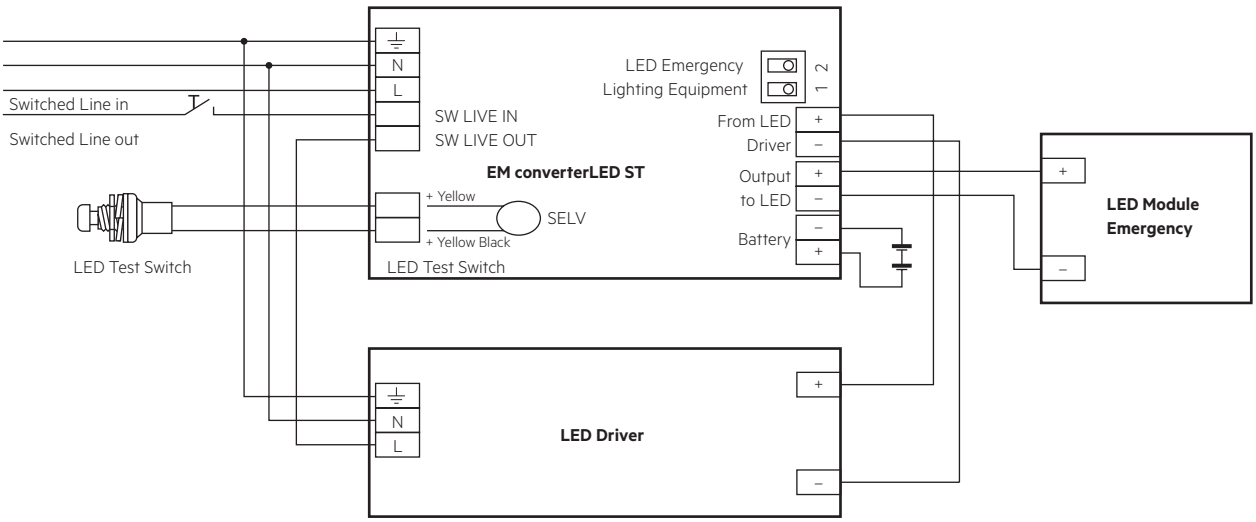
The relation of tc to ta temperature depends also on the luminaire design.
If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured.
Detailed information on request.

3. Installation / Wiring

3.1 Wiring diagram

One or more LED modules with a total forward voltage in the forward voltage range of the EM converterLED can be connected. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the mains LED Driver.

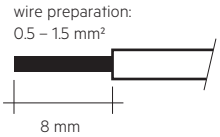
EM converterLED SELFTEST with one LED module for mains and emergency operation



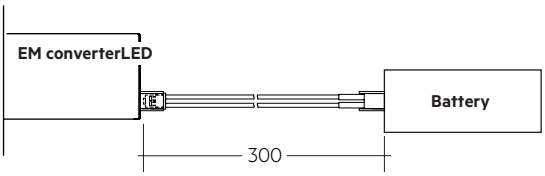
3.2 Wiring type and cross section

Solid wire with a cross section of 0.5 – 1.5 mm².
Strip 8 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED Driver/supply



3.3 Battery connection



3.4 Wiring guidelines

- For good EMC compliance consider that the output to the LED is DC but has high frequency content.
- Separate LED leads from the mains connection and wiring for good EMC performance.
- Keep the LED wiring as short as possible for a good EMC performance.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the LED test switch connection is 250 mm / 9.84 inch. Separate the LED test switch wiring from the LED leads to prevent noise coupling.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.5 Maximum lead length

LED test switch	250 mm
Battery	1000 mm

3.6 Use of different phases

The use of different phases for switched line and unswitched line is prohibited.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from metal.
- Type of protection: IP20
- The housing incorporates DIP switches. The position of the DIP switches is essential for the correct operation and must not be changed. Altering their position will prohibit the correct operation of the emergency lighting LED Driver.

4.2 Mechanical data accessories

LED test switch
- Mounting hole 4.2 mm diameter
- Mounting hole strength < 5 mm
- Lead length 250 mm
- For direct installation or use in a separate junction box

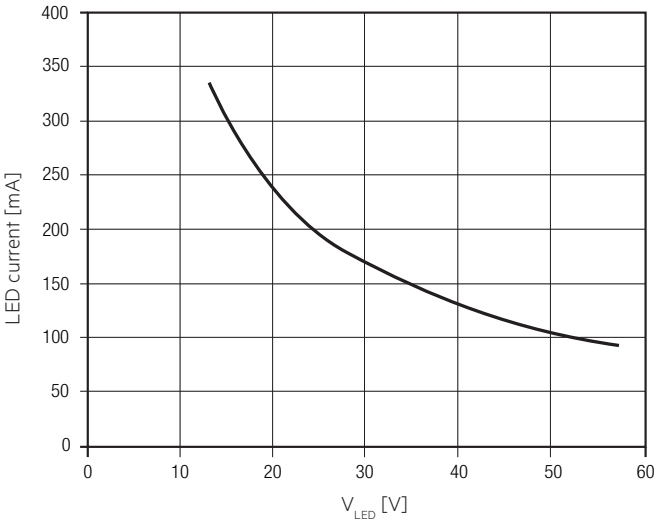
Battery connection
- Plug connection 300 mm

5. Electrical values

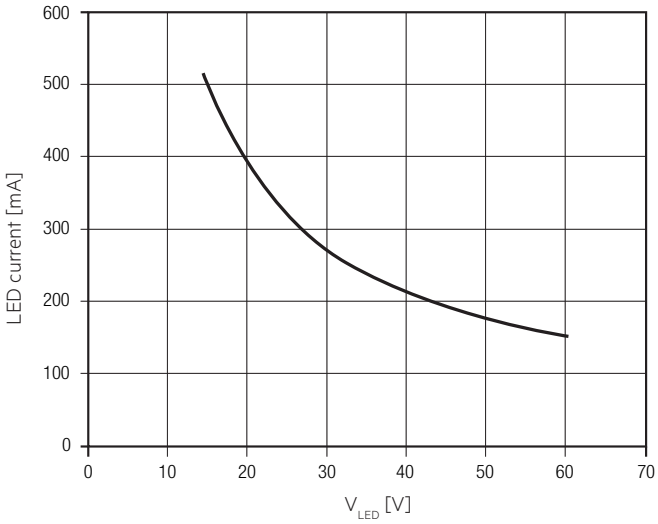
5.1 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

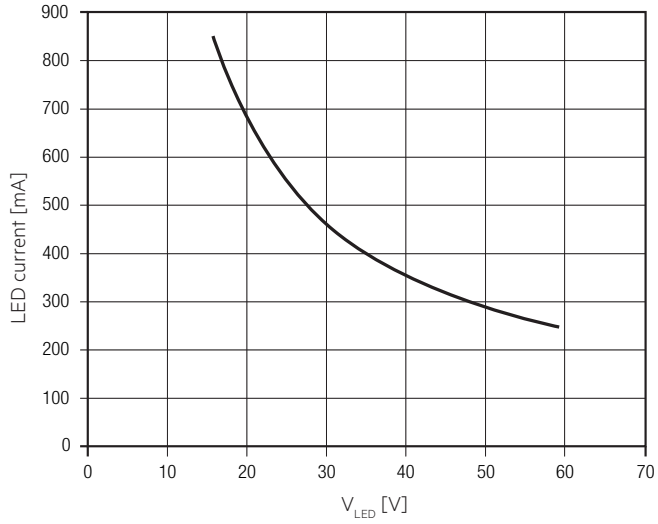
EM converterLED ST 1-9-5 60V UNV
Article number: 28002863
NiMH battery, 9.6 V battery voltage
540 – 630 mA battery discharge current (tolerance)



EM converterLED ST 1-9-9 60V UNV
Article number: 28002866
NiMH battery, 10.8 V battery voltage
860 – 1,150 mA battery discharge current (tolerance)



EM converterLED ST 1-9-15 60V UNV
Article number: 28002869
NiMH battery, 10.8 V battery voltage
1,410 – 1,720 mA battery discharge current (tolerance)



5.2 LED Driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED Drivers on the market, however it is important to check that the rating of the LED Driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED Driver is 5 A peak (current rating of switching relays of EM converterLED)
- The max. allowed output voltage of the associated LED Driver applied to the EM converterLED output is 60V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED Driver is 300 W in operation. The load must be an LED module.

6. Functions

6.1 Status indication

System status is indicated by LED test switch.

LED indication	Status	Comment
Permanent on	System OK	AC mode
Slow flashing (2 sec on – 2 sec off)	Charging	Battery not yet fully charged
Fast flashing (0.5 sec on – 0.5 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage
Gradual change	Test underway	Function or duration test

6.2 Commissioning

After installation of the luminaire and initial connection of the mains supply and battery supply to the EM converterLED ST the unit will commence charging the batteries for the initial charge time.
The recharge occurs also if a new battery is connected.
The following automatic commissioning duration test is only performed when a battery is replaced and fully charged.

6.3 Testing

Functional test
Functional tests are carried out for 30 seconds on a monthly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

LED test switch
LED test switch can be wired to each EM converterLED ST.
This can be used to to:
- Initiate a 30 seconds function test: press two times within 5 s
- Initiate a duration test: press 3 times within 5 s

7. Battery data

7.1 Battery charge / discharge data

EM converterLED ST 1-9-x 60V UNV

	Type	EM converterLED ST 1-9-5 60V UNV	EM converterLED ST 1-9-9 60V UNV	EM converterLED ST 1-9-15 60V UNV
	Article no.	**28002863**	**28002866**	**28002869**
Battery charge time	Initial charge		24 h	
	Fast recharge		24 h	
	Trickle charge		continuously	
Charging current	Initial charge	119 mA	153 mA	210 mA
	Fast recharge	90 mA	110 mA	190 mA
	Trickle charge	75 mA	105 mA	190 mA
Discharge current		0.35 C	0.45 C	0.45 C

7.2 Technical data batteries

Type	**EM converterLED ST 1-9-5 60V UNV**	**EM converterLED ST 1-9-9 60V UNV**	**EM converterLED ST 1-9-15 60V UNV**
Article no.	**28002863**	**28002866**	**28002869**
Voltage	9.6 V	10.8 V	10.8 V
Capacity	1,500 mAh	2,100 mAh	3,800 mAh
Discharge cycles	500	500	500

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 10,000 mains switching cycles of the associated LED driver.

8.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

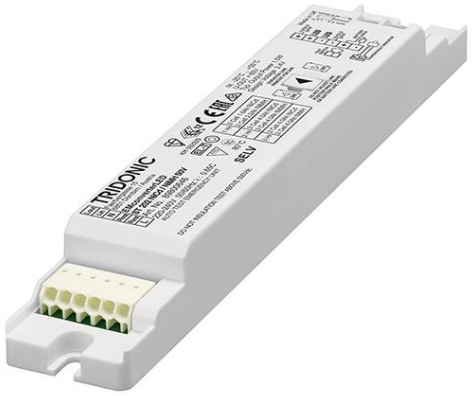
Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterLED ST NiCd/NiMH 50 V

SELFTEST version



Product description
_ Self-contained emergency lighting LED driver with self-test function
_ Non maintained operation
_ For LED modules with a forward voltage of 10 – 54 V
_ SELV for output voltage < 60 V DC
_ For luminaire installation
_ Compatible with Tridonic's LLE FLEX modules (ADV, EXC)
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Functions
_ 1, 2 or 3 h rated duration selectable with duration link
_ Constant power output
Self-test:
_ Weekly function test
_ Yearly duration test

Driver compatibility
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ For further information see data sheet, LED driver compatibility

Battery management
_ Intelligent charge system
_ Deep discharge protection
_ Polarity reversal protection for battery

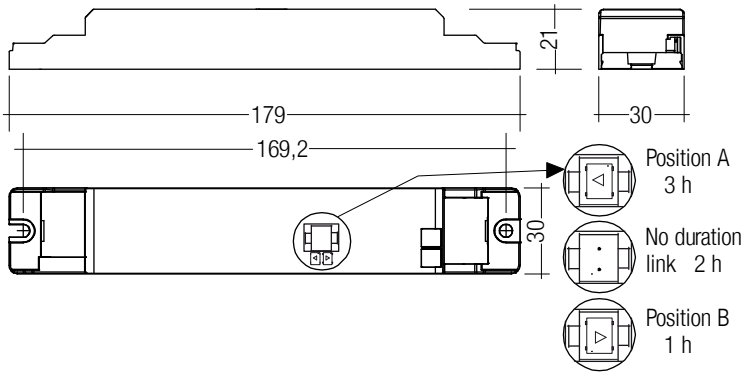
Batteries
_ NiCd or NiMH batteries
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet, battery selection

Website
http://www.tridonic.com/89800646

TRIDONIC

EM converterLED ST NiCd/NiMH 50 V

SELFTEST version



Note: LED driver supplied with duration link in 3 hours position. Duration link must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterLED ST 202 NiCd/NiMH 50V	**89800646**	1/2/3 h	10 pc(s).	1,600 pc(s).	0.073 kg	179 x 30 x 21 mm
EM converterLED ST 203 NiCd/NiMH 50V	**89800647**	1/2/3 h	10 pc(s).	1,600 pc(s).	0.073 kg	179 x 30 x 21 mm
EM converterLED ST 204 NiCd/NiMH 50V	**89800648**	1/2/3 h	10 pc(s).	1,600 pc(s).	0.073 kg	179 x 30 x 21 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	10 – 54 V
Output current	Refer to data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Ambient temperature ta	-25 … +55 °C
Max. casing temperature tc	80 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Rest mode max. number of emergency units	100
Rest mode max. wiring distance	1,000 m
Functional test	Weekly 5s test
Duration test	Yearly 1 h / 2 h / 3 h test
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	179 x 30 x 21 mm

Approval marks

SELV EL-T 110 RoHS

Standards

EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30, EN 62384, according to EN 50172, according to EN 60598-2-22, acc. to EN 62034

Specific technical data

Type	Rated duration	Typ. λ (at 230 V, 50 Hz)	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
				Initial charge	Fast recharge	Trickle charge	Initial charge	Fast recharge	Trickle charge
EM converterLED ST 202 NiCd/NiMH 50V	1 h	0.60C	1.5 W	15 mA	16 mA	13 mA	1.9 W	2.2 W	1.8 W
EM converterLED ST 202 NiCd/NiMH 50V	2 h	0.65C	1.5 W	19 mA	19 mA	15 mA	2.6 W	2.6 W	2.2 W
EM converterLED ST 202 NiCd/NiMH 50V	3 h	0.65C	1.5 W	19 mA	19 mA	15 mA	2.6 W	2.6 W	2.2 W
EM converterLED ST 203 NiCd/NiMH 50V	1 h	0.60C	2.5 W	16 mA	18 mA	13 mA	2.1 W	2.6 W	1.9 W
EM converterLED ST 203 NiCd/NiMH 50V	2 h	0.70C	2.5 W	20 mA	20 mA	16 mA	3.1 W	3.1 W	2.4 W
EM converterLED ST 203 NiCd/NiMH 50V	3 h	0.70C	2.5 W	20 mA	20 mA	16 mA	3.1 W	3.1 W	2.4 W
EM converterLED ST 204 NiCd/NiMH 50V	1 h	0.60C	3.5 W	17 mA	20 mA	14 mA	2.3 W	2.9 W	2.0 W
EM converterLED ST 204 NiCd/NiMH 50V	2 h	0.70C	3.5 W	23 mA	23 mA	17 mA	3.6 W	3.6 W	2.6 W
EM converterLED ST 204 NiCd/NiMH 50V	3 h	0.70C	3.5 W	23 mA	23 mA	17 mA	3.6 W	3.6 W	2.6 W

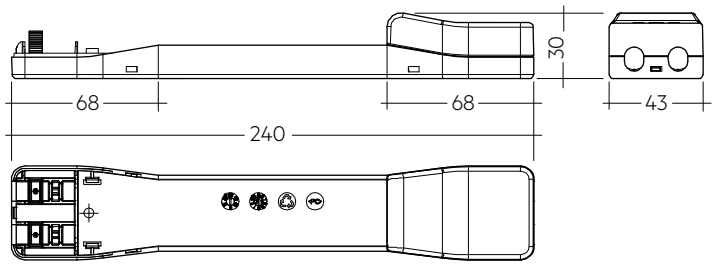
EMcLED Strain-relief set 240x43x30mm

Accessory

Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

Website
http://www.tridonic.com/28003813



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

RoHS

Status indication bi-colour LED EM CON

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault
_ Plug connection

Website
http://www.tridonic.com/89800273

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour, 1.0 m CON	**89800273**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness HO 1.0 m CON	**89800275**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, 0.6 m CON	**89800474**	25 pc(s).	200 pc(s).	0.010 kg
LED EM bi-colour, high brightness HO 0.6 m CON	**89800475**	25 pc(s).	200 pc(s).	0.011 kg
LED EM bi-colour, 0.3 m CON	**89800274**	25 pc(s).	200 pc(s).	0.007 kg
LED EM bi-colour, high brightness HO 0.3 m CON	**89800276**	25 pc(s).	200 pc(s).	0.007 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62384
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime					
EM converterLED ST 202	tc	65 °C	70 °C	75 °C	80 °C
NiCd/NiMH 50V	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	90,000 h
EM converterLED ST 203	tc	65 °C	70 °C	75 °C	80 °C
NiCd/NiMH 50V	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	83,000 h
EM converterLED ST 204	tc	65 °C	70 °C	75 °C	80 °C
NiCd/NiMH 50V	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	82,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

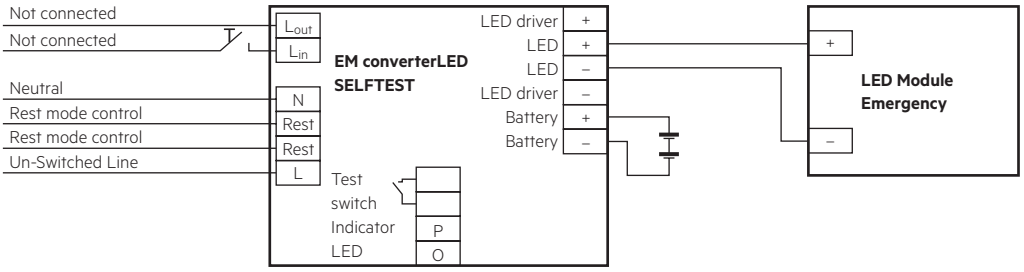
The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

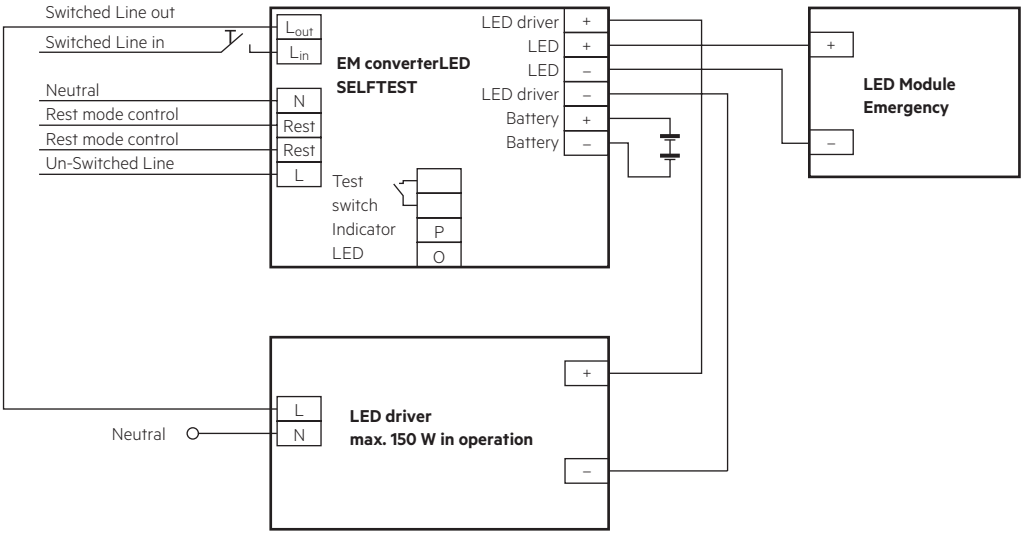
3.1 Wiring diagram

One or more LED modules with a total forward voltage of 10 to 54 V can be connected to the EM converterLED module. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the mains LED driver.

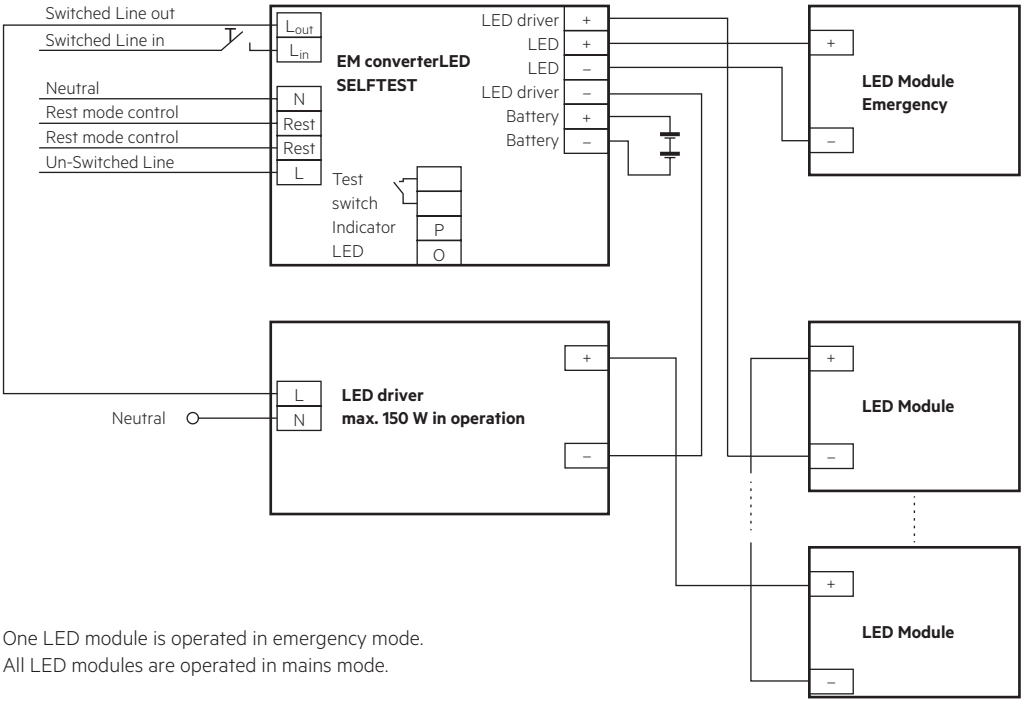
EM converterLED SELFTEST with one LED module for non-maintained emergency operation



EM converterLED SELFTEST with a standard LED driver and one LED module for mains and emergency operation

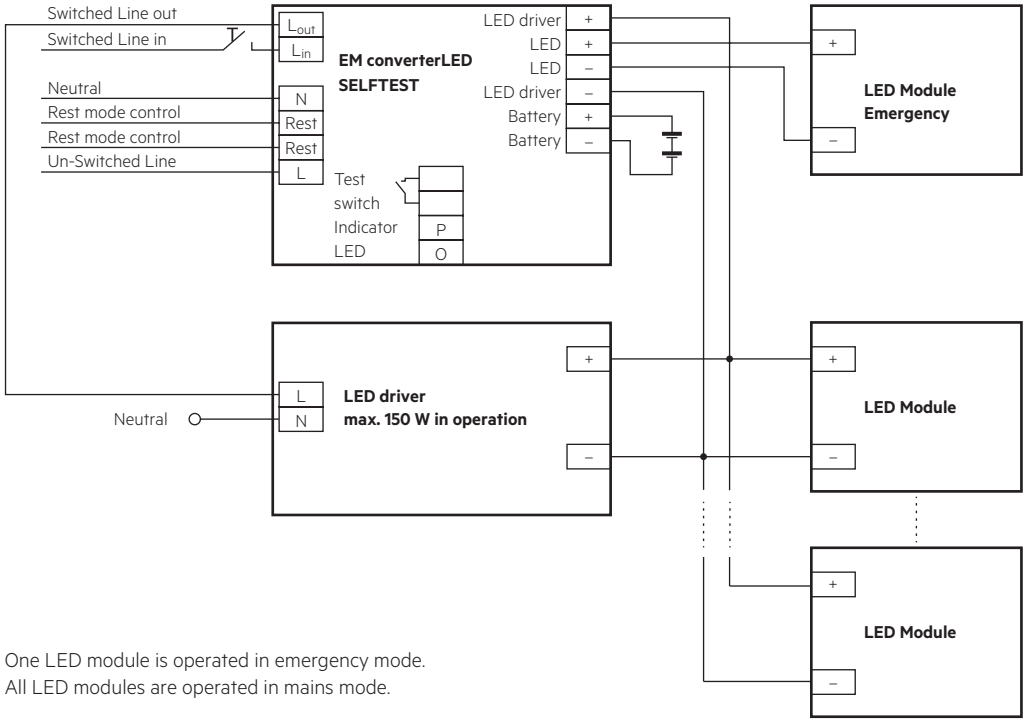


EM converterLED SELFTEST with a standard LED driver and <u>series</u> operation of LED modules



One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

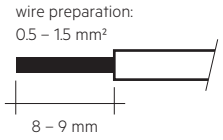
EM converterLED SELFTEST with a standard LED driver and parallel operation of LED modules



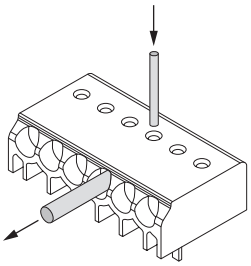
One LED module is operated in emergency mode.
All LED modules are operated in mains mode.

3.2 Wiring type and cross section

Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.



3.3 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.4 Wiring guidelines

- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- Separate LED leads from the mains and REST connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. Separate the test switch and Indicator LED wiring from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- REST terminals are mains proof.
- Protect the wiring against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.) to avoid the damage of the control gear.

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire route the switched and unswitched 50 Hz supply wiring as short as possible and keep it as far away as possible from the LED leads. Through wiring may affect the EMC performance of the luminaire.

Do not exceed the max. length of LED leads to the LED module. Note that the length of the EM converterLED leads to the LED module is added to the length of the leads from the LED driver to the EM converterLED module when considering the max. permitted lead length of the LED driver.

3.5 Maximum lead length

LED	3 m[1]
Status indication LED	1 m
Batteries	0.8 m

[1] Note: The length of LED leads to the LED module must not be exceeded. Note that the length of the EM converterLED leads is added to the length of the leads from the LED driver to the EM converterLED module when considering max. permitted lead length of the LED driver. Leads should always be kept as short as possible.

3.6 Use of different phases

The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

3.7 Compatibility with LLE FLEX modules

The EM converterLED can be used within certain restrictions to operate constant voltage LED loads from the Tridonic LLE FLEX (ADV, EXC) product range. A certain minimum length of the LLE FLEX is required for correct operation.
Detailed information in the download area of the ST and PRO product pages at www.tridonic.com (EM converterLED manual).

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20

4.2 Mechanical data accessories

LED status indicator
• Bi-colour
• Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
• Lead length 0.3 m / 1.0 m
• Insulation rating: 90 °C
• Plug connection

Test switch
• Mounting hole 7.0 mm diameter
• Lead length 0.55 m
• Plug connection

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	1.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	I_{max}	time
EM converterLED ST NiCd/NiMH 50V	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	REST	LED driver (SELV)
Mains	–	•	••	•	••
Switched Live	•	–	••	•	••
Battery, LED, Test switch, Indicator LED	••	••	–	•	•
REST	•	•	•	–	••
LED driver (SELV)	••	••	–	••	–

• Represents basic insulation

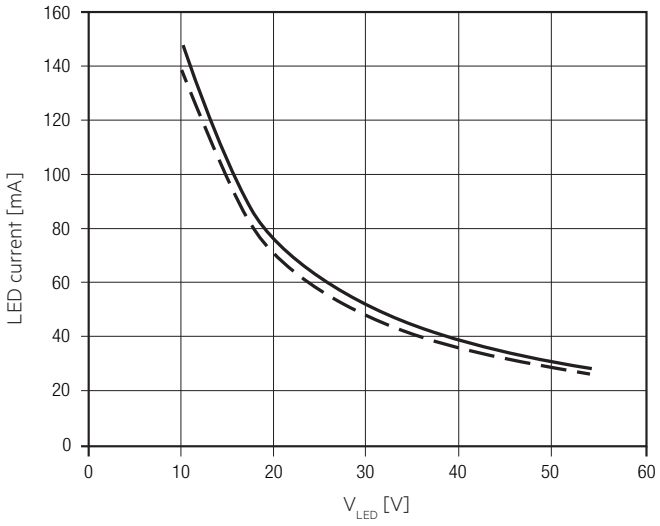
•• Represents double or reinforced insulation

When using a non-SELV LED driver insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED driver.

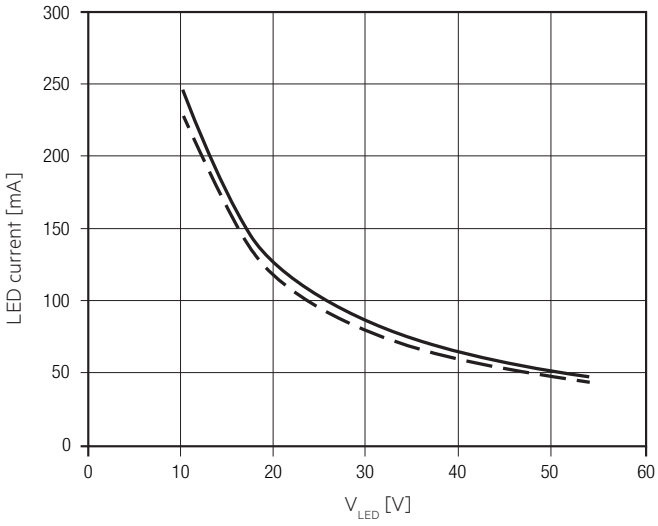
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

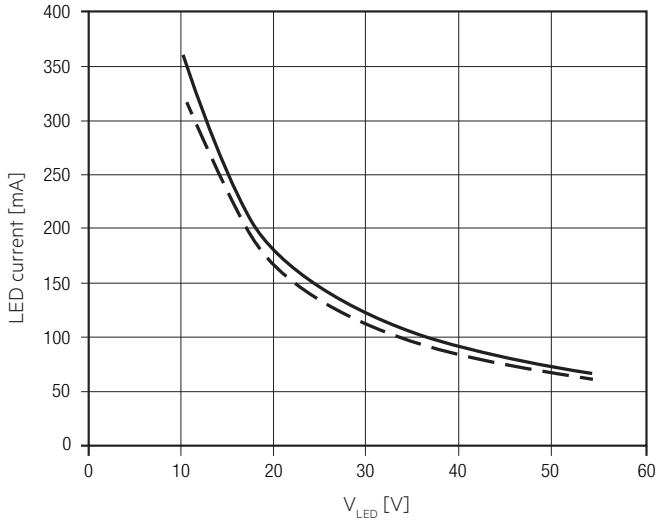
EM converterLED ST 202 NiCd/NiMH 50V
Article number: 89800646
2.4 V battery voltage
730 – 790 mA battery discharge current (tolerance)

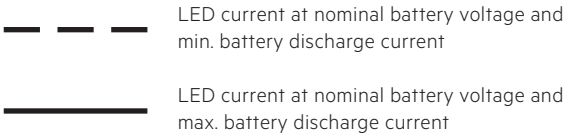


EM converterLED ST 203 NiCd/NiMH 50V
Article number: 89800647
3.6 V battery voltage
780 – 840 mA battery discharge current (tolerance)



EM converterLED ST 204 NiCd/NiMH 50V
Article number: 89800648
4.8 V battery voltage
800 – 860 mA battery discharge current (tolerance)





5.4 LED driver compatibility

The EM converterLED emergency unit use 3 pole technology and is compatible with most LED drivers on the market, however it is important to check that the rating of the LED driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED driver is 2 A eff (current rating of the terminals of EM converterLED) and 2.4 A peak (current rating of switching relays of EM converterLED)
- The max. allowed inrush current rating of the associated LED driver is 60 A peak for 1 ms or 84 A for 255 µs (inrush current rating of switching relay of EM converterLED)
- The max. allowed output voltage (U-OUT) of the associated LED driver applied to the EM converterLED output is 450 V (voltage withstand between adjacent contact of the single switching relay of the EM converterLED)
- The max. allowed LED load of the associated LED driver is 150 W in operation. The load must be an LED module.

6. Functions

6.1 Duration link selection

Duration	Link position
3 hr	Position A
2 hr	No duration link
1 hr	Position B

Emergency lighting LED driver supplied with duration link in 3 hours position (position A).

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM converterLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.2 Status indication

System status is indicated by a bi-colour LED.

LED indication	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Green and red off	DC mode	Battery operation (emergency mode)

6.3 Commissioning

After installation of the luminaire and initial connection of the mains supply and battery supply to the EM converterLED ST the unit will commence charging the batteries for the initial charge time. The recharge occurs also if a new battery is connected or the module exits the rest mode condition.
The following automatic commissioning duration test is only performed when a battery is replaced and fully charged.

6.4 Testing

Commissioning test
A full commissioning test is carried out automatically after permanent connection of the supply for 5 days. The easy commissioning feature will set the initial test day and time to ensure random testing of units.

Functional test
Functional tests are carried out for 5 seconds on a weekly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

For a full description of commissioning and test features please refer to application notes.

Test switch
An optional test switch can be wired to each EM converterLED ST. This can be used to to:

- Initiate a 5 seconds function test: press 200 ms < T < 1 s
- Execute function test as long as switch pressed: press > 1 s
- Reset selftest timer (adjust local timing): press > 10 s

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.
The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically activated if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by applying a short pulse between 9.5 and 22.5 V_{DC} in amplitude for a period of 150 to 1,000 ms. This pulse shall be applied to terminals marked Rest.
After a mains reset the EM converterLED ST exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by applying a voltage pulse of 1,000 to 2,000 ms to the terminals marked as Rest to send the RE-LIGHT/ RESET INHIBIT command.

Pulse/Mode	Standby	Emergency	Rest
150 – 1,000 ms	Inhibit	Rest	–
1,000 – 2,000 ms	Cancel inhibit	–	Re-light

7. Battery data

7.1 Battery selection

EM converterLED, 1 / 2 / 3 h

				Type	EM converterLED ST 202 NiCd/NiMH 50V		EM converterLED ST 203 NiCd/NiMH 50V		EM converterLED ST 204 NiCd/NiMH 50V	
				Article no.	89800646		89800647		89800648	
				Cells	2 cells		3 cells		4 cells	
				Duration	1 h	2 / 3 h	1 h	2 / 3 h	1 h	2 / 3 h
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	Assignable batteries					
NiCd 4 Ah D cells	stick	1 x 2	**Accu-NiCd 2A 55**	**89800092**		•				
	stick	1 x 3	**Accu-NiCd 3A 55**	**28002773**				•		
	stick	1 x 4	**Accu-NiCd 4A 55**	**89800089**						•
	side by side	3 x 1	**Accu-NiCd 3B 55**	**89800384**				•		
	side by side	4 x 1	**Accu-NiCd 4B 55**	**89800385**						•
	stick + stick	2 + 2	**Accu-NiCd 4C 55**	**28002775**						•
	remote box	1 x 3	**Pack-NiCd 3D CON**	**89800389**				•		
	remote box	1 x 4	**Pack-NiCd 4D CON**	**89800390**						•
NiMH 2.2 Ah Cs cells	stick	1 x 2	**Accu-NiMH 2A**	**28002087**	•					
	stick	1 x 3	**Accu-NiMH 3A**	**28002088**			•			
	stick	1 x 4	**Accu-NiMH 4A**	**28002089**					•	
NiMH 4 Ah LA cells	stick	1 x 2	**Accu-NiMH 4Ah 2A CON**	**28002316**		•				
	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**				•		
	stick	1 x 4	**Accu-NiMH 4Ah 4A CON**	**89800442**						•
	stick + stick	2 + 2	**Accu-NiMH 4Ah 4C CON**	**89800438**						•

7.2 Battery charge / discharge data

EM converterLED, 1 / 2 / 3 h, NiMH

	Type	EM converterLED ST 202 NiCd/NiMH 50V		EM converterLED ST 203 NiCd/NiMH 50V		EM converterLED ST 204 NiCd/NiMH 50V	
	Article no.	89800646		89800647		89800648	
	Duration	1 h	2 / 3 h	1 h	2 / 3 h	1 h	2 / 3 h
Battery charge time	Initial charge	20 h					
	Fast recharge	10 h	15 h	10 h	15 h	10 h	15 h
	Trickle charge	continuously					
Charging current	Initial charge	110 – 150 mA	280 – 320 mA	110 – 150 mA	280 – 320 mA	110 – 150 mA	280 – 320 mA
	Fast recharge	190 – 230 mA	310 – 350 mA	190 – 230 mA	310 – 350 mA	190 – 230 mA	310 – 350 mA
	Trickle charge	50 – 90 mA	110 – 150 mA	50 – 90 mA	110 – 150 mA	50 – 90 mA	110 – 150 mA
Discharge current		730 – 790 mA	730 – 790 mA	780 – 840 mA	780 – 840 mA	800 – 860 mA	800 – 860 mA
Charge voltage range[1]		0.9 – 1.65 V per cell					
Discharge voltage range		1.65 – 1.05 V per cell					

[1] The battery will be charged below 0.9 V. The EM converterLED will indicate a battery fault.

The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

7.3 Accu-NiCd

4.2 / 4.5 Ah

International designation	KRMU 33/62
Battery voltage/cell	1.2 V
Cell type	D
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	12 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

7.4 Accu-NiMH

2.2 Ah

International designation	HRMU 23/43
Battery voltage/cell	1.2 V
Cell type	Cs
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

7.5 Accupack-NiCd

4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

7.6 Accupack-NiMH

2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

For a higher battery temperature rating for NiMH 4 Ah refer to the EM converterLED xx MH/LiFePO4 product range.

7.7 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 50,000 mains switching cycles of the associated LED driver.

8.2 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.3 Mains-connected transformers

The EM converterLED does not contain mains-connected windings of transformers.

8.4 Additional information

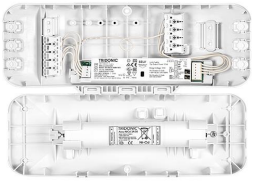
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterPACK BASIC NiCd/LiFePO4 50 V

BASIC version



Product description
_ Remote pack for luminaire conversion
_ Pre wired EM converterLED and battery contained
_ Please note that due to EU law, the NiCD version is available for purchasing only outside of the European Union.
_ For LED modules with a forward voltage of 10 – 54 V
_ SELV for output voltage < 60 V DC
_ Ideal for ceiling openings of diameter ≥ 150 mm and for mounting depths ≥ 100 mm
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

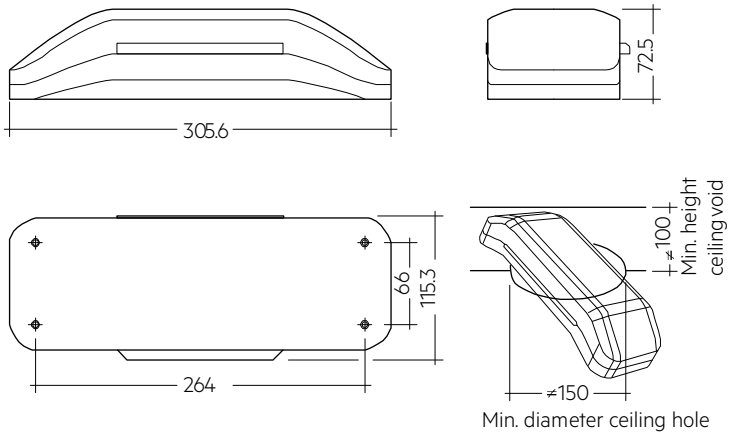
Properties
_ Non maintained operation
_ 3 h rated duration
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant output voltage
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Strain relief and terminals included

Batteries
_ High-temperature cells
_ NiCd or LiFePO4 batteries
_ 4 year design life for NiCd batteries
_ 2 years guarantee for NiCd batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ 4 – 8 years design life for LiFePO4 batteries
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website
http://www.tridonic.com/89800706

EM converterPACK BASIC NiCd/LiFePO4 50 V

BASIC version



Min. diameter ceiling hole

Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterPACK BASIC 233 NiCd 50V	**89800706**	3 h	3	1 pc(s).	126 pc(s).	0.81 kg	305.6 x 115.3 x 72.5 mm
EM converterPACK BASIC 232A LiFePO4 50V	**89800707**	3 h	3	1 pc(s).	126 pc(s).	0.57 kg	305.6 x 115.3 x 72.5 mm

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	10 – 54 V
Output current	Refer to EM converterLED BASIC data sheet
Starting time	< 0.25 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Battery charging time	24 h
Ambient temperature ta	5 … +45 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	305.6 x 115.3 x 72.5 mm

Status indication green LED EM CON

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery
_ 0.3 / 1.0 m cable length
_ Plug connection

Website
http://www.tridonic.com/89800269

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green, 1.0 m CON	**89800269**	25 pc(s).	800 pc(s).	0.018 kg
LED EM green, HO 1.0 m CON	**89800271**	25 pc(s).	200 pc(s).	0.016 kg
LED EM green, 0.6 m CON	**89800472**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, HO 0.6 m CON	**89800473**	25 pc(s).	200 pc(s).	0.010 kg
LED EM green, 0.3 m CON	**89800270**	25 pc(s).	200 pc(s).	0.007 kg
LED EM green, HO 0.3 m CON	**89800272**	25 pc(s).	200 pc(s).	0.007 kg

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

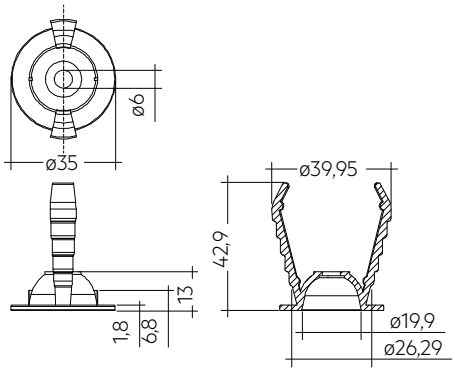
RoHS

ACD EM LED INDICATOR HOLDER

Accessory

Product description
_ Holder for indicator LED in emergency operation
_ Glow-wire test with a temperature of 850 °C passed

Website
http://www.tridonic.com/28002189



Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
ACD EM LED INDICATOR HOLDER	**28002189**	White	120 pc(s).	0.006 kg

TRIDONIC

EM converterPACK BASIC slim

BASIC version

Product description
_ Self contained emergency lighting LED driver for manual testing
_ For LED modules with a forward voltage of 10 – 54 V
_ SELV for output voltage < 60 V DC
_ Strain relief
_ Compatible with Tridonic's LLE FLEX modules (ADV, EXC)
_ Nominal lifetime up to 100,000 h
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

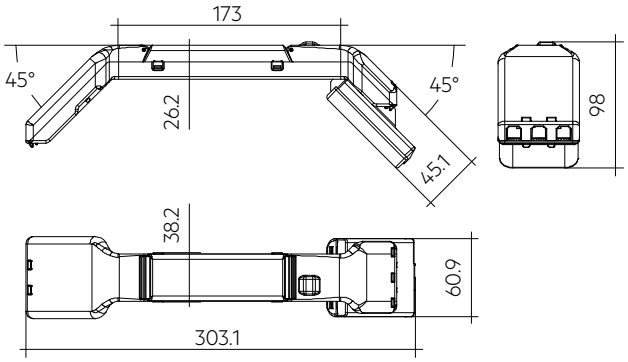
Properties
_ Non maintained operation
_ 3 h rated duration
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Maximum light output for all LED modules
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery provided by 3-pole connector
_ High-temperature cells
_ LiFePO4 batteries
_ 18650 cells
_ 4 – 8 years design life for LiFePO4 batteries
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ LiFePO4 batteries with Tridonic LiFeGuard
_ For battery compatibility refer to data sheet, battery selection

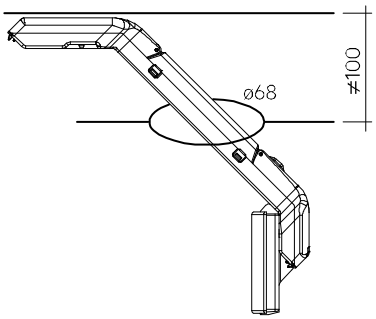
Website
http://www.tridonic.com/89801155

TRIDONIC

EM converterPACK BASIC slim

BASIC version





Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM cPK BASIC 232A LiFePO4 50V	**89801155**	3 h	3	2 pc(s).	252 pc(s).	0.33 kg	303.1 x 60.9 x 98 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Typ. λ (at 230 V, 50 Hz)	0.6C
Forward voltage range LED module	10 – 54 V
Output current	Refer to EM converterLED BASIC data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Battery charging time	24 h
Ambient temperature ta	5 … +50 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	303.1 x 60.9 x 98 mm

TRIDONIC

EM converterPACK box

BASIC version

Product description

EM converterPACK box housing is designed for use with emergency luminaries in conjunction with LED modules and LED drivers from Tridonic and other manufacturers.

_ Suitable for EM powerLED BASIC/ST/PRO 1-4 W Clip-fix and EM converterLED BASIC/ST/PRO in combination with NiCd and LiFePO4 batteries
_ Suitable for EM powerLED BASIC 32W
_ The use of an LiFePO4 battery allows the addition of an SC driver (max. length 150 mm)
_ Suitable for SC (stretch compact) housings with a max. length of 150 mm
_ M4 screw included to close the housing
_ Drivers and batteries not included
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Terminals

_ Terminal block for simple installation
_ Terminals included: 2 x 5-pole, 1 x 3-pole, 1 x 2-pole

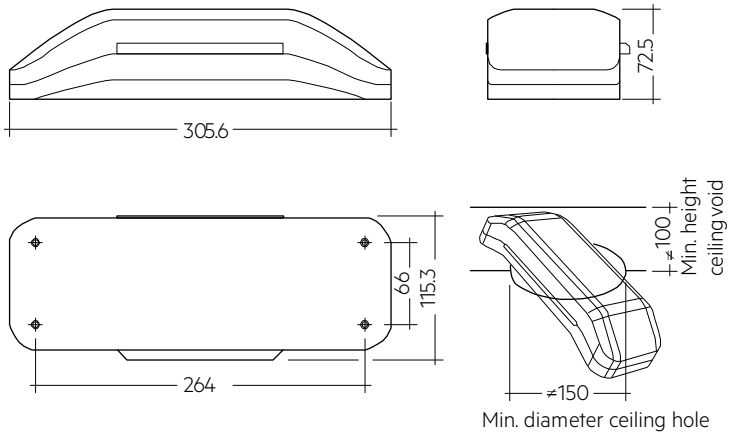
Website

http://www.tridonic.com/89800814

TRIDONIC

EM converterPACK box

BASIC version



Min. diameter ceiling hole

Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterPACK box 5	**89800814**	5 pc(s).	300 pc(s).	0.4 kg	305.6 x 115.3 x 72.5 mm

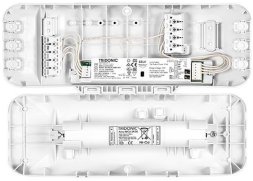
Technical data

Type of protection	IP20
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	305.6 x 115.3 x 72.5 mm

TRIDONIC

EM converterPACK PRO NiCd/LiFePO4 50 V

PRO version



Product description
_ Remote pack for luminaire conversion
_ Pre wired EM converterLED and battery contained
_ Please note that due to EU law, the article EM converterPACK PRO 233 NiCd 50V is available for purchasing only outside of the European Union
_ For LED modules with a forward voltage of 10 – 54 V
_ SELV for output voltage < 60 V DC
_ Ideal for ceiling openings of diameter ≥ 150 mm and for mounting depths ≥ 100 mm
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Non maintained operation
_ 3 h rated duration
_ Compatible with all dimmable and non-dimmable constant current LED driver (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant output voltage
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Strain relief and terminals included

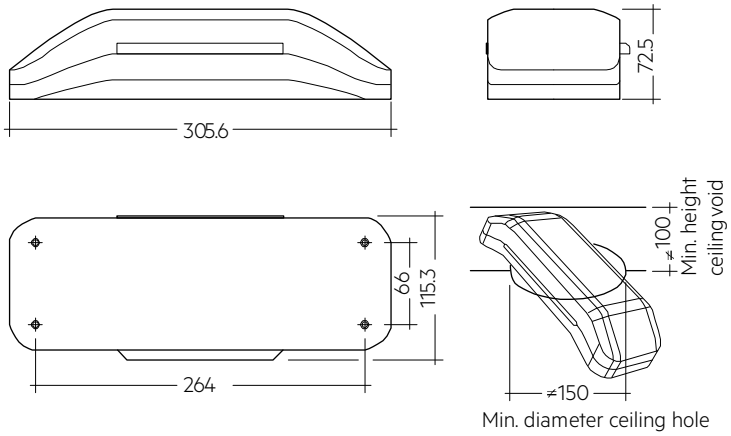
Batteries
_ High-temperature cells
_ NiCd or LiFePO4 batteries
_ 4 year design life for NiCd batteries
_ 2 years guarantee for NiCd batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ 4 – 8 years design life for LiFePO4 batteries
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website
http://www.tridonic.com/89801048

TRIDONIC

EM converterPACK PRO NiCd/LiFePO4 50 V

PRO version



Min. diameter ceiling hole

Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM converterPACK PRO 233 NiCd 50V	**89801048**	3 h	3	1 pc(s).	126 pc(s).	0.81 kg	305.6 x 115.3 x 72.5 mm
EM converterPACK PRO 232A LiFePO4 50V	**89801049**	3 h	3	1 pc(s).	126 pc(s).	0.57 kg	305.6 x 115.3 x 72.5 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	10 – 54 V
Output current	Refer to EM converterLED BASIC data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Battery charging time	24 h
Ambient temperature ta	5 … +45 °C
Max. casing temperature tc	80 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Rest mode max. number of emergency units	100
Rest mode max. wiring distance	1,000 m
Functional test	Weekly 5s test
Duration test	Yearly 3 h test
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	305.6 x 115.3 x 72.5 mm

Status indication bi-colour LED EM CON

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault
_ Plug connection

Website
http://www.tridonic.com/89800273

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour, 1.0 m CON	**89800273**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness HO 1.0 m CON	**89800275**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, 0.6 m CON	**89800474**	25 pc(s).	200 pc(s).	0.010 kg
LED EM bi-colour, high brightness HO 0.6 m CON	**89800475**	25 pc(s).	200 pc(s).	0.011 kg
LED EM bi-colour, 0.3 m CON	**89800274**	25 pc(s).	200 pc(s).	0.007 kg
LED EM bi-colour, high brightness HO 0.3 m CON	**89800276**	25 pc(s).	200 pc(s).	0.007 kg

Test switch EM3

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Plug connection
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89899956

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 3	**89899956**	25 pc(s).	2,000 pc(s).	0.01 kg

Approval marks

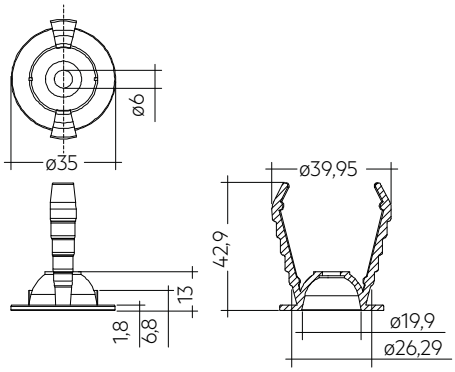
RoHS

ACD EM LED INDICATOR HOLDER

Accessory

Product description
_ Holder for indicator LED in emergency operation
_ Glow-wire test with a temperature of 850 °C passed

Website
http://www.tridonic.com/28002189



Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
ACD EM LED INDICATOR HOLDER	**28002189**	White	120 pc(s).	0.006 kg

TRIDONIC

EM converterPACK PRO slim

PRO version

Product description
_ Emergency lighting LED driver with DALI-2 interface and automatic test function
_ For self-contained emergency lighting
_ For LED modules with a forward voltage of 10 – 54 V
_ SELV for output voltage < 60 V DC
_ Strain relief
_ Compatible with Tridonic's LLE FLEX modules (ADV, EXC)
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

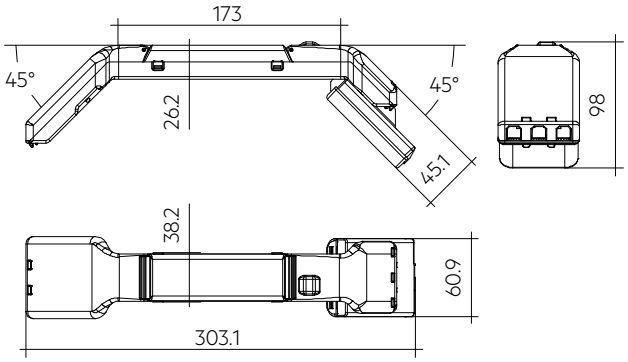
Properties
_ Non maintained operation
_ DALI-2 interface for controlled testing and monitoring
_ 3 h rated duration
_ Compatible with most constant current LED drivers (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Two-colour status display LED
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery provided by 3-pole connector
_ High-temperature cells
_ LiFePO4 batteries
_ 18650 cells
_ LiFePO4: 4 – 8 years design life
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ LiFePO4 batteries with Tridonic LiFeGuard
_ For battery compatibility refer to data sheet, battery selection
Self-test:
_ Status of the battery
_ Status of the LED
_ Function test
_ Duration test

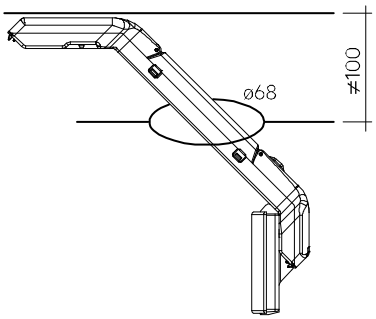
Website
http://www.tridonic.com/89801156

TRIDONIC

EM converterPACK PRO slim

PRO version





Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.	Dimensions L x W x H
EM cPK PRO 232A LiFePO4 50V	**89801156**	3 h	3	2 pc(s).	252 pc(s).	0.335 kg	303.1 x 60.9 x 98 mm

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module	10 – 54 V
Output current	Refer to EM converterLED BASIC data sheet
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Ambient temperature ta	5 … +50 °C
Max. casing temperature tc	80 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Rest mode max. number of emergency units	100
Rest mode max. wiring distance	1,000 m
Functional test	Weekly 5s test
Duration test	Yearly 3 h test
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	303.1 x 60.9 x 98 mm

TRIDONIC

EM converterPACK ST 60 V UNV COND

SELFTEST version (US applications)

Product description
_ Emergency lighting LED driver with selftest function
_ Only for US applications
_ Battery pack enclosed
_ For self-contained emergency lighting
_ For LED modules with a forward voltage up to 57 V
_ Class 2
_ UL certified
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

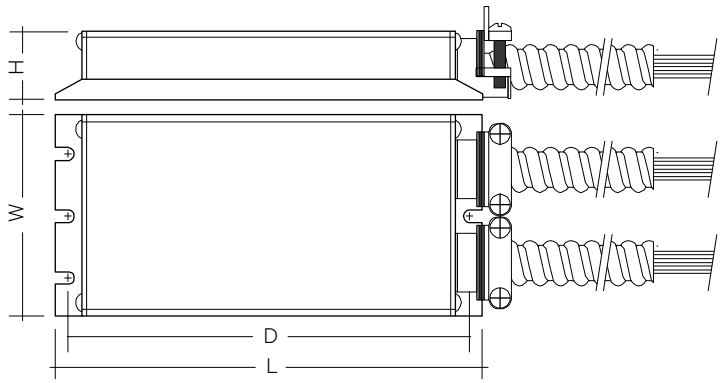
Properties
_ Non maintained operation
_ Self-test
_ 90 minutes rated duration
_ Compatible with most constant current LED drivers (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Combined status display LED and test switch included
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery
Self-test:
_ Status of the battery
_ Status of the LED
_ Function test
_ Duration test

Batteries
_ High-temperature cells
_ NiMH batteries
_ 5 years guarantee for NiMH batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website
http://www.tridonic.com/28002865

EM converterPACK ST 60 V UNV COND

SELFTEST version (US applications)



Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Hole spacing D	Dimensions L x W x H
EM converterPACK ST 1-9-5 60V UNV COND	**28002865**	1.5 h	16 pc(s).	480 pc(s).	0.90 kg	252 mm	260 x 65 x 22 mm
EM converterPACK ST 1-9-9 60V UNV COND	**28002868**	1.5 h	10 pc(s).	400 pc(s).	1.05 kg	299 mm	307 x 65 x 22 mm
EM converterPACK ST 1-9-15 60V UNV COND	**28002871**	1.5 h	10 pc(s).	400 pc(s).	1.35 kg	364 mm	372 x 65 x 22 mm

Technical data

Rated supply voltage	120 – 277 V
Mains frequency	50 / 60 Hz
Typ. λ	0.5C
Output current	Refer to data sheet
Starting time	< 0.25 s from detection of emergency event
Overvoltage protection	305 V
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Ambient temperature ta	0 … +50 °C
Max. casing temperature tc	70 °C
Mains voltage changeover threshold emergency mode	30 V
Mains voltage changeover threshold mains mode	70 V
Type of protection	IP20
Functional test	Monthly 30 s test
Duration test	Yearly 90 minutes test
Lifetime	50,000 h

Approval marks

UL LISTED

Standards

UL 924, FCC PART 15, ICES-005

Specific technical data

Type	Mains voltage	LED module forward voltage range	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
				Initial charge	Fast recharge	Trickle charge	Initial charge	Fast recharge	Trickle charge
EM converterPACK ST 1-9-5 60V UNV COND	120 V	13 – 57 V	5 W	40 mA	36 mA	5.1 mA	2.1 W	1.8 W	0.5 W
EM converterPACK ST 1-9-5 60V UNV COND	277 V	13 – 57 V	5 W	25 mA	22 mA	3.7 mA	2.5 W	2.0 W	0.5 W
EM converterPACK ST 1-9-9 60V UNV COND	120 V	14 – 57 V	9 W	51 mA	50 mA	5.9 mA	2.9 W	2.8 W	0.5 W
EM converterPACK ST 1-9-9 60V UNV COND	277 V	14 – 57 V	9 W	30 mA	29 mA	4.2 mA	3.2 W	2.8 W	0.6 W
EM converterPACK ST 1-9-15 60V UNV COND	120 V	15 – 57 V	15 W	62 mA	68 mA	6.9 mA	3.9 W	3.9 W	0.6 W
EM converterPACK ST 1-9-15 60V UNV COND	277 V	15 – 57 V	15 W	38 mA	39 mA	4.8 mA	4.0 W	4.0 W	0.6 W

1. Standards

UL 924
FCC Part 15, Class A
ICES-005

Product not designed for European Economic Area.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	**ta**	**40 °C**	**50 °C**	**55 °C**	**60 °C**
EM converterPACK ST 1-9-x 60V UNV COND	tc	55 °C	65 °C	70 °C	75 °C
	lifetime	65,000 h	55,000 h	50,000 h	45,000 h

The emergency lighting LED Driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

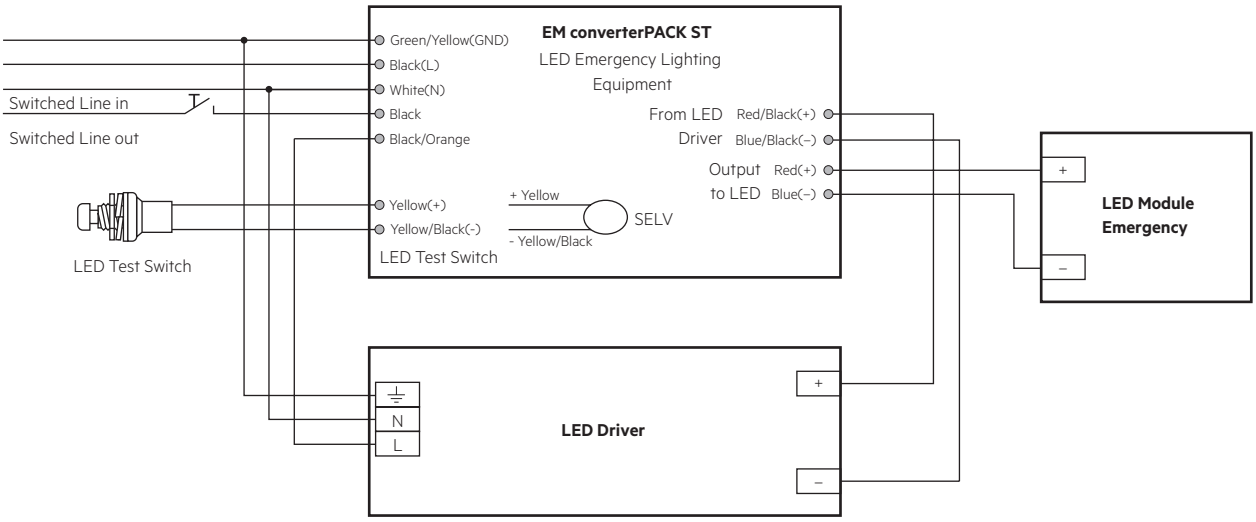
The relation of tc to ta temperature depends also on the luminaire design.
If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

3.1 Wiring diagram

One or more LED modules with a total forward voltage in the forward voltage range of the EM converterPACK can be connected. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the mains LED Driver.

EM converterPACK SELFTEST with one LED module for mains and emergency operation



3.2 Wiring type and cross section

	Solid / Stranded	Cross section
Earth	Solid	0.5 – 1.5 mm²
L	Solid	0.5 – 1.5 mm²
N	Solid	0.5 – 1.5 mm²
Live in	Stranded	0.5 – 1.5 mm²
Live out	Stranded	0.5 – 1.5 mm²
Test switch +	Stranded	0.5 – 1.5 mm²
Test switch -	Stranded	0.5 – 1.5 mm²
LED driver +	Solid	0.5 – 1.5 mm²
LED driver -	Solid	0.5 – 1.5 mm²
LED +	Solid	0.5 – 1.5 mm²
LED -	Solid	0.5 – 1.5 mm²
Battery +	Stranded	0.5 – 1.5 mm²
Battery -	Stranded	0.5 – 1.5 mm²

3.3 Wiring guidelines

- For good EMC compliance consider that the output to the LED is DC but has high frequency content.
- Separate LED leads from the mains connection and wiring for good EMC performance.
- Keep the LED wiring as short as possible for a good EMC performance.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the LED test switch connection is 250 mm / 9.84 inch. Separate the LED test switch wiring from the LED leads to prevent noise coupling.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.4 Maximum lead length

LED test switch 250 mm

3.5 Use of different phases

The use of different phases for switched line and unswitched line is prohibited.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from metal.
- Type of protection: IP20
- The housing incorporates DIP switches. The position of the DIP switches is essential for the correct operation and must not be changed. Altering their position will prohibit the correct operation of the emergency lighting LED Driver.

4.2 Mechanical data accessories

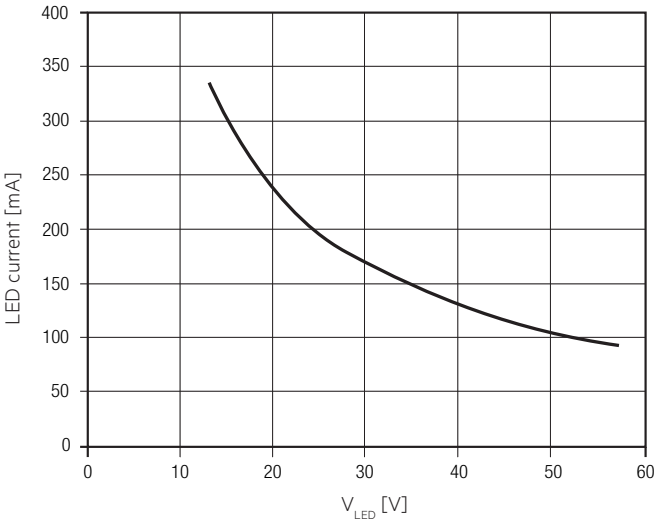
LED test switch
- Mounting hole 4.2 mm diameter
- Mounting hole strength < 5 mm
- Lead length 250 mm
- For direct installation or use in a separate junction box

5. Electrical values

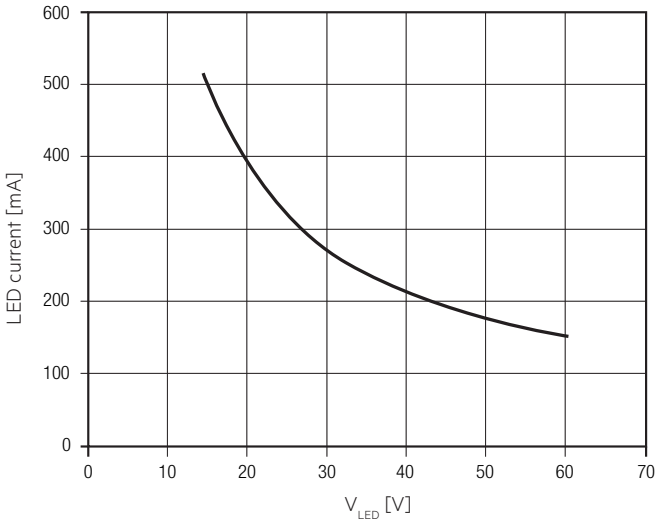
5.1 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterPACK module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

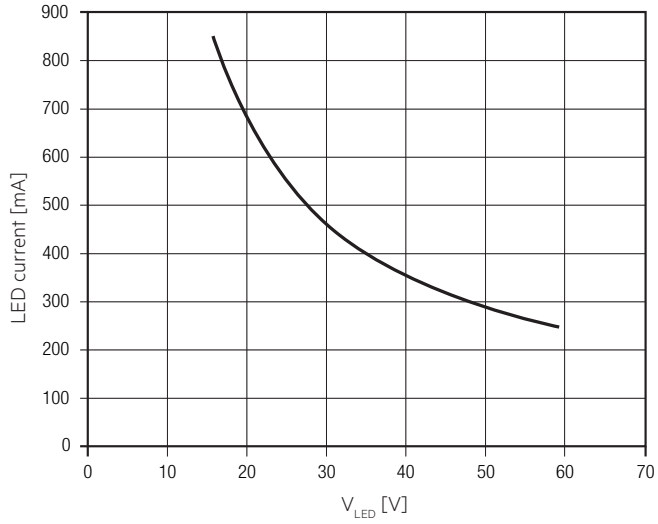
EM converterPACK ST 1-9-5 60V UNV COND
Article number: 28002865
NiMH battery, 9.6 V battery voltage
540 – 630 mA battery discharge current (tolerance)



EM converterPACK ST 1-9-9 60V UNV COND
Article number: 28002868
NiMH battery, 10.8 V battery voltage
860 – 1,150 mA battery discharge current (tolerance)



EM converterPACK ST 1-9-15 60V UNV COND
Article number: 28002871
NiMH battery, 10.8 V battery voltage
1,410 – 1,720 mA battery discharge current (tolerance)



5.2 LED Driver compatibility

The EM converterPACK emergency unit use 3 pole technology and is compatible with most LED Drivers on the market, however it is important to check that the rating of the LED Driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED Driver is 5 A peak (current rating of switching relays of EM converterPACK)
- The max. allowed output voltage of the associated LED Driver applied to the EM converterPACK output is 60V (voltage withstand between adjacent contact of the single switching relay of the EM converterPACK)
- The max. allowed LED load of the associated LED Driver is 300 W in operation. The load must be an LED module.

6. Functions

6.1 Status indication

System status is indicated by LED test switch.

LED indication	Status	Comment
Permanent on	System OK	AC mode
Slow flashing (2 sec on – 2 sec off)	Charging	Battery not yet fully charged
Fast flashing (0.5 sec on – 0.5 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage
Gradual change	Test underway	Function or duration test

6.2 Commissioning

After installation of the luminaire and initial connection of the mains supply and battery supply to the EM converterPACK ST the unit will commence charging the batteries for the initial charge time.
The recharge occurs also if a new battery is connected.
The following automatic commissioning duration test is only performed when a battery is replaced and fully charged.

6.3 Testing

Functional test
Functional tests are carried out for 30 seconds on a monthly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

LED test switch
LED test switch can be wired to each EM converterPACK ST.
This can be used to to:
- Initiate a 30 seconds function test: press two times within 5 s
- Initiate a duration test: press 3 times within 5 s

7. Battery data

7.1 Battery charge / discharge data

EM converterPACK ST 1-9-x 60V UNV

	Type	EM converterPACK ST 1-9-5 60V UNV COND	EM converterPACK ST 1-9-9 60V UNV COND	EM converterPACK ST 1-9-15 60V UNV COND
	Article no.	**28002865**	**28002868**	**28002871**
Battery charge time	Initial charge		24 h	
	Fast recharge		24 h	
	Trickle charge		continuously	
Charging current	Initial charge	119 mA	153 mA	210 mA
	Fast recharge	90 mA	110 mA	190 mA
	Trickle charge	75 mA	105 mA	190 mA
Discharge current		0.35 C	0.45 C	0.45 C

7.2 Technical data batteries

Type	**EM converterPACK ST 1-9-5 60V UNV COND**	**EM converterPACK ST 1-9-9 60V UNV COND**	**EM converterPACK ST 1-9-15 60V UNV COND**
Article no.	**28002865**	**28002868**	**28002871**
Voltage	9.6 V	10.8 V	10.8 V
Capacity	1,500 mAh	2,100 mAh	3,800 mAh
Discharge cycles	500	500	500

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 10,000 mains switching cycles of the associated LED driver.

8.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM converterPACK ST 60 V UNV WIRE

SELFTEST version (US applications)

Product description
_ Emergency lighting LED driver with selftest function
_ Only for US applications
_ Battery pack enclosed
_ For self-contained emergency lighting
_ For LED modules with a forward voltage up to 57 V
_ Class 2
_ UL certified
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

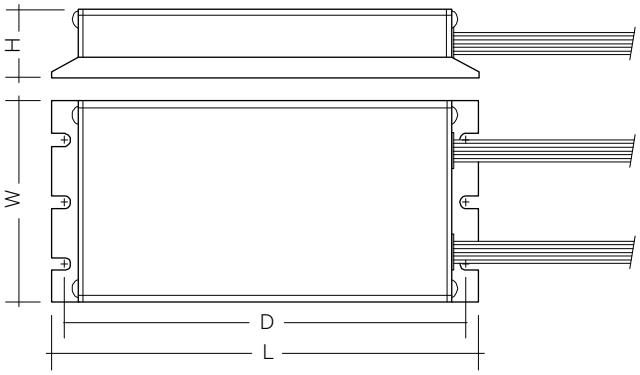
Properties
_ Non maintained operation
_ Self-test
_ 90 minutes rated duration
_ Compatible with most constant current LED drivers (see data sheet, LED driver compatibility)
_ 3-pole technology: 2-pole LED module changeover and delayed power switching for the LED driver
_ Automatic shutdown of output if LED load is out of range
_ Constant power output
_ Combined status display LED and test switch
_ Electronic charge system
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ Polarity reversal protection for battery
Self-test:
_ Status of the battery
_ Status of the LED
_ Function test
_ Duration test

Batteries
_ High-temperature cells
_ NiMH batteries
_ 5 years guarantee for NiMH batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website
http://www.tridonic.com/28002864

EM converterPACK ST 60 V UNV WIRE

SELFTEST version (US applications)



Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.	Hole spacing D	Dimensions L x W x H
EM converterPACK ST 1-9-5 60V UNV WIRE	**28002864**	1.5 h	16 pc(s).	960 pc(s).	0.63 kg	252 mm	260 x 65 x 22 mm
EM converterPACK ST 1-9-9 60V UNV WIRE	**28002867**	1.5 h	16 pc(s).	1,008 pc(s).	0.78 kg	299 mm	307 x 65 x 22 mm
EM converterPACK ST 1-9-15 60V UNV WIRE	**28002870**	1.5 h	12 pc(s).	720 pc(s).	1.08 kg	364 mm	372 x 65 x 22 mm

Technical data

Rated supply voltage	120 – 277 V
Mains frequency	50 / 60 Hz
Typ. λ	0.5C
Output current	Refer to data sheet
Starting time	< 0.25 s from detection of emergency event
Overvoltage protection	305 V
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Ambient temperature ta	0 … +50 °C
Max. casing temperature tc	70 °C
Mains voltage changeover threshold emergency mode	30 V
Mains voltage changeover threshold mains mode	70 V
Type of protection	IP20
Functional test	Monthly 30 s test
Duration test	Yearly 90 minutes test
Lifetime	50,000 h

Approval marks

UL LISTED

Standards

UL 924, FCC PART 15, ICES-005

Specific technical data

Type	Mains voltage	LED module forward voltage range	Typ. output power P emergency	Mains current in charging operation			Mains power in charging operation		
				Initial charge	Fast recharge	Trickle charge	Initial charge	Fast recharge	Trickle charge
EM converterPACK ST 1-9-5 60V UNV WIRE	120 V	13 – 57 V	5 W	40 mA	36 mA	5.1 mA	2.1 W	1.8 W	0.5 W
EM converterPACK ST 1-9-5 60V UNV WIRE	277 V	13 – 57 V	5 W	25 mA	22 mA	3.7 mA	2.5 W	2.0 W	0.5 W
EM converterPACK ST 1-9-9 60V UNV WIRE	120 V	14 – 57 V	9 W	51 mA	50 mA	5.9 mA	2.9 W	2.8 W	0.5 W
EM converterPACK ST 1-9-9 60V UNV WIRE	277 V	14 – 57 V	9 W	30 mA	29 mA	4.2 mA	3.2 W	2.8 W	0.6 W
EM converterPACK ST 1-9-15 60V UNV WIRE	120 V	15 – 57 V	15 W	62 mA	68 mA	6.9 mA	3.9 W	3.9 W	0.6 W
EM converterPACK ST 1-9-15 60V UNV WIRE	277 V	15 – 57 V	15 W	38 mA	39 mA	4.8 mA	4.0 W	4.0 W	0.6 W

1. Standards

UL 924
FCC Part 15, Class A
ICES-005

Product not designed for European Economic Area.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	ta	40 °C	50 °C	55 °C	60 °C
EM converterPACK ST 1-9-x 60V UNV WIRE	tc	55 °C	65 °C	70 °C	75 °C
	lifetime	65,000 h	55,000 h	50,000 h	45,000 h

The emergency lighting LED Driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

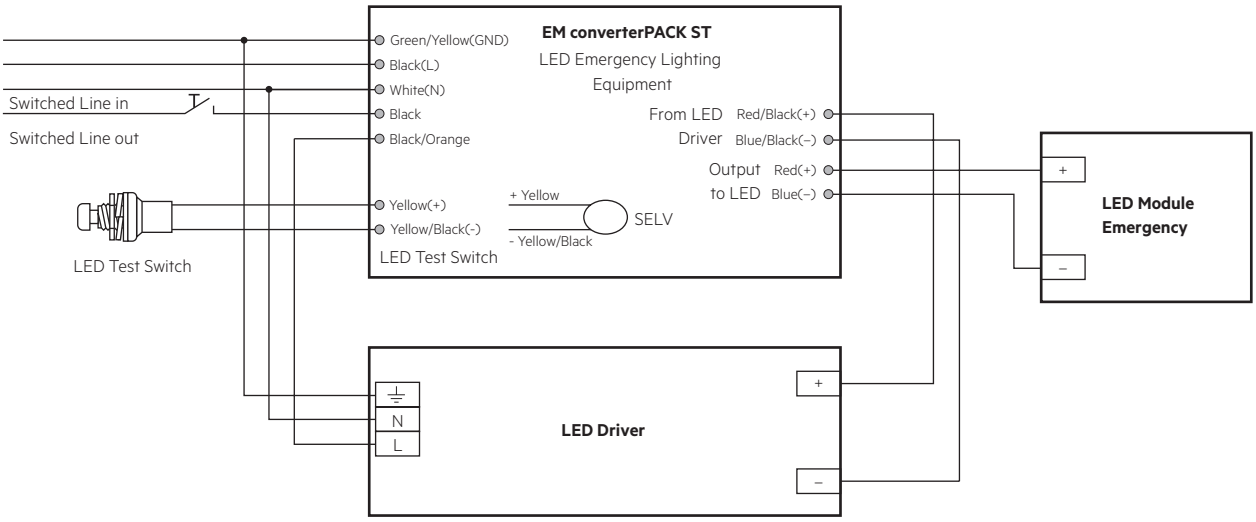
The relation of tc to ta temperature depends also on the luminaire design.
If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

3.1 Wiring diagram

One or more LED modules with a total forward voltage in the forward voltage range of the EM converterPACK can be connected. These LED module(s), marked with “Emergency” are operated in emergency mode from the associated battery. In normal mains mode all LED modules are operated by the mains LED Driver.

EM converterPACK SELFTEST with one LED module for mains and emergency operation



Mains (Black L), Switched Line in (Black): Both cables are interchangeable without impact to the function of the device.

3.2 Wiring type and cross section

	Solid / Stranded	Cross section
Earth	Solid	0.5 – 1.5 mm²
L	Solid	0.5 – 1.5 mm²
N	Solid	0.5 – 1.5 mm²
Live in	Stranded	0.5 – 1.5 mm²
Live out	Stranded	0.5 – 1.5 mm²
Test switch +	Stranded	0.5 – 1.5 mm²
Test switch -	Stranded	0.5 – 1.5 mm²
LED driver +	Solid	0.5 – 1.5 mm²
LED driver -	Solid	0.5 – 1.5 mm²
LED +	Solid	0.5 – 1.5 mm²
LED -	Solid	0.5 – 1.5 mm²
Battery +	Stranded	0.5 - 1.5 mm²
Battery -	Stranded	0.5 - 1.5 mm²

3.3 Wiring guidelines

- For good EMC compliance consider that the output to the LED is DC but has high frequency content.
- Separate LED leads from the mains connection and wiring for good EMC performance.
- Keep the LED wiring as short as possible for a good EMC performance.
- Route the secondary wires (LED module) in parallel to ensure good EMC performance.
- Maximum lead length for the LED test switch connection is 250 mm / 9.84 inch. Separate the LED test switch wiring from the LED leads to prevent noise coupling.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.4 Maximum lead length

LED test switch 250 mm

3.5 Use of different phases

The use of different phases for switched line and unswitched line is prohibited.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from metal.
- Type of protection: IP20
- The housing incorporates DIP switches. The position of the DIP switches is essential for the correct operation and must not be changed. Altering their position will prohibit the correct operation of the emergency lighting LED Driver.

4.2 Mechanical data accessories

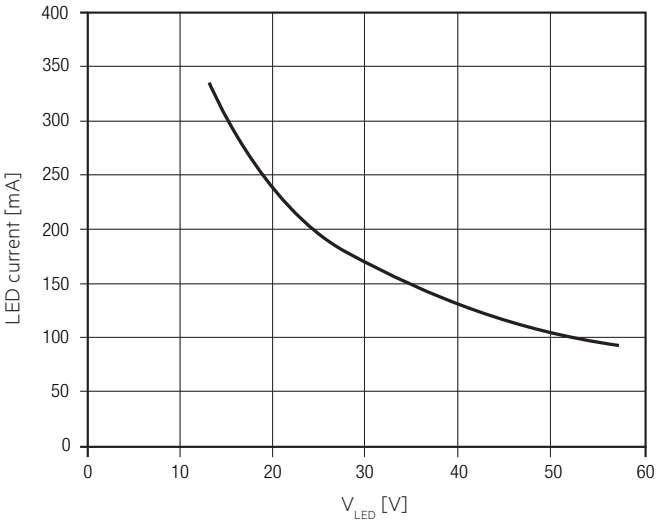
LED test switch
- Mounting hole 4.2 mm diameter
- Mounting hole strength < 5 mm
- Lead length 250 mm
- For direct installation or use in a separate junction box

5. Electrical values

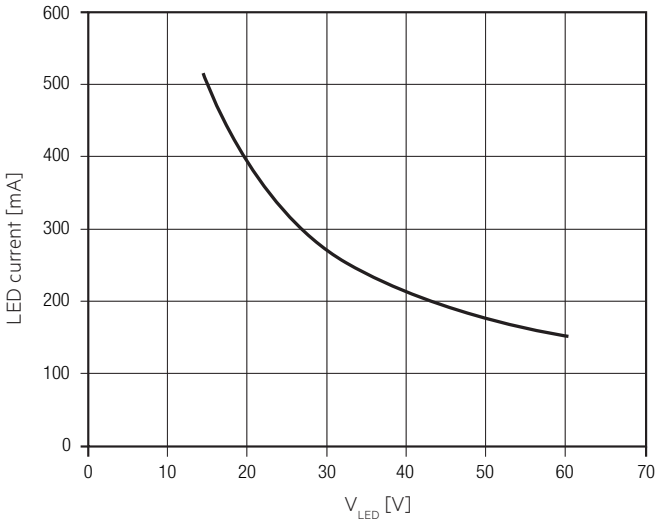
5.1 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterPACK module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

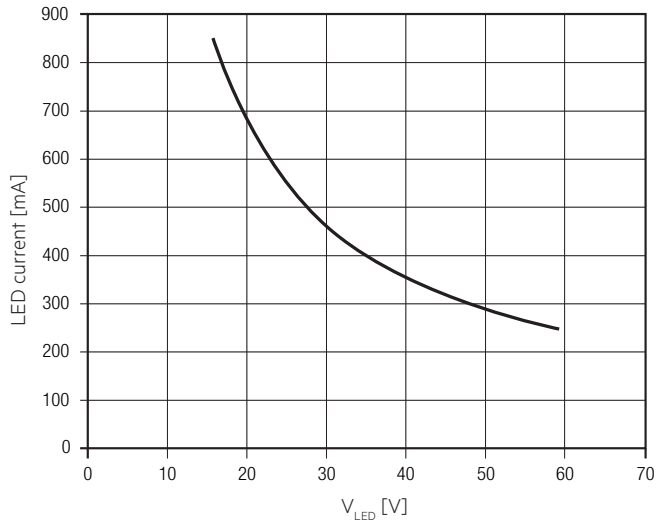
EM converterPACK ST 1-9-5 60V UNV WIRE
Article number: 28002864
NiMH battery, 9.6 V battery voltage
540 – 630 mA battery discharge current (tolerance)



EM converterPACK ST 1-9-9 60V UNV WIRE
Article number: 28002867
NiMH battery, 10.8 V battery voltage
860 – 1,150 mA battery discharge current (tolerance)



EM converterPACK ST 1-9-15 60V UNV WIRE
Article number: 28002870
NiMH battery, 10.8 V battery voltage
1,410 – 1,720 mA battery discharge current (tolerance)



5.2 LED Driver compatibility

The EM converterPACK emergency unit use 3 pole technology and is compatible with most LED Drivers on the market, however it is important to check that the rating of the LED Driver does not exceed the values specified below:

- The max. allowed output current rating of the associated LED Driver is 5 A peak (current rating of switching relays of EM converterPACK)
- The max. allowed output voltage of the associated LED Driver applied to the EM converterPACK output is 60V (voltage withstand between adjacent contact of the single switching relay of the EM converterPACK)
- The max. allowed LED load of the associated LED Driver is 300 W in operation. The load must be an LED module.

6. Functions

6.1 Status indication

System status is indicated by LED test switch.

LED indication	Status	Comment
Permanent on	System OK	AC mode
Slow flashing (2 sec on – 2 sec off)	Charging	Battery not yet fully charged
Fast flashing (0.5 sec on – 0.5 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage
Gradual change	Test underway	Function or duration test

6.2 Commissioning

After installation of the luminaire and initial connection of the mains supply and battery supply to the EM converterPACK ST the unit will commence charging the batteries for the initial charge time.
The recharge occurs also if a new battery is connected.
The following automatic commissioning duration test is only performed when a battery is replaced and fully charged.

6.3 Testing

Functional test
Functional tests are carried out for 30 seconds on a monthly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

LED test switch
LED test switch can be wired to each EM converterPACK ST.
This can be used to to:
- Initiate a 30 seconds function test: press two times within 5 s
- Initiate a duration test: press 3 times within 5 s

7. Battery data

7.1 Battery charge / discharge data

EM converterPACK ST 1-9-x 60V UNV

	Type	EM converterPACK ST 1-9-5 60V UNV WIRE	EM converterPACK ST 1-9-9 60V UNV WIRE	EM converterPACK ST 1-9-15 60V UNV WIRE
	Article no.	**28002864**	**28002867**	**28002870**
Battery charge time	Initial charge		24 h	
	Fast recharge		24 h	
	Trickle charge		continuously	
Charging current	Initial charge	119 mA	153 mA	210 mA
	Fast recharge	90 mA	110 mA	190 mA
	Trickle charge	75 mA	105 mA	190 mA
Discharge current		0.35 C	0.45 C	0.45 C

7.2 Technical data batteries

Type	**EM converterPACK ST 1-9-5 60V UNV WIRE**	**EM converterPACK ST 1-9-9 60V UNV WIRE**	**EM converterPACK ST 1-9-15 60V UNV WIRE**
Article no.	**28002864**	**28002867**	**28002870**
Voltage	9.6 V	10.8 V	10.8 V
Capacity	1,500 mAh	2,100 mAh	3,800 mAh
Discharge cycles	500	500	500

8. Miscellaneous

8.1 Maximum number of switching cycles

EM converterLEDs are tested with 10,000 mains switching cycles of the associated LED driver.

8.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM pLED ONC LiFePO4 180lm 3h Kit

Combined emergency lighting LED driver 1 – 4 W

EM AP Lighthead 18mm

EM AP Lighthead 36mm

Product description
_ The EM AP Lighthead Kit is a self-contained solution for diverse applications
_ 18 mm variant for built-in applications
_ 36 mm variant for independent use
_ The complete set includes an EM powerLED 1W, the antipanic lighthead with integrated indication LED, LiFePO4 battery and the fixing flange nut
_ EM AP LIGHTHEAD with 180 lumen light output
_ IP65 for EM AP Lighthead in installed state
_ SELV for output voltage < 60 V DC
_ Non maintained operation
_ Manual testing
_ 3 h rated duration
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

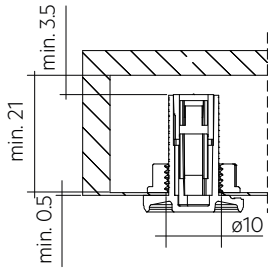
Battery management
_ Intelligent charge system
_ Deep discharge protection
_ Temperature protection
_ Polarity reversal protection for battery provided by 3-pole connector

Batteries
_ LiFePO4 batteries with Tridonic LiFeGuard
_ Temperature-protected
_ Overcharge-/Overdischarge protection
_ Ensures safety in use
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

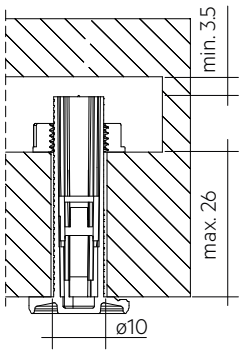
Website
http://www.tridonic.com/89801289

EM pLED ONC LiFePO4 180lm 3h Kit

Combined emergency lighting LED driver 1 – 4 W



EM AP Lighthead 18mm



EM AP Lighthead 36mm

Ordering data

Type	Article number	Dimensions L x W x H	Rated duration	Max. number of LEDs	Packaging, carton	Packaging, pallet	Weight per pc.
Screw fastening version							
EM pLED ONC LiFePO4 180lm KIT 18mm	**89801289**	139 x 30 x 21 mm	3 h	1	5 pc(s).	360 pc(s).	0.233 kg
EM pLED ONC LiFePO4 180lm KIT 36mm	**89801291**	139 x 30 x 21 mm	3 h	1	5 pc(s).	360 pc(s).	0.233 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
THD (at 230 V, 50 Hz, full load)	< 120 %
U-OUT (including open- / short-circuit and double load)	15 V
Max. open circuit voltage	15 V
Output current tolerance	± 10 %
Typical output LF current ripple at full load	± 5 %
Starting time (at 230 V, 50 Hz, full load)	< 0.5 s
Output current	350 mA
Ambient temperature ta ①	-25 … +55 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Surge voltage at output side (against PE)	< 1.5 kV
Mains surge capability (between L/N - PE)	2 kV
Risk group (IEC 62471)	RG2 (Ethr= 658 lx, RG1 > 51 cm)
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

IP20 SELV RoHS

Standards

EN 61347-2-7, EN 61347-2-13, EN 62384, EN 55015, EN 61000-3-2, EN 61547, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 62031, according to EN 50172, according to EN 60598-2-22

① Ambient temperature ta EM AP Lighthead: -25 … + 45 °C.

TRIDONIC

EM pLED PRO LiFePO4 180lm 3h Kit

Combined emergency lighting LED driver 1 – 4 W

EM AP Lighthead 18mm

EM AP Lighthead 36mm

Product description
_ The EM AP Lighthead Kit is a self-contained solution for diverse applications
_ 18 mm variant for built-in applications
_ 36 mm variant for independent use
_ The complete set includes an EM powerLED 1W, the antipanic lighthead with integrated indication LED, LiFePO4 battery and the fixing flange nut
_ EM AP LIGHTHEAD with 180 lumen light output
_ IP65 for EM AP Lighthead in installed state
_ SELV for output voltage < 60 V DC
_ Non maintained operation
_ DALI-2 interface for controlled testing and monitoring
_ 3 h rated duration
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

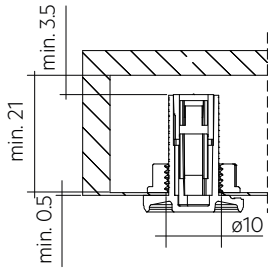
Battery management
_ Intelligent charge system
_ Deep discharge protection
_ Temperature protection
_ Polarity reversal protection for battery provided by 3-pole connector

Batteries
_ LiFePO4 batteries with Tridonic LiFeGuard
_ Temperature-protected
_ Overcharge-/Overdischarge protection
_ Ensures safety in use
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

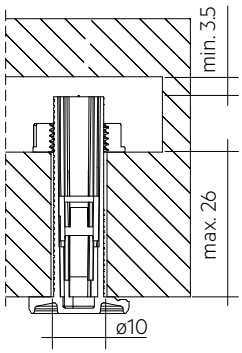
Website
http://www.tridonic.com/89801290

EM pLED PRO LiFePO4 180lm 3h Kit

Combined emergency lighting LED driver 1 – 4 W



EM AP Lighthead 18mm



EM AP Lighthead 36mm

Ordering data

Type	Article number	Dimensions L x W x H	Rated duration	Max. number of LEDs	Packaging, carton	Packaging, pallet	Weight per pc.
Screw fastening version							
EM pLED PRO LiFePO4 180lm KIT 18mm	**89801290**	139 x 30 x 21 mm	3 h	1	5 pc(s).	360 pc(s).	0.233 kg
EM pLED PRO LiFePO4 180lm KIT 36mm	**89801292**	139 x 30 x 21 mm	3 h	1	5 pc(s).	360 pc(s).	0.233 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
THD (at 230 V, 50 Hz, full load)	< 120 %
U-OUT (including open- / short-circuit and double load)	15 V
Max. open circuit voltage	15 V
Output current tolerance	± 10 %
Typical output LF current ripple at full load	± 5 %
Starting time (at 230 V, 50 Hz, full load)	< 0.5 s
Output current	350 mA
Ambient temperature ta ①	-25 … +55 °C
Max. casing temperature tc	75 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Surge voltage at output side (against PE)	< 1.5 kV
Mains surge capability (between L/N - PE)	2 kV
Risk group (IEC 62471)	RG2 (Ethr= 658 lx, RG1 > 51 cm)
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

IP20 SELV EL-T RoHS

Standards

EN 61347-2-7, EN 61347-2-13, EN 62384, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61000-4-11, EN 61547, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 62031, EN 62386 (acc. to DALI standard V2), according to EN 50172, according to EN 60598-2-22, acc. to EN 62034

① Ambient temperature ta EM AP Lighthead: -25 … + 45 °C.

TRIDONIC

EM powerLED BASIC CLE 232 LiFePO4 14W

LED Driver for AC power supplies

LiFeGuard

Product description
_ LED driver for mains operation with integrated Simple CORRIDOR FUNCTION (CF)
_ For luminaire installation
_ For the use with CLE ADV5 EM
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

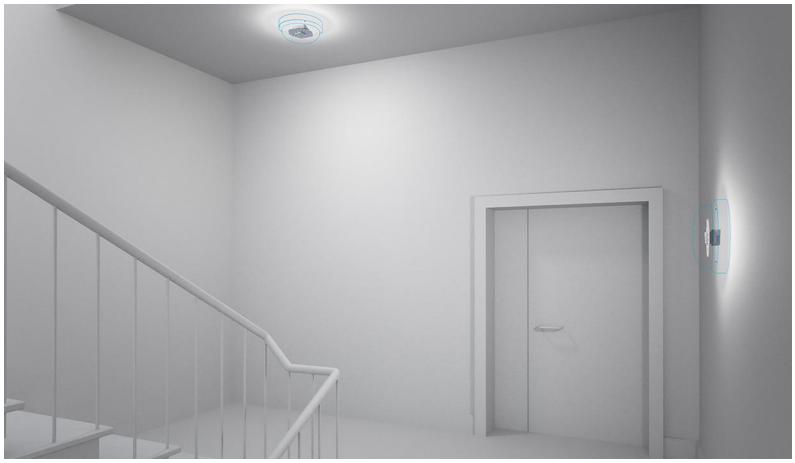
Properties
_ Constant current LED driver with 350 mA output current
_ Simple CORRIDOR FUNCTION (CF) with 10 % light level
_ Constant current mode
_ Light output in DC operation (EoFI): 0.1 or 1
_ SELV
_ For emergency lighting systems as per EN 50172
_ LED module and sensor available

Battery management
_ Intelligent charge system
_ Deep discharge protection
_ Temperature protection
_ Polarity reversal protection for battery provided by 3-pole connector

Batteries
_ LiFePO4 batteries with Tridonic LiFeGuard
_ Temperature-protected
_ Overcharge-/Overdischarge protection
_ Ensures safety in use
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions) ①
_ For battery compatibility refer to data sheet, battery selection

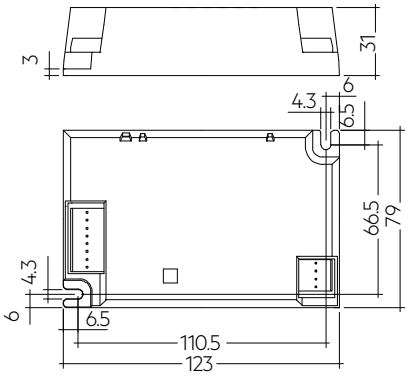
① 28005859 - 5 Jahre Garantie. 28006323 - 4 Jahre Garantie.

Website
http://www.tridonic.com/89801088



EM powerLED BASIC CLE 232 LiFePO4 14W

LED Driver for AC power supplies



Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.
EMpLED BASIC CLE 232 C LiFePO4 14W	**89801088**	3 h	10 pc(s).	560 pc(s).	0.11 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
U-OUT (including open- / short-circuit and double load)	48 V
Overvoltage protection	320 V (for 1 h)
Rated duration	3 h
Min. forward voltage	31 V
Max. forward voltage	40 V
Starting time (at 230 V, 50 Hz, full load)	250 ms
Switchover time from mains to emergency operation	< 75 ms
Switchover time from emergency to mains operation	< 300 ms
Ambient temperature ta	0 … +55 °C
Max. casing temperature tc	85 °C
Dimensions L x W x H	123 x 79 x 31 mm
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

SELV EL RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384, according to EN 60598-2-22, according to EN 50172

Specific technical data

Type ②	Typ. output current	Output current tolerance	Min. output voltage ③	Max. output voltage ③	Typ. output power	Input power (at 230 V, 50 Hz, full load)	Input current (at 230 V, 50 Hz, full load)	Efficiency (at 230 V, 50 Hz, full load)	λ (at 230 V, 50 Hz, full load)
Normal operation at 100 %									
EMpLED BASIC CLE 232 C LiFePO4 14W	350 mA	10 %	31.0 V	40.0 V	14.00 W	18.1 W	115 mA	80 %	0.7C
CF operation at 10 %									
EMpLED BASIC CLE 232 C LiFePO4 14W	35 mA	10 %	31.0 V	40.0 V	1.98 W	3.8 W	42 mA	55 %	0.3C
Emergency operation at 100 %									
EMpLED BASIC CLE 232 C LiFePO4 14W	350 mA	10 %	2.4 V	3.4 V	1.05 W	–	–	–	–

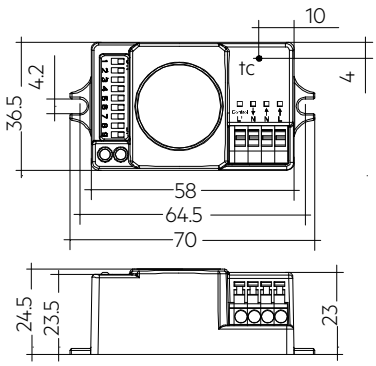
② EM = Emergency
③ Output voltage range defined in normal operation. LED forward voltage will decrease in CF operation.

smartSWITCH G2 HF 5DP f

Accessory

Product description

_ Motion detector for luminaire installation
_ Motion detection through glass and thin materials (except metal)
_ For automatic on/off switching of luminaires with electronic ballasts and LED drivers
_ Bright-out function: luminaire is not switched on if there is adequate brightness
_ Delay time, detection range and light value for the bright-out function can be set via 9 dip switches
_ Max. installation height 5 m
_ Two housing options allowing flexible installation
_ Variable detection area (100 – 10 %)
_ Zero cross switching supported
_ Second neutral terminal for easy wiring
_ Optimised for applications and environments with other wireless communication systems
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)



Website
http://www.tridonic.com/28004370

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
smartSWITCH G2 HF 5DP f	**28004370**	70 x 36.5 x 24.5 mm	100 pc(s).	0.036 kg
smartSWITCH G2 HF 5DP S f	**28004371**	58 x 52.0 x 24.5 mm	100 pc(s).	0.036 kg

Approval marks

RoHS

Status indication green LED EM

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery

Website
http://www.tridonic.com/89899605

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green	**89899605**	25 pc(s).	200 pc(s).	0.013 kg
LED EM green, ultra high brightness	**89899756**	25 pc(s).	200 pc(s).	0.013 kg

Approval marks

RoHS

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

1. Standards

- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61347-1
- EN 61347-2-13
- EN 61547
- EN 62384
- EN 61347-2-7
- according to EN 60598-2-22
- according to EN 50172

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED Drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-Drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Expected lifetime

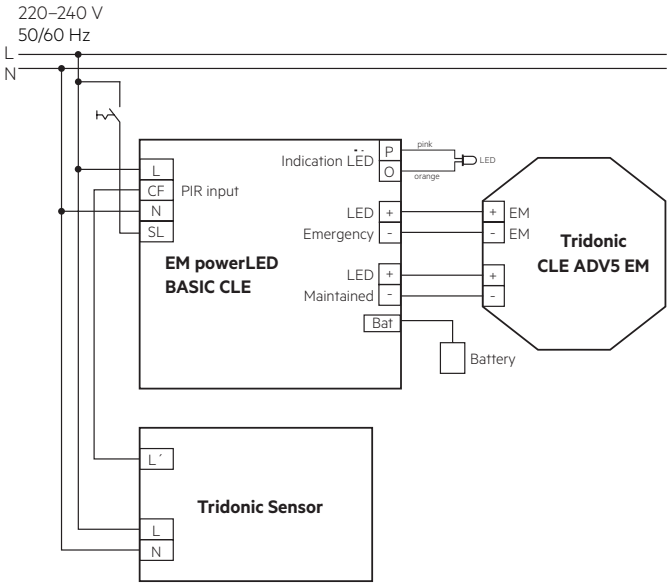
Expected lifetime

Type		ta = 25 °C	ta = 35 °C	ta = 40 °C	ta = 45 °C	ta = 50 °C	ta = 55 °C
EM pLED BASIC CLE 232 LiFePO4 14W	tc	60 °C	65 °C	70 °C	75 °C	80 °C	85 °C
	Lifetime	>100,000 h	>100,000 h	>100,000 h	>100,000 h	>100,000 h	96,000 h

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / wiring

3.1 Wiring diagram EM powerLED with sensor

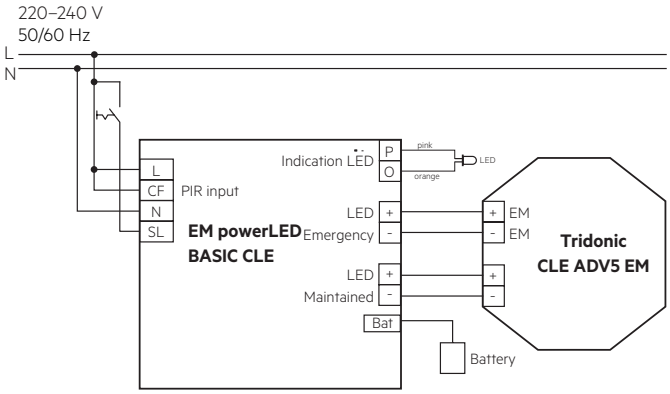


PIR input ≙ 230 V

Switching behaviour

SL	CF	LED Maintained
off	off	off
off	on	off
on	off	10 %
on	on	100 %

3.2 Wiring diagram EM powerLED



PIR input ≙ 230 V

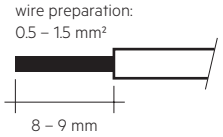
The mains power must be removed before changing the LED load.

Secondary switching of LEDs is not allowed and may cause damage to the LEDs.
The hot plug-in of LEDs during normal operation may result in current peaks of up to 50% above the typical output current.

3.3 Wiring type and cross section

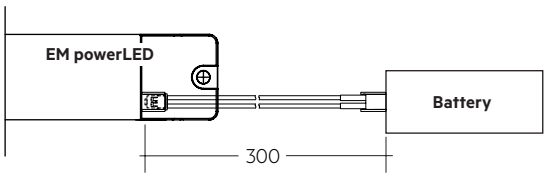
Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED Driver/supply

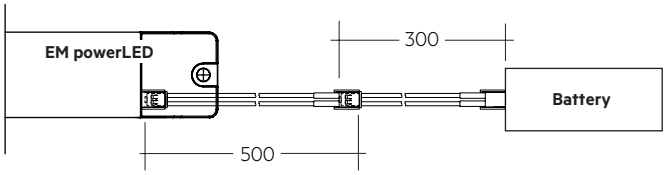


3.4 Battery connection

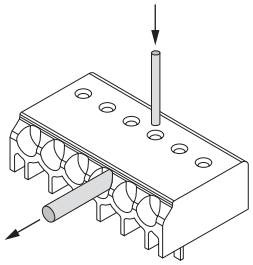
$LiFePO_4$: Direct connection



$LiFePO_4$: Connection with extension



3.5 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.6 Installation instruction

Max. torque for the mounting screws: 0.5 Nm / M4.

You must make sure that the LED is connected with the correct polarity. LEDs that are connected to EM powerLED should have polarity reversal protection such as a Schottky diode. There may be irreversible damage if the LED is connected with the wrong polarity. The protection device must be capable of handling a load of more than 700 mA.

3.7 Wiring guidelines

- The LED terminals, battery and indicator LED terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Maximum lead length for the Indicator LED connection is 1 m. The Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.)

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire the switched and unswitched 50 Hz supply wiring must be routed as short as possible and be kept as far away as possible from the LED leads.Through wiring may affect the EMC performance of the luminaire.

3.8 Maximum lead length

LED	3 m (6 m loop)[①]
Status indication LED	1 m
Batteries	0.8 m

[①] Note: Do not exceed the length of LED leads to the LED module. Leads should always be kept as short as possible.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.5 Nm / M4

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	I_{max}	time
EM pLED BASIC CLE 232 LiFePO4 14W	90	130	130	130	150	216	216	216	7.72 A	292 µs

5.2 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

Type	THD	3	5	7	9	11	13
EM pLED BASIC CLE 232 LiFePO4 14W	33	28	19	6	14	7	13

5.3 Insulation matrix

	Mains	**Switched Live**	**Battery, LED, Indicator LED**
Mains	–	•	••
Switched Live	•	–	••
Battery, LED, Indicator LED	••	••	–

• Represents basic insulation

•• Represents double or reinforced insulation

6. Functions

6.1 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again.
The restart can be done via mains reset.

6.2 No-load operation

The LED Driver will not be damaged in no-load operation. The output will be deactivated and is therefore free of voltage. If a LED load is connected the device has to be restarted before the output will be activated again.

6.2 Status indication LED

System status is indicated by a green LED.

Note:
The status indication LED switches off if the battery does not reach the full capacity (3.6V battery voltage) within 20 – 24 hours.
If this occurs disconnect the mains voltage and operate the device in emergency mode for approximately one hour. Afterwards apply the mains voltage again and recharge the battery for 24 hours.
If the failure occurs again replace the battery.

7. Battery data

7.1 Battery selection

EM pLED BASIC CLE 232 LiFePO4 14W, 3 h

Type	**EM pLED BASIC CLE 232 LiFePO4 14W**
Article no.	**89801088**
Duration	**3 h**
Cells	**2**

Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**
$LiFePO_4$ 1.5 Ah	stick	1 x 2	**Accu-LiFePO4 2A CON**	**28002318**	•
	side by side	2 x 1	**Accu-LiFePO4 2B CON**	**28002319**	•
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28005854**	•
	stick	1S1P	**Accu-LiFePO4 1A CON**	**28006323**	•
	remote box	1S1P	**PACK-LiFePO4 3.3Ah 1 CON**	**28005859**	•

7.2 Battery charge / discharge data

EM pLED BASIC CLE 232 LiFePO4 14W, 3 h

	Type	**EM pLED BASIC CLE 232 LiFePO4 14W**
	Article no.	**89801088**
	Duration	**3 h**
Battery charge time	Initial charge	24 h
	Trickle charge	continuously
Charging current	Initial charge	160 – 200 mA
	Trickle charge[1]	160 – 200 mA / 0 mA
Discharge current[3]		420 – 580 mA
Charge voltage range[2]		2.0 – 3.6 V per cell
Discharge voltage range		2.6 – 3.6 V per cell

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).

The emergency lighting LED Driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

[3] Measured at 3.2 V battery.

7.3 Accu-LiFePO4

Capacity two cell accu 3.0 Ah	
International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+55 °C
6 years design life	+45 °C
8 years design life	+35 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

7.4 Accu-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

Only use Tridonic batteries.

7.5 Accu / Accupack-LiFePO4

Capacity 3.3 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max short term battery case tc point temperature	
(reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

7.6 Safety

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.6.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.6.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.6.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.6.4 Temperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

7.7 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.2 Mains-connected transformers

The EM powerLED does not contain mains-connected windings of transformers.

8.4 Storage conditions

Humidity: 5 % up to max. 85 %,
not condensed
(max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be within the specified temperature range (ta) before they are operated.

8.5 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED BASIC FX lp 75 W

Combined emergency lighting LED driver

Product description
_ Fixed output LED driver for mains operation
_ Emergency lighting LED driver with manual test function
_ For self-contained emergency lighting
_ For LED modules with a forward voltage of 50 – 220 V
_ For luminaire installation
_ Low profile cross-section (21 x 30 mm)
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ 6 – 75 W output power
_ Constant current LED operation
_ Adjustable output current between 100 and 400 mA via ready2mains Programmer or I-SELECT 2 plugs
_ Integrated emergency lighting unit
_ 1 or 3 h rated duration
_ Automatic shutdown of output if LED load is out of range
_ Green charge status display LED
_ Electronic charge system
_ Polarity reversal protection for battery
_ Deep discharge protection
_ Short-circuit-proof battery connection

Batteries
_ High-temperature cells
_ NiCd or NiMH batteries
_ D, Cs or LAL cells
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet, battery selection

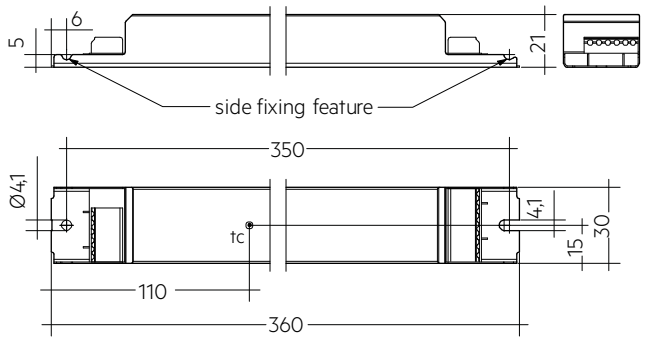
Website
http://www.tridonic.com/89800598

Linear | High bay | Decorative | Downlights | Spotlights | Free-standing | Area | Floor | Wall | Street

TRIDONIC

EM powerLED BASIC FX lp 75 W

Combined emergency lighting LED driver



Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM powerLED BASIC FX 213 lp 75W 220V	**89800598**	1 h	3	10 pc(s).	600 pc(s).	0.245 kg
EM powerLED BASIC FX 214 lp 75W 220V	**89800599**	1 h	4	10 pc(s).	600 pc(s).	0.245 kg
EM powerLED BASIC FX 215 lp 75W 220V	**89800600**	1 h	5	10 pc(s).	600 pc(s).	0.245 kg
EM powerLED BASIC FX 233 lp 75W 220V	**89800601**	3 h	3	10 pc(s).	600 pc(s).	0.245 kg
EM powerLED BASIC FX 234 lp 75W 220V	**89800602**	3 h	4	10 pc(s).	600 pc(s).	0.245 kg
EM powerLED BASIC FX 235 lp 75W 220V	**89800603**	3 h	5	10 pc(s).	600 pc(s).	0.245 kg

Technical data

Rated supply voltage AC	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Typ. rated current (at 230 V, 50 Hz, full load) ①	380 mA
Leakage current (at 230 V, 50 Hz, full load) ①	< 250 µA
Max. input power	85 W
Typ. λ (at 230 V, 50 Hz, normal operation)	0.98
Overvoltage protection	320 V (for 48 h)
Battery charging time	< 24 h
U-OUT (including open- / short-circuit and double load)	280 V
Typ. input current in no-load operation 1 hr (charging)	16 mA
Typ. input current in no-load operation 3 hr (charging)	18 mA
Typ. input power in no-load operation 1 hr (charging)	2 W
Typ. input power in no-load operation 3 hr (charging)	2.4 W
In-rush current (peak / duration)	26 A / 280 µs
THD (at 230 V, 50 Hz, full load) ①	< 10 %
Starting time	< 0.5 s from detection of emergency event
Starting time (mains off)	< 1.3 s
Starting time (stand-by)	< 250 ms
Turn off time (at 230 V, 50 Hz, full load)	< 50 ms
Output LF current ripple (< 120 Hz)	< 5 %
Output current tolerance	5 %
Ambient temperature ta	-5 … +50 °C
Max. casing temperature tc	75 °C
Mains surge capability (between L - N)	1 kV
Mains surge capability (between L/N - PE)	2 kV
Surge voltage at output side (against PE)	2 kV
Dimensions L x W x H	360 x 30 x 21 mm
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

EL 120 EAC CE UKCA RoHS

Standards

EN 61347-1, EN 61347-2-13, EN 61347-2-7, EN 62384, EN 55015, EN 61547, EN 61000-3-2, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, according to EN 50172, according to EN 60598-2-22

Specific technical data

Type	Number of battery cells	Output current[2][3]	Min. output voltage[1]	Max. output voltage[4]	Output power	Typ. power consumption (at 230 V, 50 Hz, full load)	Typ. current consumption (at 230 V, 50 Hz, full load)	λ (at 230 V, 50 Hz, full load)	I-SELECT resistor value[5]
Normal operation									
EM powerLED BASIC FX 213 lp 75W 220V	–	80 mA	75 V	220 V	20.0 W	20 W	100 mA	0.85C	–
EM powerLED BASIC FX 213 lp 75W 220V	–	100 mA	50 V	220 V	33.0 W	27 W	135 mA	0.90C	50.00 kΩ
EM powerLED BASIC FX 213 lp 75W 220V	–	150 mA	50 V	220 V	33.0 W	37 W	170 mA	0.95	33.33 kΩ
EM powerLED BASIC FX 213 lp 75W 220V	–	200 mA	50 V	220 V	44.0 W	49 W	220 mA	0.95	25.00 kΩ
EM powerLED BASIC FX 213 lp 75W 220V	–	250 mA	50 V	220 V	55.0 W	60 W	270 mA	0.97	20.00 kΩ
EM powerLED BASIC FX 213 lp 75W 220V	–	300 mA	50 V	220 V	66.0 W	71 W	320 mA	0.97	16.67 kΩ
EM powerLED BASIC FX 213 lp 75W 220V	–	350 mA	50 V	214 V	75.0 W	82 W	360 mA	0.98	14.29 kΩ
EM powerLED BASIC FX 213 lp 75W 220V	–	400 mA	50 V	188 V	75.0 W	82 W	370 mA	0.98	0.00 kΩ
EM powerLED BASIC FX 214 lp 75W 220V	–	80 mA	75 V	220 V	20.0 W	20 W	100 mA	0.85C	–
EM powerLED BASIC FX 214 lp 75W 220V	–	100 mA	50 V	220 V	33.0 W	27 W	135 mA	0.90C	50.00 kΩ
EM powerLED BASIC FX 214 lp 75W 220V	–	150 mA	50 V	220 V	33.0 W	37 W	170 mA	0.95	33.33 kΩ
EM powerLED BASIC FX 214 lp 75W 220V	–	200 mA	50 V	220 V	44.0 W	49 W	220 mA	0.95	25.00 kΩ
EM powerLED BASIC FX 214 lp 75W 220V	–	250 mA	50 V	220 V	55.0 W	60 W	270 mA	0.97	20.00 kΩ
EM powerLED BASIC FX 214 lp 75W 220V	–	300 mA	50 V	220 V	66.0 W	71 W	320 mA	0.97	16.67 kΩ
EM powerLED BASIC FX 214 lp 75W 220V	–	350 mA	50 V	214 V	75.0 W	82 W	360 mA	0.98	14.29 kΩ
EM powerLED BASIC FX 214 lp 75W 220V	–	400 mA	50 V	188 V	75.0 W	82 W	370 mA	0.98	0.00 kΩ
EM powerLED BASIC FX 215 lp 75W 220V	–	80 mA	75 V	220 V	20.0 W	20 W	100 mA	0.85C	–
EM powerLED BASIC FX 215 lp 75W 220V	–	100 mA	50 V	220 V	33.0 W	27 W	135 mA	0.90C	50.00 kΩ
EM powerLED BASIC FX 215 lp 75W 220V	–	150 mA	50 V	220 V	33.0 W	37 W	170 mA	0.95	33.33 kΩ
EM powerLED BASIC FX 215 lp 75W 220V	–	200 mA	50 V	220 V	44.0 W	49 W	220 mA	0.95	25.00 kΩ
EM powerLED BASIC FX 215 lp 75W 220V	–	250 mA	50 V	220 V	55.0 W	60 W	270 mA	0.97	20.00 kΩ
EM powerLED BASIC FX 215 lp 75W 220V	–	300 mA	50 V	220 V	66.0 W	71 W	320 mA	0.97	16.67 kΩ
EM powerLED BASIC FX 215 lp 75W 220V	–	350 mA	50 V	214 V	75.0 W	82 W	360 mA	0.98	14.29 kΩ
EM powerLED BASIC FX 215 lp 75W 220V	–	400 mA	50 V	188 V	75.0 W	82 W	370 mA	0.98	0.00 kΩ
EM powerLED BASIC FX 233 lp 75W 220V	–	80 mA	75 V	220 V	20.0 W	20 W	100 mA	0.85C	–
EM powerLED BASIC FX 233 lp 75W 220V	–	100 mA	50 V	220 V	33.0 W	27 W	135 mA	0.90C	50.00 kΩ
EM powerLED BASIC FX 233 lp 75W 220V	–	150 mA	50 V	220 V	33.0 W	37 W	170 mA	0.95	33.33 kΩ
EM powerLED BASIC FX 233 lp 75W 220V	–	200 mA	50 V	220 V	44.0 W	49 W	220 mA	0.95	25.00 kΩ
EM powerLED BASIC FX 233 lp 75W 220V	–	250 mA	50 V	220 V	55.0 W	60 W	270 mA	0.97	20.00 kΩ
EM powerLED BASIC FX 233 lp 75W 220V	–	300 mA	50 V	220 V	66.0 W	71 W	320 mA	0.97	16.67 kΩ
EM powerLED BASIC FX 233 lp 75W 220V	–	350 mA	50 V	214 V	75.0 W	82 W	360 mA	0.98	14.29 kΩ
EM powerLED BASIC FX 233 lp 75W 220V	–	400 mA	50 V	188 V	75.0 W	82 W	370 mA	0.98	0.00 kΩ
EM powerLED BASIC FX 234 lp 75W 220V	–	80 mA	75 V	220 V	20.0 W	20 W	100 mA	0.85C	–
EM powerLED BASIC FX 234 lp 75W 220V	–	100 mA	50 V	220 V	33.0 W	27 W	135 mA	0.90C	50.00 kΩ
EM powerLED BASIC FX 234 lp 75W 220V	–	150 mA	50 V	220 V	33.0 W	37 W	170 mA	0.95	33.33 kΩ
EM powerLED BASIC FX 234 lp 75W 220V	–	200 mA	50 V	220 V	44.0 W	49 W	220 mA	0.95	25.00 kΩ
EM powerLED BASIC FX 234 lp 75W 220V	–	250 mA	50 V	220 V	55.0 W	60 W	270 mA	0.97	20.00 kΩ
EM powerLED BASIC FX 234 lp 75W 220V	–	300 mA	50 V	220 V	66.0 W	71 W	320 mA	0.97	16.67 kΩ
EM powerLED BASIC FX 234 lp 75W 220V	–	350 mA	50 V	214 V	75.0 W	82 W	360 mA	0.98	14.29 kΩ
EM powerLED BASIC FX 234 lp 75W 220V	–	400 mA	50 V	188 V	75.0 W	82 W	370 mA	0.98	0.00 kΩ
EM powerLED BASIC FX 235 lp 75W 220V	–	80 mA	75 V	220 V	20.0 W	20 W	100 mA	0.85C	–
EM powerLED BASIC FX 235 lp 75W 220V	–	100 mA	50 V	220 V	33.0 W	27 W	135 mA	0.90C	50.00 kΩ
EM powerLED BASIC FX 235 lp 75W 220V	–	150 mA	50 V	220 V	33.0 W	37 W	170 mA	0.95	33.33 kΩ
EM powerLED BASIC FX 235 lp 75W 220V	–	200 mA	50 V	220 V	44.0 W	49 W	220 mA	0.95	25.00 kΩ
EM powerLED BASIC FX 235 lp 75W 220V	–	250 mA	50 V	220 V	55.0 W	60 W	270 mA	0.97	20.00 kΩ
EM powerLED BASIC FX 235 lp 75W 220V	–	300 mA	50 V	220 V	66.0 W	71 W	320 mA	0.97	16.67 kΩ
EM powerLED BASIC FX 235 lp 75W 220V	–	350 mA	50 V	214 V	75.0 W	82 W	360 mA	0.98	14.29 kΩ
EM powerLED BASIC FX 235 lp 75W 220V	–	400 mA	50 V	188 V	75.0 W	82 W	370 mA	0.98	0.00 kΩ
Emergency operation									
EM powerLED BASIC FX 213 lp 75W 220V	3	–	50 V	220 V	2.5 W	–	–	–	–
EM powerLED BASIC FX 214 lp 75W 220V	4	–	50 V	220 V	3.5 W	–	–	–	–
EM powerLED BASIC FX 215 lp 75W 220V	5	–	50 V	220 V	4.5 W	–	–	–	–
EM powerLED BASIC FX 233 lp 75W 220V	3	–	50 V	220 V	2.5 W	–	–	–	–
EM powerLED BASIC FX 234 lp 75W 220V	4	–	50 V	220 V	3.5 W	–	–	–	–
EM powerLED BASIC FX 235 lp 75W 220V	5	–	50 V	220 V	4.5 W	–	–	–	–

① Depending on the selected output current.
② The table only lists a number of possible operating points but does not cover each single point. The output current can be set within the total value range in 1-mA-steps. Output current is mean value.
③ Output current is mean value.
④ Output voltage range defined in normal operation.
⑤ Not compatible with I-SELECT (generation 1). Calculated resistor value.

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication green LED EM

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery

Website
http://www.tridonic.com/89899605

Ordering data

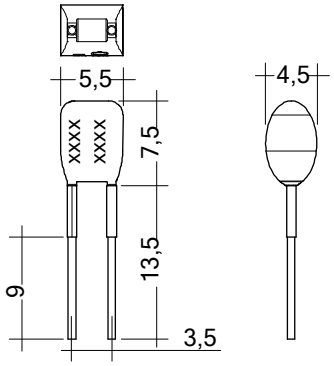
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green	**89899605**	25 pc(s).	200 pc(s).	0.013 kg
LED EM green, ultra high brightness	**89899756**	25 pc(s).	200 pc(s).	0.013 kg

Approval marks

RoHS

I-SELECT 2 PLUG PRE / EXC

Accessory



Product description

_ Ready-for-use resistor to set output current value
_ Compatible with LED driver featuring I-select 2 interface; not compatible with I-SELECT (generation 1)
_ Resistor is base insulated
_ Resistor power 0.25 W
_ Current tolerance ± 2 % additional to output current tolerance
_ Compatible with LED driver series PRE and EXC

Example of calculation

_ R [kΩ] = 5 V / I_out [mA] x 1000
_ E96 resistor value used
_ Resistor value tolerance ≤ 1 %; resistor power ≥ 0.1 W; base insulation necessary
_ When using a resistor value beyond the specified range, the output current will automatically be set to the minimum value (resistor value too big), respectively to the maximum value (resistor value too small)

Website

http://www.tridonic.com/28001101

Ordering data

Type	Article number	Colour	Marking	Current	Resistor value	Packaging, bag	Weight per pc.
I-SELECT 2 PLUG 125MA BL	**28001101**	Blue	0125 mA	125 mA	40.20 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 150MA BL	**28001102**	Blue	0150 mA	150 mA	33.20 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 200MA BL	**28001104**	Blue	0200 mA	200 mA	24.90 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 225MA BL	**28001105**	Blue	0225 mA	225 mA	22.10 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 250MA BL	**28001106**	Blue	0250 mA	250 mA	20.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 275MA BL	**28001107**	Blue	0275 mA	275 mA	18.20 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 300MA BL	**28001108**	Blue	0300 mA	300 mA	16.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 325MA BL	**28001109**	Blue	0325 mA	325 mA	15.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 350MA BL	**28001110**	Blue	0350 mA	350 mA	14.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 375MA BL	**28001111**	Blue	0375 mA	375 mA	13.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 400MA BL	**28001112**	Blue	0400 mA	400 mA	12.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	**28001099**	Blue	MAX	MAX	0.00 kΩ	10 pc(s).	0.001 kg

1. Standards

- EN 61347-1
- EN 61347-2-13
- EN 61347-2-7
- EN 62384
- EN 55015
- EN 61547
- EN 61000-3-2
- EN 60068-2-29
- EN 60068-2-30
- EN 60068-2-64
- according to EN 50172
- according to EN 60598-2-22

2. Thermal data

2.1 Expected Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	Output power	ta	40 °C	50 °C	55 °C
EM powerLED BASIC FX 2xx lp 75W 220V	< 40 W	tc	56 °C	66 °C	71 °C
		Lifetime	> 100,000 h	70,000 h	50,000 h
	40 – 60 W	tc	60 °C	70 °C	–
		Lifetime	> 100,000 h	60,000 h	–
	> 60 – 75 W	tc	65 °C	75 °C	–
		Lifetime	> 100,000 h	50,000 h	–

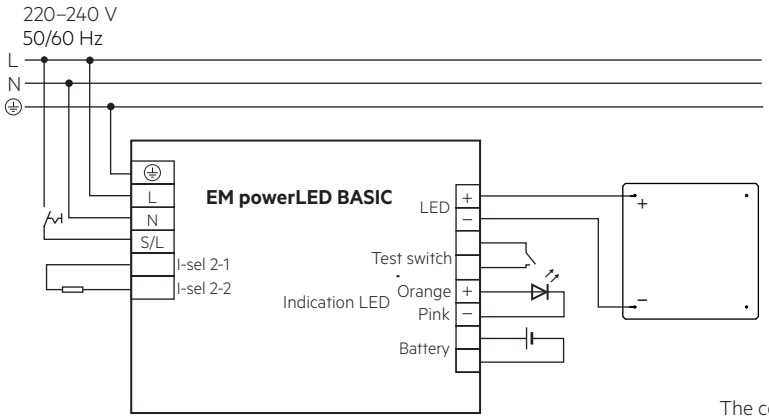
The EM powerLED is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

The relation of tc to ta temperature depends also on the luminaire design.
If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

3.1 Wiring diagrams

Wiring diagram EM powerLED BASIC FX without sensor



The connected LED module will be used for mains and emergency operation.

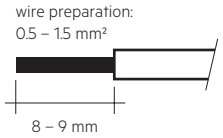
The mains power must be removed before changing the LED load.

Secondary switching of LEDs is not allowed and may cause damage to the LEDs. The hot plug-in of LEDs during normal operation may result in high current peaks.

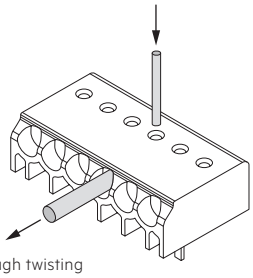
3.2 Wiring type and cross section

Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

LED module/LED Driver/supply



3.3 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

Maximum lead length

LED	3 m
status indication LED	1 m
batteries	1 m

3.4 Wiring guidelines

- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 1.3 m.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire the switched and unswitched 50 Hz supply wiring must be routed as short as possible and be kept as far away as possible from the LED leads.Through wiring may affect the emc performance of the luminaire.

The length of LED leads must not be exceeded.

The output current depends on the forward voltage and the tolerance of the LED modules.

4. Mechanical data

4.1 Housing properties

- Low-profile metal casing with white cover
- Type of protection IP 20

4.2 Mechanichal data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.8 m
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery leads
- Quantity: 1 red and 1 black
- Length: 1.3 m
- Wire type: 0.5 mm^2 solid conductor
- Insulation rating: 90 °C

Battery end termination
Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover or plug connection.

Module end termination
8.0 mm stripped insulation

Two-piece batteries are supplied with a 200 mm lead with 4.8 mm receptacle at each end and insulating covers to connect the separate sticks together.

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	I_{max}	time
EM powerLED BASIC FX 2xx lp 75W 220V	12	18	24	28	6	9	12	14	25.8 A	280 µs

Calculation uses typical values from ABB series S200 as a reference.
Actual values may differ due to used circuit breaker types and installation environment.

5.2 Insulation matrix

	Mains	**Switched Live**	**Battery, LED, Test switch, Indicator LED**	**I-SELECT 2**
Mains	–	•	• •	•
Switched Live	•	–	• •	•
Battery, LED, Test switch, Indicator LED	•	•	–	•
I-SELECT 2	•	•	• •	–

• Represents basic insulation

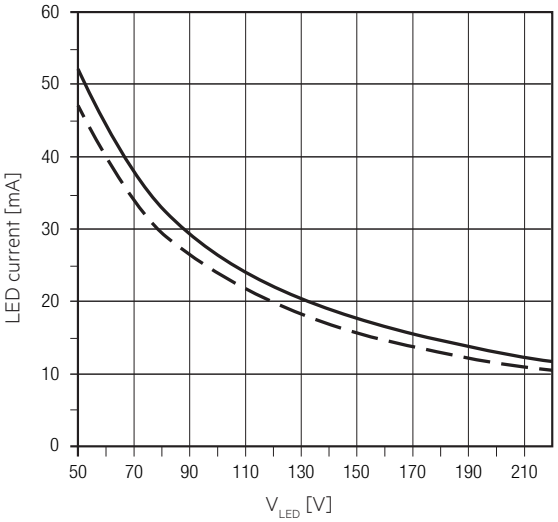
• • Represents double or reinforced insulation

Insulate the battery, LED, test switch and indicator LED in the luminaire according to the U-OUT rating of the LED Driver.

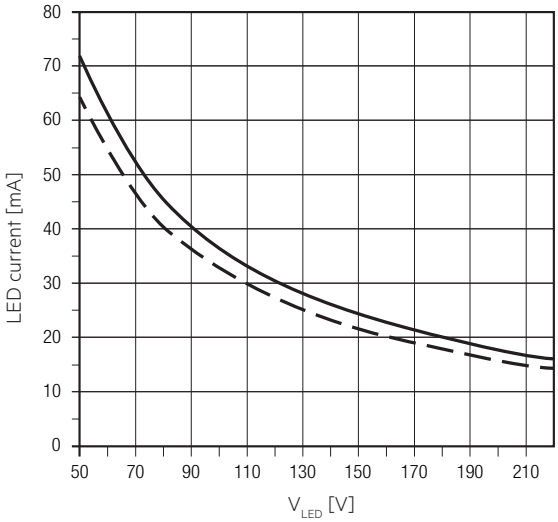
5.3 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM powerLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

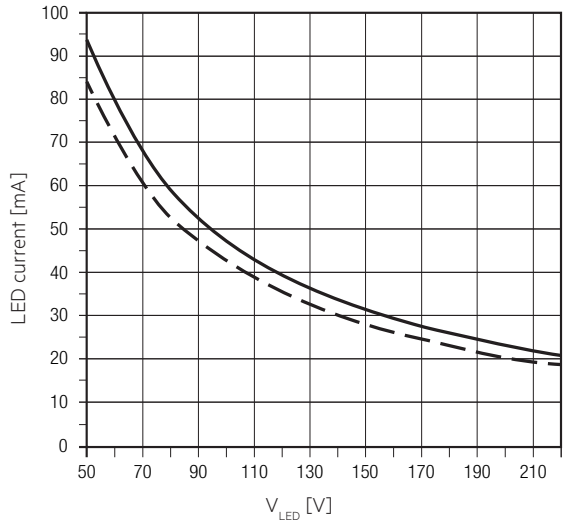
EM powerLED BASIC FX 213 / 233 lp 75W 220V
Article number: 89800598 / 89800601
3.6 V battery voltage
850 – 960 mA battery discharge current (tolerance)



EM powerLED BASIC FX 214 / 234 lp 75W 220V
Article number: 89800599 / 89800602
4.8 V battery voltage
850 – 960 mA battery discharge current (tolerance)



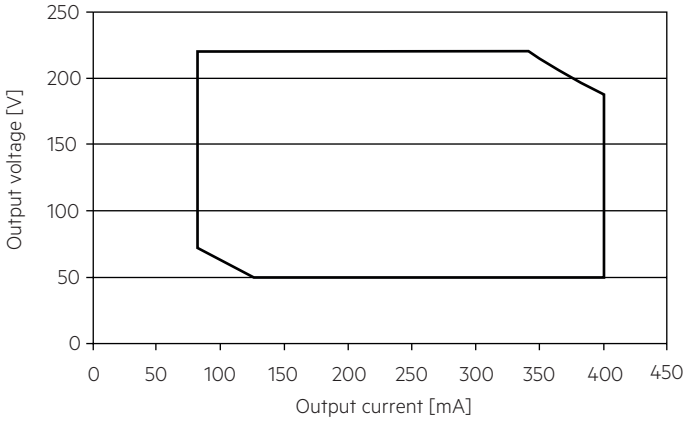
EM powerLED BASIC FX 215 / 235 lp 75W 220V
Article number: 89800600 / 89800603
6.0 V battery voltage
850 – 960 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

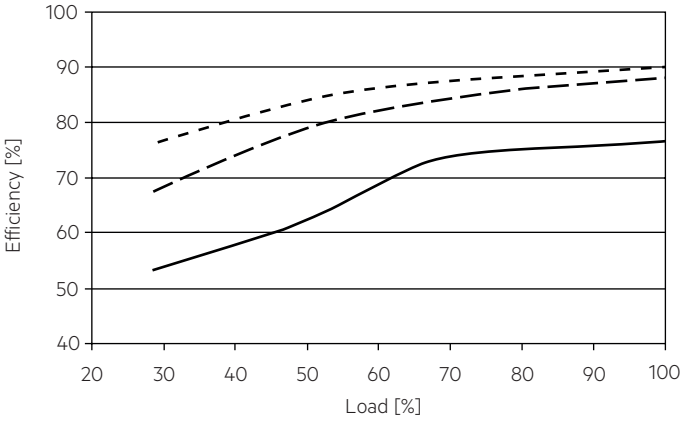
5.4 Operating window



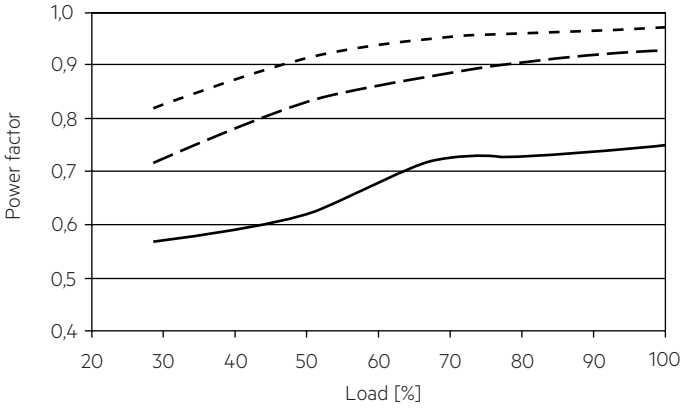
Operating window 100 %

Make sure that the LED Driver is operated within the given window under all operating conditions. Coming below the specified minimum output voltage of the LED Driver may cause the device to shut-down.

5.5 Efficiency vs load

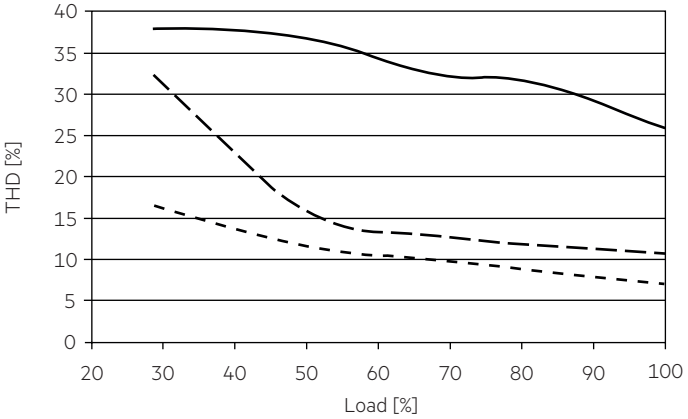


5.6 Power factor vs load



5.7 THD vs load

THD without harmonic < 5 mA or 0.6 % of the input current:



100 mA
250 mA
400 mA

100 % load corresponds to the max. output power (full load) according to the table on page 2.

6. Emergency output factor EOFi

EM powerLED BASIC

Type	EM powerLED BASIC FX 213/233 lp 75W 220V		EM powerLED BASIC FX 214/234 lp 75W 220V		EM powerLED BASIC FX 215/235 lp 75W 220V	
Article no.	89800598 / 89800601		89800599 / 89800602		89800600 / 89800603	
Cells	3 cells		4 cells		5 cells	
Output current	Min. LED load	Max. LED load	Min. LED load	Max. LED load	Min. LED load	Max. LED load
80 mA	39.50 %	13.50 %	55.00 %	19.00 %	70.00 %	24.00 %
100 mA	39.00 %	10.30 %	52.00 %	14.50 %	67.00 %	18.50 %
150 mA	32.00 %	7.00 %	42.00 %	9.90 %	56.00 %	12.50 %
200 mA	24.00 %	5.20 %	31.50 %	7.30 %	42.00 %	9.20 %
250 mA	19.20 %	4.10 %	25.00 %	5.80 %	33.50 %	7.40 %
300 mA	16.00 %	3.30 %	21.00 %	4.80 %	28.00 %	6.10 %
350 mA	13.80 %	3.10 %	18.00 %	4.10 %	24.00 %	5.30 %
400 mA	12.10 %	3.10 %	16.00 %	4.50 %	21.00 %	5.80 %

7. Functions

7.1 Function: adjustable current

The output current of the EM powerLED can be adjusted in a certain range. For adjustment there are two options available.

Option 1: I-select 2
By inserting a suitable resistor or third party resistor into the I-select 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter “Accessories I-SELECT 2 Plugs”.

Please note that the resistor values for I-select 2 are not compatible with I-select (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

Option 2: ready2mains
Adjustment is done by the ready2mains Programmer and the corresponding configuration software (see ready2mains documentation).

Current adjustment can only be done five times over ready2mains. To program the EM powerLED a connected load is necessary that is within the operating window of the EM powerLED.

The priority for current adjustment methods is I-select 2 followed by ready2mains (lowest priority).

7.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the EM powerLED the output will be activated again. The restart can either be done via mains reset or via interface ready2mains.

7.3 No-load operation

The EM powerLED will not be damaged in no-load operation. The output will be deactivated and is therefore free of voltage. If a LED load is connected the device has to be restarted before the output will be activated again.

7.4 Overload protection

If the output voltage range is exceeded the EM powerLED turns off the LED output. After restart of the EM powerLED the output will be activated again. The restart can be done via mains reset.

7.5 Overtemperature protection

The EM powerLED is protected against temporary thermal overheating. If the temperature limit is exceeded the output current of the LED module(s) is reduced. The temperature protection is activated approx. +5 °C above tc max (see page 2).

7.6 Forward voltage out of range

If the forward voltage is out of range the unit switches to shut down mode. After elimination of the short circuit a mains reset (SL off/on) is necessary.

8. Battery data

8.1 Battery selection

EM powerLED BASIC, 1 / 3 h

				Type	EM powerLED BASIC FX 213 lp 75W 220V	EM powerLED BASIC FX 233 lp 75W 220V	EM powerLED BASIC FX 214 lp 75W 220V	EM powerLED BASIC FX 234 lp 75W 220V	EM powerLED BASIC FX 215 lp 75W 220V	EM powerLED BASIC FX 235 lp 75W 220V
				Article no.	89800598	89800601	89800599	89800602	89800600	89800603
				Cells	3 cells	3 cells	4 cells	4 cells	5 cells	5 cells
				Duration	1 h	3 h	1 h	3 h	1 h	3 h
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**					
NiCd 4 Ah D cells	stick	1 x 3	**Accu-NiCd 3A 55**	**28002773**		•				
	stick	1 x 4	**Accu-NiCd 4A 55**	**89800089**				•		
	stick	1 x 5	**Accu-NiCd 5A 55**	**28002774**						•
	side by side	3 x 1	**Accu-NiCd 3B 55**	**89800384**		•				
	side by side	4 x 1	**Accu-NiCd 4B 55**	**89800385**				•		
	stick + stick	2 + 2	**Accu-NiCd 4C 55**	**28002775**				•		
	stick + stick	3 + 2	**Accu-NiCd 5C 55**	**89800090**						•
	remote box	1 x 3	**Pack-NiCd 3D CON**	**89800389**		•				
	remote box	1 x 4	**Pack-NiCd 4D CON**	**89800390**				•		
	remote box	1 x 5	**Pack-NiCd 5D CON**	**28001181**						•
NiMH 2.2 Ah Cs cells	stick	1 x 3	**Accu-NiMH 3A**	**28002088**	•					
	stick	1 x 4	**Accu-NiMH 4A**	**28002089**			•			
	stick	1 x 5	**Accu-NiMH 5A**	**28002090**					•	
	side by side	5 x 1	**Accu-NiMH 5B**	**28002093**					•	
NiMH 4 Ah LA cells	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**		•				
	stick	1 x 4	**Accu-NiMH 4Ah 4A CON**	**89800442**				•		
	stick + stick	2 + 2	**Accu-NiMH 4Ah 4C CON**	**89800438**				•		
	stick + stick	2 + 3	**Accu-NiMH 4Ah 5C CON**	**89800439**						•

8.2 Battery charge / discharge data

EM powerLED BASIC, 1 / 3 h

	Type	EM powerLED BASIC FX 213 / 214 / 215 lp 75W 220V	EM powerLED BASIC FX 233 / 234 / 235 lp 75W 220V
	Article no.	**89800598 / 89800596 / 89800600**	**89800601 / 89800602 / 89800603**
	Cells	**3 / 4 / 5 cells**	**3 / 4 / 5 cells**
	Duration	**1 h**	**3 h**
Battery charge time	Initial charge	24 h	
	Fast recharge	24 h	
	Trickle charge	continuously	
Charging current	Initial charge	105 mA	195 mA
	Fast recharge	105 mA	195 mA
	Trickle charge	70 mA	105 mA
Discharge current		850 – 960 mA	850 – 960 mA

8.3 Accu-NiCd

4.2 / 4.5 Ah

International designation	KRMU 33/62
Battery voltage/cell	1.2 V
Cell type	D
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	12 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

8.4 Accu-NiMH

2.2 Ah

International designation	HRMU 23/43
Battery voltage/cell	1.2 V
Cell type	Cs
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

8.5 Accupack-NiCd

4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.6 Accupack-NiMH

2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

For a higher battery temperature rating for NiMH 4 Ah refer to the EM converterLED xx MH/LiFePO4 product range.

8.7 Batteries

Connection method: 4.8 x 0.5 mm spade tag welded to end of cell

For stick packs this connection is accessible after the battery caps have been fitted.

To inhibit inverter operation disconnect the batteries by removing the connector from the battery spade tag.

For further information refer to corresponding battery datasheet.

8.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

9. Miscellaneous

9.1 Maximum number of switching cycles

All LED Drivers are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

9.2 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for one second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

9.3 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

9.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED BASIC FX SC MH/NiCd 32 W

Combined emergency lighting LED driver

Product description
_ Combined emergency LED driver for manual testing
_ For self-contained emergency lighting
_ Can be either used built-in or independent with clip-on strain-relief (see accessory)
_ Max. output power 32 W
_ EM = Emergency
_ Nominal lifetime up to 100,000 h
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Functions
_ Adjustable output current between 350 and 700 mA via I-SELECT 2 plugs
_ Protective features (overtemperature, short-circuit, overload, no-load, input voltage range)
_ Suitable for emergency escape lighting systems acc. to EN 50172
_ 1 or 3 h rated duration depending on connected battery
_ Constant power output in emergency mode

Battery management
_ Intelligent charge system
_ Deep discharge protection
_ Polarity reversal protection for battery
_ Short-circuit-proof battery connection

Batteries
_ NiCd or NiMH batteries
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet, battery selection

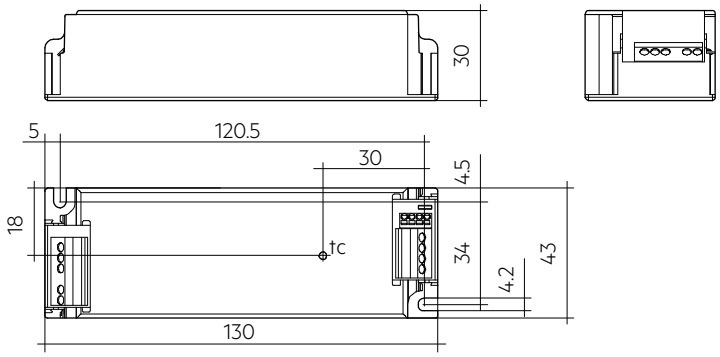
Website
http://www.tridonic.com/89800688

Linear | High bay | Decorative | Downlights | Spotlights | Free-standing | Area | Floor | Wall | Street

TRIDONIC

EM powerLED BASIC FX SC MH/NiCd 32 W

Combined emergency lighting LED driver



Ordering data

Type	Article number	Rated duration	Packaging, carton	Packaging, pallet	Weight per pc.
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	**89800688**	1/3 h	10 pc(s).	1,000 pc(s).	0.115 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
Typ. rated current (at 230 V, 50 Hz, full load, charging) ①	178 mA
Max. input power	38.8 W
Typ. efficiency (at 230 V, 50 Hz, full load, charging) ①	84 %
λ (at 230 V, 50 Hz, full load, charging)	0.95
Typ. input current in no-load operation (charging)	20 mA
Typ. input power in no-load operation (charging)	1.1 W
In-rush current (peak / duration)	4 A / 260 µs
THD (at 230 V, 50 Hz, full load)	14 %
Starting time (at 230 V, 50 Hz, full load)	< 500 ms
Turn off time (at 230 V, 50 Hz, full load)	< 50 ms
Switchover time (AC/EM)	< 500 ms
Output current tolerance	< 5 %
Max. output current peak (non-repetitive)	> 35 %
Output LF current ripple (< 120 Hz)	5 %
U-OUT (including open- / short-circuit and double load)	60 V
Max. open circuit voltage	60 V
Mains voltage changeover threshold	According to EN 60598-2-22
Max. casing temperature tc	80 °C
Ambient temperature ta at ≤ 25 W ②	-25 … +50 / -25 … +40 °C
Ambient temperature ta at > 25 W ②	-25 … +45 / -25 … +35 °C
Mains surge capability (between L - N)	1.2 kV
Surge voltage at output side (against PE)	2.4 kV
Mains surge capability (between L/N - PE)	2.4 kV
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	130 x 43 x 30 mm

Approval marks

IP20 SELV RoHS

Standards

EN 55015, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 62384, EN 61547, according to EN 50172, according to EN 60598-2-22

Specific technical data

Type	Number of battery cells	Output current[3][4]	Min. output voltage	Max. output voltage	Max. output power	Typ. power consumption (at 230 V, 50 Hz)		Typ. current consumption (at 230 V, 50 Hz)		I-SELECT resistor value[6]
						Min. load[5]	Max. load[5]	Min. load[5]	Max. load[5]	
Normal operation										
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	350 mA	15 V	50 V	17.5 W	10.5 / 10.0 W	23.5 / 23.0 W	60 / 57 mA	112 / 110 mA	–
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	400 mA	15 V	50 V	20.0 W	11.5 / 11.0 W	26.0 / 25.5 W	65 / 62 mA	126 / 125 mA	12.40 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	450 mA	15 V	50 V	22.5 W	12.5 / 12.0 W	29.0 / 28.5 W	68 / 65 mA	137 / 135 mA	11.00 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	500 mA	15 V	50 V	25.0 W	13.5 / 13.0 W	31.0 / 30.5 W	72 / 70 mA	147 / 145 mA	10.00 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	550 mA	15 V	50 V	27.5 W	14.0 / 13.5 W	33.4 / 33.0 W	75 / 70 mA	160 / 155 mA	9.09 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	600 mA	15 V	50 V	30.0 W	15.0 / 14.5 W	36.3 / 36.0 W	80 / 75 mA	170 / 165 mA	8.25 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	650 mA	15 V	50 V	32.2 W	15.5 / 15.0 W	38.8 / 38.5 W	83 / 80 mA	176 / 174 mA	7.68 kΩ
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	–	700 mA	15 V	46 V	32.2 W	16.5 / 16.0 W	38.8 / 38.5 W	85 / 83 mA	178 / 176 mA	0.00 kΩ
Emergency operation										
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	1	–	15 V	50 V	2.5 W	–	–	–	–	–
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	3	–	15 V	50 V	2.5 W	–	–	–	–	–

① Depending on the selected output current.
② Build-in / Independent with clip-on.
③ Output current is mean value.
④ The table only lists a number of possible operating points but does not cover each single point. The output current can be set within the total value range in 1-mA-steps.
⑤ Charging / Not charging
⑥ Not compatible with I-SELECT (generation 1). Calculated resistor value.

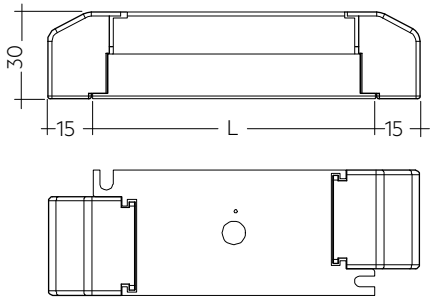
Strain-relief set 43x30mm

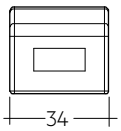
Accessory

Product description

_ Optional strain-relief set for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels for long strain-relief (30 x 43 x 30 mm)
_ With screws for short strain-relief (15 x 34 x 30 mm)
_ Overall length = length L (LED driver) + 2 x 30 mm (long strain-relief set), 2 x 15 mm (short strain-relief) or long and short strain-relief any combination
_ Standard SC (L = 30 mm) available as non-pre-assembled and pre-assembled
_ Short SC (L = 15 mm) only pre-assembled available

Website
http://www.tridonic.com/28001168





Permissible cable jacket diameter: 3 – 9 mm

Ordering data

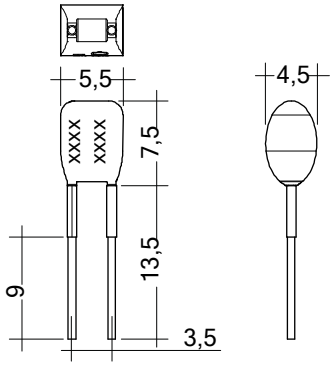
Type	Article number	Packaging, carton ①	Packaging, outer box	Weight per pc.
ACU SC 43x30mm CLIP-ON SR SET	**28001168**	10 pc(s).	500 pc(s).	0.018 kg
ACU SC 43x30mm CLIP-ON SR SET 300	**28001351**	300 pc(s).	300 pc(s).	0.033 kg
ACU SC 30x43x30mm CLIP-ON SR PA	**28001699**	10 pc(s).	500 pc(s).	0.015 kg
ACU SC 15x43x30mm CLIP-ON SR PA	**28001574**	10 pc(s).	1,200 pc(s).	0.012 kg

Approval marks

① 28001168: A carton of 10 pcs. is equal to 10 sets, each with 2 strain-reliefs parts. 28001351: A carton of 300 pcs. is equal to 300 sets, each with 2 strain-reliefs parts. 28001699 + 28001574: A carton contains exactly 10 pcs. strain-reliefs (no sets).

I-SELECT 2 PLUG PRE / EXC

Accessory



Product description

_ Ready-for-use resistor to set output current value
_ Compatible with LED driver featuring I-select 2 interface; not compatible with I-SELECT (generation 1)
_ Resistor is base insulated
_ Resistor power 0.25 W
_ Current tolerance ± 2 % additional to output current tolerance
_ Compatible with LED driver series PRE and EXC

Example of calculation

_ R [kΩ] = 5 V / I_out [mA] x 1000
_ E96 resistor value used
_ Resistor value tolerance ≤ 1 %; resistor power ≥ 0.1 W; base insulation necessary
_ When using a resistor value beyond the specified range, the output current will automatically be set to the minimum value (resistor value too big), respectively to the maximum value (resistor value too small)

Website

http://www.tridonic.com/28001110

Ordering data

Type	Article number	Colour	Marking	Current	Resistor value	Packaging, bag	Weight per pc.
I-SELECT 2 PLUG 350MA BL	**28001110**	Blue	0350 mA	350 mA	14.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 375MA BL	**28001111**	Blue	0375 mA	375 mA	13.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 400MA BL	**28001112**	Blue	0400 mA	400 mA	12.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 425MA BL	**28001251**	Blue	0425 mA	425 mA	11.80 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 450MA BL	**28001113**	Blue	0450 mA	450 mA	11.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 475MA BL	**28001252**	Blue	0475 mA	475 mA	10.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 500MA BL	**28001114**	Blue	0500 mA	500 mA	10.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 525MA BL	**28001960**	Blue	0525 mA	525 mA	9.53 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 550MA BL	**28001115**	Blue	0550 mA	550 mA	9.09 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 600MA BL	**28001116**	Blue	0600 mA	600 mA	8.25 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 650MA BL	**28001117**	Blue	0650 mA	650 mA	7.68 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 700MA BL	**28001118**	Blue	0700 mA	700 mA	7.15 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	**28001099**	Blue	MAX	MAX	0.00 kΩ	10 pc(s).	0.001 kg

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication green LED EM

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery

Website
http://www.tridonic.com/89899605

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green	**89899605**	25 pc(s).	200 pc(s).	0.013 kg
LED EM green, ultra high brightness	**89899756**	25 pc(s).	200 pc(s).	0.013 kg

Approval marks

RoHS

1. Standards

EN 55015
EN 60068-2-29
EN 60068-2-30
EN 60068-2-64
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-7
EN 61347-2-13
EN 62384
EN 61547
According to EN 50172
According to EN 60598-2-22

Housing fulfils requirements for reinforced insulation according EN 60598-1.

1.1 Glow wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

2. Thermal details and lifetime

2.1 Expected lifetime

Expected lifetime

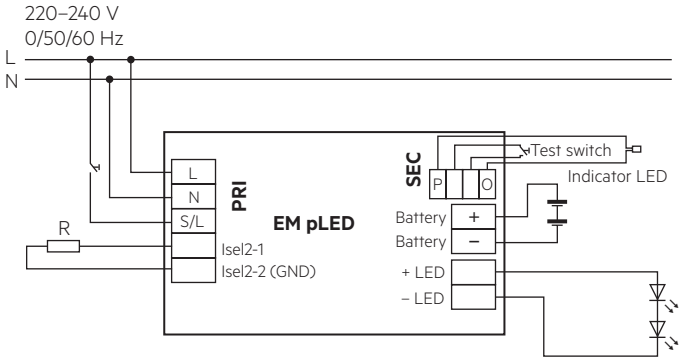
Type	Output current	ta	35 °C	40 °C	45 °C	50 °C	55 °C
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	350 mA	tc	60 °C	65 °C	70 °C	75 °C	80 °C
		Lifetime	> 100,000 h	> 100,000 h	> 100,000 h	70,000 h	50,000 h
	500 mA	tc	65 °C	70 °C	75 °C	80 °C	–
		Lifetime	> 100,000 h	> 100,000 h	70,000 h	50,000 h	–
	700 mA	tc	70 °C	75 °C	80 °C	–	–
		Lifetime	> 100,000	70,000 h	50,000 h	–	–

For operating points > 25 W the max. allowed ta is 45 °C. Ambient temperature with strain relief: ta max. (≤ 25 W) = 40 °C, ta max (> 25 W) = 35 °C.

The relation of tc to ta temperature depends also on the luminaire design.
If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / wiring

3.1 Wiring diagram

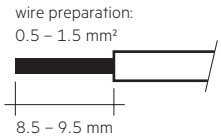


Recommendation to check glowing at standby in combination with class I luminaires.

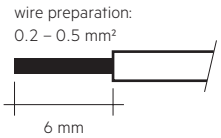
3.2 Wiring type and cross section

The wiring can be in stranded wires with ferrules or solid with a cross section of 0.5–1.5 mm² or 0.2–0.5 mm². Strip 8.5 – 9.5 mm or 6 mm of insulation from the cables to ensure perfect operation of the push-wire terminals (depending on connection, see graphics below).
Use one wire for each terminal connector only.

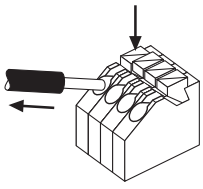
LED module/supply



Test switch/Indicator LED



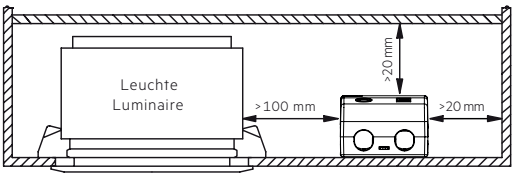
3.3 Loose wiring

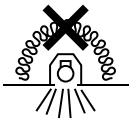


Press down the “push button” and remove the cable from front.

3.4 Fixing conditions when using as independent Driver with Clip-On

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device. Minimum distances stated below are recommendations and depend on the actual luminaire.
Is not suitable for fixing in corner.





Device not suitable for covering with thermally insulating material according to IEC 60598-1 Ed.9

3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 5 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 2 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.)

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire the switched and unswitched 50 Hz supply wiring must be routed as short as possible and be kept as far away as possible from the LED leads.Through wiring may affect the EMC performance of the luminaire.

The length of LED leads must not be exceeded. Note that the length of the leads from the EM converterLED to the LED modules is added to the length of the leads from the LED Driver to the EM converterLED module when considering the max. permitted lead length of the LED Driver. Leads should always be kept short as possible.

3.6 Hot plug-in

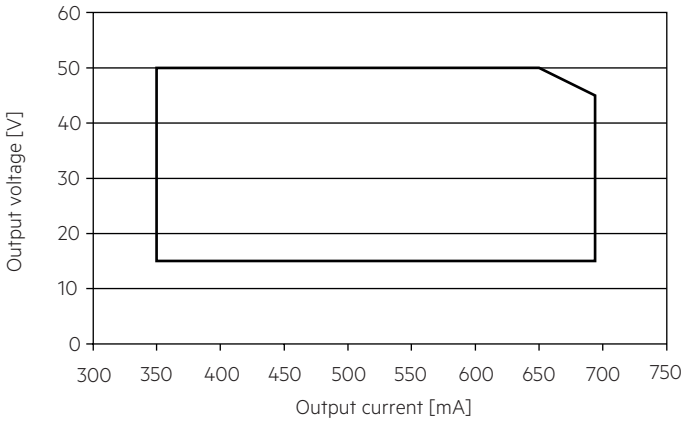
Hot plug-in is not supported due to residual output voltage of > 0 V.
If a LED load is connected the device has to be restarted before the output will be activated again.
This can be done via mains reset.

3.7 I-SELECT 2 resistors connected via cable

For details see:
http://www.tridonic.com/com/en/download/technical/LCA_PRE_LC_EXC_ProductManual_en.pdf.

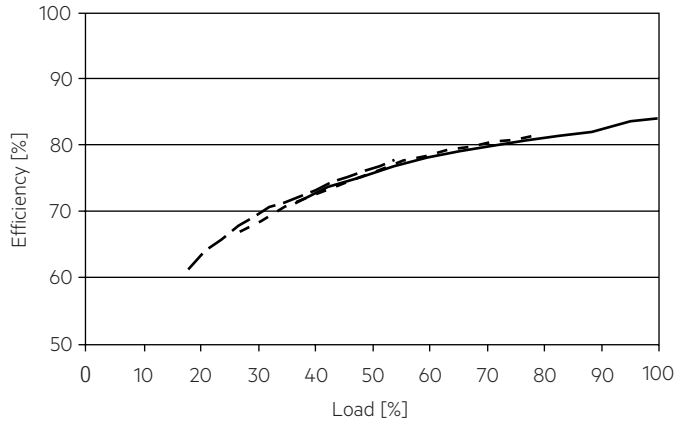
4. Electrical values

4.1 Operating window

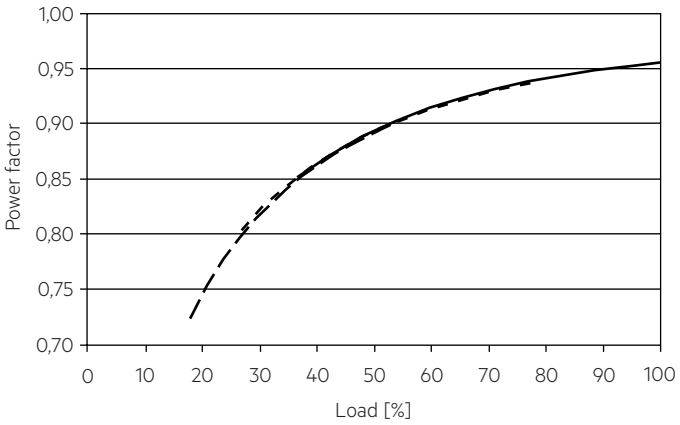


Operate the LED Driver only within the given window under all operating conditions. Coming below the specified minimum output voltage of the LED Driver may cause the device to shut-down.

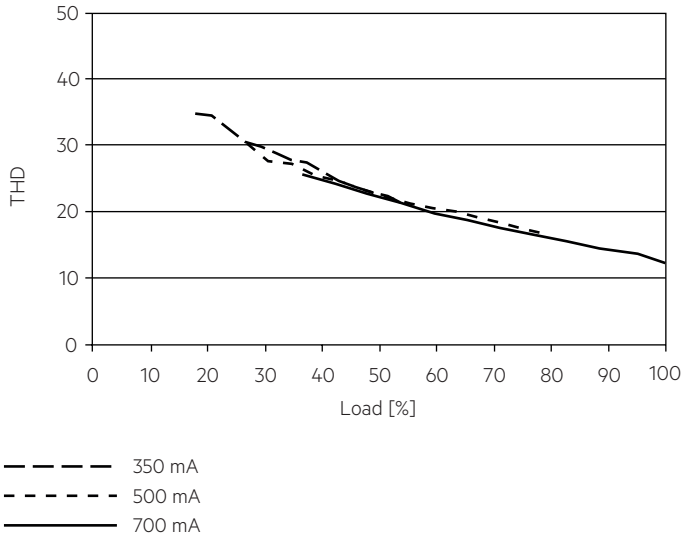
4.2 Efficiency vs load



4.3 Power factor vs load



4.4 THD vs load



100 % load corresponds to the max. output power (full load) according to the table on page 2.

4.5 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	I_{max}	time
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V	35	46	56	73	21	28	34	44	4 A	260 µs

Calculation uses typical values from ABB series S200 as a reference.
Actual values may differ due to used circuit breaker types and installation environment.

4.6 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.	13.
EM pLED BASIC FX 102 SC MH/NiCd 32W 50V32W 50V	< 14	< 11	< 5	< 5	< 3	< 1	< 3

4.7 Insulation matrix

	Mains	**Switched Live**	**Battery, LED, Test switch, Indicator LED**
Mains	–	•	• •
Switched Live	•	–	• •
Battery, LED, Test switch, Indicator LED	• •	• •	–

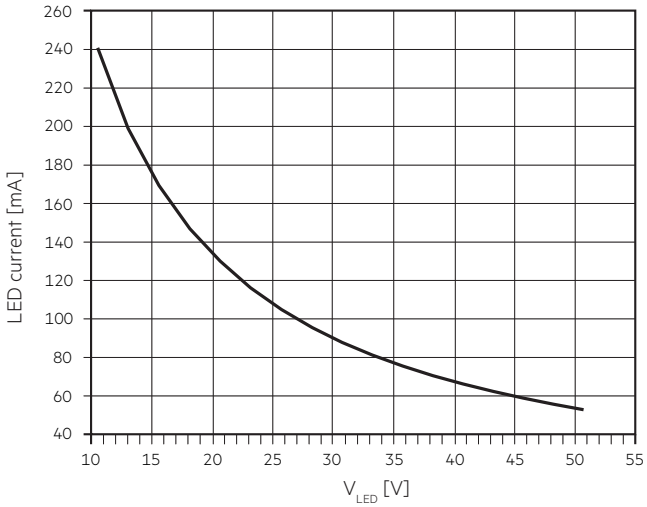
• Represents basic insulation

• • Represents double or reinforced insulation

4.8 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

EM pLED BASIC FX 102 SC MH/NiCd 32W 50V – 3 cells
Article number: 89800688
3.6 V battery voltage
900 mA battery discharge current (tolerance)



5. Emergency output factor EOFi

EM pLED BASIC

Type	**EM pLED BASIC FX 102 SC MH/NiCd 32W 50V**	
Article no.	**89800688**	
Cells	**3 cells**	
Output current	**Min. LED load**	**Max. LED load**
350mA	44.0 %	13.5 %
400mA	37.5 %	12.0 %
450mA	33.5 %	10.5 %
500mA	30.5 %	9.5 %
550mA	28.0 %	8.5 %
600mA	25.5 %	8.0 %
650mA	24.0 %	7.5 %
700mA	22.0 %	7.0 %

6. Mechanical values

6.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

6.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 1.0 m
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

7. Functions

7.1 Function: adjustable current

By inserting a suitable resistor or third party resistor into the I-SELECT 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter "Accessories I-SELECT 2 Plugs".

Please note that the resistor values for I-SELECT 2 are not compatible with I-SELECT (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

7.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again.
The restart can be done via mains reset.

7.3 No-load operation

The LED Driver will not be damaged in no-load operation. The output will be deactivated and is therefore free of voltage. If a LED load is connected the device has to be restarted before the output will be activated again.

8. Battery data

8.1 Battery selection

EM pLED BASIC, 1 / 3 h

				Type	**EM pLED BASIC FX 102 SC MH/NiCd 32W 50V**	
				Article no.	**89800688**	
				Duration	**1 h**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**	
NiCd 4 Ah D cells	stick	1 x 3	**Accu-NiCd 3A 55**	**28002773**		•
	side by side	3 x 1	**Accu-NiCd 3B 55**	**89800384**		•
NiCd 1.8 Ah Cs cells	remote box	1 x 3	**Pack-NiCd 3C CON**	**28001221**	•	
NiCd 4.5 Ah D cells	remote box	1 x 3	**Pack-NiCd 3D CON**	**89800389**		•
NiMH 2.2 Ah Cs cells	stick	1 x 3	**Accu-NiMH 3A**	**28002088**	•	
NiMH 4 Ah LA cells	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**		•

8.2 Battery charge / discharge data

EM pLED BASIC, 1 / 3 h

	Type	**EM pLED BASIC FX 102 SC MH/NiCd 32W 50V**	
	Article no.	**89800688**	
	Duration	**1 h**	**3 h**
Battery charge time	Initial charge	24 h	
	Fast charge	10 h	15 h
	Trickle charge	continuously	
Charging current	Initial charge	105 mA	195 mA
	Fast charge	105 mA	195 mA
	Trickle charge	70 mA	105 mA
Discharge current		900 mA	900 mA
Charge voltage range[1]		2.0 – 4.9 V	
Discharge voltage range		3.2 – 4.5 V	

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < -5 °C or > 60 °C).

The emergency lighting LED Driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[1] The battery will not be charged below 2.0 V.

8.3 Accu-NiCd

4.2 / 4.5 Ah

International designation	KRMU 33/62
Battery voltage/cell	1.2 V
Cell type	D
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	12 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.4 Accu-NiMh

2.2 Ah

International designation	HRMU 23/43
Battery voltage/cell	1.2 V
Cell type	Cs
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

8.5 Accupack-NiCd

1.8 Ah

International designation	KRMU 23/43
Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

4.5 Ah

International designation	KRMU 33/62
Battery voltage/cell	1.2 V
Cell type	D
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.6 Accupack-NiMH

2.2 Ah

International designation	HRMU 23/43
Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

4.0 Ah

International designation	HRMU 19/90
Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

8.7 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

8.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

9. Miscellaneous

9.1 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V DC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.
The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

9.2 Conditions of use and storage

Humidity:	5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
Storage temperature:	-40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

9.3 Maximum number of switching cycles

All Emergency LED Driver are tested with 50,000 switching cycles in maintained mode. The actually achieved number of switching cycles is significantly higher.

9.4 Additional information

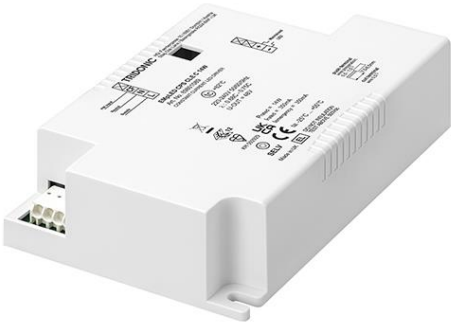
Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED CPS CLE C 14W

LED driver for AC and DC power supplies



Product description

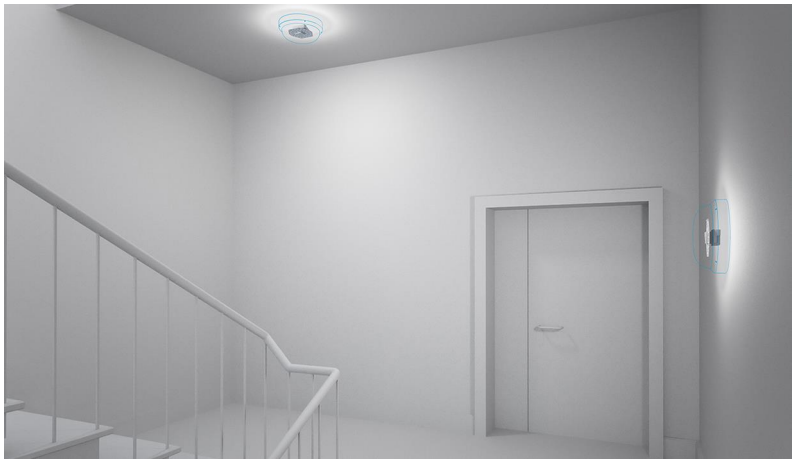
_ LED driver for mains operation with integrated Simple CORRIDOR FUNCTION (CF)
_ For use in central battery systems
_ For luminaire installation
_ For the use with CLE ADV5 EM
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Constant current LED driver with 350 mA output current
_ Simple CORRIDOR FUNCTION (CF) with 10 % light level
_ Constant current mode
_ Light output in DC operation (EoFI): 0.1 or 1
_ SELV
_ For emergency lighting systems as per EN 50172
_ LED module and sensor available

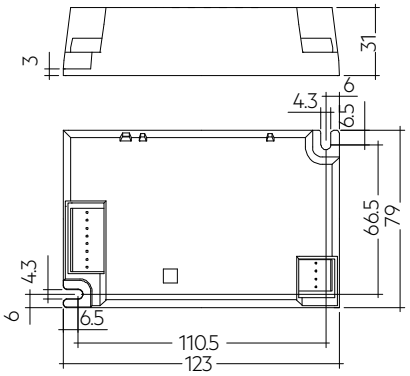
Website

http://www.tridonic.com/89801089



EM powerLED CPS CLE C 14W

LED driver for AC and DC power supplies



Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.
EMpLED CPS CLE C 14W	**89801089**	10 pc(s).	560 pc(s).	0.105 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
DC voltage range	176 – 280 V
Mains frequency	0 / 50 / 60 Hz
U-OUT (including open- / short-circuit and double load)	48 V
Overvoltage protection	320 V (for 1 h)
Min. forward voltage	31 V
Max. forward voltage	40 V
Starting time (at 230 V, 50 Hz, full load)	254 ms
Switchover time from mains to emergency operation	< 380 ms
Switchover time from emergency to mains operation	< 100 ms
Ambient temperature ta	-25 … +55 °C
Max. casing temperature tc	82 °C
Dimensions L x W x H	123 x 79 x 31 mm
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

SELV EL RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-13, EN 61547, EN 62384, according to EN 60598-2-22, according to EN 50172

Specific technical data

Type ①	Typ. output current	Output current tolerance	Min. output voltage ②	Max. output voltage ②	Typ. output power	Input power (at 230 V, 50 Hz, full load)	Input current (at 230 V, 50 Hz, full load)	Efficiency (at 230 V, 50 Hz, full load)	λ (at 230 V, 50 Hz, full load)
Normal operation at 100 %									
EMpLED CPS CLE C 14W	350 mA	10 %	31 V	40 V	14.0 W	16.5 W	101 mA	83 %	0.69C
CF operation at 10 %									
EMpLED CPS CLE C 14W	35 mA	10 %	31 V	40 V	1.3 W	2.0 W	30 mA	65 %	0.20C
Emergency operation at 100 %									
EMpLED CPS CLE C 14W	350 mA	10 %	31 V	40 V	14.0 W	16.5 W	75 mA	83 %	–
Emergency operation at 10 %									
EMpLED CPS CLE C 14W	35 mA	10 %	31 V	40 V	1.3 W	2.0 W	13 mA	65 %	–

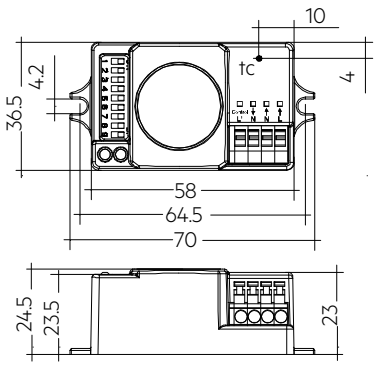
① EM = Emergency
② Output voltage range defined in normal operation. LED forward voltage will decrease in CF operation.

smartSWITCH G2 HF 5DP f

Accessory

Product description

_ Motion detector for luminaire installation
_ Motion detection through glass and thin materials (except metal)
_ For automatic on/off switching of luminaires with electronic ballasts and LED drivers
_ Bright-out function: luminaire is not switched on if there is adequate brightness
_ Delay time, detection range and light value for the bright-out function can be set via 9 dip switches
_ Max. installation height 5 m
_ Two housing options allowing flexible installation
_ Variable detection area (100 – 10 %)
_ Zero cross switching supported
_ Second neutral terminal for easy wiring
_ Optimised for applications and environments with other wireless communication systems
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)



Website
http://www.tridonic.com/28004370

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
smartSWITCH G2 HF 5DP f	**28004370**	70 x 36.5 x 24.5 mm	100 pc(s).	0.036 kg
smartSWITCH G2 HF 5DP S f	**28004371**	58 x 52.0 x 24.5 mm	100 pc(s).	0.036 kg

Approval marks

RoHS

1. Standards

- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61347-1
- EN 61347-2-13
- EN 61547
- EN 62384
- according to EN 60598-2-22
- according to EN 50172

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED Drivers. The control gear relies upon the luminaire enclosure for protection against accidental contact with live parts.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED-Drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Expected lifetime

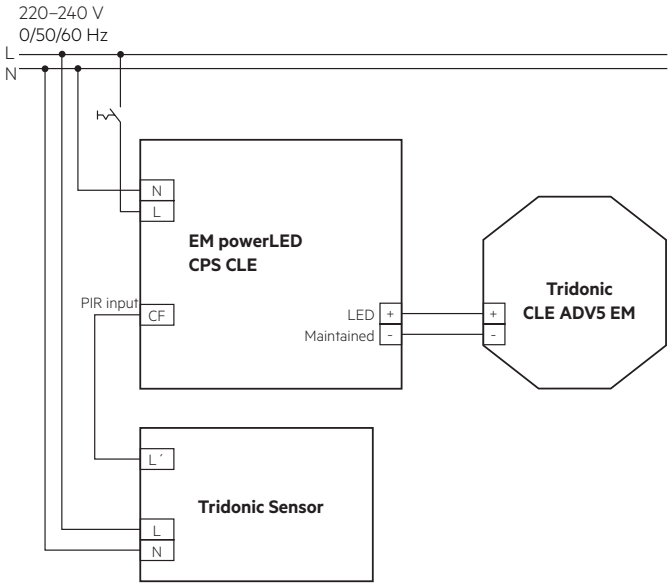
Expected lifetime

Type		ta = 25 °C	ta = 35 °C	ta = 40 °C	ta = 45 °C	ta = 50 °C	ta = 55 °C
EM powerLED CPS CLE C 14W	tc	57 °C	62 °C	67 °C	72 °C	77 °C	82 °C
	Lifetime	>100,000 h	>100,000 h	>100,000 h	>100,000 h	>100,000 h	>100,000 h

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / wiring

3.1 Wiring diagram EM powerLED with sensor



PIR input ≙ 230 V

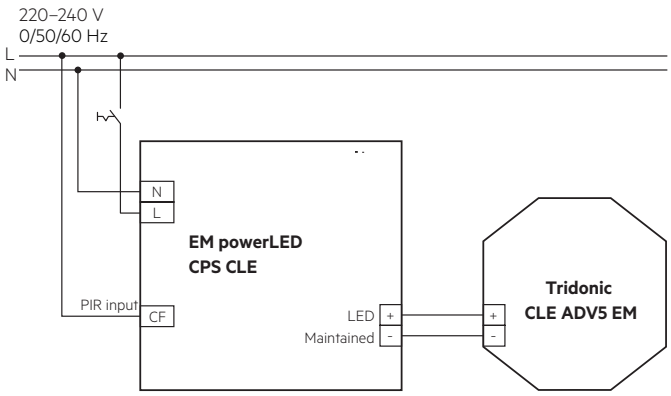
Switching behaviour:

L	CF	Output LED
off	off	off
off	on	off
on	off	10 %
on	on	100 %

DC operation behaviour:
Emergency level EoF_I: 0.1

The sensor is not activ in DC operation.

3.2 Wiring diagram EM powerLED



PIR input ≙ 230 V

The mains power must be removed before changing the LED load.

Secondary switching of LEDs is not allowed and may cause damage to the LEDs. The hot plug-in of LEDs during normal operation may result in current peaks of up to 50% above the typical output current.

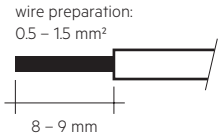
DC operation behaviour:
The emergency level EoF_I (0.1 or 1) depends on the polarity of the DC voltage.

Polarity of the DC voltage		
L	+	–
N	–	+
CF	+	–
Emergency level EoF_I	1	0.1

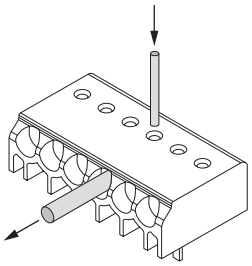
3.3 Wiring type and cross section

Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

Wiring: LED module/LED Driver/supply



3.4 Loose wiring



Loosen wire through twisting and pulling or using a Ø 1 mm release tool

3.5 Installation instruction

Max. torque for the mounting screws: 0.5 Nm / M4.

You must make sure that the LED is connected with the correct polarity. LEDs that are connected to EM powerLED should have polarity reversal protection such as a Schottky diode. There may be irreversible damage if the LED is connected with the wrong polarity. The protection device must be capable of handling a load of more than 700 mA.

3.6 Wiring guidelines

- The LED terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.)

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire the switched and unswitched 50 Hz supply wiring must be routed as short as possible and be kept as far away as possible from the LED leads.Through wiring may affect the EMC performance of the luminaire.

3.7 Maximum lead length

LED	3 m (6 m loop)[①]

[①] Note: Do not exceed the length of LED leads to the LED module. Leads should always be kept as short as possible.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.5 Nm / M4

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	I_{max}	time
EM powerLED CPS CLE C 14W	90	130	130	130	150	216	216	216	7.86 A	296 µs

5.2 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

Type	THD	3	5	7	9	11	13
EM powerLED CPS CLE C 14W	34	28	19	7	15	8	13

5.3 Ballast lumen factor (BLF) in %

	Corridor mode	DC operation
EM powerLED CPS CLE C 14W	10	100 / 10

5.4 Insulation matrix

	Mains	**corridorFUNCTION**	**LED**
Mains	–	•	••
corridorFUNCTION	•	–	••
LED	••	••	–

• Represents basic insulation

•• Represents double or reinforced insulation

6. Functions

6.1 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again.
The restart can be done via mains reset.

6.2 No-load operation

The LED Driver will not be damaged in no-load operation. The output will be deactivated and is therefore free of voltage. If a LED load is connected the device has to be restarted before the output will be activated again.

7. Miscellaneous

7.1 Mains-connected transformers

The EM powerLED does not contain mains-connected windings of transformers.

7.3 Storage conditions

Humidity: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be within the specified temperature range (ta) before they are operated.

7.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED PRO DIM SR 45 W

Combined emergency lighting LED driver

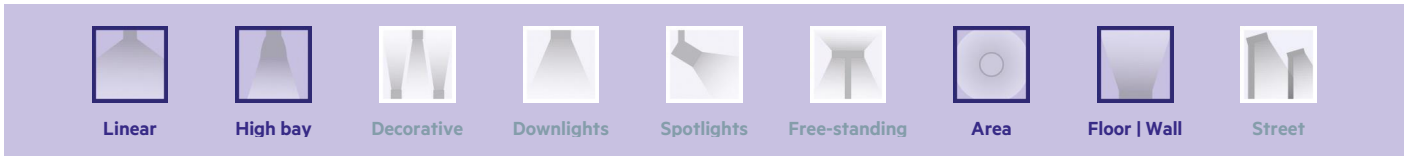
Product description
_ Independent dimmable LED driver
_ Emergency lighting LED driver with DALI interface and automatic test function
_ For self-contained emergency lighting
_ For LED modules with a forward voltage of 20 – 50 V
_ SELV for output voltage < 60 V DC
_ Compact plastic casing with strain relief
_ EM = Emergency

Properties
_ Output power 6 – 45 W
_ Constant current LED operation
_ 300 – 1,400 mA output current in mains operation, adjustable with I-SELECT 2 PLUG in steps of 25 mA or via DALI in steps of 1 mA
_ Integrated emergency lighting unit
_ 1, 2 or 3 h rated duration
_ Operating time selectable with dip switch (2-way)
_ Automatic shutdown of output if the forward voltage of the LED is out of range
_ Two-colour status display LED
_ Electronic multi-level charge system
_ Pulse current charging for NiMH batteries
_ Polarity reversal protection for battery
_ Power-up fading at AC
_ Protective features (overtemperature, short-circuit, overload, no-load, input voltage range, reduced surge amplification)
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Interfaces
_ one4all (DALI DT 1 & 6, DSI, switchDIM, corridorFUNCTION)
_ Terminal blocks: 45° push terminals

Batteries
_ High-temperature cells
_ NiCd or NiMH batteries
_ D, Cs, LA or LAL cells
_ Battery box for independent use
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet

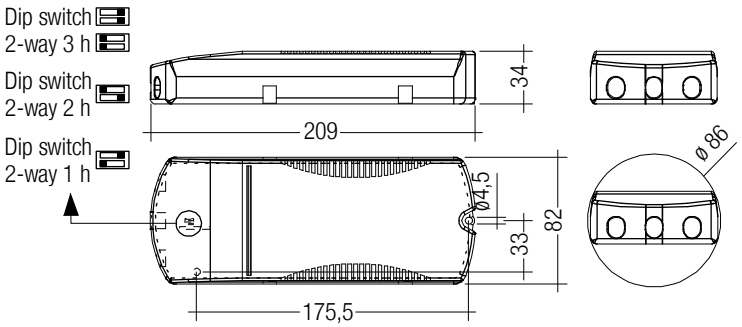
Website
http://www.tridonic.com/89800434



TRIDONIC

EM powerLED PRO DIM SR 45 W

Combined emergency lighting LED driver



Note: LED driver supplied with duration dip switch (2-way) in 3 hours position. Duration dip switch and I-SELECT 2 PLUG must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM powerLED PRO DIM 103 SR NiCd 45W 50V	**89800434**	1/2/3 h	3	10 pc(s).	400 pc(s).	0.245 kg
EM powerLED PRO DIM 104 SR NiCd 45W 50V	**89800416**	1/2/3 h	4	10 pc(s).	400 pc(s).	0.245 kg
EM powerLED PRO DIM 103 SR NiMH 45W 50V	**89800505**	1/2/3 h	3	10 pc(s).	400 pc(s).	0.245 kg
EM powerLED PRO DIM 104 SR NiMH 45W 50V	**89800509**	1/2/3 h	4	10 pc(s).	400 pc(s).	0.245 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. λ (at 230 V, 50 Hz, normal operation)	0.95
Leakage current (PE)	< 0.5 mA
Overvoltage protection	320 V (for 48 h)
Max. open circuit voltage	60 V
Starting time	< 0.5 s from detection of emergency event
Output LF current ripple (< 120 Hz)	< 2 %
Output current tolerance	7 %
THD CF normal operation	< 10 %
Ambient temperature ta at > 40 W	-5 … +45 °C
Ambient temperature ta at ≤ 40 W	-5 … +50 °C
Max. casing temperature tc	75 °C
Dimensions L x W x H	209 x 82 x 34 mm
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

DALI SELV EL-T RoHS

Standards

EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, EN 62034, EN 62384, EN 62386-101, EN 62386-102, according to EN 60598-2-22, according to EN 50172

Specific technical data

Type	Number of battery cells	Output current	Min. output voltage	Max. output voltage	Min. output power	Max. output power	Input power (at 230 V, 50 Hz, full load), fast / trickle charge	Input current (at 230 V, 50 Hz, full load), fast / trickle charge	Efficiency (at 230 V, 50 Hz), fast / trickle charge	λ (at 230 V, 50 Hz, full load)		Ambient temperature ta	tc/ta for ≥ 50,000 h
										Fast charge	Trickle charge		
Normal operation													
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiCd 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C

Type	Number of battery cells	Output current	Min. output voltage	Max. output voltage	Min. output power	Max. output power	Input power (at 230 V, 50 Hz, full load), fast / trickle charge	Input current (at 230 V, 50 Hz, full load), fast / trickle charge	Efficiency (at 230 V, 50 Hz), fast / trickle charge	λ (at 230 V, 50 Hz, full load)		Ambient temperature ta	tc/ta for ≥ 50,000 h
										Fast charge	Trickle charge		
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiCd 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C

Type	Number of battery cells	Output current	Min. output voltage	Max. output voltage	Min. output power	Max. output power	Input power (at 230 V, 50 Hz, full load), fast / trickle charge	Input current (at 230 V, 50 Hz, full load), fast / trickle charge	Efficiency (at 230 V, 50 Hz), fast / trickle charge	λ (at 230 V, 50 Hz, full load)		Ambient temperature ta	tc/ta for ≥ 50,000 h
										Fast charge	Trickle charge		
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 103 SR NiMH 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED PRO DIM 104 SR NiMH 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
Emergency operation													
EM powerLED PRO DIM 103 SR NiCd 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED PRO DIM 103 SR NiCd 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–
EM powerLED PRO DIM 104 SR NiCd 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED PRO DIM 104 SR NiCd 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–
EM powerLED PRO DIM 103 SR NiMH 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED PRO DIM 103 SR NiMH 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–
EM powerLED PRO DIM 104 SR NiMH 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED PRO DIM 104 SR NiMH 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

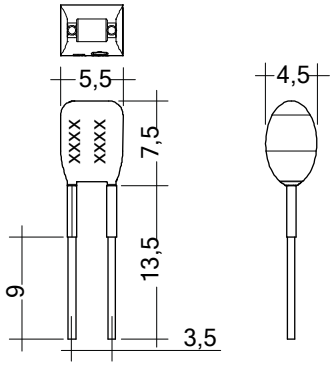
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

I-SELECT 2 PLUG PRE / EXC

Accessory



Product description

_ Ready-for-use resistor to set output current value
_ Compatible with LED driver featuring I-select 2 interface; not compatible with I-SELECT (generation 1)
_ Resistor is base insulated
_ Resistor power 0.25 W
_ Current tolerance ± 2 % additional to output current tolerance
_ Compatible with LED driver series PRE and EXC

Example of calculation

_ R [kΩ] = 5 V / I_out [mA] x 1000
_ E96 resistor value used
_ Resistor value tolerance ≤ 1 %; resistor power ≥ 0.1 W; base insulation necessary
_ When using a resistor value beyond the specified range, the output current will automatically be set to the minimum value (resistor value too big), respectively to the maximum value (resistor value too small)

Website

http://www.tridonic.com/28001101

Ordering data

Type	Article number	Colour	Marking	Current	Resistor value	Packaging, bag	Weight per pc.
I-SELECT 2 PLUG 125MA BL	**28001101**	Blue	0125 mA	125 mA	40.20 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 300MA BL	**28001108**	Blue	0300 mA	300 mA	16.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 325MA BL	**28001109**	Blue	0325 mA	325 mA	15.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 350MA BL	**28001110**	Blue	0350 mA	350 mA	14.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 375MA BL	**28001111**	Blue	0375 mA	375 mA	13.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 400MA BL	**28001112**	Blue	0400 mA	400 mA	12.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 425MA BL	**28001251**	Blue	0425 mA	425 mA	11.80 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 450MA BL	**28001113**	Blue	0450 mA	450 mA	11.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 475MA BL	**28001252**	Blue	0475 mA	475 mA	10.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 500MA BL	**28001114**	Blue	0500 mA	500 mA	10.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 550MA BL	**28001115**	Blue	0550 mA	550 mA	9.09 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 600MA BL	**28001116**	Blue	0600 mA	600 mA	8.25 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 650MA BL	**28001117**	Blue	0650 mA	650 mA	7.68 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 700MA BL	**28001118**	Blue	0700 mA	700 mA	7.15 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 750MA BL	**28001119**	Blue	0750 mA	750 mA	6.65 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 800MA BL	**28001120**	Blue	0800 mA	800 mA	6.19 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 850MA BL	**28001121**	Blue	0850 mA	850 mA	5.90 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 900MA BL	**28001122**	Blue	0900 mA	900 mA	5.62 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 950MA BL	**28001123**	Blue	0950 mA	950 mA	5.23 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1000MA BL	**28001124**	Blue	1000 mA	1,000 mA	4.99 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1050MA BL	**28001125**	Blue	1050 mA	1,050 mA	4.75 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1100MA BL	**28001126**	Blue	1100 mA	1,100 mA	4.53 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1150MA BL	**28001127**	Blue	1150 mA	1,150 mA	4.32 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1200MA BL	**28001128**	Blue	1200 mA	1,200 mA	4.12 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1250MA BL	**28001129**	Blue	1250 mA	1,250 mA	4.02 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1300MA BL	**28001130**	Blue	1300 mA	1,300 mA	3.83 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1350MA BL	**28001131**	Blue	1350 mA	1,350 mA	3.74 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1400MA BL	**28001132**	Blue	1400 mA	1,400 mA	3.57 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	**28001099**	Blue	MAX	MAX	0.00 kΩ	10 pc(s).	0.001 kg

NiMH Battery pack 2.2 – 4.0 Ah

Accessory

Product description

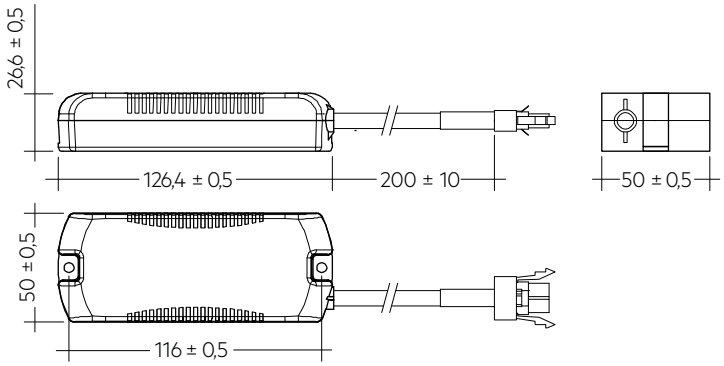
_ High-temperature NiMH battery pack for use with emergency lighting units
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Constant high-temperature operation
_ Temperature depending on the used emergency lighting unit (refer to respective emergency control gear data sheet)
_ Good charging properties at high temperature
_ High energy maintenance of the charged battery
_ Certified quality manufacturer
_ Casing material made of polycarbonate
_ 1.0 mm² stranded wire
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

http://www.tridonic.com/28001898


26,6 ± 0,5
126,4 ± 0,5
200 ± 10
50 ± 0,5
50 ± 0,5
116 ± 0,5

Ordering data

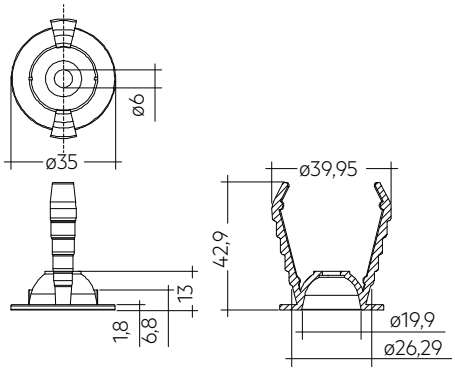
Type	Article number	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
2.2 Ah battery pack					
PACK-NiMH 2.2Ah 3 CON	**28001898**	2.2 Ah	5 pc(s).	25 pc(s).	0.258 kg
PACK-NiMH 2.2Ah 4 CON	**28001899**	2.2 Ah	5 pc(s).	25 pc(s).	0.352 kg
4.0 Ah battery pack					
PACK-NiMH 4Ah 3 CON	**28001896**	4.0 Ah	5 pc(s).	25 pc(s).	0.300 kg
PACK-NiMH 4Ah 4 CON	**28001897**	4.0 Ah	5 pc(s).	25 pc(s).	0.440 kg

ACD EM LED INDICATOR HOLDER

Accessory

Product description
_ Holder for indicator LED in emergency operation
_ Glow-wire test with a temperature of 850 °C passed

Website
http://www.tridonic.com/28002189

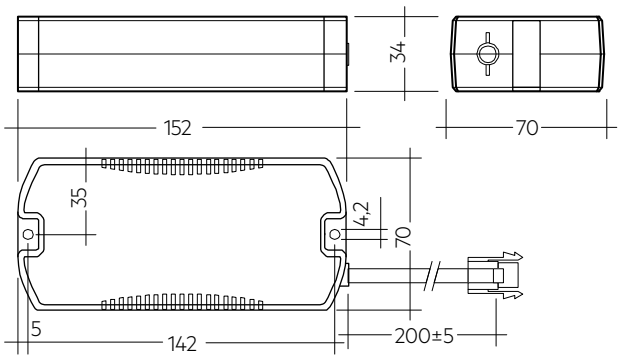


Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
ACD EM LED INDICATOR HOLDER	**28002189**	White	120 pc(s).	0.006 kg

NiCd Battery pack 1.8 – 4.5 Ah

Accessory



Product description
_ High-temperature NiCd battery pack for use with emergency lighting units
_ Please note that due to EU law, this article is available for purchasing only outside of the European Union.
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Constant high-temperature operation
_ Temperature depending on the used emergency lighting unit (refer to respective emergency control gear data sheet)
_ Good charging properties at high temperature
_ High energy maintenance of the charged battery
_ Certified quality manufacturer
_ Casing material made of polycarbonate
_ 1.0 m integrated double-insulated cable
_ 1.0 mm² solid wire, pre-stripped
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website
http://www.tridonic.com/28001221

Ordering data

Type	Article number	Packaging, carton	Packaging, outer box	Weight per pc.
Battery pack 1.8 Ah with connector				
Pack-NiCd 3C CON	**28001221**	5 pc(s).	10 pc(s).	0.540 kg
Pack-NiCd 4C CON	**28001222**	5 pc(s).	10 pc(s).	0.540 kg
Battery pack 4.5 Ah with connector				
Pack-NiCd 3D CON	**89800389**	5 pc(s).	10 pc(s).	0.534 kg
Pack-NiCd 4D CON	**89800390**	5 pc(s).	10 pc(s).	0.661 kg

1. Standards

- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61347-1
- EN 61347-2-7
- EN 61347-2-13
- EN 61547
- EN 62384
- EN 62386-101 (according to DALI standard V2)
- EN 62386-102 (according to DALI standard V2)
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

1.1 Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED Driver can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal data

2.1 Temperature range

According to the standard IEC 60598-1 a LED Driver for remote installation has a max. case temperature of 90 °C. The ambient temperature range ta for the EM powerLED PRO DIM SR 45W is defined to meet this requirement.

2.2 Expected lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	Output power	**ta**	**40 °C**	**50 °C**
EM powerLED PRO DIM 103 / 104 SR 45W 50V	10 W	tc	56 °C	66 °C
		lifetime	> 100,000 h	> 100,000 h
	20 W	tc	59 °C	69 °C
		lifetime	> 100,000 h	> 100,000
	30 W	tc	63 °C	73 °C
		lifetime	> 100,000 h	> 100,000 h
	40 W	tc	65 °C	75 °C
		lifetime	> 100,000 h	80,000 h
	45 W	tc	70 °C	x
		lifetime	80,000 h	x

x = not permitted

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

2.3 Storage conditions

Humidity: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

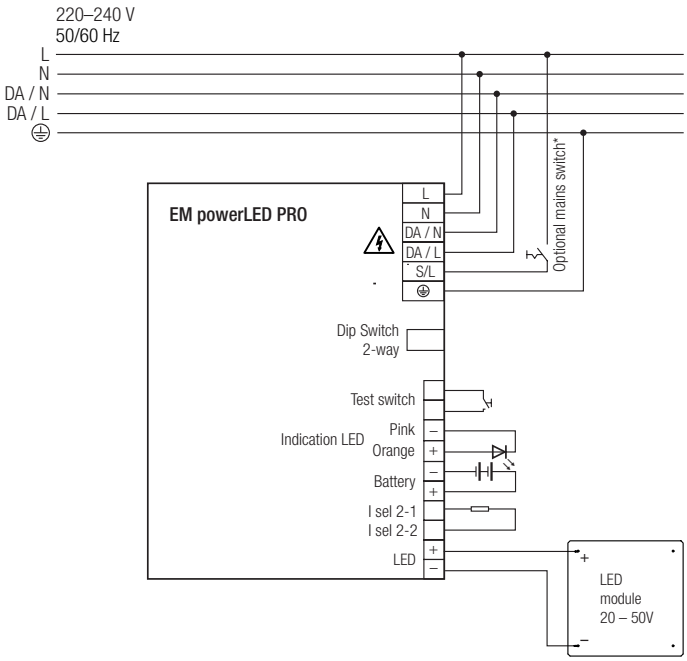
Storage temperature: -40 °C up to max. +80 °C

The devices have to be within the specified temperature range (ta) before they are operated.

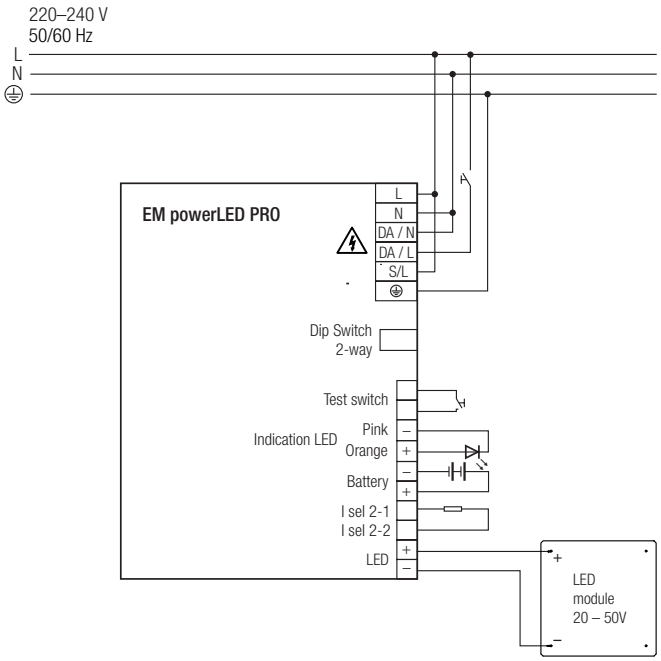
3. Installation / Wiring

3.1 Wiring diagrams

DALI



switchDIM



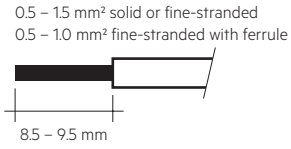
* If the optional mains switch is not used, connect S/L to L.

Recommendation to check glowing at standby in combination with class I luminaires.

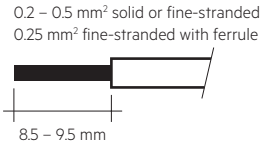
In switchDIM operation the emergency unit will work as SELFTEST unit. All functions and duration tests will perform automatically. The randomized testing is not active. For details refer to chapter 7.12 Testing, DALI Control.

3.2 Wiring type and cross-section

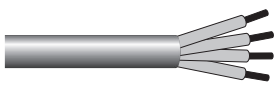
Wiring
Mains (N, L, Earth , S/L)
DALI (DA/N, DA/L)
LED (LED +, LED –)
Batteries (Bat +, Bat –)
I sel 2



Wiring
Test switch
Indication LED



Use one wire for each terminal connector only.
Use each strain relief channel for one cable only.



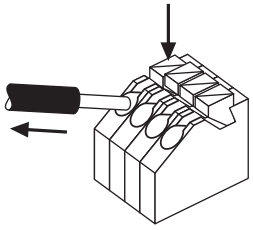
max. ∅ = 10 mm
min. ∅ = 6,3 mm

Max. lead insulation diameter	
Battery	2.1 mm
Test switch	2.1 mm
Indicator LED	2.1 mm

Maximum lead length	
LED	3 m
status indication LED	1 m
batteries	1.3 m

3.3 Release of the wiring

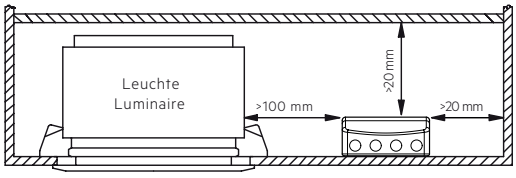
Press down the “push button” and remove the cable from front.

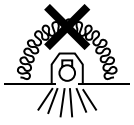


Installation instruction
Max. torque for the mounting screws: 0.5 Nm / M4.

3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device. Minimum distances stated below are recommendations and depend on the actual luminaire.
Is not suitable for fixing in corner.





Device not suitable for covering with thermally insulating material according to IEC 60598-1 Ed.9

3.5 Wiring guidelines

- The cables should be run separately from the mains connections and mains cables to ensure good EMC conditions.
- The LED wiring should be kept as short as possible to ensure good EMC. The max. secondary cable length is 2 m (4 m circuit), this applies for LED output as well as for I-select 2.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Secondary switching is not permitted.
- The LED Driver has no inverse-polarity protection on the secondary side. Wrong polarity can damage LED modules with no inverse-polarity protection.
- Wrong wiring of the LED Driver can lead to malfunction or irreparable damage.
- Maximum lead length for the test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 1.3 m.
- If the optional mains switch is not used, connect S/L to L.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire the switched and unswitched 50 Hz supply wiring must be routed as short as possible and be kept as far away as possible from the LED leads.Through wiring may affect the emc performance of the luminaire.

The length of LED leads must not be exceeded.

The output current depends on the forward voltage and the tolerance of the LED modules.

The mains power must be removed before changing the LED load.

3.6 Earth connection

The earth connection is conducted as protection earth (PE). The LED Driver can be earthed via earth terminal. If the LED Driver will be earthed, protection earth (PE) has to be used. There is no earth connection required for the functionality of the LED Driver. Earth connection is recommended to improve following
behaviour:

- Electromagnetic interferences (EMI)
- LED glowing at standby
- Transmission of mains transients to the LED output

In general it is recommended to earth the LED Driver if the LED module is mounted on earthed luminaire parts respectively heat sinks and thereby representing a high capacity against earth.

3.7 External I-select 2 resistors on LED modules

LED modules with on-board I-select 2 resistors may cause irreparable damages, caused by surge / burst peaks.

4. Mechanical data

4.1 Housing properties

- Polycarbonat white / green
- Type of protection IP 20

4.2 Mechanical data accessories

LED status indicator
- Bi-colour
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 1.0 m
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery leads
- Quantity: 1 red and 1 black
- Length: 1.3 m
- Wire type: 0.5 mm^2 solid conductor
- Insulation rating: 90 °C

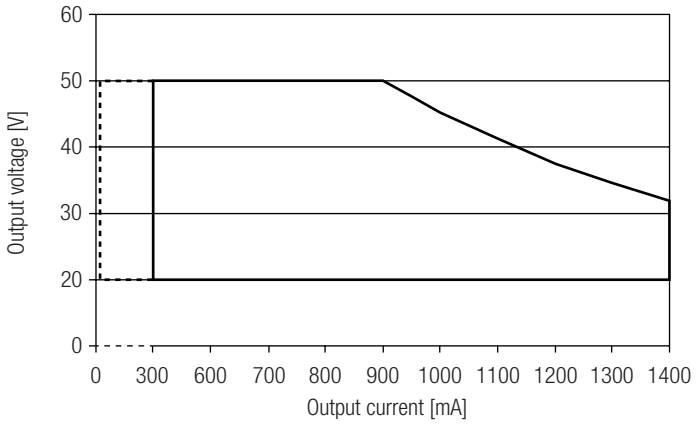
Battery end termination
Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

Module end termination
8.0 mm stripped insulation

Two-piece batteries are supplied with a 200 mm lead with 4.8 mm receptacle at each end and insulting covers to connect the separate sticks together.

5. Electrical data

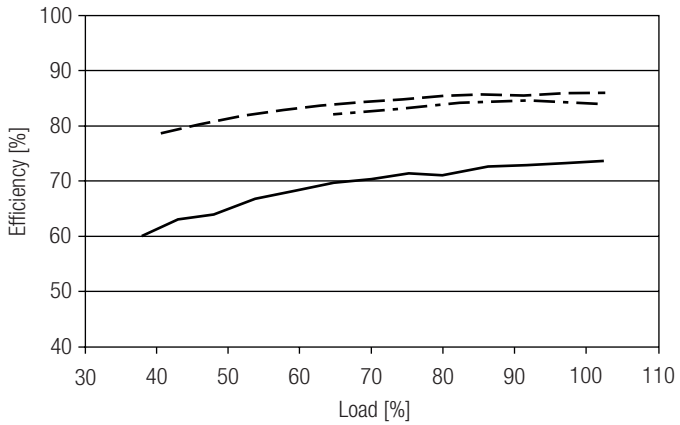
5.1 Operating window



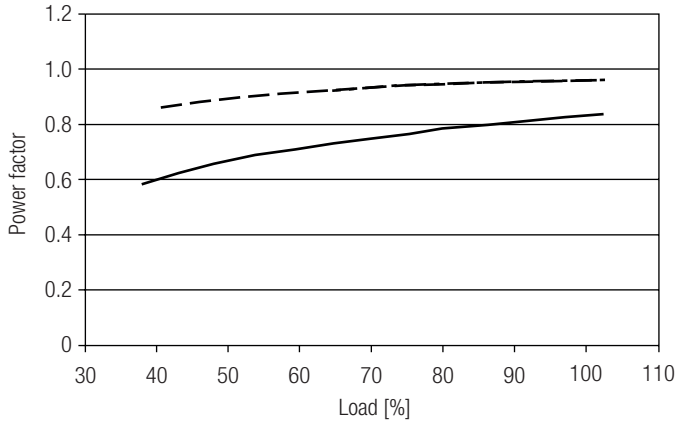
Operating window 100 %
Operating window dimmed

Make sure that the LED Driver is operated within the given window under all operating conditions, also in dimming operation. Otherwise certain limitations may occur. This is due to the nature of amplitude modulation dimming. The stated minimum output voltage shall not be undercut as this may cause the device to shut-down.

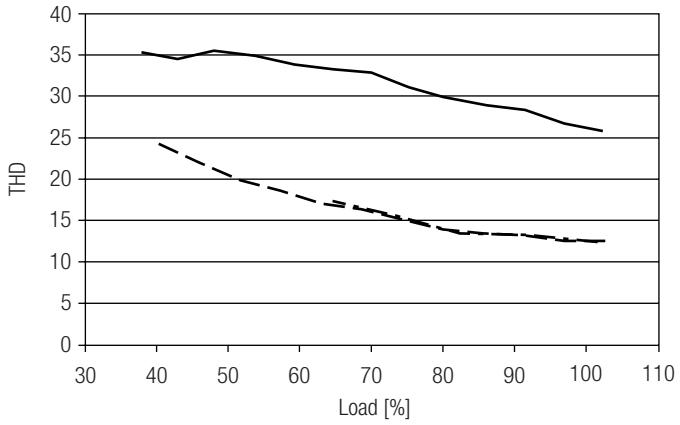
5.2 Efficiency vs load

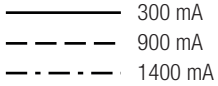


5.3 Power factor vs load



5.4 THD vs load





100 % load corresponds to the max. output power (full load) according to the table on page 2.

5.5 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	I_{max}	time
EM powerLED PRO DIM SR	18	26	30	36	9	13	15	18	23.9 A	187 µs

5.6 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
EM powerLED PRO DIM SR	< 10	< 9	< 3	< 3	< 2	< 1

5.7 Insulation matrix

	Mains	Earth	Switched Live	Battery, LED, Test switch, Indicator LED	DALI	I-SELECT
Mains	–	•	•	••	•	•
Earth	•	–	•	•	•	•
Switched Live	•	•	–	••	•	•
Battery, LED, Test switch, Indicator LED	••	•	••	–	•	••
DALI	•	•	•	•	–	•
I-SELECT	•	•	•	••	•	–

• Represents basic insulation

•• Represents double or reinforced insulation

DALI terminals are not SELV. Wire the terminals in accordance with the requirements of low voltage installations. The driver fulfils the requirements for Class II when installed without an earth and is double insulated against electric shock.

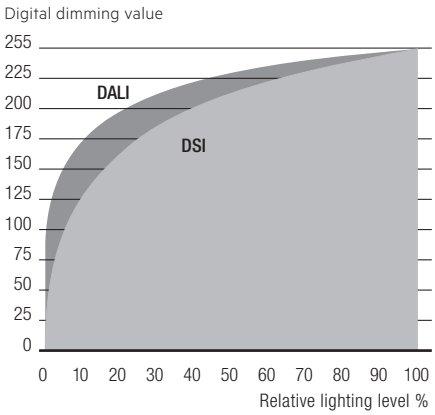
5.8 Dimming

Dimming range 1 % to 100 %
Digital control with:

- DSI signal: 8 bit Manchester Code
  Speed 1 % to 100 % in 1.4 s
- DALI signal: 16 bit Manchester Code
  Speed 1 % to 100 % in 0.2 s
  Programmable parameter:
  Minimum dimming level
  Maximum dimming level
  Default minimum = 1 %
  Programmable range 1 % ≤ MIN ≤ 100 %
  Default maximum = 100 %
  Programmable range 100 % ≥ MAX ≥ 1 %

Dimming curve is adapted to the eye sensitiveness.
Dimming is realized by amplitude dimming.

5.9 Dimming characteristics

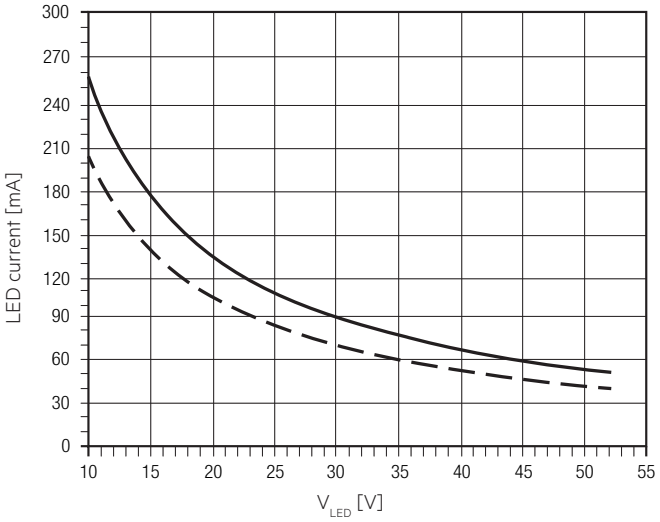


Dimming characteristics as seen by the human eye

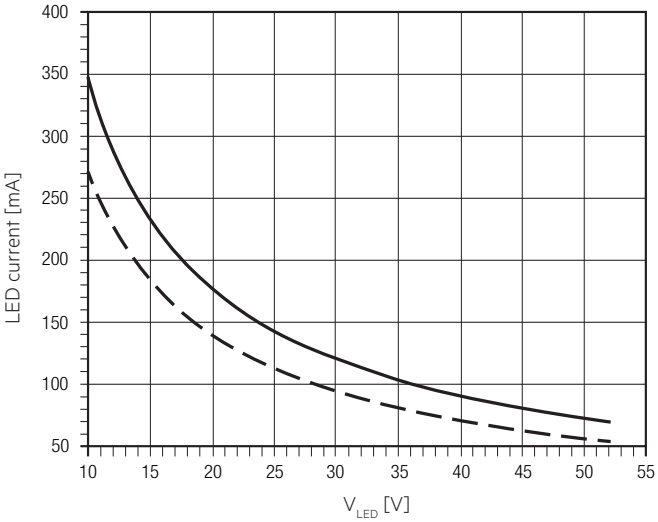
5.10 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM powerLED module based on the total forward voltage of the LED modules connected and the associated battery.

EM powerLED PRO DIM 103 SR 45W 50V – 3 cells
Article number: 89800434 / 89800505
3.6 V battery voltage
750 – 960 mA battery discharge current (tolerance)



EM powerLED PRO DIM 104 SR 45W 50V – 4 cells
Article number: 89800416 / 89800509
4.8 V battery voltage
750 – 960 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

LED peak current at start in emergency mode – 3 cells

Voltage	Inrush current	Duration
19.8 V	329 mA	12.9 ms
22.6 V	297 mA	12.0 ms
25.3 V	265 mA	11.5 ms
28.0 V	244 mA	10.8 ms
30.7 V	234 mA	10.3 ms
33.4 V	216 mA	10.1 ms
36.1 V	202 mA	9.8 ms
38.8 V	192 mA	9.7 ms
41.5 V	183 mA	9.1 ms
44.2 V	174 mA	8.8 ms
47.0 V	168 mA	8.1 ms
49.7 V	161 mA	6.9 ms

Note: LED peak current is measured at the max. battery discharge current.

LED peak current at start in emergency mode – 4 cells

Voltage	Inrush current	Duration
19.8 V	395 mA	16.5 ms
22.6 V	360 mA	15.3 ms
25.3 V	338 mA	14.5 ms
28.0 V	308 mA	14.0 ms
30.7 V	293 mA	13.8 ms
33.4 V	270 mA	12.7 ms
36.1 V	263 mA	12.1 ms
38.8 V	248 mA	11.7 ms
41.5 V	242 mA	9.8 ms
44.2 V	225 mA	8.9 ms
47.0 V	218 mA	7.8 ms
49.7 V	211 mA	7.5 ms

6. Interfaces / communication

Use EM powerLED PRO DIM only on DALI control systems which can handle multi device types. EM powerLED PRO DIM combines device types DT1 and DT6.

6.1 Control input (DA/N, DA/L)

Digital DALI signal or switchDIM can be wired on the same terminals (DA/N and DA/L).

The control input is non-polar for digital control signals (DALI, DSI). The control signal is not SELV. Control cable has to be installed in accordance to the requirements of low voltage installations.
Different functions depending on each module.

6.2 Control input ready2mains (S/L, N)

The digital ready2mains protocol is modulated onto the mains signal which is wired to the mains terminal (L and N).

6.3 switchDIM

Integrated switchDIM function allows a direct connection of a pushbutton for dimming and switching.
Brief push (< 0.6 s) switches LED Driver ON and OFF. The dimm level is saved at power-down and restored at power-up.
When the pushbutton is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction.
In installations with LED Drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED Drivers can be synchronized to 50 % dimming level by a 10 s push.
Use of pushbutton with indicator lamp is not permitted.

7. Functions

7.1 Function: adjustable current

The output current of the LED Driver can be adjusted in a certain range. For adjustment there are three options available.

Option 1: DALI
Adjustment is done by masterCONFIGURATOR (see masterCONFIGURATOR documentation).

Option 2: I-select 2
By inserting a suitable resistor into the I-select 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter “Accessories I-SELECT 2 Plugs”.
If the resistor is connected by wires a consistent base insulation must be ensured. Furthermore, a max. wire length of 2 m may not be exceeded and potential interferences have to be avoided.

Please note that the resistor values for I-select 2 are not compatible with I-select (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

Option 3: ready2mains
Adjustment is done by the ready2mains programmer and the corresponding configuration software (see ready2mains documentation). Send the ready-2mains signal to S/L and N.

The priority for current adjustment methods is DALI (highest priority), I-select 2, ready2mains (lowest priority).

7.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart (SL off/on) of the LED Driver the output will be activated again. The restart can either be done via mains reset or via interface (DALI, DSI, switchDIM).

7.3 No-load operation

The LED Driver will not be damaged in no-load operation. The output will be deactivated and is therefore free of voltage. If a LED load is connected the device has to be restarted (SL off/on) before the output will be activated again.

7.4 Overload protection

If the output voltage range is exceeded the LED Driver turns off the LED output. After restart (SL off/on) of the LED Driver the output will be activated again. The restart can either be done via mains reset or via interface (DALI, DSI, switchDIM).

7.5 Overtemperature protection

The LED Driver is protected against temporary thermal overheating. If the temperature limit is exceeded the output current of the LED module(s) is reduced. The temperature protection is activated approx. +5 °C above tc max (see page 2). On DC operation this function is deactivated to fulfill emergency requirements.

7.6 Hot plug-in

Hot plug-in is not supported due to residual output voltage of > 0 V.
If a LED load is connected the device has to be restarted before the output will be activated again.
This can be done via mains reset or via interface (DALI, DSI, switchDIM, ready2mains).

7.7 corridorFUNCTION

The corridorFUNCTION can be programmed in two different ways.
To program the corridorFUNCTION by means of software a DALI-USB interface is needed in combination with a DALI PS. The software can be the masterCONFIGURATOR.
To activate the corridorFUNCTION without using software a voltage of 230 V has to be applied for five minutes at the switchDIM connection.
The unit will then switch automatically to the corridorFUNCTION.

Note:
If the corridorFUNCTION is wrongly activated in a switchDIM system (for example a switch is used instead of pushbutton), there is the option of installing a pushbutton and deactivating the corridorFUNCTION mode by five short pushes of the button within three seconds.

switchDIM and corridorFUNCTION are very simple tools for controlling gears with conventional pushbuttons or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings. Serious mains faults may impair the operation of switchDIM and corridorFUNCTION.

7.8 Constant light output (CLO)

The luminous flux of an LED decreases constantly over the lifetime. The CLO function ensures that the emitted luminous flux remains stable. For that purpose the LED current will increase continuously over the LED lifetime.
In masterCONFIGURATOR it is possible to select a start value (in percent) and an expected lifetime. The LED Driver adjusts the current afterwards automatically.

7.9 Power-up/-down fading

The power-up/-down function offers the opportunity to modify the on-/off behavior. The time for fading on or off can be adjusted in a range of 0.2 to 16 seconds. According to this value, the device dims either from 0 % up to the power-on level or from the current set dim level down to 0 %. This feature applies while operating via switchDIM and when switching the mains voltage on or off. By factory default no fading time is set (= 0 seconds).

7.10 Software / programming

With appropriate software and a interface different functions can be activated and various parameters can be configured in the LED Driver. To do so, a DALI-USB or ready2mains programmer and the software (masterCONFIGURATOR) are required.

7.11 masterCONFIGURATOR

From version 2.8:
For programming functions (CLO, I-select 2, power-up fading, corridorFUNCTION) and device settings (fade time, ePowerOnLevel, DC level, etc.). For further information see masterCONFIGURATOR manual.

7.12 Status indication

System status is indicated by a bi-colour LED and by a DALI status flag.

LED indiction	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

7.13 Testing

DALI Control Emergency DT1
A DALI command from a suitable control unit can be used to initiate function and duration tests at individually selected times. Status flags are set for report back and data logging of results.

When a DALI bus has not been connected or when a DALI bus is connected but the DALI default DELAY and INTERVAL times have not been reset by sending appropriate DALI commands, then the EM powerLED PRO will conduct self-tests in accordance with the default times set within the EEPROM . These default times are factory pre-set, in accordance with the DALI standard EN 62386-202, to conduct an automatic function test every 7 days and a duration test every 52 weeks. Since the DELAY time is factory preset to Zero, all units are tested at the same time. Test times can be changed with a command over the DALI bus.

The DELAY and INTERVAL time values must be re-set when the emergency system test times are to be scheduled by a DALI control and monitoring system.
Note that once the default values have been set to Zero, tests will only be conducted following a command from the control system. If the DALI bus is disconnected the EM powerLED PRO does not revert to self-testing mode.

Note: If the battery is connected the DALI communication is only possible after power reset.

Addressing
The EM powerLED PRO includes the EZ easy addressing system which allows addressing and identification by using the bi-colour LED. Binary address codes given by the LED can be simply converted to the DALI addresses 0 to 63. For single handed addressing using this method it is necessary to send a broadcast ident command every 3 to 9 seconds. During this command the LEDs will be switched off and the indication LED will flash the 6 bit binary address preceded by a 3 second start indication period.

Commissioning
After installation of the luminaire and initial connection of the mains supply and battery supply to the EM powerLED PRO the unit will commence charging the batteries for 20 hours (initial charge). Afterwards the module will conduct a commissioning test for the full duration. The 20 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition. The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 20 hrs) and the interval time is not set to zero, otherwise the system is expected to perform the testing.

Functional test
The time of day and frequency of the 5 seconds function test can be set by the DALI controller. The default setting is a 5 seconds test on a weekly basis.

Duration test
The time of day and frequency of the duration test can be set by the DALI controller. The default setting is a duration test conducted every 52 weeks.

For 2 h operation:
The first commissioning duration test has a time of 120 minutes, subsequent through life tests are conducted for 90 minutes. When the battery is changed or disconnected and re-connected the unit will next conduct a 120 minute test.

Prolong time
Prolong time can be set by the DALI controller. This is the delay time between return of the mains supply and the end of the emergency operation. The default prolong time is set as 0 minutes as specified within the DALI standard.
Indicator LED will stay off for the duration of the prolong time.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically switched on if the mains supply is switched off within 15 minutes. Rest Mode and Inhibit Mode can be initiated by the DALI controller. The REST command has to be sent after the mains supply has been disconnected and whilst the EM powerLED PRO is in emergency operation. The INHIBIT command has to be sent while the EM powerLED PRO is supplied by mains.
After a mains reset the EM powerLED PRO exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by sending the RE-LIGHT/RESET INHIBIT command.

Test switch
An optional test switch can be wired to each EM converterLED ST. This can be used to to:
- initiate a 5 seconds function test: press 200 ms < T < 1 s
- execute function test as long as switch pressed: press > 1 s
- reset selftest timer (adjust local timing): press > 10 s

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment

will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.
The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

DALI Controller
DALI controllers and hardware/software solutions are available from Tridonic. Please refer to the Lighting controls section.

8. Battery data

8.1 Battery selection

EM powerLED PRO DIM 45 W 50 V, 1 / 3 h

				Type	**EM powerLED PRO DIM 103 SR NiCd 45W 50V**		**EM powerLED PRO DIM 103 SR NiMH 45W 50V**		**EM powerLED PRO DIM 104 SR NiCd 45W 50V**		**EM powerLED PRO DIM 104 SR NiMH 45W 50V**	
				Article no.	**89800434**		**89800505**		**89800416**		**89800509**	
				Cells	**3 cells**				**4 cells**			
				Duration	**1 h**	**2 / 3 h**	**1 h**	**2 / 3 h**	**1 h**	**2 / 3 h**	**1 h**	**2 / 3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**							
NiCd 4 Ah D cells	stick	1 x 3	**Accu-NiCd 3A 55**	**28002773**		•						
	stick	1 x 4	**Accu-NiCd 4A 55**	**89800089**						•		
	stick + stick	2 + 2	**Accu-NiCd 4C 55**	**28002775**						•		
	side by side	3 x 1	**Accu-NiCd 3B 55**	**89800384**		•						
	side by side	4 x 1	**Accu-NiCd 4B 55**	**89800385**						•		
NiCd 1.8 Ah Cs cells	remote box	1 x 3	**Pack-NiCd 3C CON**	**28001221**	•							
	remote box	1 x 4	**Pack-NiCd 4C CON**	**28001222**					•			
NiCd 4.5 Ah D cells	remote box	1 x 3	**Pack-NiCd 3D CON**	**89800389**		•						
	remote box	1 x 4	**Pack-NiCd 4D CON**	**89800390**						•		
NiMH 2.2 Ah Cs cells	stick	1 x 3	**Accu-NiMH 3A**	**28002088**	•		•					
	stick	1 x 4	**Accu-NiMH 4A**	**28002089**					•		•	
NiMH 4 Ah LA cells	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**		•		•				
	stick	1 x 4	**Accu-NiMH 4Ah 4A CON**	**89800442**						•		•
	stick + stick	2 + 2	**Accu-NiMH 4Ah 4C CON**	**89800438**						•		•

8.2 Battery charge / discharge

EM powerLED PRO DIM 45 W 50 V, 1 / 2 / 3 h

	Type	EM powerLED PRO DIM 103 SR NiCd 45W 50V		EM powerLED PRO DIM 103 SR NiMH 45W 50V		EM powerLED PRO DIM 104 SR NiCd 45W 50V		EM powerLED PRO DIM 104 SR NiMH 45W 50V	
	Article no.	**89800434**		**89800505**		**89800416**		**89800509**	
	Cells	**3 cells**				**4 cells**			
	Duration	**1 h**	**2 / 3 h**	**1 h**	**2 / 3 h**	**1 h**	**2 / 3 h**	**1 h**	**2 / 3 h**
Battery charge time	Initial charge	20 h							
	Fast recharge	10 h	15 h	10 h	15 h	10 h	15 h	10 h	15 h
	Trickle charge	continuously							
Charge current	Initial charge	130 mA	300 mA	130 mA	300 mA	130 mA	300 mA	130 mA	300 mA
	Fast recharge	210 mA	330 mA	210 mA	330 mA	210 mA	330 mA	210 mA	330 mA
	Trickle charge	50 mA	130 mA	127 mA / 4 min. 0 mA / 16 min.	200 mA / 4 min. 0 mA / 16 min.	50 mA	130 mA	127 mA / 4 min. 0 mA / 16 min.	200 mA / 4 min. 0 mA / 16 min.
Power consumption	Initial charge	2.2 W	3.7 W	2.2 W	3.7 W	2.5 W	4.4 W	2.5 W	4.4 W
	Fast recharge	2.9 W	4.0 W	2.9 W	4.1 W	3.4 W	4.8 W	3.3 W	4.8 W
	Trickle charge	1.6 W	2.2 W	1.6 / 2.2 W	1.6 / 2.8 W	1.7 W	2.5 W	1.6 / 2.5 W	1.6 / 3.3 W
Discharge current		850 – 960 mA	850 – 960 mA	850 – 960 mA	850 – 960 mA	850 – 960 mA	850 – 960 mA	850 – 960 mA	850 – 960 mA

8.3 Accu-NiCd

4.2 / 4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.4 Accu-NiMh

2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

8.5 Accupack-NiCd

1.8 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.6 Accupack-NiMH

2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

8.7 Batteries

Connection method: 4.8 x 0.5 mm spade tag welded to end of cell

For stick packs this connection is accessible after the battery caps have been fitted.

To inhibit inverter operation disconnect the batteries by removing the connector from the battery spade tag.

For further information refer to corresponding battery datasheet.

8.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

9. Miscellaneous

9.1 Maximum number of switching cycles

All LED Drivers are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

9.2 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

9.3 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED PRO EZ-3 1 – 2 W

Combined emergency lighting LED driver 1 – 4 W

Screw-fix

Clip-fix

Product description
_ Emergency lighting LED driver with DALI interface and automatic test function
_ For self-contained emergency lighting
_ SELV for output voltage < 60 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Mains and emergency operation
_ DALI interface for controlled testing and monitoring
_ DALI switchable in mains operation (on/off); the switched phase SL must be switched on
_ Constant current mode
_ With either screw or clip fastening (clip-fix)
_ 1, 2 or 3 h rated duration
_ Selectable operating time (jumper)
_ Output power limitation
_ Two-colour status display LED
_ Automatic restart after LED replacement
_ Electronic multi-level charge system
_ SELV classified (outputs powerLED, battery, status LED, test switch)
_ Polarity reversal protection for battery
_ Deep discharge protection
_ Very low energy consumption from the battery after activation of the deep discharge protection
_ Short-circuit-proof battery connection
_ Addressing function, patented (“EZ easy addressing”)
_ Emergency lighting LEDs available
Tests:
_ Status of the battery
_ Status of the LED
_ Charge condition
_ Function test
_ Duration test

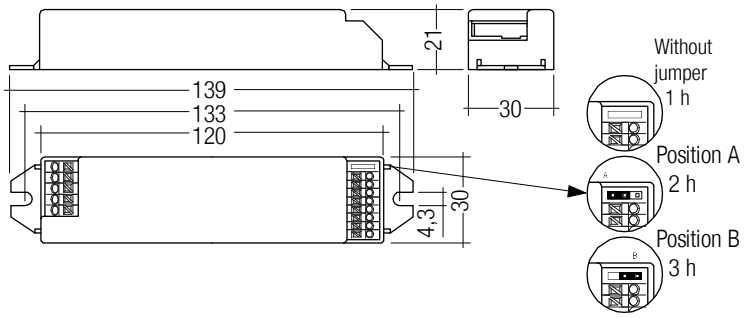
Batteries
_ High-temperature cells 2 Ah
_ NiMH batteries
_ Cs cells
_ NiMH: 4 years design life / 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet

Website
http://www.tridonic.com/89800029

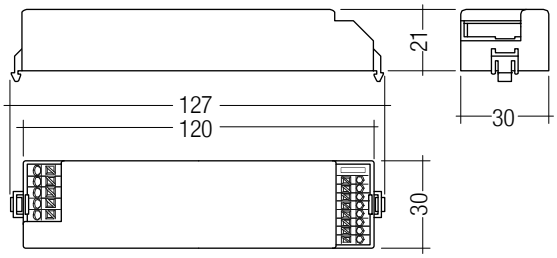
TRIDONIC

EM powerLED PRO EZ-3 1 – 2 W

Combined emergency lighting LED driver 1 – 4 W



Screw-fix



Clip-fix

Ordering data

Type	Article number	Dimensions L x W x H	Rated duration	Max. number of LEDs	Packaging, carton	Packaging, pallet	Weight per pc.
Screw fastening version							
EM powerLED 1 W PRO EZ-3 SCREW-FIX	**89800029**	139 x 30 x 21 mm	1/2/3 h	1	25 pc(s).	1,200 pc(s).	0.056 kg
EM powerLED 2 W PRO EZ-3 SCREW-FIX	**89800030**	139 x 30 x 21 mm	1/2/3 h	2	25 pc(s).	1,200 pc(s).	0.056 kg
Clip fastening version							
EM powerLED 1 W PRO EZ-3 CLIP-FIX	**89800031**	127 x 30 x 21 mm	1/2/3 h	1	25 pc(s).	1,200 pc(s).	0.056 kg
EM powerLED 2 W PRO EZ-3 CLIP-FIX	**89800032**	127 x 30 x 21 mm	1/2/3 h	2	25 pc(s).	1,200 pc(s).	0.056 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module (1 x LED)	2.8 – 3.4 V
Forward voltage range LED module (2 x LED)	5.6 – 6.8 V
Max. open circuit voltage	15 V
Mains current, 1 W device	30 mA
Mains current, 2 W device	40 mA
Power in mains operation, 1 W device	3.5 W
Power in mains operation, 2 W device	5 W
Starting time	0.31 s from detection of emergency event
Overvoltage protection	320 V (for 1 h)
Battery discharge current	Refer to data sheet
Max. casing temperature tc	70 °C
Ambient temperature ta	-25 … +50 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

according to EN 50172, according to EN 60598-2-22, EN 61347-2-7, EN 61347-2-13, EN 62384, EN 62034, EN 55015, EN 61000-3-2, EN 61547, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 62386 (acc. to DALI standard V1)

Specific technical data

Type	Rated duration	Typ. λ (at 230 V, 50 Hz)①	Typ. output power	Mains current in charging operation			Mains power in charging operation		
				Initial charge	Fast recharge	Trickle charge	Initial charge	Fast recharge	Trickle charge
EM powerLED 1 W PRO EZ-3 SCREW-FIX	1 h	0.52C	1 W	15.4 mA	17.9 mA	13.9 mA	1.3 W	1.6 W	1.1 W
EM powerLED 1 W PRO EZ-3 SCREW-FIX	2 h	0.52C	1 W	14.2 mA	17.6 mA	11.8 mA	1.1 W	1.6 W	0.8 W
EM powerLED 1 W PRO EZ-3 SCREW-FIX	3 h	0.52C	1 W	14.2 mA	17.6 mA	11.8 mA	1.1 W	1.6 W	0.8 W
EM powerLED 2 W PRO EZ-3 SCREW-FIX	1 h	0.55C	2 W	14.3 mA	17.3 mA	11.7 mA	1.1 W	1.6 W	0.8 W
EM powerLED 2 W PRO EZ-3 SCREW-FIX	2 h	0.55C	2 W	15.7 mA	20.4 mA	12.8 mA	1.4 W	2.0 W	0.9 W
EM powerLED 2 W PRO EZ-3 SCREW-FIX	3 h	0.55C	2 W	18.4 mA	23.3 mA	14.5 mA	1.7 W	2.4 W	1.2 W
EM powerLED 1 W PRO EZ-3 CLIP-FIX	1 h	0.52C	1 W	15.4 mA	17.9 mA	13.9 mA	1.3 W	1.6 W	1.1 W
EM powerLED 1 W PRO EZ-3 CLIP-FIX	2 h	0.52C	1 W	14.2 mA	17.6 mA	11.8 mA	1.1 W	1.6 W	0.8 W
EM powerLED 1 W PRO EZ-3 CLIP-FIX	3 h	0.52C	1 W	14.2 mA	17.6 mA	11.8 mA	1.1 W	1.6 W	0.8 W
EM powerLED 2 W PRO EZ-3 CLIP-FIX	1 h	0.55C	2 W	14.3 mA	17.3 mA	11.7 mA	1.1 W	1.6 W	0.8 W
EM powerLED 2 W PRO EZ-3 CLIP-FIX	2 h	0.55C	2 W	15.7 mA	20.4 mA	12.8 mA	1.4 W	2.0 W	0.9 W
EM powerLED 2 W PRO EZ-3 CLIP-FIX	3 h	0.55C	2 W	18.4 mA	23.3 mA	14.5 mA	1.7 W	2.4 W	1.2 W

① Maintained operation

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

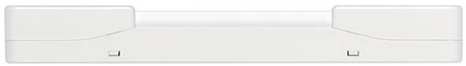
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

EMpLED Strain-relief set 200x43x25.5mm

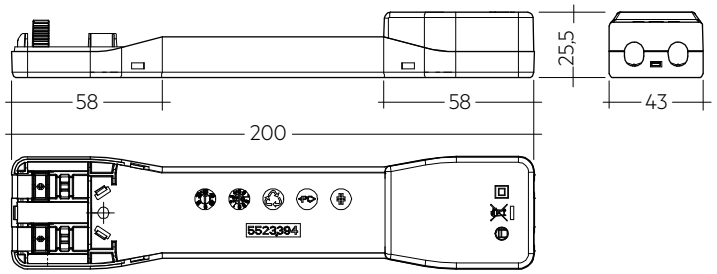
Accessory



Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (200 x 43 x 25.5 mm)

Website
http://www.tridonic.com/28004033



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM pLED SR	**28004033**	10 pc(s).	0.05 kg

Approval marks

1. Standards

- EN 61347-2-7
- EN 61347-2-13
- EN 62384
- EN 55015
- EN 61000-3-2
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 62386 (according to DALI standard V1)
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test must not be conducted.

2. Thermal details and lifetime

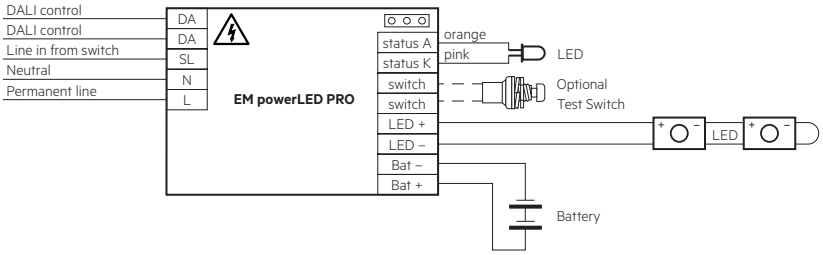
2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

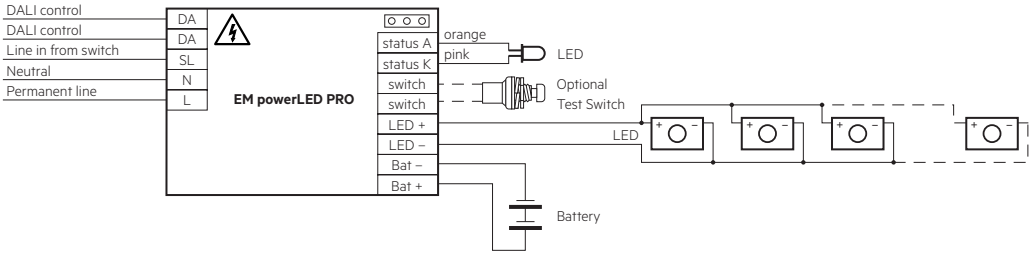
3. Installation / Wiring

3.1 Wiring diagrams

3.1.1 Serial wiring with one or two LED modules



3.1.2 Parallel wiring with multiple LED modules (3 – 9)

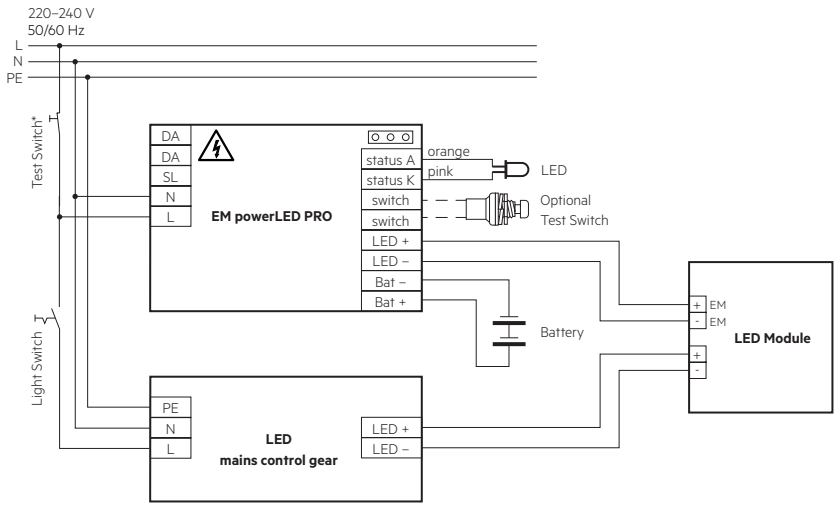


Take care that the LED is connected with the right polarity.
LED that are connected to the EM powerLED PRO EZ-3 devices should have a reverse polartity protection device such as a schottky diodes fitted, otherwise irreversible damage could occur if the LED is connected in reverse polarity. Any protection device must be capaple of handling in excess of 700 mA.

Note: Please ensure that at the terminal of the EM powerLED module the battery negative is not connected to the negative of the LED load.

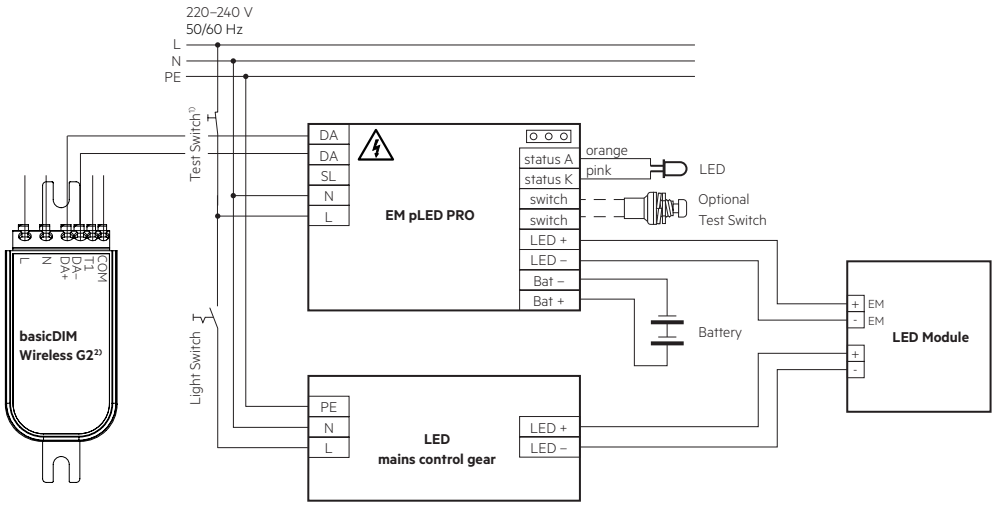
3.1.3 Manually tested emergency lighting with combined LED modules for general and emergency lighting

Due to the fact that independent circuits are used for general and emergency lighting it is important that the normal supply of the mains LED driver is switched off together with the permanent emergency supply prior to checking the operation of the emergency LEDs.
If this is not done then it may not be possible to see that the emergency LEDs are operating.
Use a circuit similar to that shown below.



* Use 230 V Test switch

3.1.4 Wireless set-up



[1] Use 230 V Test switch
[2] For further information see basicDIM Wireless datasheet at www.tridonic.com

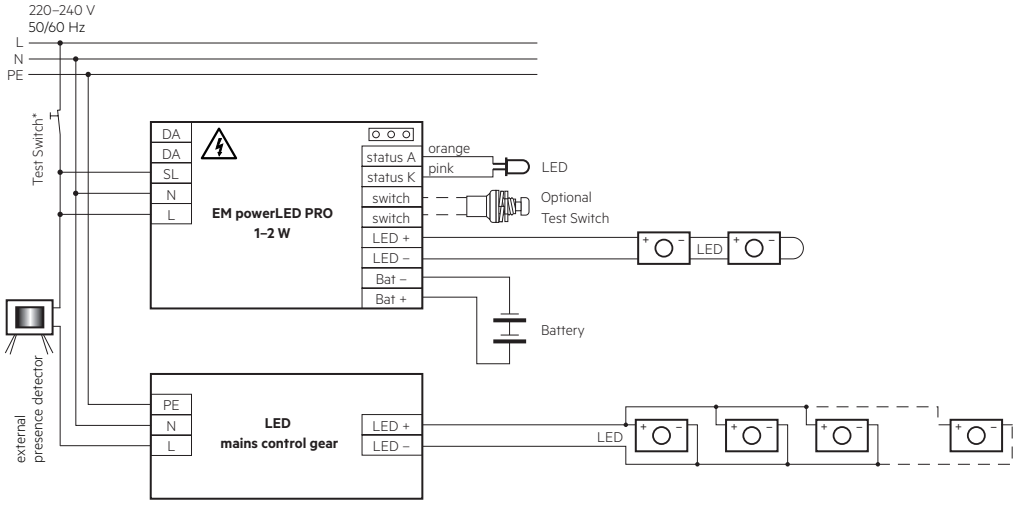
3.1.5 Simple CORRIDOR FUNCTION with EM powerLED 1–2 W

With the mains operation function of the EM powerLED 1–2 W a simple CORRIDOR FUNCTION can be realised.

An external presence detector switches the mains LED driver.
The EM powerLED 1–2 W has the switched line SL connected to permanent mains supply.

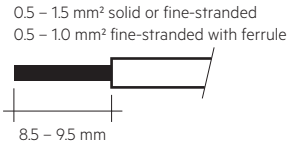
On presence both mains LED driver and EM powerLED 1–2 W are active and driving all LEDs. With no presence the mains LED driver is switched off by the presence detector and the EM powerLED 1–2 W stays on operating the emergency LEDs at low power.

Use a circuit similar to that shown below.

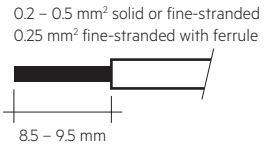


3.2 Wiring type and cross section

Wiring
mains (SL, N, L)
LED (LED +, LED –)



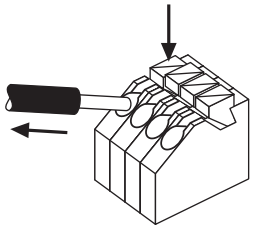
Wiring
batteries (Bat +, Bat –)
test switch (switch)
status indication LED (status K, A)



Use one wire for each terminal connector only.

3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Wiring instructions

- The EM powerLED terminals, battery, indicator LED and test switch terminals are classified as SELV. Keep the wiring of the DALI and the input terminals separated from the wiring of the SELV terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content at 125 kHz, which should be considered for good EMC compliance.
- EM powerLED leads should be separated from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the EM powerLED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Maximum lead length for the test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the EM powerLED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm² cross section and a length of < 1.3 m.
- DALI terminals are mains proof.
- Switched live and unswitched live supplies must be off the same phase.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.5 Max. lead insulation diameter

Battery	2.1 mm
Test switch	2.1 mm
Indicator LED	2.1 mm

3.6 Maximum lead length

Battery	1 m
LED	3 m
status indication LED	1 m

4. Mechanichal details

Case manufactured from polycarbonate.

LED bi-colour status indicator
- Green / red
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 1,000 mm
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 550 mm

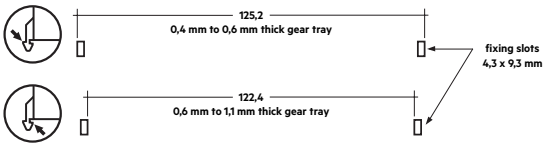
Battery leads
- Quantity: 1 red and 1 black
- Length: 1,300 mm
- Wire type: 0.5 mm² solid conductor
- Insulation rating: 90 °C

Battery end termination
Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

Module end termination
8.0 mm stripped insulation

Two-piece batteries are supplied with a 200 mm lead with 4.8 mm receptacles at each end and insulating covers to connect the separate sticks together.

4.1 Recommended fixing details for clip fixing



Max. torque at the clamping screw: 0.5 Nm / M4

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	C10	B13	C13	B16	C16	B20	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²	I_{max}	time
EM powerLED 1 W PRO EZ-3	90	180	130	260	130	260	130	260	10 A	120 µs
EM powerLED 2 W PRO EZ-3	90	180	130	260	130	260	130	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	DALI
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, LED, Test switch, Indicator LED	••	••	–	•
DALI	•	•	•	–

• Represents basic insulation

•• Represents double or reinforced insulation

DALI terminals are not SELV. Wire the terminals in accordance with the requirements of low voltage installations.

5.3 Typ. LED current

EM powerLED 1-2 W PRO EZ-3, 1 / 2 / 3 h

	Type	EM powerLED 1 W PRO EZ-3	EM powerLED 2 W PRO EZ-3
	Article no.	**89800029, 89800031**	**89800030, 89800032**
LED current in emergency operation	1 x LED	350 mA	600 mA
	2 x LED	–	350 mA
LED current in mains operation	1 x LED	350 mA	350 mA
	2 x LED	–	350 mA

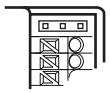
6. Emergency output factor EOFi

EM powerLED 1-2 W PRO EZ-3, 1 / 2 / 3 h

Type	EM powerLED 1 W PRO EZ-3	EM powerLED 2 W PRO EZ-3
Article no.	**89800029, 89800031**	**89800030, 89800032**
Cells	**2 / 3 cells**	**3 / 4 / 5 cells**
LED current	**LED load**	**LED load**
350 mA	100 %	100 %
350 mA	100 %	100 %
350 mA	100 %	100 %
600 mA	–	170 %
600 mA	–	170 %
600 mA	–	170 %

7. Functions

7.1 Duration link selection

Duration	Link Position
1 hr	 without jumper
2 hr	position A
3 hr	position B

7.2 Jumper selection

Module supplied with jumper in 3 hours position (position B).

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM powerLED EZ-3 to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

7.3 Status indication

System status is indicated by a bi-colour LED and by a DALI status flag.

LED indiction	Status	Kommentar
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure ①
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function / Battery is defect / Incorrect battery voltage
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

① If the EM powerLED is operated in non-maintained mode and an LED fault is detected, the red indicator LED will be illuminated and the output will be stopped. The unswitched mains supply must be switched off before the LED is changed in order that the new LED can be detected. A function or duration test will not reset the fault indication.

7.4 Testing:

DALI Control
A DALI command from a suitable control unit can be used to initiate function and duration tests at individually selected times. Status flags are set for report back and data logging of results.

When a DALI bus has not been connected or when a DALI bus is connected but the DALI default DELAY and INTERVAL times have not been re-set by sending appropriate DALI commands, then the EM powerLED PRO EZ-3 will conduct self-tests in accordance with the default times set within the EEPROM . These default times are factory pre-set, in accordance with the DALI standard EN 62386-202, to conduct an automatic function test every 7 days and a duration test every 52 weeks. Since the DELAY time is factory pre-set to Zero, all units are tested at the same time. Test times can be changed with a command over the DALI bus.

The DELAY and INTERVAL time values must be re-set when the emergency system test times are to be scheduled by a DALI control and monitoring system.
Note that once the default values have been set to Zero, tests will only be conducted following a command from the control system. If the DALI bus is disconnected the EM powerLED PRO EZ-3 does not revert to self-testing mode.

Commissioning
After installation of the luminaire and initial connection of the mains supply and battery supply to the EM powerLED PRO EZ-3 the unit will commence charging the batteries for 20 hours (initial charge). Afterwards the module will conduct a commissioning test for the full duration. The 20 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition. The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 20 hrs) and the interval time is not set to zero, otherwise the system is expected to perform the testing.

Functional test
The time of day and frequency of the 5 seconds function test can be set by the DALI controller. The default setting is a 5 seconds test on a weekly basis.

Duration test
The time of day and frequency of the duration test can be set by the DALI controller. The default setting is a duration test conducted every 52 weeks.

Prolong time
Prolong time can be set by the DALI controller. This is the delay time between return of the mains supply and the end of the emergency operation. The default prolong time is set as 0 minutes as specified within the DALI standard.
Indicator LED will stay off for the duration of the prolong time.

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.
The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically switched on if the mains supply is switched off within 15 minutes. Rest Mode and Inhibit Mode can be initiated by the DALI controller. The REST command has to be sent after the mains supply has been disconnected and whilst the EM powerLED PRO is in emergency operation. The INHIBIT command has to be sent while the EM powerLED PRO is supplied by mains.
After a mains reset the EM powerLED PRO exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by sending the RE-LIGHT/RESET INHIBIT command.

Test switch
An optional test switch can be wired to each EM powerLED PRO EZ-3. This can be used to initiate a 5 seconds function test by a short press < 1 second.

DALI Controller
DALI controllers and hardware/software solutions are available from Tridonic. Please refer to the Lighting controls section.

7.5 Further technical data

The EM powerLED has a unique power regulation circuit; this is designed to limit the total power drawn from the battery in the event of using LED's with a forward voltage (Vf) higher than 3.4 V.

In such cases the unit will reduce the LED current in order to maintain an acceptable drain current from the battery and hence meet the required duration time. This feature enables the EM powerLED to have minimum battery count for a given range of LED's.

At a low charge state of the battery (<1.5 V at the 1 W driver and <3 V at the 2 W driver) the LED will not be driven in maintained mode via the switched line until the rated battery voltage levels are exceeded.

8. Battery data

8.1 Battery selection

EM powerLED 1-2 W PRO EZ-3, 1 / 2 / 3 h

				Type	**EM powerLED 1 W PRO EZ-3**			**EM powerLED 2 W PRO EZ-3**		
				Article no.	**89800029, 89800031**			**89800030, 89800032**		
				Duration	**1 h**	**2 h**	**3 h**	**1 h**	**2 h**	**3 h**
				Cells	**2 cells**	**3 cells**	**3 cells**	**3 cells**	**4 cells**	**5 cells**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**					
NiMH 2.2 Ah Cs cells	stick	1 x 2	**Accu-NiMH 2A**	**28002087**	•					
	stick	1 x 3	**Accu-NiMH 3A**	**28002088**		•	•	•		
	stick	1 x 4	**Accu-NiMH 4A**	**28002089**					•	
	stick	1 x 5	**Accu-NiMH 5A**	**28002090**						•
	side by side	5 x 1	**Accu-NiMH 5B**	**28002093**						•

8.2 Battery charge / discharge data

EM powerLED 1-2 W PRO EZ-3, 1 / 2 / 3 h

	Type	**EM powerLED 1 W PRO EZ-3**			**EM powerLED 2 W PRO EZ-3**		
	Article no.	**89800029, 89800031**			**89800030, 89800032**		
	cells	**1 h**	**2 h**	**3 h**	**1 h**	**2 h**	**3 h**
	Duration	**2 cells**	**3 cells**	**3 cells**	**3 cells**	**4 cells**	**5 cells**
Battery charge time	Initial charge	20 h					
	Fast recharge	12 h					
	Trickle charge	continuously (pulse charge)					
Charge current	Initial charge	130 mA					
	Fast recharge	210 mA					
	Trickle charge	130 mA / 0 mA (4 min. / 16 min.)					
Discharge current	1 x LED	770 mA	460 mA	460 mA	900 mA	640 mA	500 mA
	2 x LED	–	–	–	870 mA	630 mA	500 mA
Charge voltage range[1]		1.07 – 1.6 V per cell					
Discharge voltage range		1.6 – 1.07 V per cell					

[1] The battery will be charged below 1.07 V. The EM powerLED will indicate a battery fault.
The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

8.3 Accu-NiMH 2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

8.4 Accupack-NiMH 2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

8.5 Batteries

Connection method: 4.8 x 0.5 mm spade tag welded to end of cell

For stick packs this connection is accessible after the battery caps have been fitted.

To inhibit inverter operation disconnect the batteries by removing the connector from the battery spade tag.

For further information refer to corresponding battery datasheet.

8.6 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

8.7 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

9. Miscellaneous

9.1 Mains-connected transformers

The EM powerLED does not contain mains-connected windings of transformers.

9.2 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

9.3 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED PRO FX LiFePO4 1 – 2 W

Combined emergency lighting LED driver 1 – 4 W

LiFeGuard

Product description
_ Emergency lighting LED driver with DALI interface and selftest function
_ For self-contained emergency lighting
_ SELV for output voltage < 60 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Mains and emergency operation
_ DALI switchable in mains operation (on/off); the switched phase SL must be switched on
_ DALI interface for controlled testing and monitoring
_ Constant current mode
_ With either screw or clip fastening (clip-fix)
_ 1, 2 or 3 h rated duration
_ Selectable operating time (jumper)
_ Two-colour status display LED
_ SELV classified (outputs powerLED, battery, status LED, test switch)
_ Very low energy consumption from the battery after activation of the deep discharge protection

Battery management
_ Intelligent charge system
_ Deep discharge protection
_ Temperature protection
_ Reverse polarity protection

Batteries
_ LiFePO4 batteries with Tridonic LiFeGuard
_ Overcharge-/Overdischarge protection
_ Ensures safety in use
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions) ①

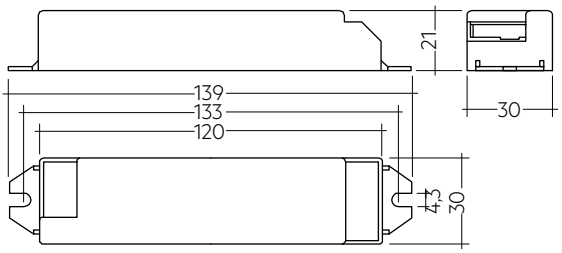
① 28005859 - 5-year guarantee.

Website
http://www.tridonic.com/89800804

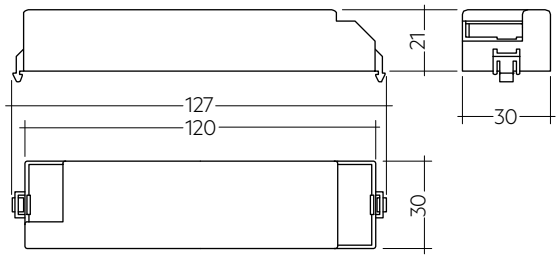
TRIDONIC

EM powerLED PRO FX LiFePO4 1 – 2 W

Combined emergency lighting LED driver 1 – 4 W



Screw-fix



Clip-fix

Ordering data

Type	Article number	Dimensions L x W x H	Rated duration	Max. number of LEDs	Packaging, carton	Packaging, pallet	Weight per pc.
Screw fastening version							
EM pLED PRO FX 201 LiFePO4 1W SCREW	**89800804**	139 x 30 x 21 mm	1/2/3 h	1	25 pc(s).	1,200 pc(s).	0.054 kg
EM pLED PRO FX 202 LiFePO4 2W SCREW	**89800806**	139 x 30 x 21 mm	1/2/3 h	2	25 pc(s).	1,200 pc(s).	0.054 kg
Clip fastening version							
EM pLED PRO FX 201 LiFePO4 1W CLIP	**89800803**	127 x 30 x 21 mm	1/2/3 h	1	25 pc(s).	1,200 pc(s).	0.054 kg
EM pLED PRO FX 202 LiFePO4 2W CLIP	**89800805**	127 x 30 x 21 mm	1/2/3 h	2	25 pc(s).	1,200 pc(s).	0.054 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
THD (at 230 V, 50 Hz, full load)	< 120 %
U-OUT (including open- / short-circuit and double load)	15 V
Max. open circuit voltage	15 V
Output current tolerance	± 10 %
Typical output LF current ripple at full load	± 5 %
Starting time	< 0.7 s
Output current	Refer to data sheet
Overvoltage protection	320 V (for 48 h)
Max. casing temperature tc	75 °C
Ambient temperature ta	-25 … +55 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Surge voltage at output side (against PE)	< 2 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

Standards

EN 61347-2-7, EN 61347-2-13, EN 62384, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61000-4-11, EN 61547, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 62386 (acc. to DALI standard V2), according to EN 50172, according to EN 60598-2-22, acc. to EN 62034

Specific technical data

Type	Rated duration	Number of LEDs	Typ. λ (at 230 V, 50 Hz)	Forward voltage range LED module ②	Non-maintained operation		Maintained operation	
					Mains current in charging operation ③	Mains power in charging operation ③	Mains current in charging operation ③	Mains power in charging operation ③
EM pLED PRO FX 201 LiFePO4 1W SCREW	1 h	1	0.55C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED PRO FX 201 LiFePO4 1W SCREW	2 h	1	0.55C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED PRO FX 201 LiFePO4 1W SCREW	3 h	1	0.55C	2.6 – 3.4 V	21 / 11 mA	2.1 / 0.9 W	31 / 23 mA	4.0 / 2.8 W
EM pLED PRO FX 201 LiFePO4 1W CLIP	1 h	1	0.55C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED PRO FX 201 LiFePO4 1W CLIP	2 h	1	0.55C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED PRO FX 201 LiFePO4 1W CLIP	3 h	1	0.55C	2.6 – 3.4 V	21 / 11 mA	2.1 / 0.9 W	31 / 23 mA	4.0 / 2.8 W
EM pLED PRO FX 202 LiFePO4 2W CLIP	1 h	1	0.58C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED PRO FX 202 LiFePO4 2W CLIP	1 h	2	0.58C	5.2 – 6.8 V	16 / 11 mA	1.5 / 0.9 W	37 / 33 mA	5.0 / 4.1 W
EM pLED PRO FX 202 LiFePO4 2W CLIP	2 h	1	0.58C	2.6 – 3.4 V	20 / 11 mA	2.2 / 0.9 W	31 / 23 mA	4.0 / 2.8 W
EM pLED PRO FX 202 LiFePO4 2W CLIP	2 h	2	0.58C	5.2 – 6.8 V	20 / 11 mA	2.2 / 0.9 W	42 / 33 mA	5.5 / 4.1 W
EM pLED PRO FX 202 LiFePO4 2W CLIP	3 h	1	0.58C	2.6 – 3.4 V	22 / 11 mA	2.5 / 0.9 W	33 / 23 mA	4.5 / 2.8 W
EM pLED PRO FX 202 LiFePO4 2W CLIP	3 h	2	0.58C	5.2 – 6.8 V	22 / 11 mA	2.5 / 0.9 W	44 / 33 mA	5.8 / 4.1 W
EM pLED PRO FX 202 LiFePO4 2W SCREW	1 h	1	0.58C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED PRO FX 202 LiFePO4 2W SCREW	1 h	2	0.58C	5.2 – 6.8 V	16 / 11 mA	1.5 / 0.9 W	37 / 33 mA	5.0 / 4.1 W
EM pLED PRO FX 202 LiFePO4 2W SCREW	2 h	1	0.58C	2.6 – 3.4 V	20 / 11 mA	2.2 / 0.9 W	31 / 23 mA	4.0 / 2.8 W
EM pLED PRO FX 202 LiFePO4 2W SCREW	2 h	2	0.58C	5.2 – 6.8 V	20 / 11 mA	2.2 / 0.9 W	42 / 33 mA	5.5 / 4.1 W
EM pLED PRO FX 202 LiFePO4 2W SCREW	3 h	1	0.58C	2.6 – 3.4 V	22 / 11 mA	2.5 / 0.9 W	33 / 23 mA	4.5 / 2.8 W
EM pLED PRO FX 202 LiFePO4 2W SCREW	3 h	2	0.58C	5.2 – 6.8 V	22 / 11 mA	2.5 / 0.9 W	44 / 33 mA	5.8 / 4.1 W

② When exceeding the rated power of 1 respectively 2 W the LED current is reduced proportionally.
③ For LiFePO4 batteries voltage dependent constant current charging is used. The values displayed are for charging on / charging off.

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

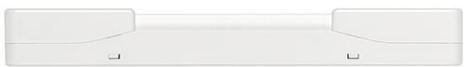
Ordering data

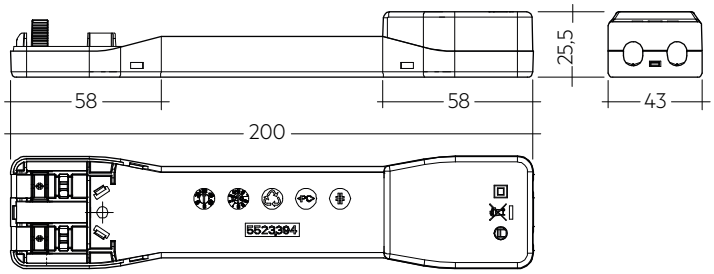
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

EMpLED Strain-relief set 200x43x25.5mm

Accessory

Product description
_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (200 x 43 x 25.5 mm)





Permissible cable jacket diameter 2.2 – 9 mm

Website
http://www.tridonic.com/28004033

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM pLED SR	**28004033**	10 pc(s).	0.05 kg

Approval marks

1. Standards

- EN 61347-2-7
- EN 61347-2-13
- EN 62384
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61000-4-11
- EN 61547
- EN 60068-2-29
- EN 60068-2-30
- EN 60068-2-64
- EN 62386 (according to DALI standard V2)
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 100,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

EM pLED PRO FX LiFePO4	ta	40 °C	45 °C	50 °C	55 °C
	tc	60 °C	65	70 °C	75 °C
	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	76,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

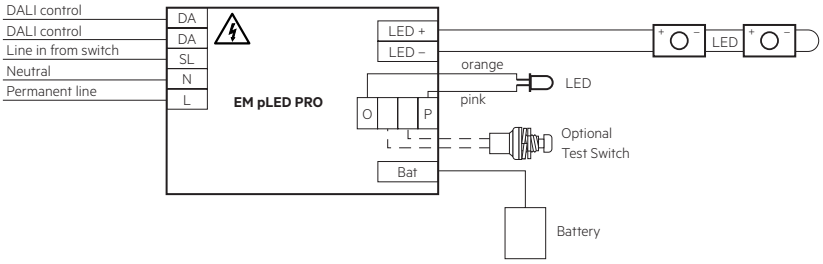
The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

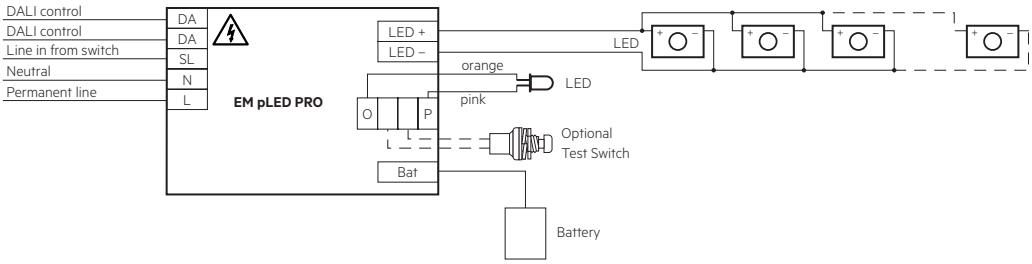
3.1 Wiring diagram

3.1.1 Wiring with one or multiple LED modules

Serial:

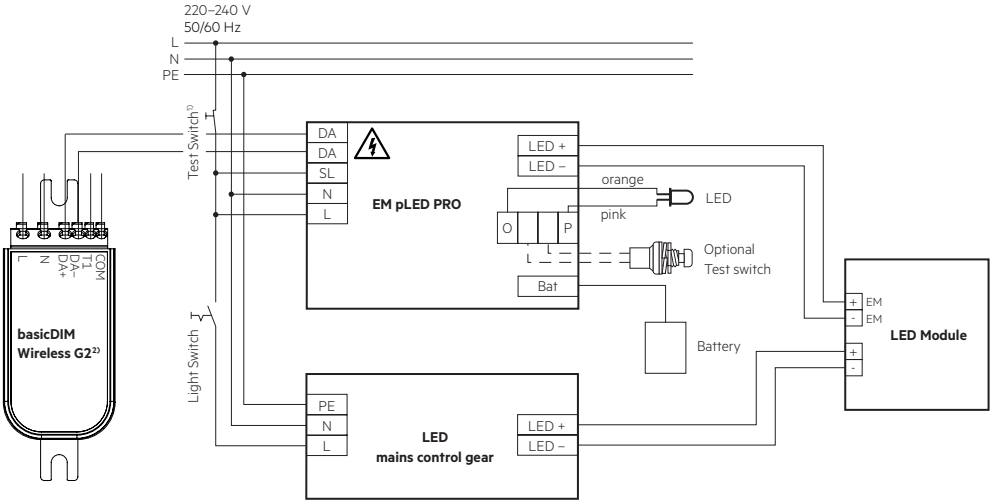


Parallel:



Take care that the LED is connected with the right polarity.
LEDs that are connected to the EM powerLED devices should have a reverse polartity protection device such as a schottky diode fitted, otherwise irreversible damage could occur if the LED is connected in reverse polarity. Any protection device must be capaple of handling in excess of 600 mA.

3.1.2 Wireless set-up

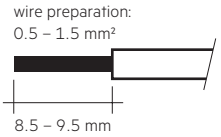


[1] Use 230 V Test switch
[2] For further information see basicDIM Wireless datasheet at www.tridonic.com

3.2 Wiring type and cross section

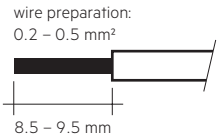
LED module/LED driver/supply:

Use solid/stranded wire with a cross section of 0.5 – 1.5 mm² for wiring. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.



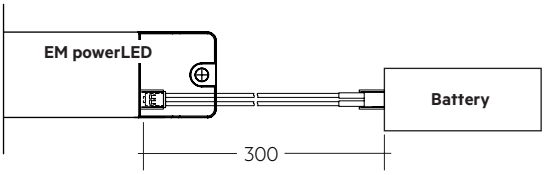
Status indication LED / Test switch:

Use solid wire with a cross section of 0.2 – 0.5 mm² for wiring. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

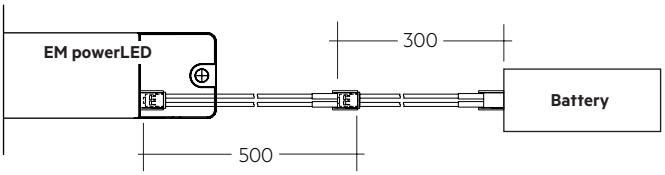


3.3 Battery connection

$LiFePO_4$: Direct connection

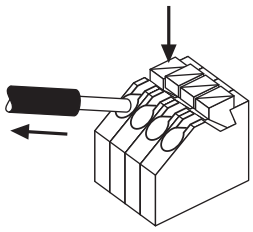


$LiFePO_4$: Connection with extension



3.4 Loose wiring

Press down the “push button” and remove the cable from front.



3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.)

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

3.6 Maximum lead length

LED	3 m (6 m loop)[1]
Test switch	1 m
Status indication LED	1 m
Batteries	0.8 m

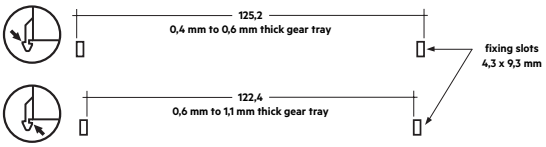
[1] Note: Do not exceed the length of LED leads to the LED module. Leads should always be kept as short as possible.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20

Recommended fixing details for clip fixing



Max. torque for mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED bi-colour status indicator
- Green / Red
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 1.0 m
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	I_{max}	time
EM pLED PRO FX LiFePO4	90	130	130	130	180	260	260	260	6 A	55 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, Test switch, Indicator LED	DALI
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, Test switch, Indicator LED	••	••	–	•
DALI	•	•	•	–

• Represents basic insulation

•• Represents double or reinforced insulation

DALI terminals are not SELV. Wire the terminals in accordance with the requirements of low voltage installations.

5.3 LED current

EM pLED PRO FX LiFePO4, 1 / 2 / 3 h

	Type	EM pLED PRO FX LiFePO4 1W	EM pLED PRO FX LiFePO4 2W
	Article no.	**89800803, 89800804**	**89800805, 89800806**
LED current in emergency operation	1 x LED	350 mA	600 mA
	2 x LED	–	350 mA
LED current in mains operation	1 x LED	350 mA	350 mA
	2 x LED	–	350 mA

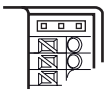
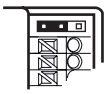
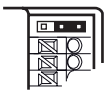
5.4 Emergency output factor EOFi

EM pLED PRO FX LiFePO4, 1 / 2 / 3 h

	Type	EM pLED PRO FX LiFePO4 1W	EM pLED PRO FX LiFePO4 2W
	Article no.	**89800803, 89800804**	**89800805, 89800806**
	Cells	**1 / 2 cells**	**1 / 2 / 3 cells**
LED load	**Output current**	**LED load**	**LED load**
1 x LED	350 mA	97 %	–
1 x LED	600 mA	–	170 %
2 x LED	350 mA	–	97 %

6. Electrical values

6.1 Duration link selection

Duration	Link Position
1 hr	 without jumper
2 hr	 position A
3 hr	 position B

6.2 Jumper selection

Module supplied with jumper in 3 hours position (position B).

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM powerLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.3 Status indication

System status is indicated by a bi-colour LED and by a DALI status flag.

LED indiction	Status	Commentary
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure ①
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function / Battery is defect / Incorrect battery voltage
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

① If the EM powerLED (operated in non-maintained mode) detects a fault at the LED module, the red LED indicator lights up and the output is stopped.
After the correction of the fault disconnect the unswitched phase from the mains supply or carry out a function or duration test. This will detect the new LED module and reset the error display.

6.4 Testing

DALI Control
A DALI command from a suitable control unit can be used to initiate function and duration tests at individually selected times. Status flags are set for report back and data logging of results.

When a DALI bus has not been connected or when a DALI bus is connected but the DALI default DELAY and INTERVAL times have not been re-set by sending appropriate DALI commands, then the EM powerLED will conduct self-tests in accordance with the default times set within the EEPROM . These default times are factory pre-set, in accordance with the DALI standard EN 62386-202, to conduct an automatic function test every 7 days and a duration test every 52 weeks. Since the DELAY time is factory pre-set to Zero, all units are tested at the same time. Test times can be changed with a command over the DALI bus.

The DELAY and INTERVAL time values must be re-set when the emergency system test times are to be scheduled by a DALI control and monitoring system.
Note that once the default values have been set to Zero, tests will only be conducted following a command from the control system. If the DALI bus is disconnected the EM powerLED does not revert to self-testing mode.

Commissioning
After installation of the luminaire and initial connection of the mains supply and battery supply to the EM powerLED the unit will commence charging the batteries for 24 hours (initial charge). Afterwards the module will conduct

a commissioning test for the full duration. The 24 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition. The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 24 hrs) and the interval time is not set to zero, otherwise the system is expected to perform the testing.

Functional test
The time of day and frequency of the 5 seconds function test can be set by the DALI controller. The default setting is a 5 seconds test on a weekly basis.

Duration test
The time of day and frequency of the duration test can be set by the DALI controller. The default setting is a duration test conducted every 52 weeks.

Prolong time
Prolong time can be set by the DALI controller. This is the delay time between return of the mains supply and the end of the emergency operation. The default prolong time is set as 0 minutes as specified within the DALI standard.
Indicator LED will stay off for the duration of the prolong time.

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.
The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically switched on if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by the DALI controller. The REST command has to be sent after the mains supply has been disconnected and whilst the EM powerLED is in emergency operation. The INHIBIT command has to be sent while the EM powerLED is supplied by mains.
After a mains reset the EM powerLED exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by sending the RE-LIGHT/RESET INHIBIT command.
In combination with a 1-cell battery the EM powerLED does not support Rest Mode / Inhibit Mode.

Test switch
An optional test switch can be wired to each EM powerLED. This can be used to initiate a 5 seconds function test by a short press < 1 second.

DALI Controller
DALI controllers and hardware/software solutions are available from Tridonic. Please refer to the Lighting controls section.

7. Battery data

7.1 Battery selection

EM pLED PRO FX LiFePO4, 1 / 2 / 3 h

				Type	EM pLED PRO FX LiFePO4 1W			EM pLED PRO FX LiFePO4 2W		
				Article no.	89800803, 89800804			89800805, 89800806		
				Duration	1 h	2h	3 h	1 h	2h	3 h
				Cells	1	1	2	1	2	3
Technology and capacity	Design	Number of cells	Type	Article no.	Assignable batteries					
$LiFePO_4$ 1.5 Ah 18650 cells	stick	1 x 1	ACCU-LiFePO4 1A CON	28002317	•	•		•		
	stick	1 x 2	ACCU-LiFePO4 2A CON	28002318			•		•	
	stick	1 x 3	ACCU-LiFePO4 3A CON	28002320						•
	side by side	2 x 1	ACCU-LiFePO4 2B CON	28002319			•		•	
	side by side	3 x 1	ACCU-LiFePO4 3B CON	28002321						•
	remote box	1 x 3	PACK-LiFePO4 4.5Ah 3 CON	28003806						•
	remote box	1 x 2	PACK-LiFePO4 3.0Ah 2 CON	28005854			•		•	
	remote box	1 x 3	PACK-LiFePO4 4.5Ah 3 CON	28005855						•
	remote box	1S1P	PACK-LiFePO4 3.3Ah 1 CON	28005859			•		•	

7.2 Battery charge / discharge data

EM pLED PRO FX LiFePO4, 1 / 2 / 3 h

	Type	EM pLED PRO FX LiFePO4 1W			EM pLED PRO FX LiFePO4 2W		
	Article no.	89800803, 89800804			89800805, 89800806		
	Duration	1 h	2 h	3 h	1 h	2 h	3 h
Battery charge time	Initial charge	24 h					
	Trickle charge	continuously					
Charging current	Initial charge	120 – 150 mA	120 – 150 mA	240 – 300 mA	120 – 150 mA	240 – 300 mA	300 – 360 mA
	Trickle charge[1]	120 – 150 mA / 0 mA	120 – 150 mA / 0 mA	240 – 300 mA / 0 mA	120 – 150 mA / 0 mA	240 – 300 mA / 0 mA	300 – 360 mA / 0 mA
Discharge current		430 – 530 mA			800 – 970 mA		
Charge voltage range[2]		2.0 – 3.6 V per cell					
Discharge voltage range		2.3 – 3.6 V per cell					

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.
Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).
The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

7.3 ACCU-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

7.4 ACCUpack-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

Only use Tridonic batteries.

7.5 Accupack-LiFePO4

Capacity 3.3 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max short term battery case tc point temperature	
(reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

7.6 Safety

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.6.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.6.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.6.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.6.4 Temperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

7.7 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.2 Mains-connected transformers

The EM powerLED does not contain mains-connected windings of transformers.

8.3 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED PRO NM NFC LiFePO4 4 W

Combined emergency lighting LED driver 1 – 4 W

LiFeGuard

Product description
_ Emergency lighting LED driver with DALI interface and automatic test function
_ Fulfills DALI-2 parts: 250 (Integrated bus power supply), 251 (Luminaire data), 252 (Energy reporting) and 253 (Diagnostics & Maintenance)
_ For self-contained emergency lighting
_ SELV for output voltage < 60 V DC
_ Low profile cross-section (21 x 30 mm)
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Non maintained operation
_ Constant current mode
_ Screw fixing
_ 1, 2 or 3 h rated duration
_ Selectable operating time (jumper)
_ Two-colour status display LED
_ SELV classified (outputs powerLED, battery, status LED, test switch)
_ Very low energy consumption from the battery after activation of the deep discharge protection

Interfaces
_ DALI interface for controlled testing and monitoring
_ Near field communication (NFC)

Battery management
_ Intelligent charge system
_ Deep discharge protection
_ Temperature protection
_ Reverse polarity protection

Batteries
_ LiFePO4 batteries with Tridonic LiFeGuard
_ Overcharge-/Overdischarge protection
_ Ensures safety in use
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions) ①

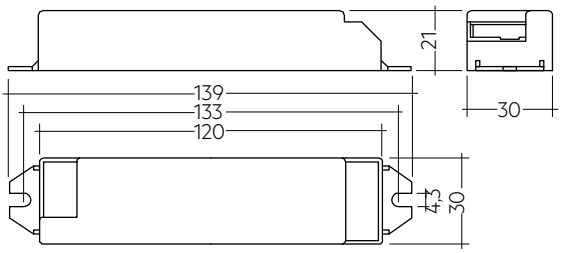
① 28005859 - 5-year guarantee.

Website
http://www.tridonic.com/89800811

TRIDONIC

EM powerLED PRO NM NFC LiFePO4 4 W

Combined emergency lighting LED driver 1 – 4 W



Ordering data

Type	Article number	Rated duration	Max. number of LEDs	Packaging, carton	Packaging, pallet	Weight per pc.
EM pLED PRO NM NF 201 LiFePO4 4W SCREW	**89800811**	1/2/3 h	1	10 pc(s).	800 pc(s).	0.06 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
THD (at 230 V, 50 Hz, full load)	< 120 %
U-OUT (including open- / short-circuit and double load)	15 V
Max. open circuit voltage	15 V
Output current tolerance	± 10 %
Typical output LF current ripple at full load	± 5 %
Starting time	< 0.5 s
Output current	Refer to data sheet
Overvoltage protection	320 V (for 48 h)
Max. casing temperature tc	75 °C
Ambient temperature ta	-25 … +55 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Surge voltage at output side (against PE)	< 2 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

NFC DALI IP20 SELV EL-T RoHS

Standards

EN 61347-2-7, EN 61347-2-13, EN 62384, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 62386 (acc. to DALI standard V2), EN 62386-101, EN 62386-102, according to EN 50172, according to EN 60598-2-22, acc. to EN 62034

Specific technical data

Type	Rated duration	Number of LEDs	Typ. λ (at 230 V, 50 Hz)	Forward voltage range LED module②	Non-maintained operation	
					Mains current in charging operation③	Mains power in charging operation③④
EM pLED PRO NM NF 201 LiFePO4 4W SCREW	1 h	1	0.53C	2.6 – 3.4 V	21 / 11 mA	2.4 / 1 W
EM pLED PRO NM NF 201 LiFePO4 4W SCREW	1 h	2	0.53C	5.2 – 6.8 V	21 / 11 mA	2.4 / 1 W
EM pLED PRO NM NF 201 LiFePO4 4W SCREW	2 h	1	0.53C	2.6 – 3.4 V	23 / 11 mA	2.7 / 1 W
EM pLED PRO NM NF 201 LiFePO4 4W SCREW	2 h	2	0.53C	5.2 – 6.8 V	23 / 11 mA	2.7 / 1 W
EM pLED PRO NM NF 201 LiFePO4 4W SCREW	3 h	1	0.53C	2.6 – 3.4 V	27 / 11 mA	3.3 / 1 W
EM pLED PRO NM NF 201 LiFePO4 4W SCREW	3 h	2	0.53C	5.2 – 6.8 V	27 / 11 mA	3.3 / 1 W

② When exceeding the rated power of 4 W the LED current is reduced proportionally.
③ For LiFePO4 batteries voltage dependent constant current charging is used. The values displayed are for charging on / charging off.
④ Integrated DALI bus power supply is switched OFF. With the Integrated DALI bus power supply switched ON and fully loaded the input power and current is increased by 1.4 W and 9 mA in any charging mode.

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

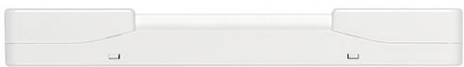
Ordering data

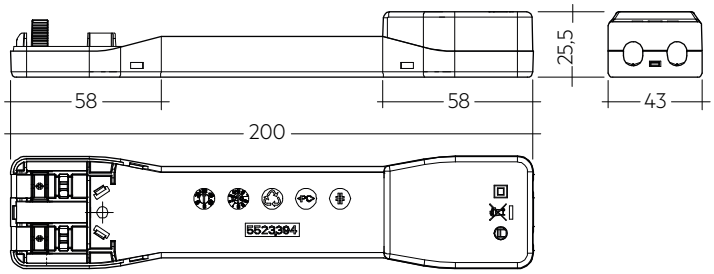
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

EMpLED Strain-relief set 200x43x25.5mm

Accessory

Product description
_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (200 x 43 x 25.5 mm)





Permissible cable jacket diameter 2.2 – 9 mm

Website
http://www.tridonic.com/28004033

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM pLED SR	**28004033**	10 pc(s).	0.05 kg

Approval marks

1. Standards

- EN 61347-2-7
- EN 61347-2-13
- EN 62384
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-29
- EN 60068-2-30
- EN 60068-2-64
- EN 62386 (according to DALI-2 standard)
- EN 62386-101 (DALI-2), only IPS relevant requirements
- EN 62386-102 (DALI-2), only IPS relevant requirements
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 100,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

EM pLED PRO NM NF 204 LiFePO4 4W	ta	40 °C	50 °C	55 °C
	tc	60 °C	70 °C	75 °C
	lifetime	> 100,000 h	> 100,000 h	78,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

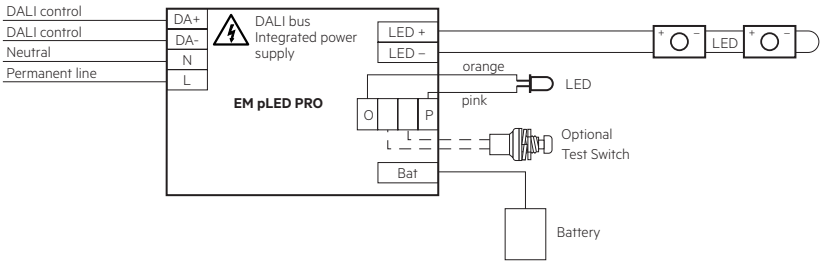
The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

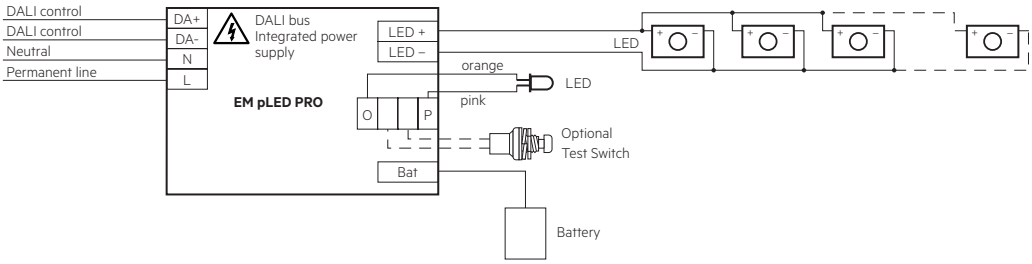
3.1 Wiring diagram

3.1.1 Wiring with one or multiple LED modules

Serial:

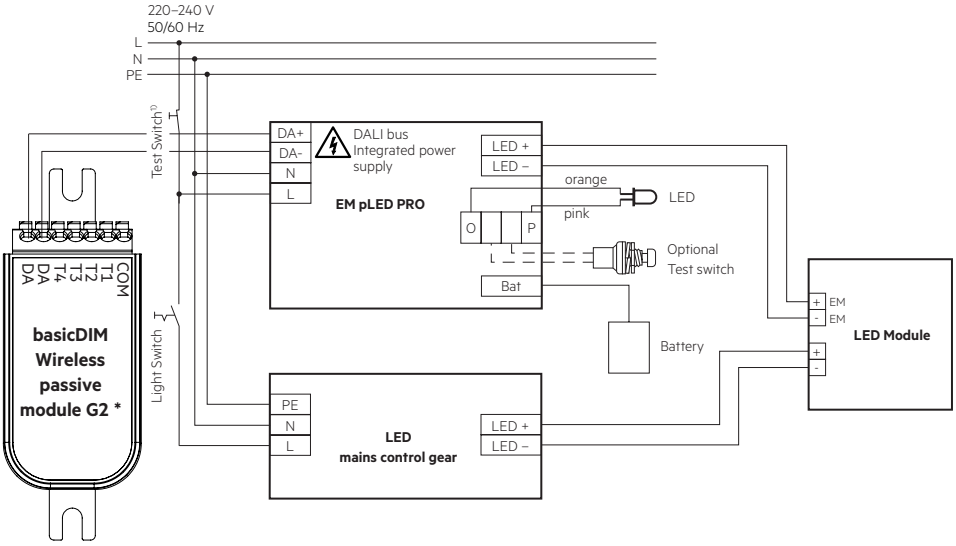


Parallel:



Take care that the LED is connected with the right polarity.
LEDs that are connected to the EM powerLED devices should have a reverse polartity protection device such as a schottky diode fitted, otherwise irreversible damage could occur if the LED is connected in reverse polarity. Any protection device must be capaple of handling in excess of 1,000 mA.

3.1.2 Wireless set-up

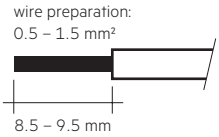


[1] Use 230 V Test switch
[2] For further information see basicDIM Wireless datasheet at www.tridonic.com

3.2 Wiring type and cross section

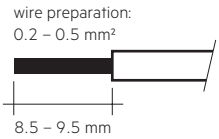
LED module/LED driver/supply:

Use solid/stranded wire with a cross section of 0.5 – 1.5 mm² for wiring. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.



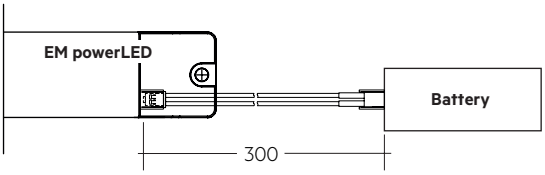
Status indication LED / Test switch:

Use solid wire with a cross section of 0.2 – 0.5 mm² for wiring. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

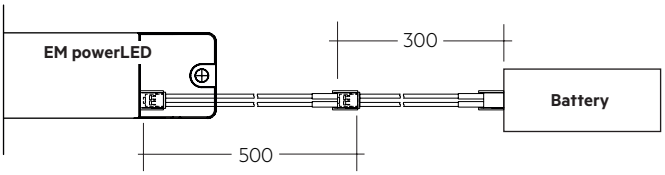


3.3 Battery connection

$LiFePO_4$: Direct connection

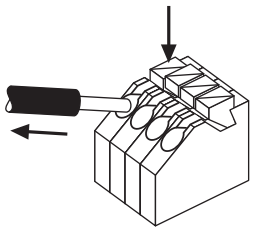


$LiFePO_4$: Connection with extension



3.4 Loose wiring

Press down the “push button” and remove the cable from front.



3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.)

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

3.6 Maximum lead length

LED	3 m (6 m loop)[1]
Test switch	1 m
Status indication LED	1 m
Batteries	0.8 m

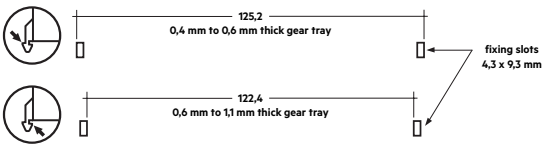
[1] Note: Do not exceed the length of LED leads to the LED module. Leads should always be kept as short as possible.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20

Recommended fixing details for clip fixing



Max. torque for mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED status indicator
- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 0.6 m / 1.0 m
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	I_{max}	time
EM pLED PRO NM NF LiFePO4	90	130	130	130	180	260	260	260	6 A	55 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, Test switch, Indicator LED	DALI
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, Test switch, Indicator LED	••	••	–	•
DALI	•	•	•	–

• Represents basic insulation

•• Represents double or reinforced insulation

DALI terminals are not SELV. Wire the terminals in accordance with the requirements of low voltage installations.

5.3 LED current

EM pLED PRO NM LiFePO4, 1 / 2 / 3 h

	Type	EM pLED PRO NM NF 204 LiFePO4 4W
	Article no.	**89800811**
LED current in emergency operation	1 x LED	1,000 mA
	2 x LED	700 mA
LED current in mains operation	1 x LED	1,000 mA
	2 x LED	700 mA

6. Interfaces / communication

6.1 Control input (DA+, DA–)

The DALI Interface allows communication with the Driver via a suitable DALI control unit. The DALI interface is not SELV. Install the control cable (DALI bus) in accordance to the requirements of low voltage installations.
DALI terminals are mains voltage proof.

6.2 Nearfield communication (NFC)

The NFC Interface allows wireless communication with the LED driver in unpowered state. This interface offers the option to write configuration and to read configuration, errors and events via a suitable NFC antenna and the companionSUITE software.
Place the NFC antenna directly on the LED driver to guarantee a correct communication between the LED driver and the NFC antenna. Any material placed between the LED driver and the NFC antenna can cause a deterioration of the communication quality. We recommend the use of following NFC antennas:
www.tridonic.com/nfc-readers.

NFC is complied with ISO/IEC 15963 standard.

After programming the device via NFC power up the device one time for one second till the deviceANALYSER can read out the parameters.

Changing parameters via NFC shall be done by qualified engineers only.

7. Functions

7.1 Integrated DALI bus power supply voltage (IPS)

The function is activated by default and can be optionally deactivated.

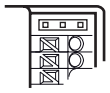
IPS = 50 mA and IPS_max = 62.5 mA.
The minimum guaranteed output current is 50 mA.
Imax = 62.5 mA

Note: The voltage drop in the DALI wires must not exceed 2 V.

No other DALI power supply is allowed to be connected in parallel.

If the IPS function is activated, do not integrate the Driver into an existing DALI network with active DALI bus power supply.

7.2 Duration link selection

Duration	Link Position
1 hr	 without jumper
2 hr	position A
3 hr	position B

The device is supplied with the duration link in 3 hours position (position B).

The position of the link will only be read on first power up. If it is changed afterwards disconnect both the battery and mains supply for 10 seconds to enable the EM powerLED to read the new link position after reconnection of the battery and mains. A change of the link position without this reset leads to a false battery failure indication.

7.3 Status indication

System status is indicated by a bi-colour LED and by a DALI status flag.

LED indiction	Status	Commentary
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure ①
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function / Battery is defect / Incorrect battery voltage
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

① If the EM powerLED (operated in non-maintained mode) detects a fault at the LED module, the red LED indicator lights up and the output is stopped.
After the correction of the fault disconnect the unswitched phase from the mains supply or carry out a function or duration test. This will detect the new LED module and reset the error display.

7.4 Testing

DALI Control
A DALI command from a suitable control unit can be used to initiate function and duration tests at individually selected times. Status flags are set for report back and data logging of results.

When a DALI bus has not been connected or when a DALI bus is connected but the DALI default DELAY and INTERVAL times have not been re-set by sending appropriate DALI commands, then the EM powerLED will conduct self-tests in accordance with the default times set within the EEPROM . These default times are factory pre-set, in accordance with the DALI standard EN 62386-202, to conduct an automatic function test every 7 days and a duration test every 52 weeks. Since the DELAY time is factory pre-set to Zero, all units are tested at the same time. Test times can be changed with a command over the DALI bus.

The DELAY and INTERVAL time values must be re-set when the emergency system test times are to be scheduled by a DALI control and monitoring system.
Note that once the default values have been set to Zero, tests will only be conducted following a command from the control system. If the DALI bus is disconnected the EM powerLED does not revert to self-testing mode.

Commissioning
After installation of the luminaire and initial connection of the mains supply and battery supply to the EM powerLED the unit will commence charging the batteries for 24 hours (initial charge). Afterwards the module will conduct a commissioning test for the full duration. The 24 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition. The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 20 hrs) and the interval time is not set to zero, otherwise the system is expected to perform the testing.

Functional test
The time of day and frequency of the 5 seconds function test can be set by the DALI controller. The default setting is a 5 seconds test on a weekly basis.

Duration test
The time of day and frequency of the duration test can be set by the DALI controller. The default setting is a duration test conducted every 52 weeks.

Prolong time
Prolong time can be set by the DALI controller. This is the delay time between return of the mains supply and the end of the emergency operation. The default prolong time is set as 0 minutes as specified within the DALI standard.
Indicator LED will stay off for the duration of the prolong time.

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.
The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically switched on if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by the DALI controller. The REST command has to be sent after the mains supply has been disconnected and whilst the EM powerLED is in emergency operation. The INHIBIT command has to be sent while the EM powerLED is supplied by mains.
After a mains reset the EM powerLED exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by sending the RE-LIGHT/RESET INHIBIT command.
In combination with a 1-cell battery the EM powerLED does not support Rest Mode / Inhibit Mode.

Test switch
An optional test switch can be wired to each EM powerLED. This can be used to initiate a 5 seconds function test by a short press < 1 second.

DALI Controller
DALI controllers and hardware/software solutions are available from Tridonic. Please refer to the Lighting controls section.

Luminaire data

This function provides the asset management with accurate data about the luminaire.
DALI Part 251: Memory bank 1 extension.

8. Battery data

8.1 Battery selection

EM pLED PRO NM LiFePO4, 1 / 2 / 3 h

				Type	**EM pLED PRO NM NF 204 LiFePO4 4W**		
				Article no.	**89800811**		
				Duration	**1 h**	**2h**	**3 h**
				Cells	**1**	**2**	**3**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**		
$LiFePO_4$ 1.5 Ah 18650 cells	stick	1 x 2	**ACCU-LiFePO4 2A CON**	**28002318**	•		
	stick	1 x 4	**ACCU-LiFePO4 6.0Ah 4A CON**	**28002322**		•	
	stick + stick	2 + 2	**ACCU-LiFePO4 6.0Ah 4C CON**	**28002324**		•	
	stick + stick	3 + 3	**ACCU-LiFePO4 9.0Ah 6C CON**	**28002330**			•
	side by side	2 x 1	**ACCU-LiFePO4 2B CON**	**28002319**	•		
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28005854**	•		
	remote box	1 x 4	**PACK-LiFePO4 6.0Ah 4 CON**	**28005856**		•	
	remote box	1S1P	**PACK-LiFePO4 3.3Ah 1 CON**	**28005859**	•		

8.2 Battery charge / discharge data

EM pLED PRO NM LiFePO4, 1 / 2 / 3 h

	Type	**EM pLED PRO NM NF 204 LiFePO4 4W**		
	Article no.	**89800811**		
	Duration	**1 h**	**2 h**	**3 h**
Battery charge time	Initial charge	24 h		
	Trickle charge	continuously		
Charging current	Initial charge	240 – 300 mA	300 – 360 mA	405 – 495 mA
	Trickle charge[1]	240 – 300 mA / 0 mA	300 – 360 mA / 0 mA	405 – 495 mA / 0 mA
Discharge current		1,620 – 1,980 mA		
Charge voltage range[2]		2.0 – 3.6 V per cell		
Discharge voltage range		2.3 – 3.6 V per cell		

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.
Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).
The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

8.3 ACCU-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

8.4 ACCUpack-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

Only use Tridonic batteries.

8.5 Accu / Accupack-LiFePO4

Capacity 3.3 / 6.6 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature	
(reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

8.6 Safety

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

8.6.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

8.6.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

8.6.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

8.6.4 Temperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

8.7 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

8.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

9. Miscellaneous

9.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

9.2 Mains-connected transformers

The EM powerLED does not contain mains-connected windings of transformers.

9.3 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

9.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED SELFTEST 1 – 2 W

Combined emergency lighting LED driver 1 – 4 W

Screw-fix

Clip-fix

Product description
_ Emergency lighting LED driver with selftest function
_ For self-contained emergency lighting
_ SELV for output voltage < 60 V DC
_ Low profile casing (21 x 30 mm)
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Mains and emergency operation
_ Self-test as per IEC 62034
_ Constant current mode
_ With either screw or clip fastening (clip-fix)
_ 1, 2 or 3 h rated duration
_ Selectable operating time (jumper)
_ Output power limitation
_ Two-colour status display LED
_ “Rest mode” function
_ Simple set-up
_ Automatic restart after LED replacement
_ Electronic multi-level charge system
_ SELV classified (outputs powerLED, battery, status LED, test switch)
_ Polarity reversal protection for battery
_ Deep discharge protection
_ Very low energy consumption from the battery after activation of the deep discharge protection
_ Short-circuit-proof battery connection
_ Emergency lighting LEDs available
Self-test:
_ Status of the battery
_ Status of the LED
_ Charge condition
_ Function test
_ Duration test

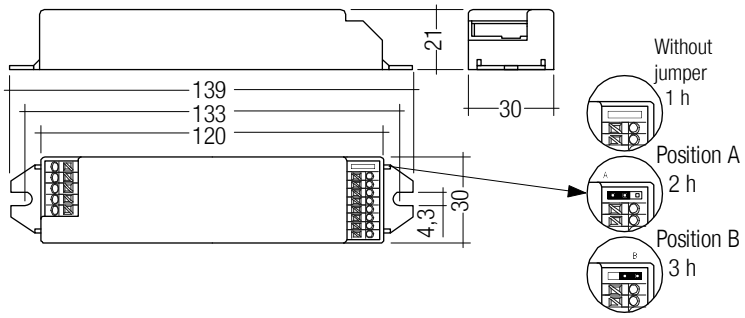
Batteries
_ High-temperature cells 2 Ah
_ NiMH batteries
_ Cs cells
_ NiMH: 4 years design life / 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet

Website
http://www.tridonic.com/89899860

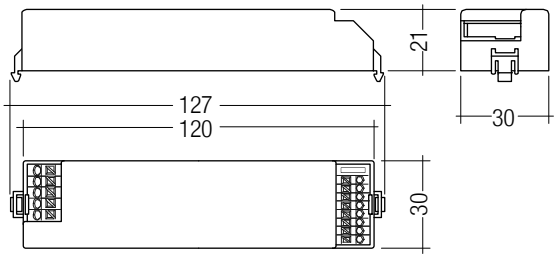
TRIDONIC

EM powerLED SELFTEST 1 – 2 W

Combined emergency lighting LED driver 1 – 4 W



Screw-fix



Clip-fix

Ordering data

Type	Article number	Dimensions L x W x H	Rated duration	Max. number of LEDs	Packaging, carton	Packaging, pallet	Weight per pc.
Screw fastening version							
EM powerLED 1 W ST SCREW-FIX	**89899860**	139 x 30 x 21 mm	1/2/3 h	1	25 pc(s).	1,200 pc(s).	0.056 kg
EM powerLED 2 W ST SCREW-FIX	**89899861**	139 x 30 x 21 mm	1/2/3 h	2	25 pc(s).	1,200 pc(s).	0.056 kg
Clip fastening version							
EM powerLED 1 W ST CLIP-FIX	**89899867**	127 x 30 x 21 mm	1/2/3 h	1	25 pc(s).	1,200 pc(s).	0.056 kg
EM powerLED 2 W ST CLIP-FIX	**89899868**	127 x 30 x 21 mm	1/2/3 h	2	25 pc(s).	1,200 pc(s).	0.056 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module (1 x LED)	2.8 – 3.4 V
Forward voltage range LED module (2 x LED)	5.6 – 6.8 V
Max. open circuit voltage	15 V
Mains current, 1 W device	30 mA
Mains current, 2 W device	40 mA
Power in mains operation, 1 W device	3.5 W
Power in mains operation, 2 W device	5 W
Starting time	0.31 s from detection of emergency event
Overvoltage protection	320 V (for 1 h)
Battery discharge current	Refer to data sheet
Max. casing temperature tc	70 °C
Ambient temperature ta	-25 … +50 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

SELV EL-T RoHS

Standards

according to EN 50172, according to EN 60598-2-22, EN 61347-2-7, EN 61347-2-13, EN 62384, EN 62034, EN 55015, EN 61000-3-2, EN 61547, EN 60068-2-64, EN 60068-2-29, EN 60068-2-30

Specific technical data

Type	Rated duration	Typ. λ (at 230 V, 50 Hz)①	Typ. output power	Mains current in charging operation			Mains power in charging operation		
				Initial charge	Fast recharge	Trickle charge	Initial charge	Fast recharge	Trickle charge
EM powerLED 1 W ST SCREW-FIX	1 h	0.52C	1 W	15.4 mA	17.9 mA	13.9 mA	1.3 W	1.6 W	1.1 W
EM powerLED 1 W ST SCREW-FIX	2 h	0.52C	1 W	14.2 mA	17.6 mA	11.8 mA	1.1 W	1.6 W	0.8 W
EM powerLED 1 W ST SCREW-FIX	3 h	0.52C	1 W	14.2 mA	17.6 mA	11.8 mA	1.1 W	1.6 W	0.8 W
EM powerLED 2 W ST SCREW-FIX	1 h	0.55C	2 W	14.3 mA	17.3 mA	11.7 mA	1.1 W	1.6 W	0.8 W
EM powerLED 2 W ST SCREW-FIX	2 h	0.55C	2 W	15.7 mA	20.4 mA	12.8 mA	1.4 W	2.0 W	0.9 W
EM powerLED 2 W ST SCREW-FIX	3 h	0.55C	2 W	18.4 mA	23.3 mA	14.5 mA	1.7 W	2.4 W	1.2 W
EM powerLED 1 W ST CLIP-FIX	1 h	0.52C	1 W	15.4 mA	17.9 mA	13.9 mA	1.3 W	1.6 W	1.1 W
EM powerLED 1 W ST CLIP-FIX	2 h	0.52C	1 W	14.2 mA	17.6 mA	11.8 mA	1.1 W	1.6 W	0.8 W
EM powerLED 1 W ST CLIP-FIX	3 h	0.52C	1 W	14.2 mA	17.6 mA	11.8 mA	1.1 W	1.6 W	0.8 W
EM powerLED 2 W ST CLIP-FIX	1 h	0.55C	2 W	14.3 mA	17.3 mA	11.7 mA	1.1 W	1.6 W	0.8 W
EM powerLED 2 W ST CLIP-FIX	2 h	0.55C	2 W	15.7 mA	20.4 mA	12.8 mA	1.4 W	2.0 W	0.9 W
EM powerLED 2 W ST CLIP-FIX	3 h	0.55C	2 W	18.4 mA	23.3 mA	14.5 mA	1.7 W	2.4 W	1.2 W

① Maintained operation

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

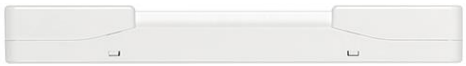
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

EMpLED Strain-relief set 200x43x25.5mm

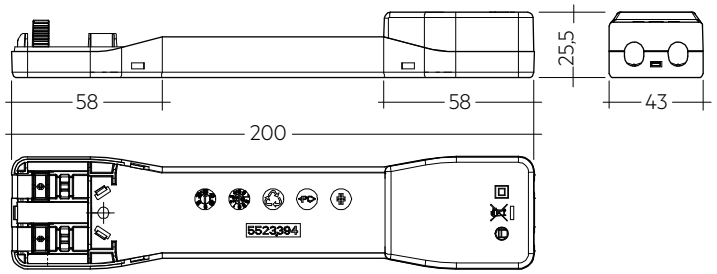
Accessory



Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (200 x 43 x 25.5 mm)

Website
http://www.tridonic.com/28004033



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM pLED SR	**28004033**	10 pc(s).	0.05 kg

Approval marks

1. Standards

- EN 61347-2-7
- EN 61347-2-13
- EN 62384
- EN 55015
- EN 61000-3-2
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test must not be conducted.

2. Thermal details and lifetime

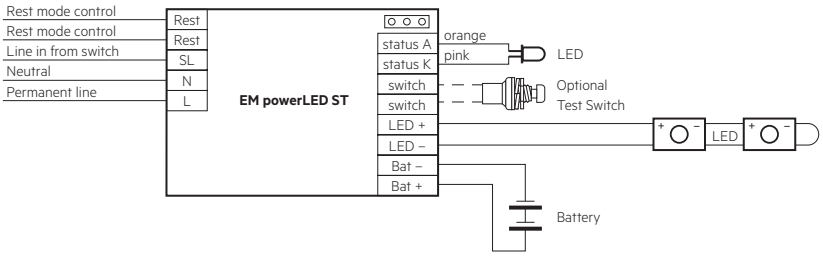
2.1 Lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

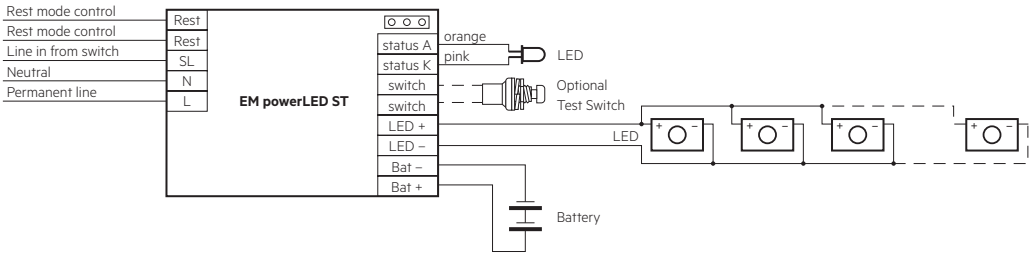
3. Installation / Wiring

3.1 Wiring diagrams

3.1.1 Serial wiring with one or two LED modules



3.1.2 Parallel wiring with multiple LED modules (3 – 12)

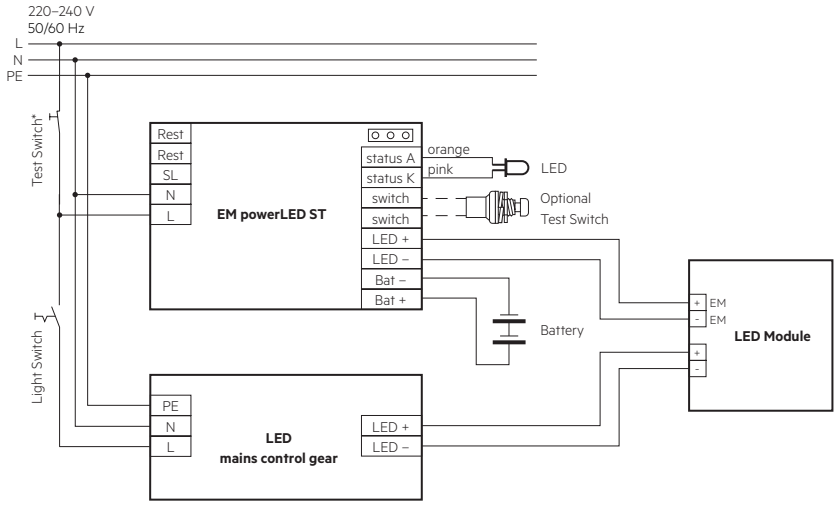


Take care that the LED is connected with the right polarity.
LED that are connected to the EM powerLED devices should have a reverse polartity protection device such as a schottky diodes fitted, otherwise irreversible damage could occur if the LED is connected in reverse polarity. Any protection device must be capaple of handling in excess of 700 mA.

Note: Please ensure that at the terminal of the EM powerLED module the battery negative is not connected to the negative of the LED load.

3.1.3 Manually tested emergency lighting with combined LED modules for general and emergency lighting

Due to the fact that independent circuits are used for general and emergency lighting it is important that the normal supply of the mains LED driver is switched off together with the permanent emergency supply prior to checking the operation of the emergency LEDs.
If this is not done then it may not be possible to see that the emergency LEDs are operating.
Use a circuit similar to that shown next.



* Use 230 V Test switch

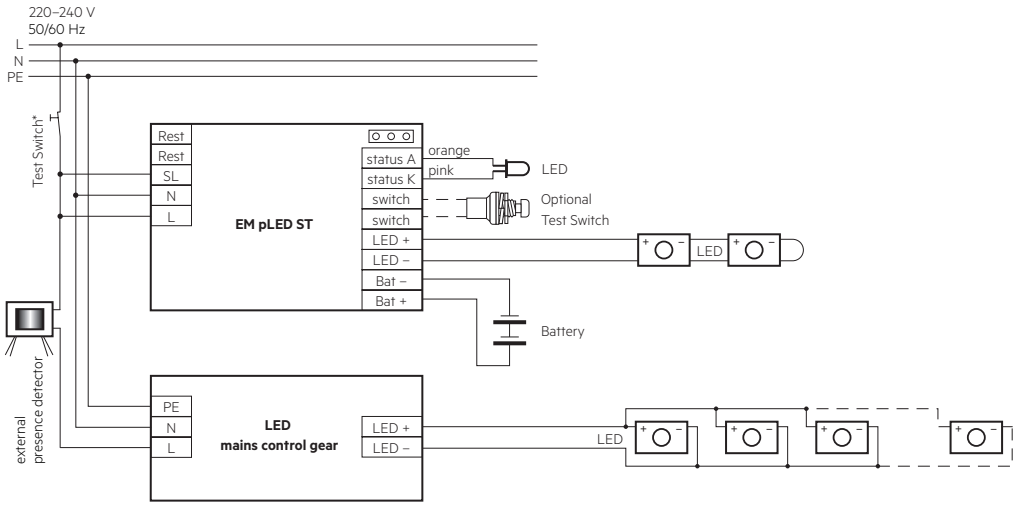
3.1.4 Simple CORRIDOR FUNCTION with EM powerLED 1–2 W

With the mains operation function of the EM powerLED 1–2 W a simple corridor function can be realised.

An external presence detector switches the mains LED driver.
The EM powerLED 1–2 W has the switched line SL connected to permanent mains supply.

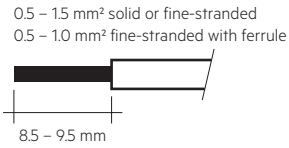
On presence both mains LED driver and EM powerLED 1–2 W are active and driving all LEDs. With no presence the mains LED driver is switched off by the presence detector and the EM powerLED 1–2 W stays on operating the emergency LEDs at low power.

Use a circuit similar to that shown next.

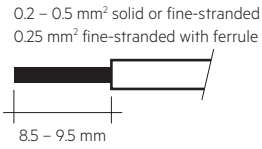


3.2 Wiring type and cross section

Wiring
mains (SL, N, L)
LED (LED +, LED –)



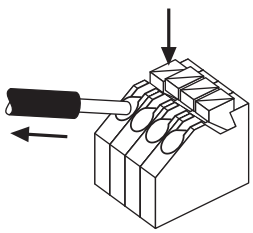
Wiring
batteries (Bat +, Bat –)
test switch (switch)
status indication LED (status K, A)



Use one wire for each terminal connector only.

3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



3.4 Wiring instructions

- The EM powerLED terminals, battery, indicator LED and test switch terminals are classified as SELV. Keep the wiring of the DALI and the input terminals separated from the wiring of the SELV terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content at 125 kHz, which should be considered for good EMC compliance.
- EM powerLED leads should be separated from the mains and DALI connections and wiring for good EMC performance.
- Maximum lead length on the EM powerLED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Maximum lead length for the test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the EM powerLED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm² cross section and a length of < 1.3 m.
- DALI terminals are mains proof.
- Switched live and unswitched live supplies must be off the same phase.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

3.5 Max. lead insulation diameter

Battery	2.1 mm
Test switch	2.1 mm
Indicator LED	2.1 mm

3.6 Maximum lead length

LED	3 m
Status indication LED	1 m
Batteries	1 m

4. Mechanical details

Case manufactured from polycarbonate.

LED bi-colour status indicator
- Green / red
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 1,000 mm
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 550 mm

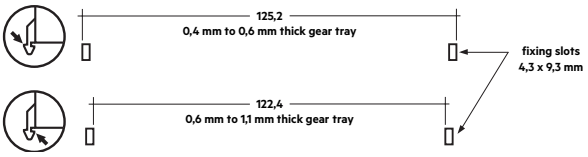
Battery leads
- Quantity: 1 red and 1 black
- Length: 1 m
- Wire type: 0.5 mm^2 solid conductor
- Insulation rating: 90 °C

Battery end termination
Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

Module end termination
8.0 mm stripped insulation

Two-piece batteries are supplied with a 200 mm lead with 4.8 mm receptacles at each end and insulating covers to connect the separate sticks together.

4.1 Recommended fixing details for clip fixing



Max. torque at the clamping screw: 0.5 Nm / M4

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	C10	B13	C13	B16	C16	B20	C20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	2.5 mm^2	2.5 mm^2	I_{max}	time
EM powerLED 1 W ST	90	180	130	260	130	260	130	260	10 A	120 µs
EM powerLED 2 W ST	90	180	130	260	130	260	130	260	10 A	120 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	REST
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, LED, Test switch, Indicator LED	••	••	–	•
REST	•	•	•	–

• Represents basic insulation

•• Represents double or reinforced insulation

5.3 Typ. LED current

EM powerLED 1-2 W ST, 1 / 2 / 3 h

	Type	EM powerLED 1 W ST	EM powerLED 2 W ST
	Article no.	**89899860, 89899867**	**89899861, 89899868**
LED current in emergency operation	1 x LED	350 mA	600 mA
	2 x LED	–	350 mA
LED current in mains operation	1 x LED	350 mA	350 mA
	2 x LED	–	350 mA

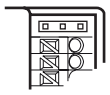
6. Emergency output factor EOFi

EM powerLED 1-2 W ST, 1 / 2 / 3 h

Type	EM powerLED 1 W ST	EM powerLED 2 W ST
Article no.	**89899860, 89899867**	**89899861, 89899868**
Cells	**2 / 3 cells**	**3 / 4 / 5 cells**
LED current	**LED load**	**LED load**
350 mA	100 %	100 %
350 mA	100 %	100 %
350 mA	100 %	100 %
600 mA	–	170 %
600 mA	–	170 %
600 mA	–	170 %

7. Functions

7.1 Duration link selection

Duration	Link Position
1 hr	 without jumper
2 hr	position A
3 hr	position B

7.2 Jumper selection

Module supplied with jumper in 3 hours position (position B).

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM powerLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

7.3 Status indication

System status is indicated by a bi-colour LED.

LED Indication	Status	Commentary
Permanent green	System OK	AC mode
Fast flashing green (0.1 s on – 0.1 s off)	Function test underway	
Slow flashing green (1 s on – 1 s off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure ①
Slow flashing red (1 s on – 1 s off)	Battery failure	Battery failed the duration test or function / Battery is defect / Incorrect battery voltage
Fast flashing red (0.1 s on – 0.1 s off)	Charging failure	Incorrect charging current
Double pulsing green	Rest mode	Switching into blocking mode via controller
Green and red off	DC mode	Battery operation (Emergency mode)

① If the EM powerLED is operated in non-maintained mode and an LED fault is detected, the red indicator LED will be illuminated and the output will be stopped. The unswitched mains supply must be switched off before the LED is changed in order that the new LED can be detected. A function or duration test will not reset the fault indication.

7.4 Testing

Functional test
Functional tests are carried out for 5 seconds on a weekly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

For a full description of commissioning and test features please refer to application notes.

Commissioning
After installation of the luminaire and initial connection of the mains supply and battery supply to the EM powerLED ST the unit will commence charging the batteries for 20 hours (initial charge). Afterwards the module will conduct a commissioning test for the full duration. The 20 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition.
The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 20 hours).
The easy commissioning feature will set the initial test day and time to ensure random testing of units.

Test switch
An optional test switch can be wired to each EM powerLED ST. This can be used to to:

- initiate a 5 seconds function test — press 200 ms < T < 1 s
- execute function test as long as switch pressed — > 1 s press
- adjust local timing — > 10 s press

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.
The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically activated if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by applying a short pulse between 9.5 and 22.5 V_{DC} in amplitude for a period of 150 to 1,000 ms. This pulse shall be applied to terminals marked Rest.
After a mains reset the EM powerLED ST exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by applying a voltage pulse of 1,000 to 2,000 ms to the terminals marked as Rest to send the RE-LIGHT/ RESET INHIBIT command.

Pulse/Mode	Standby	Emergency	Rest
150 – 1,000 ms	Inhibit	Rest	–
1,000 – 2,000 ms	Cancel inhibit	–	Re-light

7.5 Further technical data

The EM powerLED has a unique power regulation circuit; this is designed to limit the total power drawn from the battery in the event of using LED's with a forward voltage (Vf) higher than 3.4 V.

In such cases the unit will reduce the LED current in order to maintain an acceptable drain current from the battery and hence meet the required duration time. This feature enables the EM powerLED to have minimum battery count for a given range of LED's.

At a low charge state of the battery (<1.5 V at the 1 W driver and <3 V at the 2 W driver) the LED will not be driven in maintained mode via the switched line until the rated battery voltage levels are exceeded.

8. Battery data

8.1 Battery selection

EM powerLED 1-2 W ST, 1 / 2 / 3 h

				Type	EM powerLED 1 W ST			EM powerLED 2 W ST		
				Article no.	89899860, 89899867			89899861, 89899868		
				Duration	1 h	2 h	3 h	1 h	2 h	3 h
				Cells	2 cells	3 cells	3 cells	3 cells	4 cells	5 cells
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	Assignable batteries					
NiMH 2.2 Ah Cs cells	stick	1 x 2	**Accu-NiMH 2A**	**28002087**	•					
	stick	1 x 3	**Accu-NiMH 3A**	**28002088**		•	•	•		
	stick	1 x 4	**Accu-NiMH 4A**	**28002089**					•	
	stick	1 x 5	**Accu-NiMH 5A**	**28002090**						•
	side by side	5 x 1	**Accu-NiMH 5B**	**28002093**						•

8.2 Battery charge / discharge data

EM powerLED 1-2 W ST, 1 / 2 / 3 h

	Type	EM powerLED 1 W ST			EM powerLED 2 W ST		
	Article no.	89899860, 89899867			89899861, 89899868		
	Duration	1 h	2 h	3 h	1 h	2 h	3 h
	Cells	2 cells	3 cells	3 cells	3 cells	4 cells	5 cells
Battery charge time	Initial charge	20 h					
	Fast recharge	12 h					
	Trickle charge	continuously (pulse charge)					
Charge current	Initial charge	130 mA					
	Fast recharge	210 mA					
	Trickle charge	130 mA / 0 mA (4 min. / 16 min.)					
Discharge current	1 x LED	770 mA	460 mA	460 mA	900 mA	640 mA	500 mA
	2 x LED	–	–	–	870 mA	630 mA	500 mA
Charge voltage range[1]		1.07 – 1.6 V per cell					
Discharge voltage range		1.6 – 1.07 V per cell					

[1] The battery will be charged below 1.07 V. The EM powerLED will indicate a battery fault.
The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

8.3 Accu-NiMH 2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

8.4 Accupack-NiMH 2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

8.5 Batteries

Connection method: 4.8 x 0.5 mm spade tag welded to end of cell

For stick packs this connection is accessible after the battery caps have been fitted.

To inhibit inverter operation disconnect the batteries by removing the connector from the battery spade tag.

For further information refer to corresponding battery datasheet.

8.6 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

8.7 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

9. Miscellaneous

9.1 Mains-connected transformers

The EM powerLED does not contain mains-connected windings of transformers.

9.2 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the device. Protect terminals connected to the FELV circuit against accidental contact.

9.3 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED SELFTEST 4 W

Combined emergency lighting LED driver 1 – 4 W

Product description
_ Emergency lighting LED driver with selftest function
_ For self-contained emergency lighting
_ SELV for output voltage < 60 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Non maintained operation
_ Self-test as per IEC 62034
_ Constant current mode
_ With either screw or clip fastening (clip-fix)
_ 1, 2 or 3 h rated duration
_ Selectable operating time (jumper)
_ Output power limitation
_ Two-colour status display LED
_ “Rest mode” function
_ Simple set-up
_ Automatic restart after LED replacement
_ Electronic multi-level charge system
_ SELV classified (outputs powerLED, battery, status LED, test switch)
_ Polarity reversal protection for battery
_ Deep discharge protection
_ Very low energy consumption from the battery after activation of the deep discharge protection
_ Short-circuit-proof battery connection
_ Emergency lighting LEDs available
Self-test:
_ Status of the battery
_ Status of the LED
_ Charge condition
_ Function test
_ Duration test

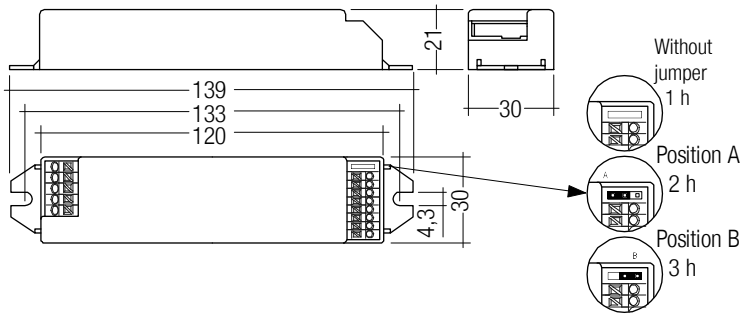
Batteries
_ High-temperature cells
_ NiCd or NiMH batteries
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet

Website
http://www.tridonic.com/89800124

TRIDONIC

EM powerLED SELFTEST 4 W

Combined emergency lighting LED driver 1 – 4 W



Ordering data

Type	Article number	Rated duration	Max. number of LEDs	Wattage	Packaging, carton	Packaging, pallet	Weight per pc.
Screw fastening version							
EM powerLED 4 W ST SCREW-FIX	**89800124**	1/2/3 h	2	4 W	25 pc(s).	1,200 pc(s).	0.068 kg
EM powerLED 4 W ST NiMH SCREW-FIX	**89800445**	1/2/3 h	2	4 W	25 pc(s).	1,200 pc(s).	0.068 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Forward voltage range LED module (1 x LED)	2.8 – 3.4 V
Forward voltage range LED module (2 x LED)	5.6 – 6.8 V
Max. open circuit voltage	15 V
LED current in emergency operation (1 x LED)	1,000 mA
LED current in emergency operation (2 x LED)	700 mA
Typ. output power (1 x LED)	3.4 W
Typ. output power (2 x LED)	4.5 W
Starting time	0.23 s from detection of emergency event
Overvoltage protection	320 V (for 1 h)
Battery discharge current	Refer to data sheet
Max. casing temperature tc	70 °C
Ambient temperature ta	-25 … +45 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Rest mode max. number of emergency units	100
Rest mode max. wiring distance	1,000 m
Functional test	Weekly 5s test
Service life test	Yearly 1 h / 2 h / 3 h test
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)
Dimensions L x W x H	139 x 30 x 21 mm

Approval marks

SELV EL-T RoHS

Standards

according to EN 50172, according to EN 60598-2-22, EN 61347-2-7, EN 61347-2-13, EN 62384, EN 62034, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64

Specific technical data

Type	Rated duration	Typ. λ (at 230 V, 50 Hz)	Mains current in charging operation			Mains power in charging operation		
			Initial charge	Fast recharge	Trickle charge ①	Initial charge	Fast recharge	Trickle charge ①
EM powerLED 4 W ST SCREW-FIX	1 h	0.34C	21.0 mA	27.5 mA	15.2 mA	2.0 W	3.0 W	1.2 W
EM powerLED 4 W ST SCREW-FIX	2 h	0.34C	27.5 mA	32.4 mA	21.0 mA	3.0 W	3.7 W	2.0 W
EM powerLED 4 W ST SCREW-FIX	3 h	0.34C	27.5 mA	32.4 mA	21.0 mA	3.0 W	3.7 W	2.0 W
EM powerLED 4 W ST NiMH SCREW-FIX	1 h	0.34C	19.0 mA	24.0 mA	13.0 mA	1.7 W	2.4 W	1.0 W
EM powerLED 4 W ST NiMH SCREW-FIX	2 h	0.34C	30.0 mA	32.0 mA	13.0 mA	3.1 W	3.3 W	1.1 W
EM powerLED 4 W ST NiMH SCREW-FIX	3 h	0.34C	30.0 mA	32.0 mA	13.0 mA	3.1 W	3.3 W	1.1 W

① For EM powerLED 4 W NiMH: average over 20 min. (4 min. charge / 16 min. off)

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

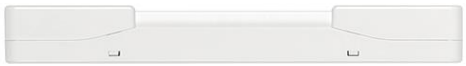
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

EMpLED Strain-relief set 200x43x25.5mm

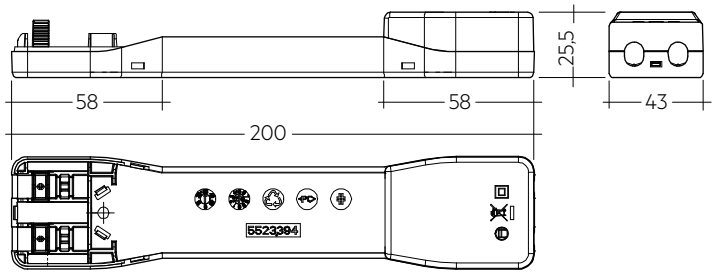
Accessory



Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (200 x 43 x 25.5 mm)

Website
http://www.tridonic.com/28004033



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM pLED SR	**28004033**	10 pc(s).	0.05 kg

Approval marks

Battery selection

EM powerLED 4W BASIC, 1 / 2 / 3 h

				Type	EM powerLED 4W ST		EM powerLED 4W ST NiMH	
				Article no.	89800124		89800445	
				Cells	5 cells		5 cells	
				Duration	1 h	2 / 3 h	1 h	2 / 3 h
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**			
NiCd 4 Ah D cells[1]	stick	1 x 5	**Accu-NiCd 5A 55**	**28002774**		•		
	stick + stick	3 + 2	**Accu-NiCd 5C 55**	**89800090**		•		
NiMH 2.2 Ah Cs cells	stick	1 x 5	**Accu-NiMH 5A**	**28002090**	•		•	
	side by side	5 x 1	**Accu-NiMH 5B**	**28002093**	•		•	
NiMH 4 Ah LA cells	stick + stick	2 + 3	**Accu-NiMH 4Ah 5C CON**	**89800439**				•

Battery charge / discharge data

EM powerLED 4W BASIC, 1 / 2 / 3 h

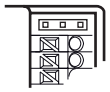
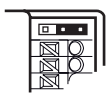
	Type	EM powerLED 4W ST		EM powerLED 4W ST NiMH	
	Article no.	89800124		89800445	
	Cells	5 cells		5 cells	
	Duration	1 h	2 / 3 h	1 h	2 / 3 h
Battery charge time	Initial charge	20 h			
	Fast recharge	10 h	15 h	10 h	15 h
	Trickle charge	continuously			
Charge current	Initial charge	130 mA	250 mA	130 mA	300 mA
	Fast recharge	250 mA	330 mA	210 mA	330 mA
	Trickle charge	60 mA	130 mA	127 mA / 4 min. 0 mA / 16 min.	201 mA / 4 min. 0 mA / 16 min.
Discharge current		1,100 mA	1,100 mA	1,100 mA	1,100 mA
Charge voltage range[1]		1.07 – 1.6 V per cell			
Discharge voltage range		1.6 – 1.07 V per cell			

[1] The battery will be charged below 1.07 V. The EM powerLED will indicate a battery fault.
The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

Standards

- EN 61347-2-7
- EN 61347-2-13
- EN 62384
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

Duration link selection

Duration	Link Position
1 hr	 without jumper
2 hr	position A
3 hr	 position B

Jumper selection
Module supplied with jumper in 3 hours position (position B).

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM powerLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

Technical data batteries

Accu-NiCd
4.2 / 4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Case temperature range to ensure 4 years design life	5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

Accu-NiMH
2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Case temperature range to ensure 4 years design life	
When used with EM powerLED 4W ST	+5 °C to +50 °C
When used with EM powerLED 4W ST NiMH	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	
When used with EM powerLED 4W ST	+5 °C to +45 °C
When used with EM powerLED 4W ST NiMH	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

For further information refer to corresponding battery datasheet.

Short-circuit protection
In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

Storage, installation and commissioning
Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

Further technical data

The EM powerLED has a unique power regulation circuit; this is designed to limit the total power drawn from the battery in the event of using LED's with a forward voltage (Vf) higher than 3.4 V.

In such cases the unit will reduce the LED current in order to maintain an acceptable drain current from the battery and hence meet the required duration time. This feature enables the EM powerLED to have minimum battery count for a given range of LED's.

Lifetime
Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Testing

Functional test
Functional tests are carried out for 5 seconds on a weekly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

For a full description of commissioning and test features please refer to application notes.

Commissioning
After installation of the luminaire and initial connection of the mains supply and battery supply to the EM powerLED ST the unit will commence charging the batteries for 20 hours (initial charge). Afterwards the module will conduct a commissioning test for the full duration. The 20 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition.
The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 20 hours).
The easy commissioning feature will set the initial test day and time to ensure random testing of units.

Test switch
An optional test switch can be wired to each EM powerLED ST. This can be used to to:

- initiate a 5 seconds function test — press 200 ms < T < 1 s
- execute function test as long as switch pressed — > 1 s press
- adjust local timing — > 10 s press

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.
The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

Rest Mode / Inhibit Mode

Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically activated if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by applying a short pulse between 9.5 and 22.5 V_{DC} in amplitude for a period of 150 to 1,000 ms. This pulse shall be applied to terminals marked Rest.
After a mains reset the EM powerLED ST exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by applying a voltage pulse of 1,000 to 2,000 ms to the terminals marked as Rest to send the RE-LIGHT/ RESET INHIBIT command.

Pulse/Mode	Standby	Emergency	Rest
150 – 1,000 ms	Inhibit	Rest	–
1,000 – 2,000 ms	Cancel inhibit	–	Re-light

Insulation and electric strength testing of luminaires

Electronic devices can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test must not be conducted.

Status indication

System status is indicated by a bi-colour LED.

LED Indication	Status	Commentary
Permanent green	System OK	AC mode
Fast flashing green (0.1 s on – 0.1 s off)	Function test underway	
Slow flashing green (1 s on – 1 s off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure ①
Slow flashing red (1 s on – 1 s off)	Battery failure	Battery failed the duration test or function / Battery is defect / Incorrect battery voltage
Fast flashing red (0.1 s on – 0.1 s off)	Charging failure	Incorrect charging current
Double pulsing green	Rest mode	Switching into blocking mode via controller
Green and red off	DC mode	Battery operation (Emergency mode)

① If the EM powerLED is operated in non-maintained mode and an LED fault is detected, the red indicator LED will be illuminated and the output will be stopped. The unswitched mains supply must be switched off before the LED is changed in order that the new LED can be detected. A function or duration test will not reset the fault indication.

Mechanical details

Case manufactured from polycarbonate.

Glow-wire test according to EN 61347-1 with increased temperature of 850 °C passed.

LED bi-colour status indicator
- Green / red
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 1,000 mm
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 550 mm

Battery leads
- Quantity: 1 red and 1 black
- Length: 1 m
- Wire type: 0.5 mm^2 solid conductor
- Insulation rating: 90 °C

Battery end termination
Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

Module end termination
8.0 mm stripped insulation

Two-piece batteries are supplied with a 200 mm lead with 4.8 mm receptacles at each end and insulating covers to connect the separate sticks together.

Batteries

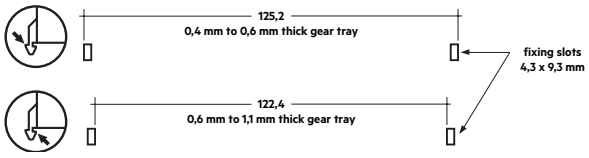
Connection method: 4.8 x 0.5 mm spade tag welded to end of cell

For stick packs this connection is accessible after the battery caps have been fitted.

To inhibit inverter operation disconnect the batteries by removing the connector from the battery spade tag.

For battery data see separate data sheet.

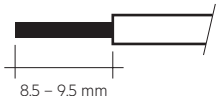
Recommended fixing details for clip fixing



Wiring type and cross section

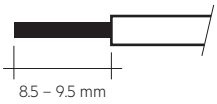
Wiring
mains (SL, N, L)
LED (LED +, LED –)

0.5 – 1.5 mm² solid or fine-stranded
0.5 – 1.0 mm² fine-stranded with ferrule



Wiring
batteries (Bat +, Bat –)
test switch (switch)
status indication LED (status K, A)

0.2 – 0.5 mm² solid or fine-stranded
0.25 mm² fine-stranded with ferrule



Use one wire for each terminal connector only.

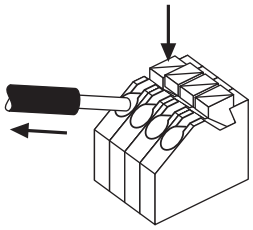
Max. lead insulation diameter

Battery	2.1 mm
Test switch	2.1 mm
Indicator LED	2.1 mm

Maximum lead length

LED	3 m
status indication LED	1 m
batteries	1 m

Release of the wiring
Press down the “push button” and remove the cable from front.



Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	C10	B13	C13	B16	C16	B20	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²	2.5 mm²	I_{max}	Time
EM powerLED 4 W ST	90	180	130	260	130	260	130	260	10 A	120 µs
EM powerLED 4 W ST NiMH	90	180	130	260	130	260	130	260	10 A	120 µs

Insulation matrix

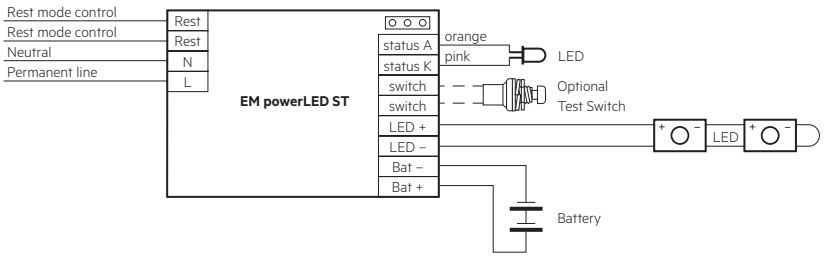
	Mains	Switched Live	Battery, LED, Test switch, Indicator LED	REST
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, LED, Test switch, Indicator LED	••	••	–	•
REST	•	•	•	–

• Represents basic insulation

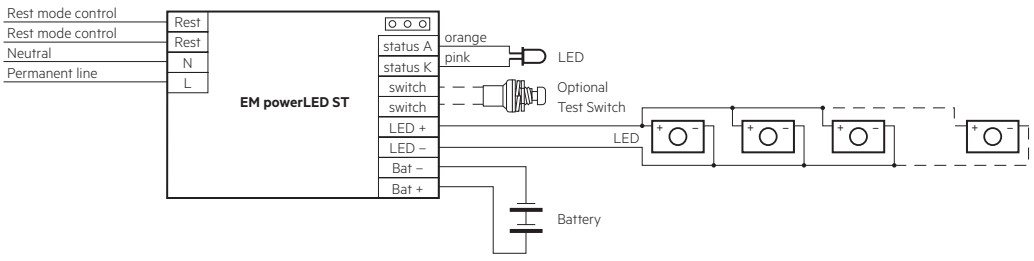
•• Represents double or reinforced insulation

Wiring diagrams

Wiring diagram for one LED or two LED in series



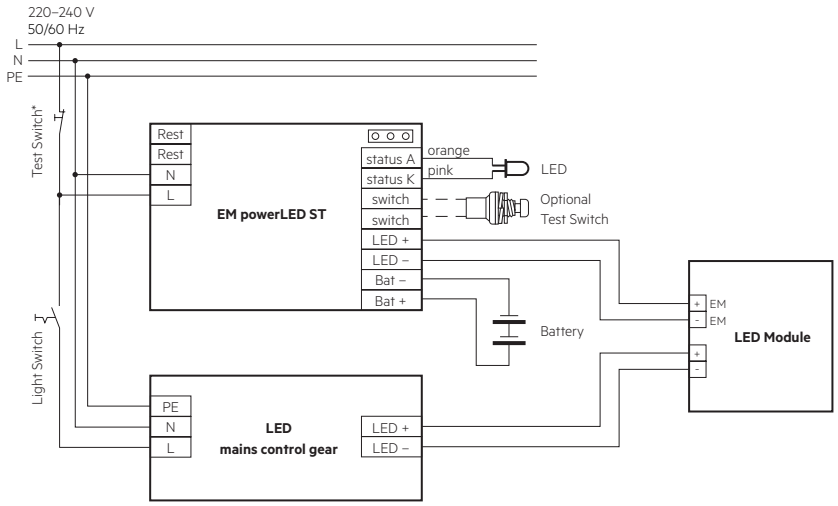
Wiring diagram for multiple LED (3–12) in parallel



Take care that the LED is connected with the right polarity.
LED that are connected to the EM powerLED PRO EZ-3 devices should have a reverse polartity protection device such as a schottky diodes fitted, otherwise irreversible damage could occur if the LED is connected in reverse polarity. Any protection device must be capaple of handling in excess of 1,000 mA.

Note: Please ensure that at the terminal of the EM powerLED module the battery negative is not connected to the negative of the LED load.

Manually tested emergency lighting with combined LED modules for general and emergency lighting (e.g. STARK QLE CLASSIC EM, STARK LLE 24-280-1250 EM, STARK CLE CLASSIC EM, STARK SLE CLASSIC EM):
Due to the fact that independent circuits are used for general and emergency lighting it is important that the normal supply of the mains LED driver is switched off together with the permanent emergency supply prior to checking the operation of the emergency LEDs.
If this is not done then it may not be possible to see that the emergency LEDs are operating.
Use a circuit similar to that shown next.



* Use 230 V Test switch

Wiring instructions

- The EM powerLED terminals, battery, indicator LED and test switch terminals are classified as SELV. Keep the wiring of the DALI and the input terminals separated from the wiring of the SELV terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content at 125 kHz, which should be considered for good EMC compliance.
- EM powerLED leads should be separated from the mains and DALI connections and wiring for good EMC performance. With some luminaires it may be necessary to add a ferrite bead inductor to obtain satisfactory EMC performance.
- Maximum lead length on the EM powerLED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Maximum lead length for the test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the EM powerLED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm^2 cross section and a length of < 1.3 m.
- DALI terminals are mains proof.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

Mains-connected transformers

The EM powerLED does not contain mains-connected windings of transformers.

FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the device. Protect terminals connected to the FELV circuit against accidental contact.

Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED SELFTEST FX LiFePO4 1 – 2 W

Combined emergency lighting LED driver 1 – 4 W

LiFeGuard

Product description
_ Emergency lighting LED driver with selftest function
_ For self-contained emergency lighting
_ SELV for output voltage < 60 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Mains and emergency operation
_ Self-test as per IEC 62034
_ Constant current mode
_ With either screw or clip fastening (clip-fix)
_ 1, 2 or 3 h rated duration
_ Selectable operating time (jumper)
_ Two-colour status display LED
_ “Rest mode” function
_ SELV classified (outputs powerLED, battery, status LED, test switch)
_ Very low energy consumption from the battery after activation of the deep discharge protection

Battery management
_ Intelligent charge system
_ Deep discharge protection
_ Temperature protection
_ Reverse polarity protection

Batteries
_ LiFePO4 batteries with Tridonic LiFeGuard
_ Overcharge-/Overdischarge protection
_ Ensures safety in use
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions) ①

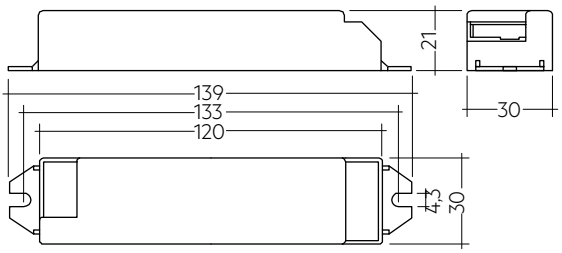
① 28005859 - 5-year guarantee.

Website
http://www.tridonic.com/89800798

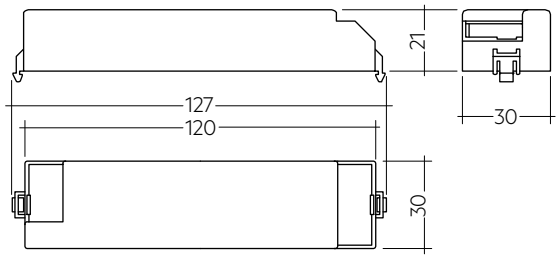
TRIDONIC

EM powerLED SELFTEST FX LiFePO4 1 – 2 W

Combined emergency lighting LED driver 1 – 4 W



Screw-fix



Clip-fix

Ordering data

Type	Article number	Dimensions L x W x H	Rated duration	Max. number of LEDs	Packaging, carton	Packaging, pallet	Weight per pc.
Screw fastening version							
EM pLED ST FX 201 LiFePO4 1W SCREW	**89800798**	139 x 30 x 21 mm	1/2/3 h	1	25 pc(s).	1,200 pc(s).	0.054 kg
EM pLED ST FX 202 LiFePO4 2W SCREW	**89800800**	139 x 30 x 21 mm	1/2/3 h	2	25 pc(s).	1,200 pc(s).	0.054 kg
Clip fastening version							
EM pLED ST FX 201 LiFePO4 1W CLIP	**89800797**	127 x 30 x 21 mm	1/2/3 h	1	25 pc(s).	1,200 pc(s).	0.054 kg
EM pLED ST FX 202 LiFePO4 2W CLIP	**89800799**	127 x 30 x 21 mm	1/2/3 h	2	25 pc(s).	1,200 pc(s).	0.054 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
THD (at 230 V, 50 Hz, full load)	< 120 %
U-OUT (including open- / short-circuit and double load)	15 V
Max. open circuit voltage	15 V
Output current tolerance	± 10 %
Typical output LF current ripple at full load	± 5 %
Starting time	< 0.7 s
Output current	Refer to data sheet
Overvoltage protection	320 V (for 48 h)
Max. casing temperature tc	75 °C
Ambient temperature ta	-25 … +55 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Surge voltage at output side (against PE)	< 2 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

IP20 SELV EL-T RoHS

Standards

EN 61347-2-7, EN 61347-2-13, EN 62384, EN 55015, EN 61000-3-2, EN 61547, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, according to EN 50172, according to EN 60598-2-22, acc. to EN 62034

Specific technical data

Type	Rated duration	Number of LEDs	Typ. λ (at 230 V, 50 Hz)	Forward voltage range LED module②	Non-maintained operation		Maintained operation	
					Mains current in charging operation③	Mains power in charging operation③	Mains current in charging operation③	Mains power in charging operation③
EM pLED ST FX 201 LiFePO4 1W SCREW	1 h	1	0.55C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED ST FX 201 LiFePO4 1W SCREW	2 h	1	0.55C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED ST FX 201 LiFePO4 1W SCREW	3 h	1	0.55C	2.6 – 3.4 V	21 / 11 mA	2.1 / 0.9 W	31 / 23 mA	4.0 / 2.8 W
EM pLED ST FX 202 LiFePO4 2W CLIP	1 h	1	0.58C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED ST FX 202 LiFePO4 2W CLIP	1 h	2	0.58C	5.2 – 6.8 V	16 / 11 mA	1.5 / 0.9 W	37 / 33 mA	5.0 / 4.1 W
EM pLED ST FX 202 LiFePO4 2W CLIP	2 h	1	0.58C	2.6 – 3.4 V	20 / 11 mA	2.2 / 0.9 W	31 / 23 mA	4.0 / 2.8 W
EM pLED ST FX 202 LiFePO4 2W CLIP	2 h	2	0.58C	5.2 – 6.8 V	20 / 11 mA	2.2 / 0.9 W	42 / 33 mA	5.5 / 4.1 W
EM pLED ST FX 202 LiFePO4 2W CLIP	3 h	1	0.58C	2.6 – 3.4 V	22 / 11 mA	2.5 / 0.9 W	33 / 23 mA	4.5 / 2.8 W
EM pLED ST FX 202 LiFePO4 2W CLIP	3 h	2	0.58C	5.2 – 6.8 V	22 / 11 mA	2.5 / 0.9 W	44 / 33 mA	5.8 / 4.1 W
EM pLED ST FX 202 LiFePO4 2W SCREW	1 h	1	0.58C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED ST FX 202 LiFePO4 2W SCREW	1 h	2	0.58C	5.2 – 6.8 V	16 / 11 mA	1.5 / 0.9 W	37 / 33 mA	5.0 / 4.1 W
EM pLED ST FX 202 LiFePO4 2W SCREW	2 h	1	0.58C	2.6 – 3.4 V	20 / 11 mA	2.2 / 0.9 W	31 / 23 mA	4.0 / 2.8 W
EM pLED ST FX 202 LiFePO4 2W SCREW	2 h	2	0.58C	5.2 – 6.8 V	20 / 11 mA	2.2 / 0.9 W	42 / 33 mA	5.5 / 4.1 W
EM pLED ST FX 202 LiFePO4 2W SCREW	3 h	1	0.58C	2.6 – 3.4 V	22 / 11 mA	2.5 / 0.9 W	33 / 23 mA	4.5 / 2.8 W
EM pLED ST FX 202 LiFePO4 2W SCREW	3 h	2	0.58C	5.2 – 6.8 V	22 / 11 mA	2.5 / 0.9 W	44 / 33 mA	5.8 / 4.1 W
EM pLED ST FX 201 LiFePO4 1W CLIP	1 h	1	0.55C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED ST FX 201 LiFePO4 1W CLIP	2 h	1	0.55C	2.6 – 3.4 V	16 / 11 mA	1.5 / 0.9 W	27 / 23 mA	3.5 / 2.8 W
EM pLED ST FX 201 LiFePO4 1W CLIP	3 h	1	0.55C	2.6 – 3.4 V	21 / 11 mA	2.1 / 0.9 W	31 / 23 mA	4.0 / 2.8 W

② When exceeding the rated power of 1 respectively 2 W the LED current is reduced proportionally.
③ For LiFePO4 batteries voltage dependent constant current charging is used. The values displayed are for charging on / charging off.

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

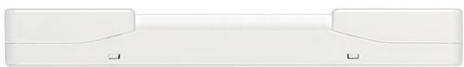
Ordering data

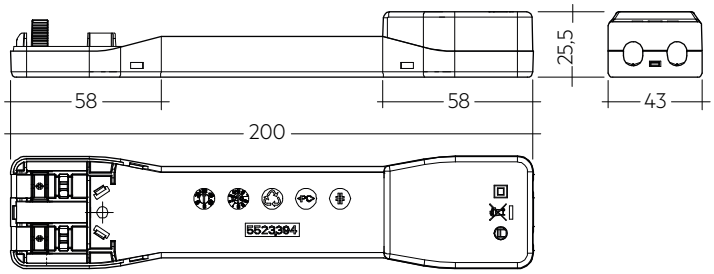
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

EMpLED Strain-relief set 200x43x25.5mm

Accessory

Product description
_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (200 x 43 x 25.5 mm)





Permissible cable jacket diameter 2.2 – 9 mm

Website
http://www.tridonic.com/28004033

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM pLED SR	**28004033**	10 pc(s).	0.05 kg

Approval marks

1. Standards

- EN 61347-2-7
- EN 61347-2-13
- EN 62384
- EN 55015
- EN 61000-3-2
- EN 61547
- EN 60068-2-29
- EN 60068-2-30
- EN 60068-2-64
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 100,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

EM pLED ST FX LiFePO4	ta	40 °C	45 °C	50 °C	55 °C
	tc	60 °C	65	70 °C	75 °C
	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	76,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

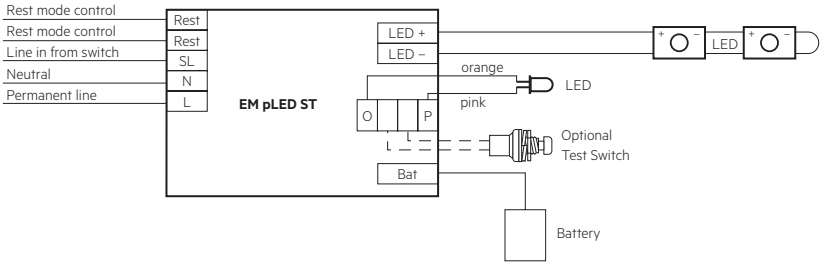
The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

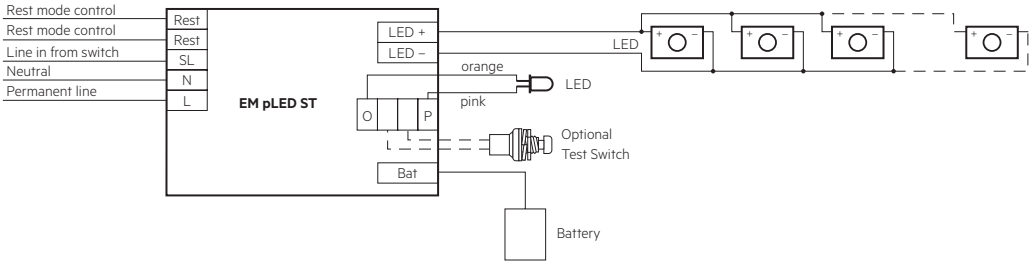
3.1 Wiring diagram

3.1.1 Wiring with one or multiple LED modules

Serial:



Parallel:



Take care that the LED is connected with the right polarity. LED that are connected to the EM powerLED devices should have a reverse polartity protection device such as a schottky diodes fitted, otherwise irreversible damage could occur if the LED is connected in reverse polarity. Any protection device must be capaple of handling in excess of 700 mA.

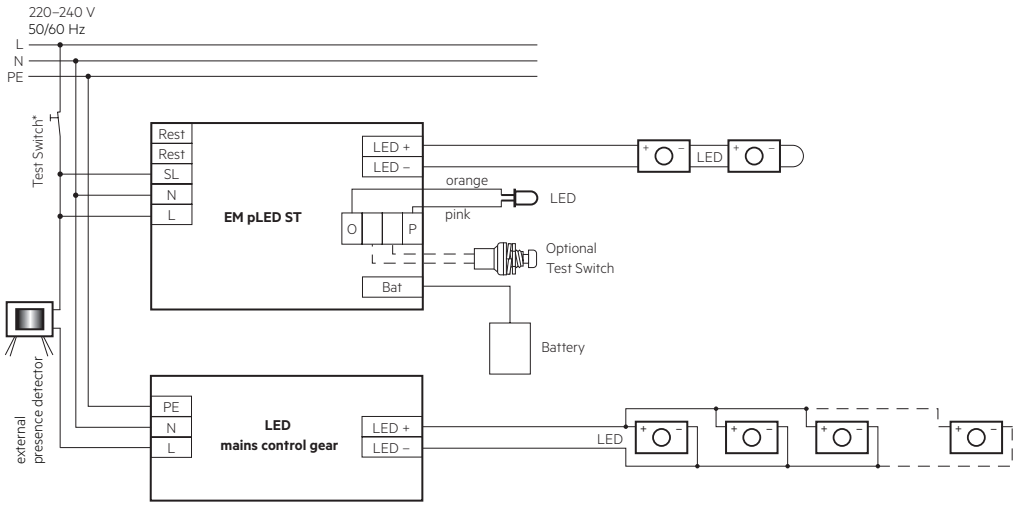
3.1.2 Simple CORRIDOR FUNCTION

With the mains operation function of the EM powerLED a simple corridor function can be realised.

An external presence detector switches the mains LED driver.
The EM powerLED has the switched line SL connected to permanent mains supply.

On presence both mains LED driver and EM powerLED are active and driving all LEDs. With no presence the mains LED driver is switched off by the presence detector and the EM powerLED stays on operating the emergency LEDs at low power.

Use a circuit similar to that shown next.

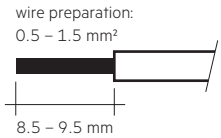


* Use 230 V Test switch

3.2 Wiring type and cross section

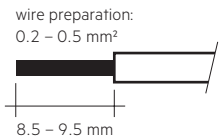
LED module/LED driver/supply:

Use solid/stranded wire with a cross section of 0.5 – 1.5 mm² for wiring. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.



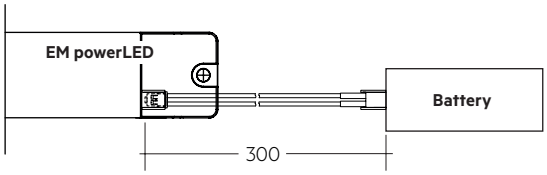
Status indication LED / Test switch:

Use solid wire with a cross section of 0.2 – 0.5 mm² for wiring. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

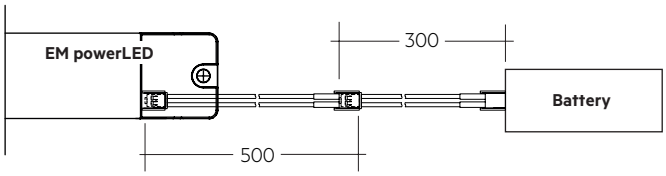


3.3 Battery connection

$LiFePO_4$: Direct connection

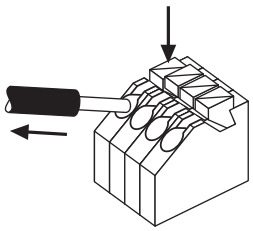


$LiFePO_4$: Connection with extension



3.4 Loose wiring

Press down the “push button” and remove the cable from front.



3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.)

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

3.6 Maximum lead length

LED	3 m (6 m loop)[1]
Test switch	1 m
Status indication LED	1 m
Batteries	0.8 m

[1] Note: Do not exceed the length of LED leads to the LED module. Leads should always be kept as short as possible.

3.7 Use of different phases

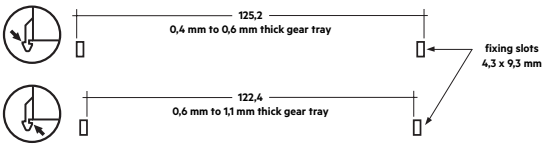
The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20

Recommended fixing details for clip fixing



Max. torque for mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED bi-colour status indicator
- Green / Red
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 1.0 m
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	I_{max}	time
EM pLED ST FX LiFePO4	90	130	130	130	180	260	260	260	6 A	55 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, Test switch, Indicator LED	Rest
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, Test switch, Indicator LED	••	••	–	•
Rest	•	•	•	–

• Represents basic insulation

•• Represents double or reinforced insulation

5.3 LED current

EM pLED ST FX LiFePO4, 1 / 2 / 3 h

	Type	EM pLED ST FX LiFePO4 1W	EM pLED ST FX LiFePO4 2W
	Article no.	**89800797, 89800798**	**89800799, 89800800**
LED current in emergency operation	1 x LED	350 mA	600 mA
	2 x LED	–	350 mA
LED current in mains operation	1 x LED	350 mA	350 mA
	2 x LED	–	350 mA

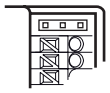
5.4 Emergency output factor EOFi

EM pLED ST FX LiFePO4, 1 / 2 / 3 h

	Type	EM pLED ST FX LiFePO4 1W	EM pLED ST FX LiFePO4 2W
	Article no.	**89800797, 89800798**	**89800799, 89800800**
	Cells	**1 / 2 cells**	**1 / 2 / 3 cells**
LED load	**Output current**	**LED load**	**LED load**
1 x LED	350 mA	97 %	–
1 x LED	600 mA	–	170 %
2 x LED	350 mA	–	97 %

6. Electrical values

6.1 Duration link selection

Duration	Link Position
1 hr	 without jumper
2 hr	position A
3 hr	position B

6.2 Jumper selection

Module supplied with jumper in 3 hours position (position B).

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM powerLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.3 Status indication

System status is indicated by a bi-colour LED.

LED indiction	Status	Commentary
Permanent green	System OK	AC mode
Fast flashing green (0.1 s on – 0.1 s off)	Function test underway	
Slow flashing green (1 s on – 1 s off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure ①
Slow flashing red (1 s on – 1 s off)	Battery failure	Battery failed the duration test or function / Battery is defect / Incorrect battery voltage
Fast flashing red (0.1 s on – 0.1 s off)	Charging failure	Incorrect charging current
Double pulsing green	Rest mode	Switching into blocking mode via controller
Green and red off	DC mode	Battery operation (Emergency mode)

① If the EM powerLED (operated in non-maintained mode) detects a fault at the LED module, the red LED indicator lights up and the output is stopped.
After the correction of the fault disconnect the unswitched phase from the mains supply or carry out a function or duration test. This will detect the new LED module and reset the error display.

6.4 Testing

Functional test
Functional tests are carried out for 5 seconds on a weekly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

For a full description of commissioning and test features please refer to application notes.

Commissioning
After installation of the luminaire and initial connection of the mains supply and battery supply to the EM powerLED ST the unit will commence charging the batteries for 24 hours (initial charge). Afterwards the module will conduct a commissioning test for the full duration. The 24 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition.
The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 24 hours).
The easy commissioning feature will set the initial test day and time to ensure random testing of units.

Test switch
An optional test switch can be wired to each EM powerLED ST. This can be used to to:
- initiate a 5 seconds function test — press 200 ms < T < 1 s
- execute function test as long as switch pressed — > 1 s press
- adjust local timing — > 10 s press

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.
The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically activated if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by applying a short pulse between 9.5 and 22.5 V_{DC} in amplitude for a period of 150 to 1,000 ms. This pulse shall be applied to terminals marked Rest.
After a mains reset the EM powerLED ST exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by applying a voltage pulse of 1,000 to 2,000 ms to the terminals marked as Rest to send the RE-LIGHT/ RESET INHIBIT command.
In combination with a 1-cell battery the EM powerLED does not support Rest Mode / Inhibit Mode.

Pulse/Mode	Standby	Emergency	Rest
150 – 1,000 ms	Inhibit	Rest	–
1,000 – 2,000 ms	Cancel inhibit	–	Re-light

7. Battery data

7.1 Battery selection

EM pLED ST FX LiFePO4, 1 / 2 / 3 h

				Type	EM pLED ST FX LiFePO4 1W			EM pLED ST FX LiFePO4 2W		
				Article no.	89800797, 89800798			89800799, 89800800		
				Duration	1 h	2h	3 h	1 h	2h	3 h
				Cells	1	1	2	1	2	3
Technology and capacity	Design	Number of cells	Type	Article no.	Assignable batteries					
$LiFePO_4$ 1.5 Ah 18650 cells	stick	1 x 1	**ACCU-LiFePO4 1A CON**	**28002317**	•	•		•		
	stick	1 x 2	**ACCU-LiFePO4 2A CON**	**28002318**			•		•	
	stick	1 x 3	**ACCU-LiFePO4 3A CON**	**28002320**						•
	side by side	2 x 1	**ACCU-LiFePO4 2B CON**	**28002319**			•		•	
	side by side	3 x 1	**ACCU-LiFePO4 3B CON**	**28002321**						•
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28003806**						•
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28005854**			•		•	
	remote box	1 x 3	**PACK-LiFePO4 4.5Ah 3 CON**	**28005855**						•
	remote box	1S1P	**PACK-LiFePO4 3.3Ah 1 CON**	**28005859**			•		•	

7.2 Battery charge / discharge data

EM pLED ST FX LiFePO4, 1 / 2 / 3 h

	Type	EM pLED ST FX LiFePO4 1W			EM pLED ST FX LiFePO4 2W		
	Article no.	89800797, 89800798			89800799, 89800800		
	Duration	1 h	2 h	3 h	1 h	2 h	3 h
Battery charge time	Initial charge	24 h					
	Trickle charge	continuously					
Charging current	Initial charge	120 – 150 mA	120 – 150 mA	240 – 300 mA	120 – 150 mA	240 – 300 mA	300 – 360 mA
	Trickle charge[1]	120 – 150 mA / 0 mA	120 – 150 mA / 0 mA	240 – 300 mA / 0 mA	120 – 150 mA / 0 mA	240 – 300 mA / 0 mA	300 – 360 mA / 0 mA
Discharge current		430 – 530 mA			800 – 970 mA		
Charge voltage range[2]		2.0 – 3.6 V per cell					
Discharge voltage range		2.3 – 3.6 V per cell					

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.
Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).
The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

7.3 ACCU-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

7.4 ACCUpack-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

Only use Tridonic batteries.

7.5 Accu / Accupack-LiFePO4

Capacity 3.3 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max short term battery case tc point temperature	
(reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

7.6 Safety

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.6.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.6.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.6.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.6.4 Temperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

7.7 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.2 Mains-connected transformers

The EM powerLED does not contain mains-connected windings of transformers.

8.3 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED SELFTEST NM LiFePO4 4 W

Combined emergency lighting LED driver 1 – 4 W

LiFeGuard

Product description

_ Emergency lighting LED driver with selftest function
_ For self-contained emergency lighting
_ SELV for output voltage < 60 V DC
_ Low profile casing (21 x 30 mm cross-section)
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Non maintained operation
_ Self-test as per IEC 62034
_ Constant current mode
_ With either screw or clip fastening (clip-fix)
_ 1, 2 or 3 h rated duration
_ Selectable operating time (jumper)
_ Two-colour status display LED
_ “Rest mode” function
_ SELV classified (outputs powerLED, battery, status LED, test switch)
_ Very low energy consumption from the battery after activation of the deep discharge protection

Battery management

_ Intelligent charge system
_ Deep discharge protection
_ Temperature protection
_ Reverse polarity protection

Batteries

_ LiFePO4 batteries with Tridonic LiFeGuard
_ Overcharge-/Overdischarge protection
_ Ensures safety in use
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions) ①

① 28005859 - 5-year guarantee.

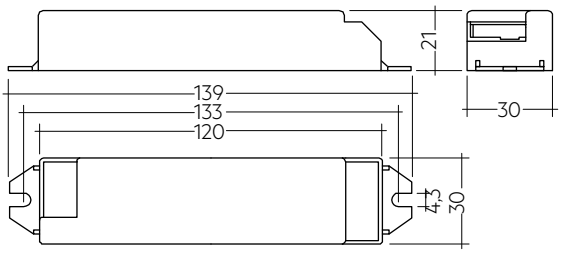
Website

http://www.tridonic.com/89800802

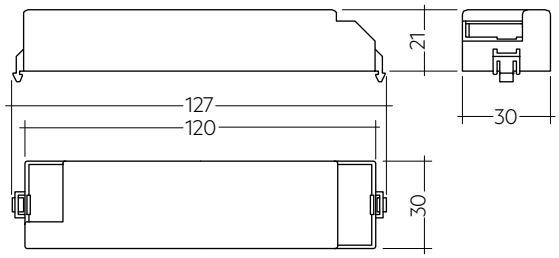
TRIDONIC

EM powerLED SELFTEST NM LiFePO4 4 W

Combined emergency lighting LED driver 1 – 4 W



Screw-fix



Clip-fix

Ordering data

Type	Article number	Dimensions L x W x H	Rated duration	Max. number of LEDs	Packaging, carton	Packaging, pallet	Weight per pc.
Screw fastening version							
EM pLED ST NM 204 LiFePO4 4W SCREW	**89800802**	139 x 30 x 21 mm	1/2/3 h	2	25 pc(s).	1,200 pc(s).	0.054 kg
Clip fastening version							
EM pLED ST NM 204 LiFePO4 4W CLIP	**89800801**	127 x 30 x 21 mm	1/2/3 h	2	25 pc(s).	1,200 pc(s).	0.054 kg

Technical data

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
THD (at 230 V, 50 Hz, full load)	< 120 %
U-OUT (including open- / short-circuit and double load)	15 V
Max. open circuit voltage	15 V
Output current tolerance	± 10 %
Typical output LF current ripple at full load	± 5 %
Starting time	< 0.7 s
Output current	Refer to data sheet
Overvoltage protection	320 V (for 48 h)
Max. casing temperature tc	75 °C
Ambient temperature ta	-25 … +55 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Mains surge capability (between L - N)	1 kV
Surge voltage at output side (against PE)	< 2 kV
Mains surge capability (between L/N - PE)	2 kV
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

IP20 SELV EL-T RoHS

Standards

EN 61347-2-7, EN 61347-2-13, EN 62384, EN 55015, EN 61000-3-2, EN 61547, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, according to EN 50172, according to EN 60598-2-22, acc. to EN 62034

Specific technical data

Type	Rated duration	Number of LEDs	Typ. λ (at 230 V, 50 Hz)	Forward voltage range LED module②	Non-maintained operation: Mains current in charging operation③	Non-maintained operation: Mains power in charging operation③
EM pLED ST NM 204 LiFePO4 4W CLIP	1 h	1	0.53C	2.6 – 3.4 V	20 / 11 mA	2.2 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W CLIP	1 h	2	0.53C	5.2 – 6.8 V	20 / 11 mA	2.2 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W CLIP	2 h	1	0.53C	2.6 – 3.4 V	22 / 11 mA	2.6 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W CLIP	2 h	2	0.53C	5.2 – 6.8 V	22 / 11 mA	2.6 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W CLIP	3 h	1	0.53C	2.6 – 3.4 V	26 / 11 mA	3.2 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W CLIP	3 h	2	0.53C	5.2 – 6.8 V	26 / 11 mA	3.2 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W SCREW	1 h	1	0.53C	2.6 – 3.4 V	20 / 11 mA	2.2 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W SCREW	1 h	2	0.53C	5.2 – 6.8 V	20 / 11 mA	2.2 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W SCREW	2 h	1	0.53C	2.6 – 3.4 V	22 / 11 mA	2.6 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W SCREW	2 h	2	0.53C	5.2 – 6.8 V	22 / 11 mA	2.6 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W SCREW	3 h	1	0.53C	2.6 – 3.4 V	26 / 11 mA	3.2 / 0.9 W
EM pLED ST NM 204 LiFePO4 4W SCREW	3 h	2	0.53C	5.2 – 6.8 V	26 / 11 mA	3.2 / 0.9 W

② When exceeding the rated power of 4 W the LED current is reduced proportionally.
③ For LiFePO4 batteries voltage dependent constant current charging is used. The values displayed are for charging on / charging off.

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

Connection cable LiFePO4

Accessory

Product description
_ Extension cable for LiFePO4 batteries
_ Cable length 500 mm
_ 3-pole plug connection

Website
http://www.tridonic.com/28002461

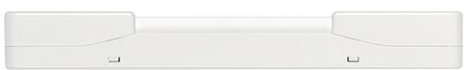
Ordering data

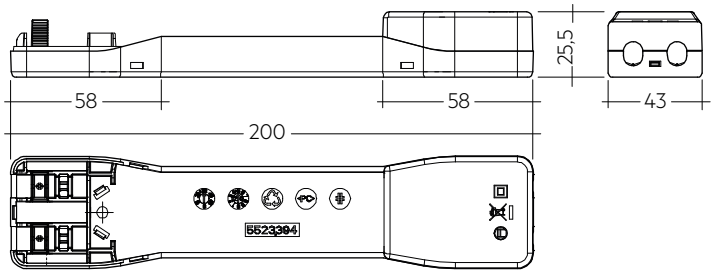
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
EXTENSION CABLE LiFePO4 500mm	**28002461**	10 pc(s).	200 pc(s).	0.011 kg

EMpLED Strain-relief set 200x43x25.5mm

Accessory

Product description
_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (200 x 43 x 25.5 mm)





Permissible cable jacket diameter 2.2 – 9 mm

Website
http://www.tridonic.com/28004033

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM pLED SR	**28004033**	10 pc(s).	0.05 kg

Approval marks

1. Standards

- EN 61347-2-7
- EN 61347-2-13
- EN 62384
- EN 55015
- EN 61000-3-2
- EN 61547
- EN 60068-2-29
- EN 60068-2-30
- EN 60068-2-64
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

Meaning of marking ◎
Double or reinforced insulation for built-in electronic LED drivers.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 100,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

EM pLED ST NM LiFePO4	ta	40 °C	45 °C	50 °C	55 °C
	tc	60 °C	65	70 °C	75 °C
	lifetime	> 100,000 h	> 100,000 h	> 100,000 h	76,000 h

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10 %.

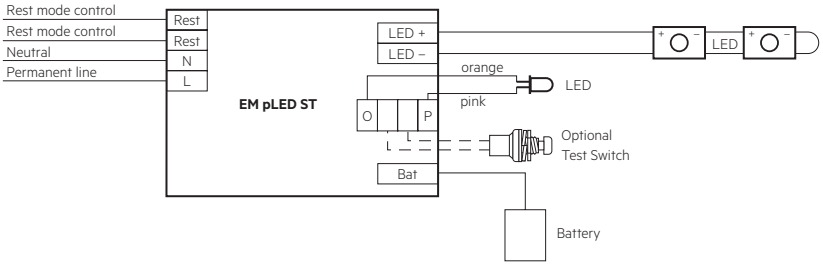
The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

3. Installation / Wiring

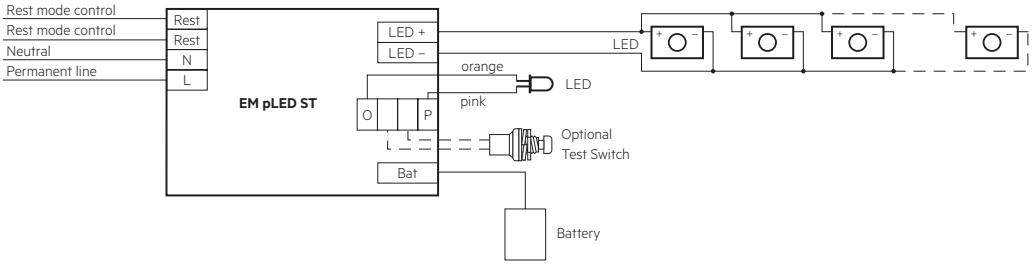
3.1 Wiring diagram

3.1.1 Wiring with one or multiple LED modules

Serial:



Parallel:

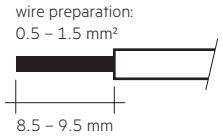


Take care that the LED is connected with the right polarity. LED that are connected to the EM powerLED devices should have a reverse polartity protection device such as a schottky diodes fitted, otherwise irreversible damage could occur if the LED is connected in reverse polarity. Any protection device must be capaple of handling in excess of 1,000 mA.

3.2 Wiring type and cross section

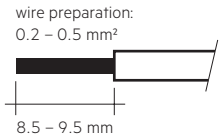
LED module/LED driver/supply:

Use solid/stranded wire with a cross section of 0.5 – 1.5 mm² for wiring. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.



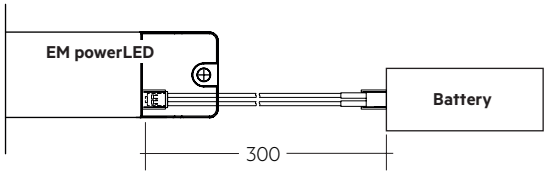
Status indication LED / Test switch:

Use solid wire with a cross section of 0.2 – 0.5 mm² for wiring. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

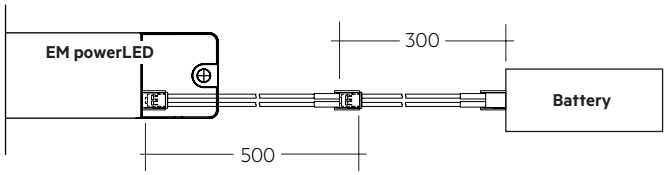


3.3 Battery connection

$LiFePO_4$: Direct connection

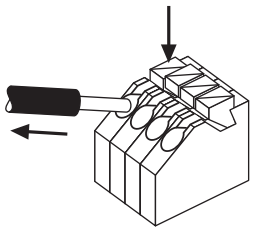


$LiFePO_4$: Connection with extension



3.4 Loose wiring

Press down the “push button” and remove the cable from front.



3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 6 mm creepage and clearance) when these connections should be kept SELV.
- The output to the LED is DC but has high frequency content, which should be considered for good EMC compliance.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the LED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Maximum lead length for the Test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 0.8 m
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.)

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

3.6 Maximum lead length

LED	3 m (6 m loop)[1]
Test switch	1 m
Status indication LED	1 m
Batteries	0.8 m

[1] Note: Do not exceed the length of LED leads to the LED module. Leads should always be kept as short as possible.

3.7 Use of different phases

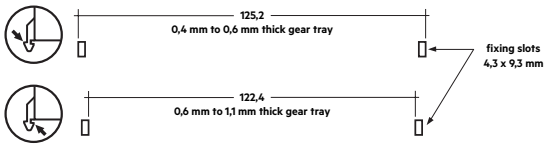
The use of different phases for switched line and unswitched line is allowed. When using different phases, the unswitched line must fail if the switched line fails. This is required to assure correct switching into emergency mode. It can be realised with a relay.

4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20

Recommended fixing details for clip fixing



Max. torque for mounting screws: 0.8 Nm

4.2 Mechanical data accessories

LED bi-colour status indicator
- Green / Red
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 1.0 m
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery connection
- Plug connection 0.3 m
- Extension 0.5 m

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	2.5 mm^2	I_{max}	time
EM pLED ST NM LiFePO4	90	130	130	130	180	260	260	260	6 A	55 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, Test switch, Indicator LED	Rest
Mains	–	•	••	•
Switched Live	•	–	••	•
Battery, Test switch, Indicator LED	••	••	–	•
Rest	•	•	•	–

• Represents basic insulation

•• Represents double or reinforced insulation

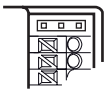
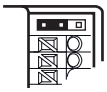
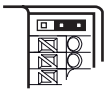
5.3 LED current

EM pLED ST NM LiFePO4, 1 / 2 / 3 h

	Type	EM pLED ST NM LiFePO4 4W
	Article no.	**89800801, 89800802**
LED current in emergency operation	1 x LED	1,000 mA
	2 x LED	700 mA

6. Electrical values

6.1 Duration link selection

Duration	Link Position
1 hr	 without jumper
2 hr	 position A
3 hr	 position B

6.2 Jumper selection

Module supplied with jumper in 3 hours position (position B).

The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM powerLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

6.3 Status indication

System status is indicated by a bi-colour LED.

LED indiction	Status	Commentary
Permanent green	System OK	AC mode
Fast flashing green (0.1 s on – 0.1 s off)	Function test underway	
Slow flashing green (1 s on – 1 s off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure ①
Slow flashing red (1 s on – 1 s off)	Battery failure	Battery failed the duration test or function / Battery is defect / Incorrect battery voltage
Fast flashing red (0.1 s on – 0.1 s off)	Charging failure	Incorrect charging current
Double pulsing green	Rest mode	Switching into blocking mode via controller
Green and red off	DC mode	Battery operation (Emergency mode)

① If the EM powerLED (operated in non-maintained mode) detects a fault at the LED module, the red LED indicator lights up and the output is stopped.
After the correction of the fault disconnect the unswitched phase from the mains supply or carry out a function or duration test. This will detect the new LED module and reset the error display.

6.4 Testing

Functional test
Functional tests are carried out for 5 seconds on a weekly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

For a full description of commissioning and test features please refer to application notes.

Commissioning
After installation of the luminaire and initial connection of the mains supply and battery supply to the EM powerLED ST the unit will commence charging the batteries for 24 hours (initial charge). Afterwards the module will conduct a commissioning test for the full duration. The 24 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition.
The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 24 hours).
The easy commissioning feature will set the initial test day and time to ensure random testing of units.

Test switch
An optional test switch can be wired to each EM powerLED ST. This can be used to to:

- initiate a 5 seconds function test — press 200 ms < T < 1 s
- execute function test as long as switch pressed — > 1 s press
- adjust local timing — > 10 s press

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.
The factory programmed delay offset (1 – 28 days) will be loaded after the reset into the delay timer for the function and duration test in order to randomize the tests between adjacent units.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically activated if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by applying a short pulse between 9.5 and 22.5 V_{DC} in amplitude for a period of 150 to 1,000 ms. This pulse shall be applied to terminals marked Rest.
After a mains reset the EM powerLED ST exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by applying a voltage pulse of 1,000 to 2,000 ms to the terminals marked as Rest to send the RE-LIGHT/ RESET INHIBIT command.
In combination with a 1-cell battery the EM powerLED does not support Rest Mode / Inhibit Mode.

Pulse/Mode	Standby	Emergency	Rest
150 – 1,000 ms	Inhibit	Rest	–
1,000 – 2,000 ms	Cancel inhibit	–	Re-light

7. Battery data

7.1 Battery selection

EM pLED ST NM LiFePO4, 1 / 2 / 3 h

				Type	**EM pLED ST NM LiFePO4 4W**		
				Article no.	**89800801, 89800802**		
				Duration	**1 h**	**2h**	**3 h**
				Cells	**2**	**4**	**6**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**		
$LiFePO_4$ 1.5 Ah 18650 cells	stick	1 x 2	**ACCU-LiFePO4 2A CON**	**28002318**	•		
	stick	1 x 4	**ACCU-LiFePO4 6.0Ah 4A CON**	**28002322**		•	
	stick + stick	2 + 2	**ACCU-LiFePO4 6.0Ah 4C CON**	**28002324**		•	
	stick + stick	3 + 3	**ACCU-LiFePO4 9.0Ah 6C CON**	**28002330**			•
	side by side	2 x 1	**ACCU-LiFePO4 2B CON**	**28002319**	•		
	remote box	1 x 2	**PACK-LiFePO4 3.0Ah 2 CON**	**28005854**	•		
	remote box	1 x 4	**PACK-LiFePO4 6.0Ah 4 CON**	**28005856**		•	
	remote box	1S1P	**PACK-LiFePO4 3.3Ah 1 CON**	**28005859**	•		

7.2 Battery charge / discharge data

EM pLED ST NM LiFePO4, 1 / 2 / 3 h

	Type	**EM pLED ST NM LiFePO4 4W**		
	Article no.	**89800801, 89800802**		
	Duration	**1 h**	**2 h**	**3 h**
Battery charge time	Initial charge	24 h		
	Trickle charge	continuously		
Charging current	Initial charge	240 – 300 mA	300 – 360 mA	405 – 495 mA
	Trickle charge[1]	240 – 300 mA / 0 mA	300 – 360 mA / 0 mA	405 – 495 mA / 0 mA
Discharge current		1,620 – 1,980 mA		
Charge voltage range[2]		2.0 – 3.6 V per cell		
Discharge voltage range		2.3 – 3.6 V per cell		

[1] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.
Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C).
The emergency lighting LED driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

[2] The battery will not be charged below 2.0 V.

7.3 ACCU-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
5 years design life	+5 °C to +60 °C
7 years design life	+5 °C to +55 °C
10 years design life	+5 °C to +45 °C
12 years design life	+5 °C to +35 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

7.4 ACCUpack-LiFePO4

Capacity 1.5 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
6 years design life	+5 °C to +35 °C
8 years design life	+5 °C to +25 °C
Max. short term battery case temperature	
(shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

Only use Tridonic batteries.

7.5 Accu / Accupack-LiFePO4

Capacity 3.3 / 6.6 Ah

International designation	IFpR 27/66
Battery voltage/cell	3.2 V
Cell type	26650
Case temperature range to ensure	
4 years design life	+5 °C to +45 °C
Max short term battery case tc point temperature	
(reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months
	at -20 °C to +35 °C

7.6 Safety

Note: LiFeGuard ensures safe and reliable battery operation by offering a comprehensive three-layered safety system.
It addresses the cell, battery pack and emergency driver.

7.6.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.6.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.6.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.6.4 Temperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation. The charging is automatically activated when the temperature is within the range of 0 to 60°C again.

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.
Positioning of the thermal sensor see battery data sheet.

7.7 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

7.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

8. Miscellaneous

8.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.2 Mains-connected transformers

The EM powerLED does not contain mains-connected windings of transformers.

8.3 FELV control terminals

FELV control terminals marked „Risk of electric shock“ are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

8.4 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED ST FX C 45 W

Combined emergency lighting LED driver

Product description
_ Dimmable built-in LED driver
_ Emergency lighting LED driver with automatic selftest functionality
_ For self-contained emergency lighting
_ For LED modules with a forward voltage of 20 – 50 V
_ SELV for output voltage < 60 V DC
_ Compact plastic casing
_ EM = Emergency

Properties
_ Output power 6 – 45 W
_ Constant current LED operation
_ 300 – 1,400 mA output current in mains operation, adjustable with I-SELECT 2 PLUG in steps of 25 mA
_ Integrated emergency lighting unit
_ 1, 2 or 3 h rated duration
_ Operating time selectable with dip switch (2-way)
_ Automatic shutdown of output if the forward voltage of the LED is out of range
_ Two-colour status display LED
_ Electronic multi-level charge system
_ Pulse current charging for NiMH batteries
_ Polarity reversal protection for battery
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Interfaces
_ switchDIM
_ corridorFUNCTION
_ Rest mode
_ Terminal blocks: 45° push terminals

Batteries
_ High-temperature cells
_ NiCd or NiMH batteries
_ D, Cs, LA or LAL cells
_ Battery box for independent use
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet

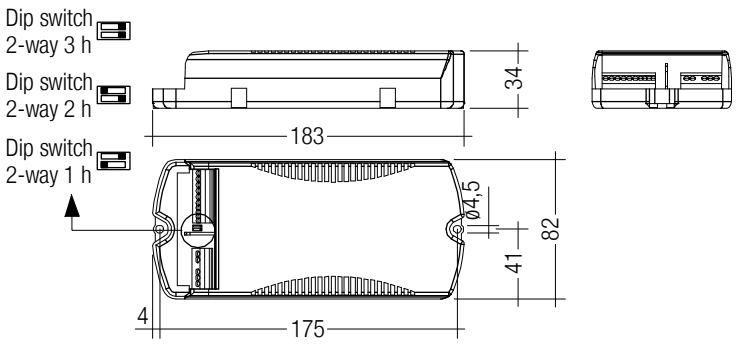
Website
http://www.tridonic.com/89800431

Linear | High bay | Decorative | Downlights | Spotlights | Free-standing | Area | Floor | Wall | Street

TRIDONIC

EM powerLED ST FX C 45 W

Combined emergency lighting LED driver



Note: LED driver supplied with duration dip switch (2-way) in 3 hours position. Duration dip switch and I-SELECT 2 PLUG must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM powerLED ST FX 103 C NiCd 45W 50V	**89800431**	1/2/3 h	3	10 pc(s).	400 pc(s).	0.227 kg
EM powerLED ST FX 104 C NiCd 45W 50V	**89800413**	1/2/3 h	4	10 pc(s).	400 pc(s).	0.227 kg
EM powerLED ST FX 103 C NiMH 45W 50V	**89800502**	1/2/3 h	3	10 pc(s).	400 pc(s).	0.227 kg
EM powerLED ST FX 104 C NiMH 45W 50V	**89800506**	1/2/3 h	4	10 pc(s).	400 pc(s).	0.227 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. λ (at 230 V, 50 Hz, normal operation)	0.95
Leakage current (PE)	< 0.5 mA
Overvoltage protection	320 V (for 48 h)
Max. open circuit voltage	60 V
Starting time	< 0.5 s from detection of emergency event
Output LF current ripple (< 120 Hz)	< 2 %
Output current tolerance	7 %
THD CF normal operation	< 10 %
Ambient temperature ta at > 40 W	-5 … +45 °C
Ambient temperature ta at ≤ 40 W	-5 … +50 °C
Max. casing temperature tc	75 °C
Dimensions L x W x H	183 x 82 x 34 mm
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

SELV EL-T RoHS

Standards

EN 55015, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, EN 62034, EN 62384, according to EN 60598-2-22, according to EN 50172

Specific technical data

Type	Number of battery cells	Output current	Min. output voltage	Max. output voltage	Min. output power	Max. output power	Input power (at 230 V, 50 Hz, full load), fast / trickle charge	Input current (at 230 V, 50 Hz, full load), fast / trickle charge	Efficiency (at 230 V, 50 Hz), fast / trickle charge	λ (at 230 V, 50 Hz, full load)		Ambient temperature ta	tc/ta for ≥ 50,000 h
										Fast charge	Trickle charge		
Normal operation													
EM powerLED ST FX 103 C NiCd 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiCd 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
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EM powerLED ST FX 104 C NiCd 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
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Type	Number of battery cells	Output current	Min. output voltage	Max. output voltage	Min. output power	Max. output power	Input power (at 230 V, 50 Hz, full load), fast / trickle charge	Input current (at 230 V, 50 Hz, full load), fast / trickle charge	Efficiency (at 230 V, 50 Hz), fast / trickle charge	λ (at 230 V, 50 Hz, full load)		Ambient temperature ta	tc/ta for ≥ 50,000 h
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EM powerLED ST FX 104 C NiCd 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
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EM powerLED ST FX 104 C NiCd 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiCd 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C

Type	Number of battery cells	Output current	Min. output voltage	Max. output voltage	Min. output power	Max. output power	Input power (at 230 V, 50 Hz, full load), fast / trickle charge	Input current (at 230 V, 50 Hz, full load), fast / trickle charge	Efficiency (at 230 V, 50 Hz), fast / trickle charge	λ (at 230 V, 50 Hz, full load)		Ambient temperature ta	tc/ta for ≥ 50,000 h
										Fast charge	Trickle charge		
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 C NiMH 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 C NiMH 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
Emergency operation													
EM powerLED ST FX 103 C NiCd 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED ST FX 103 C NiCd 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–
EM powerLED ST FX 104 C NiCd 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED ST FX 104 C NiCd 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–
EM powerLED ST FX 103 C NiMH 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED ST FX 103 C NiMH 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–
EM powerLED ST FX 104 C NiMH 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED ST FX 104 C NiMH 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

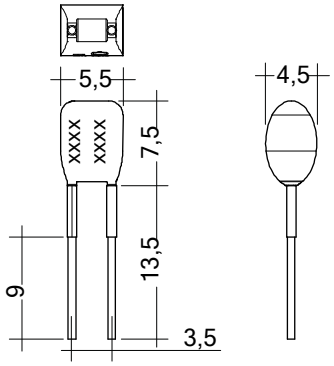
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

I-SELECT 2 PLUG PRE / EXC

Accessory



Product description

_ Ready-for-use resistor to set output current value
_ Compatible with LED driver featuring I-select 2 interface; not compatible with I-SELECT (generation 1)
_ Resistor is base insulated
_ Resistor power 0.25 W
_ Current tolerance ± 2 % additional to output current tolerance
_ Compatible with LED driver series PRE and EXC

Example of calculation

_ R [kΩ] = 5 V / I_out [mA] x 1000
_ E96 resistor value used
_ Resistor value tolerance ≤ 1 %; resistor power ≥ 0.1 W; base insulation necessary
_ When using a resistor value beyond the specified range, the output current will automatically be set to the minimum value (resistor value too big), respectively to the maximum value (resistor value too small)

Website

http://www.tridonic.com/28001108

Ordering data

Type	Article number	Colour	Marking	Current	Resistor value	Packaging, bag	Weight per pc.
I-SELECT 2 PLUG 300MA BL	**28001108**	Blue	0300 mA	300 mA	16.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 325MA BL	**28001109**	Blue	0325 mA	325 mA	15.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 350MA BL	**28001110**	Blue	0350 mA	350 mA	14.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 375MA BL	**28001111**	Blue	0375 mA	375 mA	13.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 400MA BL	**28001112**	Blue	0400 mA	400 mA	12.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 425MA BL	**28001251**	Blue	0425 mA	425 mA	11.80 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 450MA BL	**28001113**	Blue	0450 mA	450 mA	11.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 475MA BL	**28001252**	Blue	0475 mA	475 mA	10.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 500MA BL	**28001114**	Blue	0500 mA	500 mA	10.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 550MA BL	**28001115**	Blue	0550 mA	550 mA	9.09 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 600MA BL	**28001116**	Blue	0600 mA	600 mA	8.25 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 650MA BL	**28001117**	Blue	0650 mA	650 mA	7.68 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 700MA BL	**28001118**	Blue	0700 mA	700 mA	7.15 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 750MA BL	**28001119**	Blue	0750 mA	750 mA	6.65 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 800MA BL	**28001120**	Blue	0800 mA	800 mA	6.19 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 850MA BL	**28001121**	Blue	0850 mA	850 mA	5.90 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 900MA BL	**28001122**	Blue	0900 mA	900 mA	5.62 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 950MA BL	**28001123**	Blue	0950 mA	950 mA	5.23 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1000MA BL	**28001124**	Blue	1000 mA	1,000 mA	4.99 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1050MA BL	**28001125**	Blue	1050 mA	1,050 mA	4.75 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1100MA BL	**28001126**	Blue	1100 mA	1,100 mA	4.53 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1150MA BL	**28001127**	Blue	1150 mA	1,150 mA	4.32 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1200MA BL	**28001128**	Blue	1200 mA	1,200 mA	4.12 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1250MA BL	**28001129**	Blue	1250 mA	1,250 mA	4.02 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1300MA BL	**28001130**	Blue	1300 mA	1,300 mA	3.83 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1350MA BL	**28001131**	Blue	1350 mA	1,350 mA	3.74 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1400MA BL	**28001132**	Blue	1400 mA	1,400 mA	3.57 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	**28001099**	Blue	MAX	MAX	0.00 kΩ	10 pc(s).	0.001 kg

NiMH Battery pack 2.2 – 4.0 Ah

Accessory

Product description

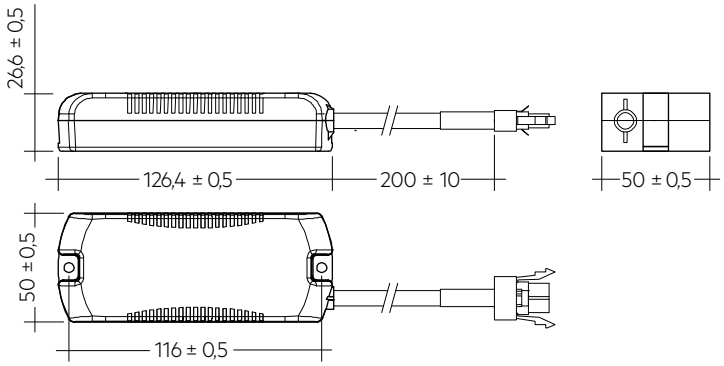
_ High-temperature NiMH battery pack for use with emergency lighting units
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Constant high-temperature operation
_ Temperature depending on the used emergency lighting unit (refer to respective emergency control gear data sheet)
_ Good charging properties at high temperature
_ High energy maintenance of the charged battery
_ Certified quality manufacturer
_ Casing material made of polycarbonate
_ 1.0 mm² stranded wire
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

http://www.tridonic.com/28001898

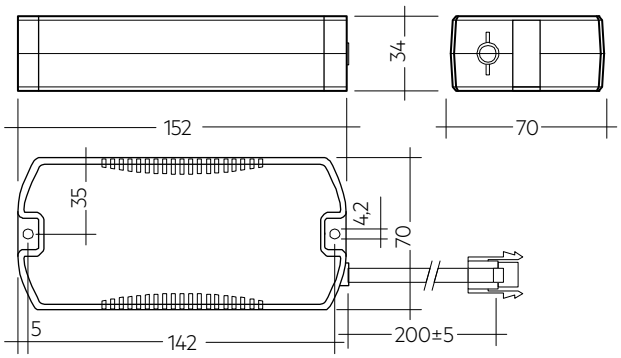

26,6 ± 0,5
126,4 ± 0,5
200 ± 10
50 ± 0,5
50 ± 0,5
116 ± 0,5

Ordering data

Type	Article number	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
2.2 Ah battery pack					
PACK-NiMH 2.2Ah 3 CON	**28001898**	2.2 Ah	5 pc(s).	25 pc(s).	0.258 kg
PACK-NiMH 2.2Ah 4 CON	**28001899**	2.2 Ah	5 pc(s).	25 pc(s).	0.352 kg
4.0 Ah battery pack					
PACK-NiMH 4Ah 3 CON	**28001896**	4.0 Ah	5 pc(s).	25 pc(s).	0.300 kg
PACK-NiMH 4Ah 4 CON	**28001897**	4.0 Ah	5 pc(s).	25 pc(s).	0.440 kg

NiCd Battery pack 1.8 – 4.5 Ah

Accessory



Product description

_ High-temperature NiCd battery pack for use with emergency lighting units
_ Please note that due to EU law, this article is available for purchasing only outside of the European Union.
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Constant high-temperature operation
_ Temperature depending on the used emergency lighting unit (refer to respective emergency control gear data sheet)
_ Good charging properties at high temperature
_ High energy maintenance of the charged battery
_ Certified quality manufacturer
_ Casing material made of polycarbonate
_ 1.0 m integrated double-insulated cable
_ 1.0 mm² solid wire, pre-stripped
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

http://www.tridonic.com/28001221

Ordering data

Type	Article number	Packaging, carton	Packaging, outer box	Weight per pc.
Battery pack 1.8 Ah with connector				
Pack-NiCd 3C CON	**28001221**	5 pc(s).	10 pc(s).	0.540 kg
Pack-NiCd 4C CON	**28001222**	5 pc(s).	10 pc(s).	0.540 kg
Battery pack 4.5 Ah with connector				
Pack-NiCd 3D CON	**89800389**	5 pc(s).	10 pc(s).	0.534 kg
Pack-NiCd 4D CON	**89800390**	5 pc(s).	10 pc(s).	0.661 kg

1. Standards

- EN 55015
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 61000-3-2
- EN 61000-3-3
- EN 61347-1
- EN 61347-2-7
- EN 61347-2-13
- EN 61547
- EN 62384
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

1.1 Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED Driver can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V_{AC} (or 1,414 x 1,500 V_{DC}). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal data

2.1 Expected lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	Output power	**ta**	**40 °C**	**50 °C**
EM powerLED ST FX 103 / 104 C 45W 50V	10 W	tc	56 °C	66 °C
		lifetime	> 100,000 h	> 100,000 h
	20 W	tc	59 °C	69 °C
		lifetime	> 100,000 h	> 100,000
	30 W	tc	63 °C	73 °C
		lifetime	> 100,000 h	> 100,000 h
	40 W	tc	65 °C	75 °C
		lifetime	> 100,000 h	80,000 h
	45 W	tc	70 °C	x
		lifetime	80,000 h	x

x = not permitted

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

2.2 Storage conditions

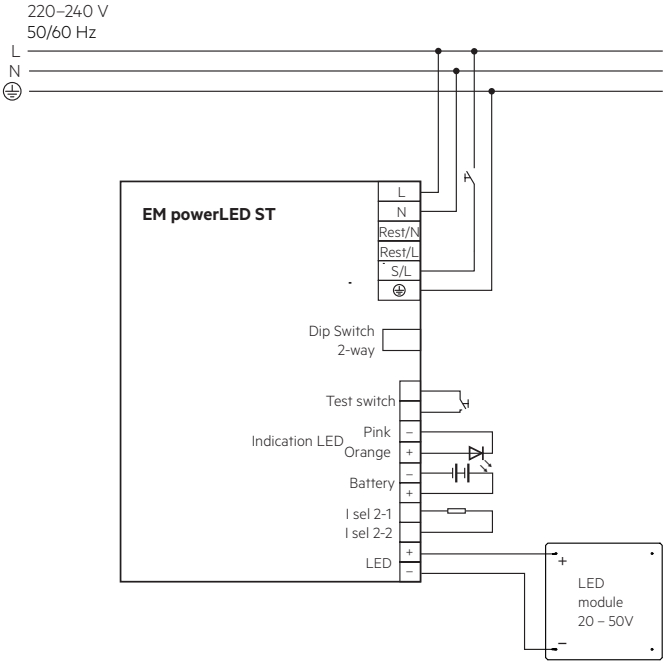
Humidity: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

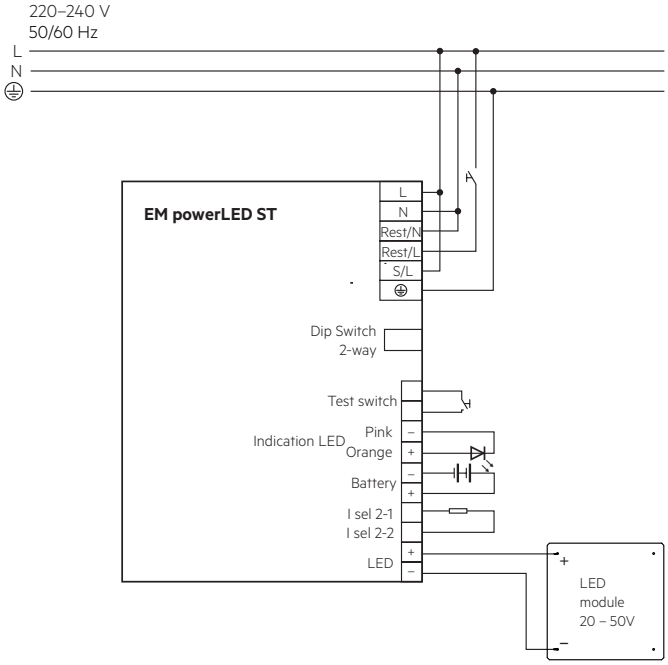
The devices have to be within the specified temperature range (ta) before they are operated.

3. Installation / Wiring

3.1 Wiring diagrams

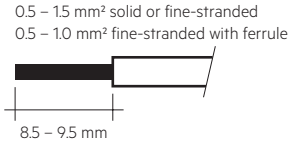


switchDIM wiring

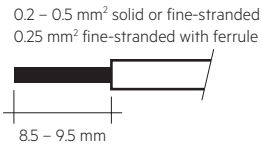


3.2 Wiring type and cross-section

Wiring
Mains (N, L, Earth , S/L)
Rest (Rest/N, Rest/L)
LED (LED +, LED –)
Batteries (Bat +, Bat –)
I sel 2



Wiring
Test switch
Indication LED



Use one wire for each terminal connector only.
Use each strain relief channel for one cable only.

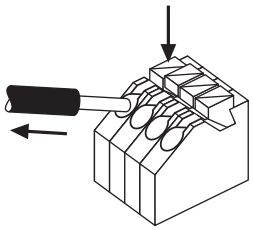
max. ∅ = 10 mm
min. ∅ = 6,3 mm

Max. lead insulation diameter	
Battery	2.1 mm
Test switch	2.1 mm
Indicator LED	2.1 mm

Maximum lead length	
LED	3 m
status indication LED	1 m
batteries	1.3 m

3.3 Release of the wiring

Press down the “push button” and remove the cable from front.



Installation instruction
Max. torque for the mounting screws: 0.5 Nm / M4.

3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device.

3.5 Wiring guidelines

- The cables should be run separately from the mains connections and mains cables to ensure good EMC conditions.
- The LED wiring should be kept as short as possible to ensure good EMC. The max. secondary cable length is 2 m (4 m circuit), this applies for LED output as well as for I-select 2.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Secondary switching is not permitted.
- The LED Driver has no inverse-polarity protection on the secondary side. Wrong polarity can damage LED modules with no inverse-polarity protection.
- Wrong wiring of the LED Driver can lead to malfunction or irreparable damage.
- Maximum lead length for the test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 1.3 m.
- If the optional mains switch is not used, connect S/L to L.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire the switched and unswitched 50 Hz supply wiring must be routed as short as possible and be kept as far away as possible from the LED leads.Through wiring may affect the emc performance of the luminaire.

The length of LED leads must not be exceeded.

The output current depends on the forward voltage and the tolerance of the LED modules.

The mains power must be removed before changing the LED load.

3.6 Hot plug-in

Hot plug-in is not supported due to residual output voltage of > 0 V.
If a LED load is connected the device has to be restarted before the output will be activated again.
This can be done via mains reset or via interface (DALI, DSI, switchDIM).

3.7 Earth connection

The earth connection is conducted as protection earth (PE). The LED Driver can be earthed via earth terminal. If the LED Driver will be earthed, protection earth (PE) has to be used. There is no earth connection required for the functionality of the LED Driver. Earth connection is recommended to improve following
behaviour:

- Electromagnetic interferences (EMI)
- LED glowing at standby
- Transmission of mains transients to the LED output

In general it is recommended to earth the LED Driver if the LED module is mounted on earthed luminaire parts respectively heat sinks and thereby representing a high capacity against earth.

3.8 External I-select 2 resistors on LED modules

LED modules with on-board I-select 2 resistors may cause irreparable damages, caused by surge / burst peaks.

4. Mechanical data

4.1 Mechanical data accessories

LED status indicator
- Bi-colour
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 1.0 m
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery leads
- Quantity: 1 red and 1 black
- Length: 1.3 m
- Wire type: 0.5 mm^2 solid conductor
- Insulation rating: 90 °C

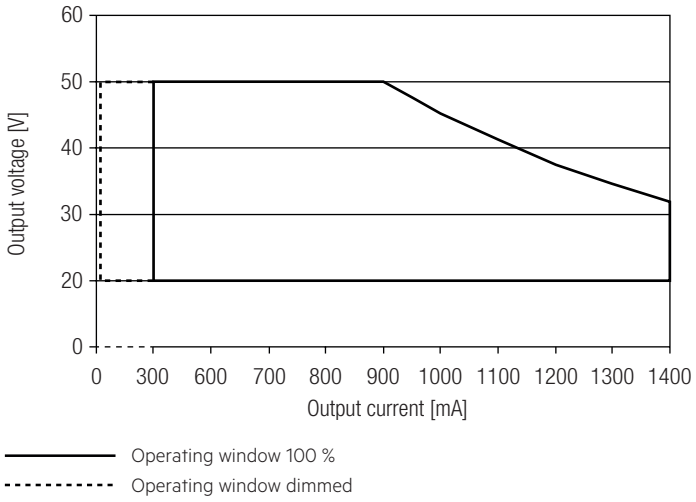
Battery end termination
Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

Module end termination
8.0 mm stripped insulation

Two-piece batteries are supplied with a 200 mm lead with 4.8 mm receptacle at each end and insulting covers to connect the separate sticks together.

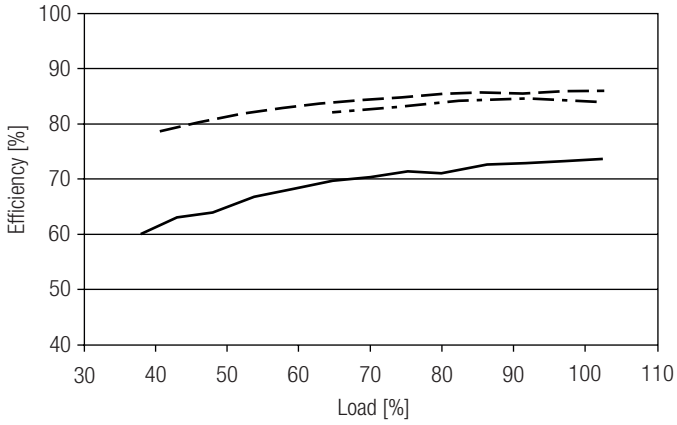
5. Electrical data

5.1 Operating window

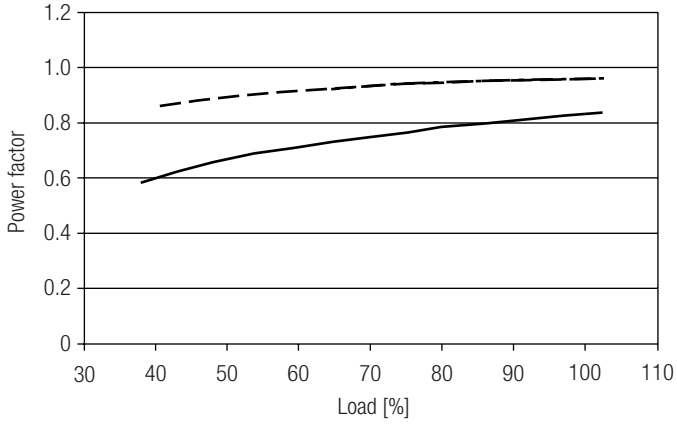


Make sure that the LED Driver is operated within the given window under all operating conditions, also in dimming operation. Otherwise certain limitations may occur. This is due to the nature of amplitude modulation dimming. The stated minimum output voltage shall not be undercut as this may cause the device to shut-down.

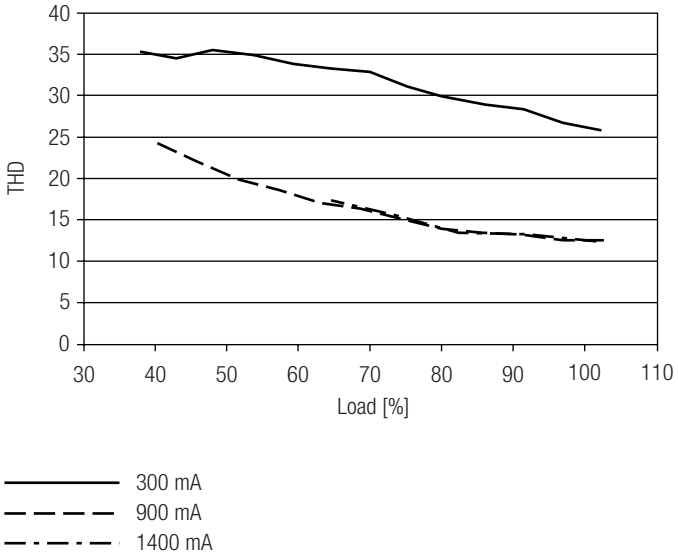
5.2 Efficiency vs load



5.3 Power factor vs load



5.4 THD vs load



100 % load corresponds to the max. output power (full load) according to the table on page 2.

5.5 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	I_{max}	time
EM powerLED ST FX C	18	26	30	36	9	13	15	18	23.9 A	187 µs

5.6 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
EM powerLED ST FX C	< 10	< 9	< 3	< 3	< 2	< 1

5.7 Insulation matrix

	Mains	Earth	Switched Live	Battery, LED, Test switch, Indicator LED	REST	I-SELECT
Mains	–	•	•	••	•	•
Earth	•	–	•	•	•	•
Switched Live	•	•	–	••	•	•
Battery, LED, Test switch, Indicator LED	••	•	••	–	•	••
REST	•	•	•	•	–	•
I-SELECT	•	•	•	••	•	–

• Represents basic insulation

•• Represents double or reinforced insulation

5.8 Dimming

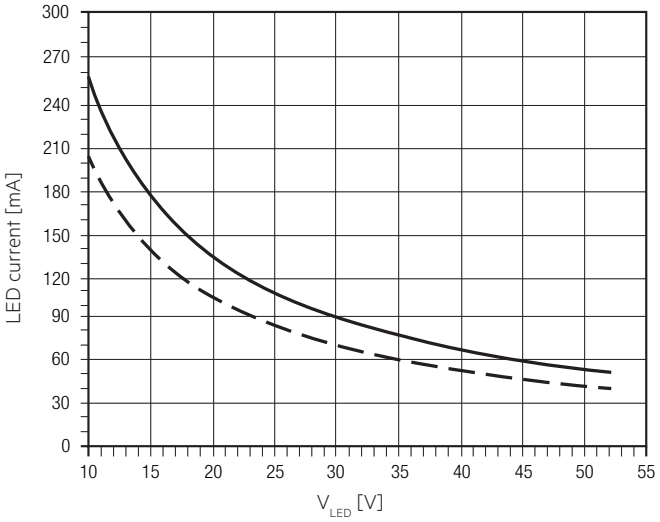
Dimming range 1 % to 100 %

Dimming curve is adapted to the eye sensitiveness.
Dimming is realized by amplitude dimming.

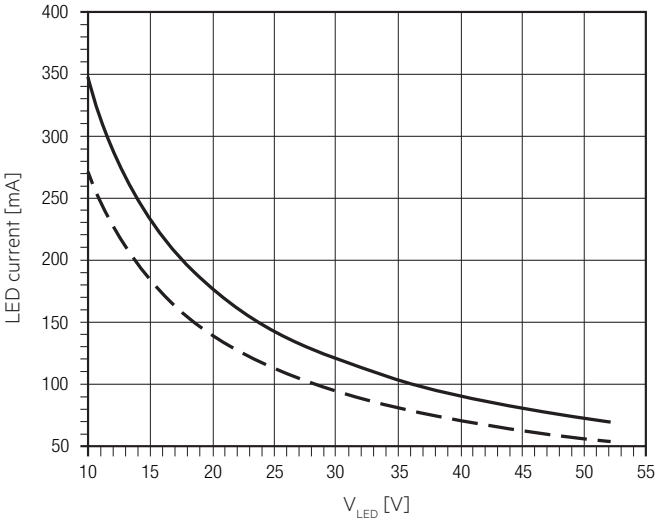
5.9 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM powerLED module based on the total forward voltage of the LED modules connected and the associated battery.

EM powerLED ST FX 103 C 45W 50V – 3 cells
Article number: 89800431
3.6 V battery voltage
750 – 960 mA battery discharge current (tolerance)



EM powerLED ST FX 104 C 45W 50V – 4 cells
Article number: 89800413
4.8 V battery voltage
750 – 960 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

LED peak current at start in emergency mode – 3 cells

Voltage	Inrush current	Duration
19.8 V	329 mA	12.9 ms
22.6 V	297 mA	12.0 ms
25.3 V	265 mA	11.5 ms
28.0 V	244 mA	10.8 ms
30.7 V	234 mA	10.3 ms
33.4 V	216 mA	10.1 ms
36.1 V	202 mA	9.8 ms
38.8 V	192 mA	9.7 ms
41.5 V	183 mA	9.1 ms
44.2 V	174 mA	8.8 ms
47.0 V	168 mA	8.1 ms
49.7 V	161 mA	6.9 ms

Note: LED peak current is measured at the max. battery discharge current.

LED peak current at start in emergency mode – 4 cells

Voltage	Inrush current	Duration
19.8 V	395 mA	16.5 ms
22.6 V	360 mA	15.3 ms
25.3 V	338 mA	14.5 ms
28.0 V	308 mA	14.0 ms
30.7 V	293 mA	13.8 ms
33.4 V	270 mA	12.7 ms
36.1 V	263 mA	12.1 ms
38.8 V	248 mA	11.7 ms
41.5 V	242 mA	9.8 ms
44.2 V	225 mA	8.9 ms
47.0 V	218 mA	7.8 ms
49.7 V	211 mA	7.5 ms

6. Interfaces / communication

6.1 Control input (Rest/N, Rest/L)

A standard switch (switchDIM) or a rest mode controller can be wired on the terminals Rest/N and Rest/L.

The control signal is not SELV. Install control cables in accordance to the requirements of low voltage installations. Different functions depending on each module.

6.2 switchDIM

Integrated switchDIM function allows a direct connection of a pushbutton for dimming and switching.
Brief push (< 0.6 s) switches LED Driver ON and OFF. The dimm level is saved at power-down and restored at power-up.
When the pushbutton is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction.
In installations with LED Drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED Drivers can be synchronized to 50 % dimming level by a 10 s push.
Use of pushbutton with indicator lamp is not permitted.

7. Functions

7.1 Output current setting

Output current can be set by connecting a resistor between the 2 "I sel 2" terminals. Relationship between output current and resistor value can be found at the table "Specific technical data". Resistor values specified from standardised resistor value ranges.
Resistor value tolerance has to be ≤ 1 %.
Resistor power has to be ≥ 0.1 W.
Resistor detection at each start.
Change of the resistor value during the operation will be not considered.
Resistors for the main output current values can be ordered from Tridonic (see accessories).

7.2 Overload protection

LED Driver will switch off at overload operation. Mains reset (switched life) is required to restart the LED Driver.

7.3 Underload operation

LED Driver will switch off at underload operation. Mains reset (switched life) is required to restart the LED Driver.

7.4 Short-circuit behaviour

In case of a short circuit the unit switches to shut down mode. After elimination of the short circuit a mains reset (SL off/on) is necessary.

7.5 Forward voltage out of range

If the forward voltage is out of range the unit switches to shut down mode. After elimination of the short circuit a mains reset (SL off/on) is necessary.

7.6 No-load operation or load loss during operation

LED Driver will detect a load loss during operation. In this case and no-load operation the max. output voltage can apply at the LED output for max. 5 s before LED Driver shuts down. Mains reset (switched life) is required to restart the LED Driver.

7.7 Function: adjustable current

The output current of the LED Driver can be adjusted in a certain range. For adjustment there are three options available.

I-select 2:
By inserting a suitable resistor into the I-select 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter "Accessories I-SELECT 2 Plugs".
If the resistor is connected by wires a consistent base insulation must be ensured. Furthermore, a max. wire length of 2 m may not be exceeded and potential interferences have to be avoided.

Please note that the resistor values for I-select 2 are not compatible with I-select (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

The priority for current adjustment methods is the use of I-select 2.

7.8 Status indication

System status is indicated by a bi-colour LED and by a DALI status flag.

LED indiction	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

7.9 corridorFUNCTION

The corridorFUNCTION can be programmed in two different ways.
To program the corridorFUNCTION by means of software a DALI-USB interface is needed in combination with a DALI PS. The software can be the masterCONFIGURATOR.
To activate the corridorFUNCTION without using software a voltage of 230 V has to be applied for five minutes at the switchDIM connection.
The unit will then switch automatically to the corridorFUNCTION.

Note:
If the corridorFUNCTION is wrongly activated in a switchDIM system (for example a switch is used instead of pushbutton), there is the option of installing a pushbutton and deactivating the corridorFUNCTION mode by five short pushes of the button within three seconds.

switchDIM and corridorFUNCTION are very simple tools for controlling gears with conventional pushbuttons or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings. Serious mains faults may impair the operation of switchDIM and corridorFUNCTION.

7.10 Testing:

Commissioning test
A full commissioning test is carried out automatically after permanent connection of the supply for 5 days. The easy commissioning feature will set the initial test day and time to ensure random testing of units.

Functional test
Functional tests are carried out for 5 seconds on a weekly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

For 2 h operation:
The first commissioning duration test has a time of 120 minutes, subsequent through life tests are conducted for 90 minutes. When the battery is changed or disconnected and re-connected the unit will next conduct a 120 minute test.

For a full description of commissioning and test features please refer to application notes.

Test switch
An optional test switch can be wired to each EM converterLED ST. This can be used to to:

- initiate a 5 seconds function test: press 200 ms < T < 1 s
- execute function test as long as switch pressed: press > 1 s
- reset selftest timer (adjust local timing): press > 10 s

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically activated if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by applying a short pulse between 9.5 and 22.5 V_{DC} in amplitude for a period of 150 to 1,000 ms. This pulse shall be applied to terminals marked Rest.
After a mains reset the EM powerLED ST exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by applying a voltage pulse of 1,000 to 2,000 ms to the terminals marked as Rest to send the RE-LIGHT/ RESET INHIBIT command.

Pulse/Mode	Standby	Emergency	Rest
150 – 1,000 ms	Inhibit	Rest	–
1,000 – 2,000 ms	Cancel inhibit	–	Re-light

8. Battery data

8.1 Battery selection

EM powerLED ST FX 45 W 50 V, 1 / 3 h

				Type	EM powerLED ST FX 103 C NiCd 45W 50V		EM powerLED ST FX 104 C NiCd 45W 50V	
				Article no.	89800431		89800413	
				Cells	3 cells		4 cells	
				Duration	1 h	2 / 3 h	1 h	2 / 3 h
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**			
NiCd 4 Ah D cells[①]	stick	1 x 3	**Accu-NiCd 3A 55**	**28002773**		•		
	stick	1 x 4	**Accu-NiCd 4A 55**	**89800089**				•
	stick + stick	2 + 2	**Accu-NiCd 4C 55**	**28002775**				•
	side by side	3 x 1	**Accu-NiCd 3B 55**	**89800384**		•		
	side by side	4 x 1	**Accu-NiCd 4B 55**	**89800385**				•
NiCd 1.8 Ah Cs cells	remote box	1 x 3	**Pack-NiCd 3C CON**	**28001221**	•			
	remote box	1 x 4	**Pack-NiCd 4C CON**	**28001222**			•	
NiCd 4.5 Ah D cells	remote box	1 x 3	**Pack-NiCd 3D CON**	**89800389**		•		
	remote box	1 x 4	**Pack-NiCd 4D CON**	**89800390**				•
NiMH 2.2 Ah Cs cells	stick	1 x 3	**Accu-NiMH 3A**	**28002088**	•			
	stick	1 x 4	**Accu-NiMH 4A**	**28002089**			•	
NiMH 4 Ah LA cells	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**		•		
	stick	1 x 4	**Accu-NiMH 4Ah 4A CON**	**89800442**				•
	stick + stick	2 + 2	**Accu-NiMH 4Ah 4C CON**	**89800438**				•

8.2 Battery charge / discharge

EM powerLED ST FX 45 W 50 V, 1 / 2 / 3 h

	Type	EM powerLED ST FX 103 C NiCd 45W 50V		EM powerLED ST FX 104 C NiCd 45W 50V	
	Article no.	89800431		89800413	
	Cells	3 cells		4 cells	
	Duration	1 h	2 / 3 h	1 h	2 / 3 h
Battery charge time	Initial charge	20 h			
	Fast recharge	10 h	15 h	10 h	15 h
	Trickle charge	continuously			
Charge current	Initial charge	130 mA	300 mA	130 mA	300 mA
	Fast recharge	210 mA	330 mA	210 mA	330 mA
	Trickle charge	50 mA	130 mA	50 mA	130 mA
Power consumption	Initial charge	2.2 W	3.7 W	2.5 W	4.4 W
	Fast recharge	2.9 W	4.0 W	3.4 W	4.8 W
	Trickle charge	1.6 W	2.2 W	1.7 W	2.5 W
Discharge current		850 – 960 mA	850 – 960 mA	850 – 960 mA	850 – 960 mA

8.3 Accu-NiCd

4.2 / 4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.4 Accu-NiMh

2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

8.5 Accupack-NiCd

1.8 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.6 Accupack-NiMH

2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

8.7 Batteries

Connection method: 4.8 x 0.5 mm spade tag welded to end of cell

For stick packs this connection is accessible after the battery caps have been fitted.

To inhibit inverter operation disconnect the batteries by removing the connector from the battery spade tag.

For further information refer to corresponding battery datasheet.

8.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

9. Miscellaneous

9.1 Maximum number of switching cycles

All LED Drivers are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

9.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM powerLED ST FX SR 45 W

Combined emergency lighting LED driver

Product description
_ Independent dimmable LED driver
_ Emergency lighting LED driver with automatic selftest functionality
_ For self-contained emergency lighting
_ For LED modules with a forward voltage of 20 – 50 V
_ SELV for output voltage < 60 V DC
_ Compact plastic casing with strain relief
_ EM = Emergency

Properties
_ Output power 6 – 45 W
_ Constant current LED operation
_ 300 – 1,400 mA output current in mains operation, adjustable with I-SELECT 2 PLUG in steps of 25 mA
_ Integrated emergency lighting unit
_ 1, 2 or 3 h rated duration
_ Operating time selectable with dip switch (2-way)
_ Automatic shutdown of output if the forward voltage of the LED is out of range
_ Two-colour status display LED
_ Electronic multi-level charge system
_ Pulse current charging for NiMH batteries
_ Polarity reversal protection for battery
_ Deep discharge protection
_ Short-circuit-proof battery connection
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Interfaces
_ switchDIM
_ corridorFUNCTION
_ Rest mode
_ Terminal blocks: 45° push terminals

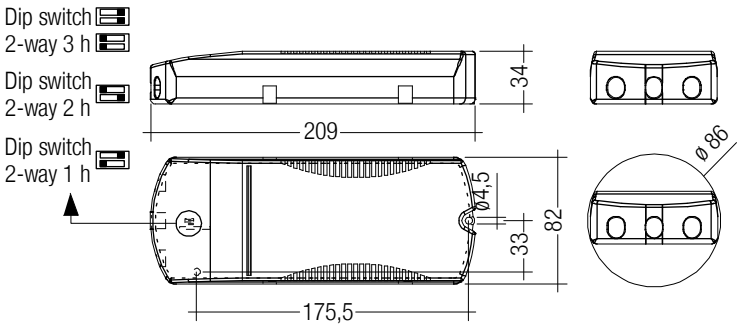
Batteries
_ High-temperature cells
_ NiCd or NiMH batteries
_ D, Cs, LA or LAL cells
_ Battery box for independent use
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ For battery compatibility refer to data sheet

Website
http://www.tridonic.com/89800432

Linear | High bay | Decorative | Downlights | Spotlights | Free-standing | Area | Floor | Wall | Street

EM powerLED ST FX SR 45 W

Combined emergency lighting LED driver



Note: LED driver supplied with duration dip switch (2-way) in 3 hours position. Duration dip switch and I-SELECT 2 PLUG must be set before battery and mains connection.

Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM powerLED ST FX 103 SR NiCd 45W 50V	**89800432**	1/2/3 h	3	10 pc(s).	400 pc(s).	0.245 kg
EM powerLED ST FX 104 SR NiCd 45W 50V	**89800414**	1/2/3 h	4	10 pc(s).	400 pc(s).	0.245 kg
EM powerLED ST FX 103 SR NiMH 45W 50V	**89800503**	1/2/3 h	3	10 pc(s).	400 pc(s).	0.245 kg
EM powerLED ST FX 104 SR NiMH 45W 50V	**89800507**	1/2/3 h	4	10 pc(s).	400 pc(s).	0.245 kg

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Typ. λ (at 230 V, 50 Hz, normal operation)	0.95
Leakage current (PE)	< 0.5 mA
Overvoltage protection	320 V (for 48 h)
Max. open circuit voltage	60 V
Starting time	< 0.5 s from detection of emergency event
Output LF current ripple (< 120 Hz)	< 2 %
Output current tolerance	7 %
THD CF normal operation	< 10 %
Ambient temperature ta at > 40 W	-5 … +45 °C
Ambient temperature ta at ≤ 40 W	-5 … +50 °C
Max. casing temperature tc	75 °C
Dimensions L x W x H	209 x 82 x 34 mm
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

SELV EL-T RoHS

Standards

EN 55015, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, EN 62034, EN 62384, according to EN 60598-2-22, according to EN 50172

Specific technical data

Type	Number of battery cells	Output current	Min. output voltage	Max. output voltage	Min. output power	Max. output power	Input power (at 230 V, 50 Hz, full load), fast / trickle charge	Input current (at 230 V, 50 Hz, full load), fast / trickle charge	Efficiency (at 230 V, 50 Hz), fast / trickle charge	λ (at 230 V, 50 Hz, full load)		Ambient temperature ta	tc/ta for ≥ 50,000 h
										Fast charge	Trickle charge		
Normal operation													
EM powerLED ST FX 103 SR NiCd 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiCd 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C

Type	Number of battery cells	Output current	Min. output voltage	Max. output voltage	Min. output power	Max. output power	Input power (at 230 V, 50 Hz, full load), fast / trickle charge	Input current (at 230 V, 50 Hz, full load), fast / trickle charge	Efficiency (at 230 V, 50 Hz), fast / trickle charge	λ (at 230 V, 50 Hz, full load)		Ambient temperature ta	tc/ta for ≥ 50,000 h
										Fast charge	Trickle charge		
EM powerLED ST FX 104 SR NiCd 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiCd 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C

Type	Number of battery cells	Output current	Min. output voltage	Max. output voltage	Min. output power	Max. output power	Input power (at 230 V, 50 Hz, full load), fast / trickle charge	Input current (at 230 V, 50 Hz, full load), fast / trickle charge	Efficiency (at 230 V, 50 Hz), fast / trickle charge	λ (at 230 V, 50 Hz, full load)		Ambient temperature ta	tc/ta for ≥ 50,000 h
										Fast charge	Trickle charge		
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 103 SR NiMH 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	300 mA	20 V	50 V	6.0 W	15.00 W	23.0 / 21.0 W	124 / 109 mA	71 / 75 %	0.81C	0.83C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	325 mA	20 V	50 V	6.5 W	16.25 W	24.2 / 22.8 W	128 / 116 mA	72 / 73 %	0.82C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	350 mA	20 V	50 V	7.0 W	18.00 W	26.0 / 23.0 W	133 / 116 mA	74 / 79 %	0.84C	0.85C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	375 mA	20 V	50 V	7.5 W	18.75 W	27.0 / 25.0 W	138 / 125 mA	74 / 77 %	0.85C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	400 mA	20 V	50 V	8.0 W	20.00 W	28.0 / 26.0 W	142 / 126 mA	76 / 81 %	0.86C	0.87C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	425 mA	20 V	50 V	8.5 W	20.25 W	29.8 / 27.8 W	149 / 136 mA	75 / 78 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	450 mA	20 V	50 V	9.0 W	23.00 W	30.0 / 28.0 W	151 / 137 mA	78 / 82 %	0.87C	0.89C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	475 mA	20 V	50 V	9.5 W	23.75 W	32.6 / 30.6 W	160 / 147 mA	77 / 79 %	0.87C	0.90C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	500 mA	20 V	50 V	10.0 W	25.00 W	33.0 / 31.0 W	161 / 147 mA	80 / 83 %	0.89C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	525 mA	20 V	50 V	10.5 W	26.25 W	34.6 / 32.7 W	168 / 155 mA	80 / 82 %	0.90C	0.91C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	550 mA	20 V	50 V	11.0 W	28.00 W	36.0 / 34.0 W	172 / 158 mA	81 / 84 %	0.90C	0.92C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	575 mA	20 V	50 V	11.5 W	28.75 W	36.9 / 35.2 W	177 / 165 mA	82 / 83 %	0.91C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	600 mA	20 V	50 V	12.0 W	30.00 W	38.0 / 36.0 W	182 / 169 mA	82 / 85 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	625 mA	20 V	50 V	12.5 W	31.25 W	39.6 / 37.7 W	188 / 176 mA	82 / 84 %	0.92C	0.93C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	650 mA	20 V	50 V	13.0 W	33.00 W	41.0 / 39.0 W	192 / 180 mA	83 / 86 %	0.92C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	675 mA	20 V	50 V	13.5 W	33.75 W	42.1 / 40.0 W	198 / 185 mA	83 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	700 mA	20 V	50 V	14.0 W	35.00 W	44.0 / 42.0 W	204 / 191 mA	84 / 86 %	0.93C	0.94C	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	725 mA	20 V	50 V	14.5 W	36.25 W	45.1 / 42.9 W	210 / 197 mA	83 / 86 %	0.93C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	750 mA	20 V	50 V	15.0 W	38.00 W	46.0 / 44.0 W	215 / 203 mA	84 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	775 mA	20 V	50 V	15.5 W	38.75 W	47.7 / 45.6 W	221 / 209 mA	84 / 86 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	800 mA	20 V	50 V	16.0 W	40.00 W	49.0 / 47.0 W	225 / 212 mA	85 / 87 %	0.94C	0.95	-5 … +50 °C	50/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	825 mA	20 V	50 V	16.5 W	41.25 W	50.5 / 48.5 W	233 / 221 mA	84 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	850 mA	20 V	50 V	17.0 W	43.00 W	51.0 / 49.0 W	235 / 223 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	875 mA	20 V	50 V	17.5 W	43.75 W	52.7 / 51.3 W	241 / 229 mA	86 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	900 mA	20 V	50 V	18.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	925 mA	20 V	49 V	18.5 W	45.00 W	54.7 / 52.7 W	250 / 238 mA	85 / 86 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	950 mA	20 V	47 V	19.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	975 mA	20 V	46 V	19.5 W	45.00 W	54.6 / 52.5 W	247 / 235 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,000 mA	20 V	45 V	20.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,025 mA	20 V	44 V	20.5 W	45.00 W	54.1 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,050 mA	20 V	42 V	21.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,075 mA	20 V	42 V	21.5 W	45.00 W	54.2 / 52.2 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,100 mA	20 V	40 V	22.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,125 mA	20 V	40 V	22.5 W	45.00 W	54.0 / 52.0 W	247 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,150 mA	20 V	39 V	23.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,175 mA	20 V	38 V	23.5 W	45.00 W	53.7 / 51.5 W	246 / 233 mA	86 / 89 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,200 mA	20 V	37 V	24.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,225 mA	20 V	37 V	24.5 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,250 mA	20 V	36 V	25.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,275 mA	20 V	35 V	25.5 W	45.00 W	54.2 / 52.0 W	248 / 236 mA	86 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,300 mA	20 V	34 V	26.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,325 mA	20 V	34 V	26.5 W	45.00 W	54.4 / 52.2 W	248 / 236 mA	85 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,350 mA	20 V	33 V	27.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 88 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,375 mA	20 V	33 V	27.5 W	45.00 W	54.2 / 52.1 W	248 / 236 mA	86 / 87 %	0.95	0.96	-5 … +45 °C	45/75 °C
EM powerLED ST FX 104 SR NiMH 45W 50V	–	1,400 mA	20 V	32 V	28.0 W	45.00 W	54.0 / 52.0 W	247 / 235 mA	87 / 90 %	0.95	0.96	-5 … +45 °C	45/75 °C
Emergency operation													
EM powerLED ST FX 103 SR NiCd 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED ST FX 103 SR NiCd 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–
EM powerLED ST FX 104 SR NiCd 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED ST FX 104 SR NiCd 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–
EM powerLED ST FX 103 SR NiMH 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED ST FX 103 SR NiMH 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–
EM powerLED ST FX 104 SR NiMH 45W 50V	3	–	15 V	50 V	2.1 W	2.75 W	–	–	–	–	–	–	–
EM powerLED ST FX 104 SR NiMH 45W 50V	4	–	15 V	50 V	2.7 W	3.50 W	–	–	–	–	–	–	–

Test switch EM2

Accessory

Product description
_ For connection to the emergency lighting unit
_ For checking the device function
_ Dielectric strength: 1,500 V AC for 60 seconds
_ Lead length 0.55m
_ Mounting hole 7,0 mm diameter

Website
http://www.tridonic.com/89805277

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	1,800 pc(s).	0.009 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

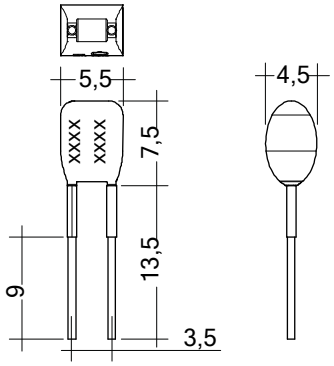
Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

I-SELECT 2 PLUG PRE / EXC

Accessory



Product description

_ Ready-for-use resistor to set output current value
_ Compatible with LED driver featuring I-select 2 interface; not compatible with I-SELECT (generation 1)
_ Resistor is base insulated
_ Resistor power 0.25 W
_ Current tolerance ± 2 % additional to output current tolerance
_ Compatible with LED driver series PRE and EXC

Example of calculation

_ R [kΩ] = 5 V / I_out [mA] x 1000
_ E96 resistor value used
_ Resistor value tolerance ≤ 1 %; resistor power ≥ 0.1 W; base insulation necessary
_ When using a resistor value beyond the specified range, the output current will automatically be set to the minimum value (resistor value too big), respectively to the maximum value (resistor value too small)

Website

http://www.tridonic.com/28001108

Ordering data

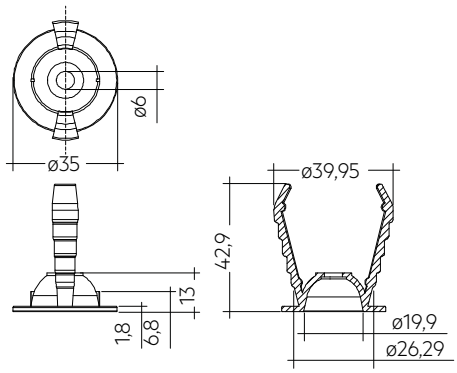
Type	Article number	Colour	Marking	Current	Resistor value	Packaging, bag	Weight per pc.
I-SELECT 2 PLUG 300MA BL	**28001108**	Blue	0300 mA	300 mA	16.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 325MA BL	**28001109**	Blue	0325 mA	325 mA	15.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 350MA BL	**28001110**	Blue	0350 mA	350 mA	14.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 375MA BL	**28001111**	Blue	0375 mA	375 mA	13.30 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 400MA BL	**28001112**	Blue	0400 mA	400 mA	12.40 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 425MA BL	**28001251**	Blue	0425 mA	425 mA	11.80 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 450MA BL	**28001113**	Blue	0450 mA	450 mA	11.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 475MA BL	**28001252**	Blue	0475 mA	475 mA	10.50 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 500MA BL	**28001114**	Blue	0500 mA	500 mA	10.00 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 550MA BL	**28001115**	Blue	0550 mA	550 mA	9.09 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 600MA BL	**28001116**	Blue	0600 mA	600 mA	8.25 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 650MA BL	**28001117**	Blue	0650 mA	650 mA	7.68 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 700MA BL	**28001118**	Blue	0700 mA	700 mA	7.15 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 750MA BL	**28001119**	Blue	0750 mA	750 mA	6.65 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 800MA BL	**28001120**	Blue	0800 mA	800 mA	6.19 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 850MA BL	**28001121**	Blue	0850 mA	850 mA	5.90 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 900MA BL	**28001122**	Blue	0900 mA	900 mA	5.62 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 950MA BL	**28001123**	Blue	0950 mA	950 mA	5.23 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1000MA BL	**28001124**	Blue	1000 mA	1,000 mA	4.99 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1050MA BL	**28001125**	Blue	1050 mA	1,050 mA	4.75 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1100MA BL	**28001126**	Blue	1100 mA	1,100 mA	4.53 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1150MA BL	**28001127**	Blue	1150 mA	1,150 mA	4.32 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1200MA BL	**28001128**	Blue	1200 mA	1,200 mA	4.12 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1250MA BL	**28001129**	Blue	1250 mA	1,250 mA	4.02 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1300MA BL	**28001130**	Blue	1300 mA	1,300 mA	3.83 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1350MA BL	**28001131**	Blue	1350 mA	1,350 mA	3.74 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG 1400MA BL	**28001132**	Blue	1400 mA	1,400 mA	3.57 kΩ	10 pc(s).	0.001 kg
I-SELECT 2 PLUG MAX BL	**28001099**	Blue	MAX	MAX	0.00 kΩ	10 pc(s).	0.001 kg

ACD EM LED INDICATOR HOLDER

Accessory

Product description
_ Holder for indicator LED in emergency operation
_ Glow-wire test with a temperature of 850 °C passed

Website
http://www.tridonic.com/28002189

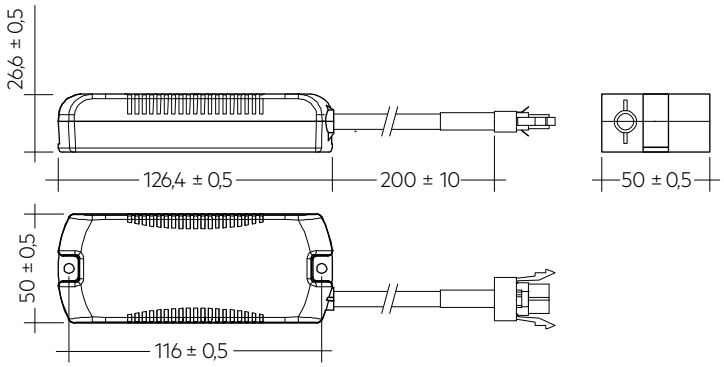


Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
ACD EM LED INDICATOR HOLDER	**28002189**	White	120 pc(s).	0.006 kg

NiMH Battery pack 2.2 – 4.0 Ah

Accessory



Product description

_ High-temperature NiMH battery pack for use with emergency lighting units
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Constant high-temperature operation
_ Temperature depending on the used emergency lighting unit (refer to respective emergency control gear data sheet)
_ Good charging properties at high temperature
_ High energy maintenance of the charged battery
_ Certified quality manufacturer
_ Casing material made of polycarbonate
_ 1.0 mm² stranded wire
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

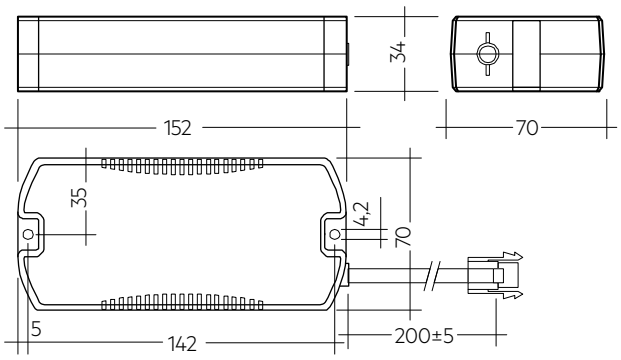
http://www.tridonic.com/28001898

Ordering data

Type	Article number	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
2.2 Ah battery pack					
PACK-NiMH 2.2Ah 3 CON	**28001898**	2.2 Ah	5 pc(s).	25 pc(s).	0.258 kg
PACK-NiMH 2.2Ah 4 CON	**28001899**	2.2 Ah	5 pc(s).	25 pc(s).	0.352 kg
4.0 Ah battery pack					
PACK-NiMH 4Ah 3 CON	**28001896**	4.0 Ah	5 pc(s).	25 pc(s).	0.300 kg
PACK-NiMH 4Ah 4 CON	**28001897**	4.0 Ah	5 pc(s).	25 pc(s).	0.440 kg

NiCd Battery pack 1.8 – 4.5 Ah

Accessory



Product description

_ High-temperature NiCd battery pack for use with emergency lighting units
_ Please note that due to EU law, this article is available for purchasing only outside of the European Union.
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Constant high-temperature operation
_ Temperature depending on the used emergency lighting unit (refer to respective emergency control gear data sheet)
_ Good charging properties at high temperature
_ High energy maintenance of the charged battery
_ Certified quality manufacturer
_ Casing material made of polycarbonate
_ 1.0 m integrated double-insulated cable
_ 1.0 mm² solid wire, pre-stripped
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

http://www.tridonic.com/28001221

Ordering data

Type	Article number	Packaging, carton	Packaging, outer box	Weight per pc.
Battery pack 1.8 Ah with connector				
Pack-NiCd 3C CON	**28001221**	5 pc(s).	10 pc(s).	0.540 kg
Pack-NiCd 4C CON	**28001222**	5 pc(s).	10 pc(s).	0.540 kg
Battery pack 4.5 Ah with connector				
Pack-NiCd 3D CON	**89800389**	5 pc(s).	10 pc(s).	0.534 kg
Pack-NiCd 4D CON	**89800390**	5 pc(s).	10 pc(s).	0.661 kg

1. Standards

- EN 55015
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30
- EN 61000-3-2
- EN 61000-3-3
- EN 61347-1
- EN 61347-2-7
- EN 61347-2-13
- EN 61547
- EN 62384
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

1.1 Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

1.2 Insulation and electric strength testing of luminaires

Electronic LED Driver can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an insulation test with 500 VDC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test **must not be conducted**.

2. Thermal data

2.1 Temperature range

According to the standard IEC 60598-1 a LED Driver for remote installation has a max. case temperature of 90 °C. The ambient temperature range ta for the EM powerLED ST FX SR 45W is defined to meet this requirement.

2.2 Expected lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	Output power	**ta**	**40 °C**	**50 °C**
EM powerLED ST FX 103 / 104 SR 45W 50V	10 W	tc	56 °C	66 °C
		lifetime	> 100,000 h	> 100,000 h
	20 W	tc	59 °C	69 °C
		lifetime	> 100,000 h	> 100,000
	30 W	tc	63 °C	73 °C
		lifetime	> 100,000 h	> 100,000 h
	40 W	tc	65 °C	75 °C
		lifetime	> 100,000 h	80,000 h
	45 W	tc	70 °C	x
		lifetime	80,000 h	x

x = not permitted

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

2.3 Storage conditions

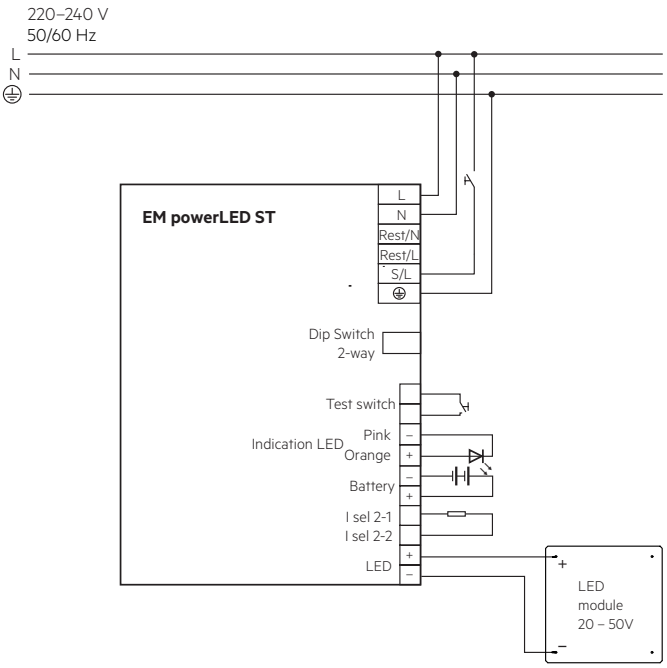
Humidity: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

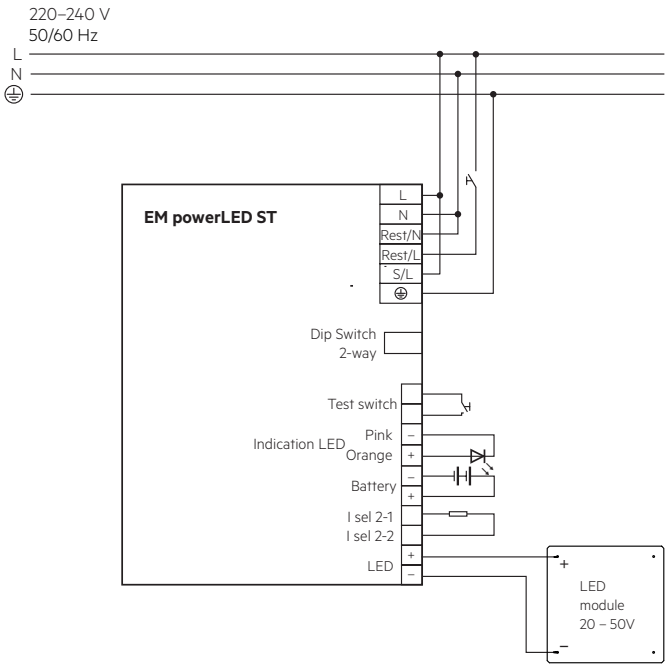
The devices have to be within the specified temperature range (ta) before they are operated.

3. Installation / Wiring

3.1 Wiring diagrams



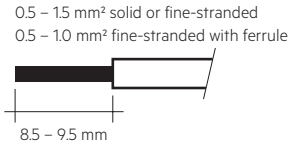
switchDIM wiring



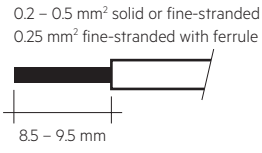
Recommendation to check glowing at standby in combination with class I luminaires.

3.2 Wiring type and cross-section

Wiring
Mains (N, L, Earth , S/L)
Rest (Rest/N, Rest/L)
LED (LED +, LED –)
Batteries (Bat +, Bat –)
I sel 2



Wiring
Test switch
Indication LED



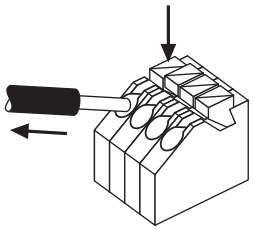
Use one wire for each terminal connector only.
Use each strain relief channel for one cable only.

max. ∅ = 10 mm
min. ∅ = 6,3 mm

Max. lead insulation diameter		Maximum lead length	
Battery	2.1 mm	LED	3 m
Test switch	2.1 mm	status indication LED	1 m
Indicator LED	2.1 mm	batteries	1.3 m

3.3 Release of the wiring

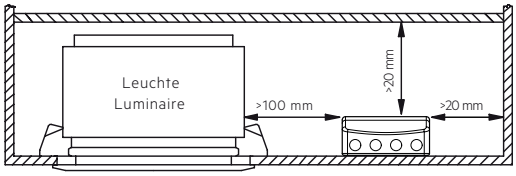
Press down the “push button” and remove the cable from front.

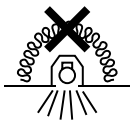


Installation instruction
Max. torque for the mounting screws: 0.5 Nm / M4.

3.4 Fixing conditions

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature (ta) stated on the device. Minimum distances stated below are recommendations and depend on the actual luminaire.
Is not suitable for fixing in corner.





Device not suitable for covering with thermally insulating material according to IEC 60598-1 Ed.9

3.5 Wiring guidelines

- The cables should be run separately from the mains connections and mains cables to ensure good EMC conditions.
- The LED wiring should be kept as short as possible to ensure good EMC. The max. secondary cable length is 2 m (4 m circuit), this applies for LED output as well as for I-select 2.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- Secondary switching is not permitted.
- The LED Driver has no inverse-polarity protection on the secondary side. Wrong polarity can damage LED modules with no inverse-polarity protection.
- Wrong wiring of the LED Driver can lead to malfunction or irreparable damage.
- Maximum lead length for the test switch and Indicator LED connection is 1 m. The test switch and Indicator LED wiring should be separated from the LED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm cross section and a length of 1.3 m.
- If the optional mains switch is not used, connect S/L to L.
- To avoid the damage of the control gear, the wiring must be protected against short circuits to earth (sharp edged metal parts, metal cable clips, louver, etc.).

To ensure that a luminaire containing LED emergency units complies with EN 55015 for radio frequency conducted interference in both normal and emergency mode it is essential to follow good practice in the wiring layout.

Within the luminaire the switched and unswitched 50 Hz supply wiring must be routed as short as possible and be kept as far away as possible from the LED leads.Through wiring may affect the emc performance of the luminaire.

The length of LED leads must not be exceeded.

The output current depends on the forward voltage and the tolerance of the LED modules.

The mains power must be removed before changing the LED load.

3.6 Hot plug-in

Hot plug-in is not supported due to residual output voltage of > 0 V.
If a LED load is connected the device has to be restarted before the output will be activated again.
This can be done via mains reset or via interface (DALI, DSI, switchDIM).

3.7 Earth connection

The earth connection is conducted as protection earth (PE). The LED Driver can be earthed via earth terminal. If the LED Driver will be earthed, protection earth (PE) has to be used. There is no earth connection required for the functionality of the LED Driver. Earth connection is recommended to improve following behaviour:

- Electromagnetic interferences (EMI)
- LED glowing at standby
- Transmission of mains transients to the LED output

In general it is recommended to earth the LED Driver if the LED module is mounted on earthed luminaire parts respectively heat sinks and thereby representing a high capacity against earth.

3.8 External I-select 2 resistors on LED modules

LED modules with on-board I-select 2 resistors may cause irreparable damages, caused by surge / burst peaks.

4. Mechanical data

4.1 Mechanical data accessories

LED status indicator
- Bi-colour
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 1.0 m
- Insulation rating: 90 °C

Test switch
- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery leads
- Quantity: 1 red and 1 black
- Length: 1.3 m
- Wire type: 0.5 mm^2 solid conductor
- Insulation rating: 90 °C

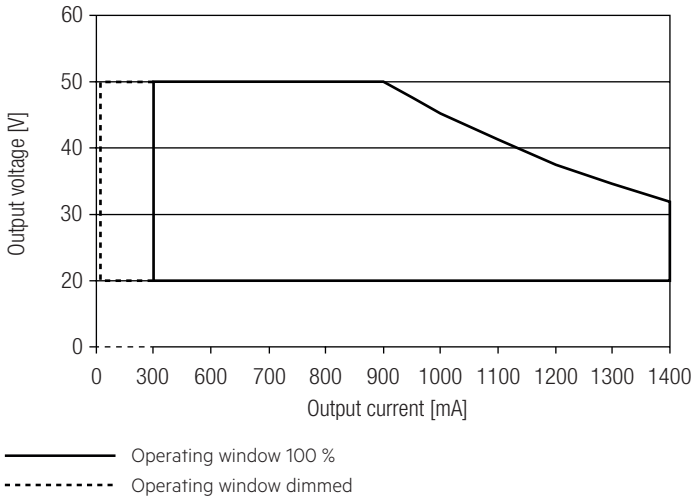
Battery end termination
Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

Module end termination
8.0 mm stripped insulation

Two-piece batteries are supplied with a 200 mm lead with 4.8 mm receptacle at each end and insulting covers to connect the separate sticks together.

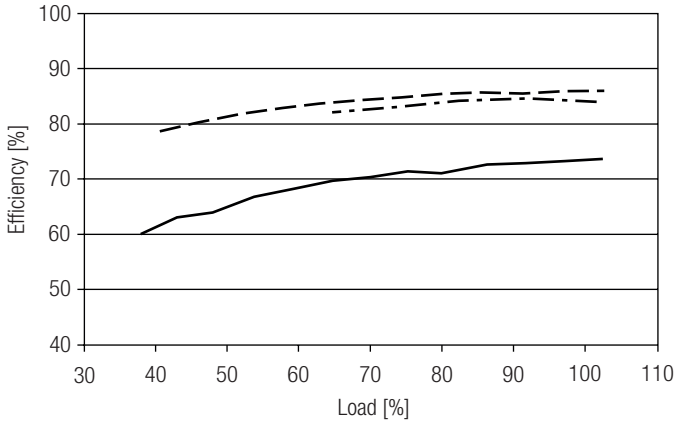
5. Electrical data

5.1 Operating window

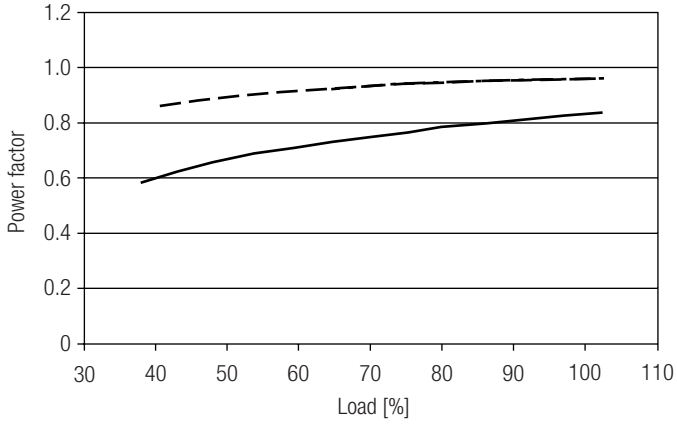


Make sure that the LED Driver is operated within the given window under all operating conditions, also in dimming operation. Otherwise certain limitations may occur. This is due to the nature of amplitude modulation dimming. The stated minimum output voltage shall not be undercut as this may cause the device to shut-down.

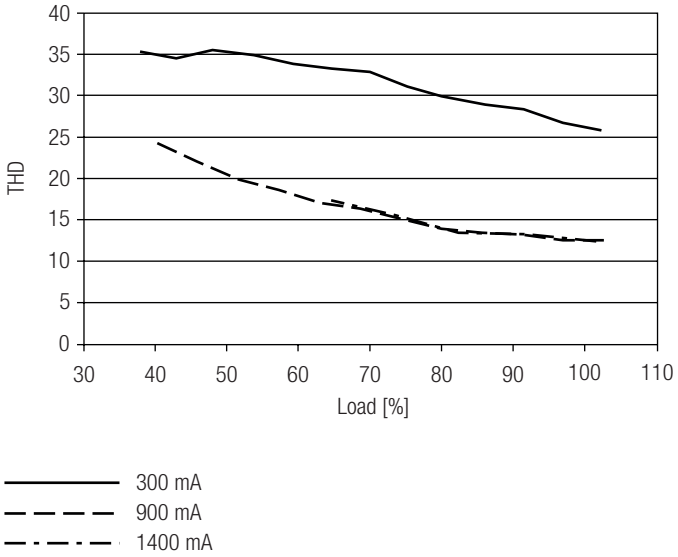
5.2 Efficiency vs load



5.3 Power factor vs load



5.4 THD vs load



100 % load corresponds to the max. output power (full load) according to the table on page 2.

5.5 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	I_{max}	time
EM powerLED ST FX SR	18	26	30	36	9	13	15	18	23.9 A	187 µs

5.6 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

	THD	3.	5.	7.	9.	11.
EM powerLED ST FX SR	< 10	< 9	< 3	< 3	< 2	< 1

5.7 Insulation matrix

	Mains	Earth	Switched Live	Battery, LED, Test switch, Indicator LED	REST	I-SELECT
Mains	–	•	•	••	•	•
Earth	•	–	•	•	•	•
Switched Live	•	•	–	••	•	•
Battery, LED, Test switch, Indicator LED	••	•	••	–	•	••
REST	•	•	•	•	–	•
I-SELECT	•	•	•	••	•	–

• Represents basic insulation

•• Represents double or reinforced insulation

5.8 Dimming

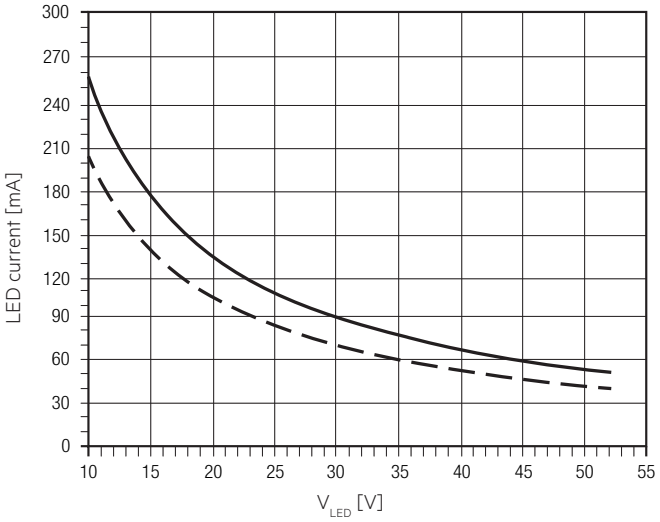
Dimming range 1 % to 100 %

Dimming curve is adapted to the eye sensitiveness.
Dimming is realized by amplitude dimming.

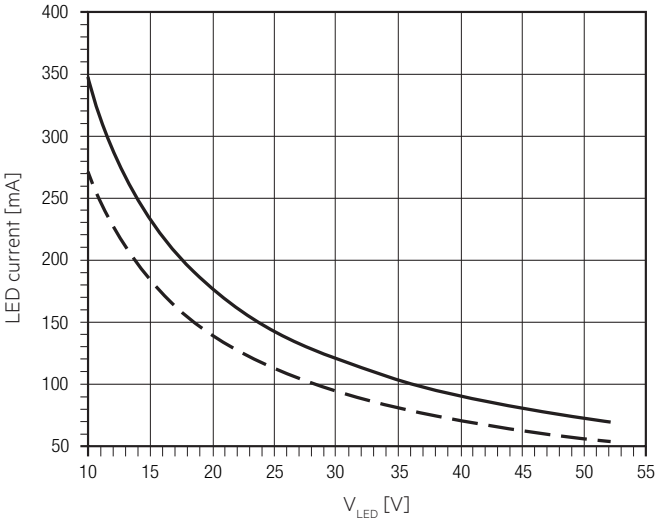
5.9 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM powerLED module based on the total forward voltage of the LED modules connected and the associated battery.

EM powerLED ST FX 103 SR 45W 50V – 3 cells
Article number: 89800432
3.6 V battery voltage
750 – 960 mA battery discharge current (tolerance)



EM powerLED ST FX 104 SR 45W 50V – 4 cells
Article number: 89800414
4.8 V battery voltage
750 – 960 mA battery discharge current (tolerance)



LED current at nominal battery voltage and min. battery discharge current

LED current at nominal battery voltage and max. battery discharge current

LED peak current at start in emergency mode – 3 cells

Voltage	Inrush current	Duration
19.8 V	329 mA	12.9 ms
22.6 V	297 mA	12.0 ms
25.3 V	265 mA	11.5 ms
28.0 V	244 mA	10.8 ms
30.7 V	234 mA	10.3 ms
33.4 V	216 mA	10.1 ms
36.1 V	202 mA	9.8 ms
38.8 V	192 mA	9.7 ms
41.5 V	183 mA	9.1 ms
44.2 V	174 mA	8.8 ms
47.0 V	168 mA	8.1 ms
49.7 V	161 mA	6.9 ms

Note: LED peak current is measured at the max. battery discharge current.

LED peak current at start in emergency mode – 4 cells

Voltage	Inrush current	Duration
19.8 V	395 mA	16.5 ms
22.6 V	360 mA	15.3 ms
25.3 V	338 mA	14.5 ms
28.0 V	308 mA	14.0 ms
30.7 V	293 mA	13.8 ms
33.4 V	270 mA	12.7 ms
36.1 V	263 mA	12.1 ms
38.8 V	248 mA	11.7 ms
41.5 V	242 mA	9.8 ms
44.2 V	225 mA	8.9 ms
47.0 V	218 mA	7.8 ms
49.7 V	211 mA	7.5 ms

6. Interfaces / communication

6.1 Control input (Rest/N, Rest/L)

A standard switch (switchDIM) or a rest mode controller can be wired on the terminals Rest/N and Rest/L.

The control signal is not SELV. Install control cables in accordance to the requirements of low voltage installations. Different functions depending on each module.

6.2 switchDIM

Integrated switchDIM function allows a direct connection of a pushbutton for dimming and switching.
Brief push (< 0.6 s) switches LED Driver ON and OFF. The dimm level is saved at power-down and restored at power-up.
When the pushbutton is held, LED modules are dimmed. After repush the LED modules are dimmed in the opposite direction.
In installations with LED Drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED Drivers can be synchronized to 50 % dimming level by a 10 s push.
Use of pushbutton with indicator lamp is not permitted.

7. Functions

7.1 Output current setting

Output current can be set by connecting a resistor between the 2 "I sel 2" terminals. Relationship between output current and resistor value can be found at the table "Specific technical data". Resistor values specified from standardised resistor value ranges.
Resistor value tolerance has to be ≤ 1 %.
Resistor power has to be ≥ 0.1 W.
Resistor detection at each start.
Change of the resistor value during the operation will be not considered.
Resistors for the main output current values can be ordered from Tridonic (see accessories).

7.2 Overload protection

LED Driver will switch off at overload operation. Mains reset (switched life) is required to restart the LED Driver.

7.3 Underload operation

LED Driver will switch off at underload operation. Mains reset (switched life) is required to restart the LED Driver.

7.4 Short-circuit behaviour

In case of a short circuit the unit switches to shut down mode. After elimination of the short circuit a mains reset (SL off/on) is necessary.

7.5 Forward voltage out of range

If the forward voltage is out of range the unit switches to shut down mode. After elimination of the short circuit a mains reset (SL off/on) is necessary.

7.6 No-load operation or load loss during operation

LED Driver will detect a load loss during operation. In this case and no-load operation the max. output voltage can apply at the LED output for max. 5 s before LED Driver shuts down. Mains reset (switched life) is required to restart the LED Driver.

7.7 Function: adjustable current

The output current of the LED Driver can be adjusted in a certain range. For adjustment there are three options available.

I-select 2:
By inserting a suitable resistor into the I-select 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter "Accessories I-SELECT 2 Plugs".
If the resistor is connected by wires a consistent base insulation must be ensured. Furthermore, a max. wire length of 2 m may not be exceeded and potential interferences have to be avoided.

Please note that the resistor values for I-select 2 are not compatible with I-select (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

The priority for current adjustment methods is the use of I-select 2.

7.8 Status indication

System status is indicated by a bi-colour LED and by a DALI status flag.

LED indiction	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged/ Incorrect battery voltage
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	Inhibit mode	Switching into inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

7.9 corridorFUNCTION

The corridorFUNCTION can be programmed in two different ways.
To program the corridorFUNCTION by means of software a DALI-USB interface is needed in combination with a DALI PS. The software can be the masterCONFIGURATOR.
To activate the corridorFUNCTION without using software a voltage of 230 V has to be applied for five minutes at the switchDIM connection.
The unit will then switch automatically to the corridorFUNCTION.

Note:
If the corridorFUNCTION is wrongly activated in a switchDIM system (for example a switch is used instead of pushbutton), there is the option of installing a pushbutton and deactivating the corridorFUNCTION mode by five short pushes of the button within three seconds.

switchDIM and corridorFUNCTION are very simple tools for controlling gears with conventional pushbuttons or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings. Serious mains faults may impair the operation of switchDIM and corridorFUNCTION.

7.10 Testing:

Commissioning test
A full commissioning test is carried out automatically after permanent connection of the supply for 5 days. The easy commissioning feature will set the initial test day and time to ensure random testing of units.

Functional test
Functional tests are carried out for 5 seconds on a weekly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

For 2 h operation:
The first commissioning duration test has a time of 120 minutes, subsequent through life tests are conducted for 90 minutes. When the battery is changed or disconnected and re-connected the unit will next conduct a 120 minute test.

For a full description of commissioning and test features please refer to application notes.

Test switch
An optional test switch can be wired to each EM converterLED ST. This can be used to to:

- initiate a 5 seconds function test: press 200 ms < T < 1 s
- execute function test as long as switch pressed: press > 1 s
- reset selftest timer (adjust local timing): press > 10 s

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by either pressing the test switch for longer than 10 seconds or cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.

Rest Mode / Inhibit Mode
Emergency operation is automatically started when the mains supply is switched off. If the Rest Mode is activated, the discharging of the battery will be minimized by switching off the LED output. If the Inhibit Mode has been activated before the mains supply is switched off, Rest Mode will be automatically activated if the mains supply is switched off within 15 minutes.
Rest Mode and Inhibit Mode can be initiated by applying a short pulse between 9.5 and 22.5 V_{DC} in amplitude for a period of 150 to 1,000 ms. This pulse shall be applied to terminals marked Rest.
After a mains reset the EM powerLED ST exits the Rest Mode. Rest Mode and Inhibit Mode can both be disabled by applying a voltage pulse of 1,000 to 2,000 ms to the terminals marked as Rest to send the RE-LIGHT/ RESET INHIBIT command.

Pulse/Mode	Standby	Emergency	Rest
150 – 1,000 ms	Inhibit	Rest	–
1,000 – 2,000 ms	Cancel inhibit	–	Re-light

8. Battery data

8.1 Battery selection

EM powerLED ST FX 45 W 50 V, 1 / 3 h

				Type	EM powerLED ST FX 103 SR NiCd 45W 50V		EM powerLED ST FX 104 SR NiCd 45W 50V	
				Article no.	89800432		89800414	
				Cells	3 cells		4 cells	
				Duration	1 h	2 / 3 h	1 h	2 / 3 h
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**			
NiCd 4 Ah D cells	stick	1 x 3	**Accu-NiCd 3A 55**	**28002773**		•		
	stick	1 x 4	**Accu-NiCd 4A 55**	**89800089**				•
	stick + stick	2 + 2	**Accu-NiCd 4C 55**	**28002775**				•
	side by side	3 x 1	**Accu-NiCd 3B 55**	**89800384**		•		
	side by side	4 x 1	**Accu-NiCd 4B 55**	**89800385**				•
NiCd 1.8 Ah Cs cells	remote box	1 x 3	**Pack-NiCd 3C CON**	**28001221**	•			
	remote box	1 x 4	**Pack-NiCd 4C CON**	**28001222**			•	
NiCd 4.5 Ah D cells	remote box	1 x 3	**Pack-NiCd 3D CON**	**89800389**		•		
	remote box	1 x 4	**Pack-NiCd 4D CON**	**89800390**				•
NiMH 2.2 Ah Cs cells	stick	1 x 3	**Accu-NiMH 3A**	**28002088**	•			
	stick	1 x 4	**Accu-NiMH 4A**	**28002089**			•	
NiMH 4 Ah LA cells	stick	1 x 3	**Accu-NiMH 4Ah 3A CON**	**89800441**		•		
	stick	1 x 4	**Accu-NiMH 4Ah 4A CON**	**89800442**				•
	stick + stick	2 + 2	**Accu-NiMH 4Ah 4C CON**	**89800438**				•

8.2 Battery charge / discharge

EM powerLED ST FX 45 W 50 V, 1 / 2 / 3 h

	Type	EM powerLED ST FX 103 SR NiCd 45W 50V		EM powerLED ST FX 104 SR NiCd 45W 50V	
	Article no.	89800432		89800414	
	Cells	3 cells		4 cells	
	Duration	1 h	2 / 3 h	1 h	2 / 3 h
Battery charge time	Initial charge	20 h			
	Fast recharge	10 h	15 h	10 h	15 h
	Trickle charge	continuously			
Charge current	Initial charge	130 mA	300 mA	130 mA	300 mA
	Fast recharge	210 mA	330 mA	210 mA	330 mA
	Trickle charge	50 mA	130 mA	50 mA	130 mA
Power consumption	Initial charge	2.2 W	3.7 W	2.5 W	4.4 W
	Fast recharge	2.9 W	4.0 W	3.4 W	4.8 W
	Trickle charge	1.6 W	2.2 W	1.7 W	2.5 W
Discharge current		850 – 960 mA	850 – 960 mA	850 – 960 mA	850 – 960 mA

8.3 Accu-NiCd

4.2 / 4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Case temperature range to ensure 4 years design life	+5 °C to +55 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.4 Accu-NiMh

2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Case temperature range to ensure 4 years design life	+5 °C to +50 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LA
Case temperature range to ensure 4 years design life	+5 °C to +45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 30 cycles during comissioning
Max. storage time	12 months

8.5 Accupack-NiCd

1.8 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

4.5 Ah

Battery voltage/cell	1.2 V
Cell type	D
Ambient temperature range to ensure 4 years design life	+5 °C to +40 °C
tc point	+45 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	6 months

8.6 Accupack-NiMH

2.2 Ah

Battery voltage/cell	1.2 V
Cell type	Cs
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

4.0 Ah

Battery voltage/cell	1.2 V
Cell type	LAL
Ambient temperature range to ensure 4 years design life	+5 °C to +35 °C
tc point	+40 °C
Max. short term battery case temperature (shorter than 1 month over the battery lifetime)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Max. storage time	12 months

8.7 Batteries

Connection method: 4.8 x 0.5 mm spade tag welded to end of cell

For stick packs this connection is accessible after the battery caps have been fitted.

To inhibit inverter operation disconnect the batteries by removing the connector from the battery spade tag.

For further information refer to corresponding battery datasheet.

8.8 Storage, installation and commissioning

Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

9. Miscellaneous

9.1 Maximum number of switching cycles

All LED Drivers are tested with 50,000 switching cycles.
The actually achieved number of switching cycles is significantly higher.

9.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

EM r2a 68mm Bezel

General

Product description
_ Replaceable bezel
_ Suitable for the use with EM r2a 68mm
_ Black (RAL 9005)
_ Polycarbonate

Website
http://www.tridonic.com/28006212

TRIDONIC

EM r2a 68mm Bezel

General

Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
EM r2a 68mm B	**28006212**	Black	100 pc(s).	0.091 kg

TRIDONIC

EM r2a Exit Sign 90°

General

Product description
_ Surface mount bracket in white (RAL 9016)
_ For mounting at right angles to the wall
_ Suitable for EM r2a Exit Sign 2

Website
http://www.tridonic.com/28006314

TRIDONIC

EM r2a Exit Sign 90°

General

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM R2A Exit Sign 2 90°	**28006314**	70 pc(s).	0.118 kg

TRIDONIC

EM R2A Exit Sign BASIC 231 30m

EM ready2apply

Product description

_ LED emergency exit sign suitable for various mounting options (ceiling, wall, flag, recessed, suspended)
_ Independent and configurable pictogram
_ Pictogram 'running man' and straight arrow included in delivery
_ Diagonal arrow available as accessory
_ Arrows are rotatable, so all directions can be achieved with default product + 1 acessory
_ Emergency lighting function for manual testing
_ EM = Emergency

Properties

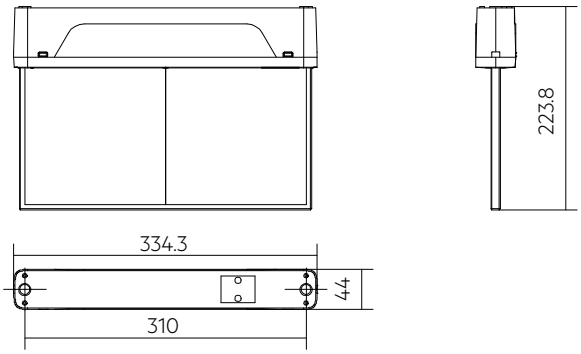
_ Viewing distance up to 30 m, double sided
_ Non-maintained and maintained operation
_ Very low stand-by power loss
_ 3 h rated duration
_ Breakable entrance holes at the back and top for 1 or 2 cables
_ Simple connection of Lithium Iron Phosphate battery with plug-in system
_ Integrated status LED
_ 5 years guarantee electronic (LED driver) (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website

http://www.tridonic.com/89801281

EM R2A Exit Sign BASIC 231 30m

EM ready2apply



Ordering data

Type	Article number	Colour	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM R2A Exit Sign BASIC 231 30m	**89801281**	White	3 h	1	1 pc(s).	100 pc(s).	1.155 kg
EM R2A Exit Sign BASIC 231 30m-B	**89801285**	Black	3 h	1	1 pc(s).	100 pc(s).	1.155 kg

Technical data

Rated supply voltage	220 – 240 V
Input voltage range AC (tolerance for safety)	198 – 264 V
Input voltage range AC (tolerance for performance)	198 – 254 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
Starting time (Emergency operation)	< 0.5 s from detection of emergency event
Output current tolerance	± 10 %
LF current ripple	± 5 %
Ambient temperature range	+5 … +40 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP40
Impact protection degree	IK03
Protection class	II
Lifetime	> 100,000 h

Approval marks

Standards

according to EN 50172, EN 55015, EN 60068-2-64, EN 60068-2-27, EN 60068-2-30, EN 60598-1, EN 60598-2-2, EN 60598-2-22, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, EN 62384, IEC 62620 (related to Lithium Iron battery), IEC 62133 (related to Lithium Iron battery), UN 38.3 (related to Lithium Iron battery), EN 62031, EN 62471, ISO 3864-1, ISO 3864-4, ISO 7010

Specific technical data

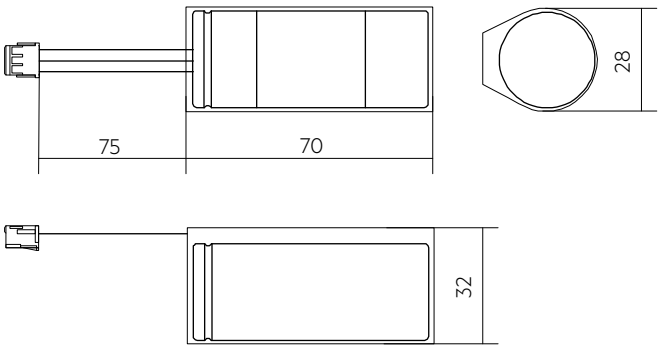
Type ①	Rated duration	Number of LEDs	Typ. λ (at 230 V, 50 Hz)	Non-maintained operation		Maintained operation	
				Mains current in charging operation ②	Mains power in charging operation ②	Mains current in charging operation ②	Mains power in charging operation ②
EM R2A Exit Sign BASIC 231 30m	3 h	24	0.58C	19 / 11 mA	2.1 / 0.6 W	35 / 23 mA	4.6 / 2.6 W
EM R2A Exit Sign BASIC 231 30m-B	3 h	24	0.58C	19 / 11 mA	2.1 / 0.6 W	35 / 23 mA	4.6 / 2.6 W

① EM = Emergency
② For LiFePO4 batteries voltage dependent constant current charging is used. The values displayed are for charging on / charging off.

LiFePO4 Battery pack 3.3 – 4.8 Ah

Accessory

ACCU-LiFePO4 4.8Ah 3B CON R2A 68MM



Product description
_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ 6 year design life (up to 30 °C ambient temperature)
_ 4 year design life (up to 40 °C ambient temperature)
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Certified quality manufacturer
_ Charge efficiency > 90 %
_ Low self discharge
_ Simple connection with plug-in system
_ Protection and monitoring circuit built into battery enclosure
_ Deep discharge protection
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website
http://www.tridonic.com/28005688

Ordering data

Type	Article number	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
ACCU-LiFePO4 3.3Ah 1A CON R2A 68MM	**28005688**	3.3 Ah	20 pc(s).	80 pc(s).	0.232 kg

EM r2a Exit Sign 90°

Accessory

Product description
_ Surface mount bracket in white (RAL 9016)
_ For mounting at right angles to the wall
_ Suitable for EM r2a Exit Sign 2

Website
http://www.tridonic.com/28006314

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM R2A Exit Sign 2 90°	**28006314**	70 pc(s).	0.118 kg

EM r2a Exit Sign dia

Accessory

Product description
_ Spare directional sign (diagonal left, right, up and down)
_ Maximum viewing distance of 30 m
_ One piece of ISO 7010 rotatable direction sign
_ Suitable for EM r2a Exit Sign 2

Website
http://www.tridonic.com/28006315

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM R2A Exit Sign 2 dia	**28006315**	30 pc(s).	0.24 kg

EM r2a Exit Sign Rec

Accessory

Product description
_ Recessed mounting frame for EM r2a Exit Sign 2
_ Two colour options white (RAL 9016) or black (RAL 9005)
_ Suitable for EM r2a Exit Sign 2

Website
http://www.tridonic.com/28006586

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM R2A Exit Sign 2 rec BK	**28006586**	1 pc(s).	0.31 kg
EM R2A Exit Sign 2 rec WH	**28006312**	1 pc(s).	0.27 kg

EM r2a Exit Sign sus

Accessory

Product description
_ Cord suspension for EM r2a Exit Sign 2
_ Height adjustment up to lengths of 2 m
_ Suitable for EM r2a Exit Sign 2

Website
http://www.tridonic.com/28006313

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM R2A Exit Sign 2 sus	**28006313**	150 pc(s).	0.112 kg

1. Standards

according to EN 50172
EN 55015
EN 60068-2-64
EN 60068-2-27
according to EN 60068-2-30
EN 60598-1
EN 60598-2-2
EN 60598-2-22
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-7
EN 61347-2-7/A1
EN 61347-2-13
EN 61347-2-13/A1
EN 61547
EN 62384
IEC 62620 (related to Lithium Iron battery)
IEC 62133 (related to Lithium Iron battery)
UN 38.3 (related to Lithium Iron battery)
EN 62031
EN 62471
ISO 3864-1
ISO 3864-4
ISO 7010

1.1 Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C for the housing and 650 °C for the blades passed.

2. Thermal data

2.1 Temperature range

According to the standard IEC 60598-1 a LED driver for remote installation has a max. case temperature of 90 °C. The ambient temperature range ta for the EM R2A BASIC is defined to meet this requirement.

2.2 Expected lifetime

Average lifetime 100,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1,000 operating hours.

Expected lifetime

Type	ta	30 °C	35 °C	40 °C
EM R2A BASIC	lifetime	> 100,000 h	> 100,000 h	> 100,000 h

2.3 Storage conditions

- Humidity 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Note: The devices have to be within the specified temperature range (ta) before they are operated.

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C for up to 15 months
  – Relative humidity: 65 % ±5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

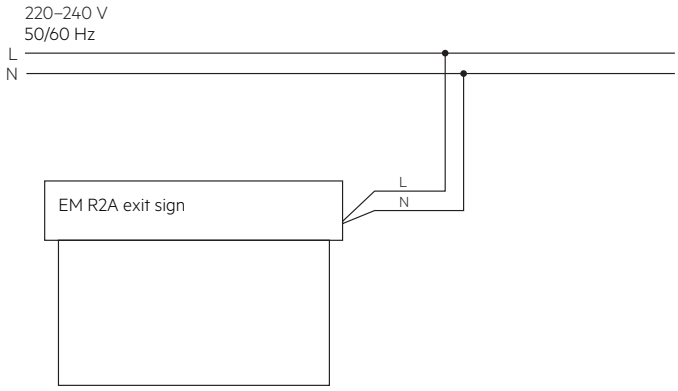
3. Installation / Wiring

3.1 Luminaire assembly

- Wear gloves when mounting the EM ready2apply Exit Sign.
- Prepare adequate fixings: screws, plugs, supply cords, glands, tools, etc.
- Select mounting option:
  - Ceiling
  - Wall
  - Recessed
  - Flag
  - Suspended
- Identify the front side using the indication on the pictogram support part
- Select the direction of running man and arrow
  - Attention: follow the mounting instructions for correct positioning of the pictogram
- Insert the pictograms in the support part according to preferred direction
- The mounting holes on the back plate are prepared and can be drilled through with a screwdriver or a drill.
  - For ceiling, flag or suspended, drill at the top
  - For wall, drill at the back
  - For recessed, no drilling required
- Fix the back plate
  - For ceiling and wall mount, fix the back plate to the surface using drilled hold and adequate fixing (for wall mounting: ensure the screw does not touch the battery)
  - For recessed, insert the luminaire in the accessory
  - For suspended and flag mount, install the accessory to the mounting surface, and fix the back plate to the accessory
- Wire the mains terminal block
  - For flag and suspended, external supply cord is required.
  - For suspended, gland is required to strain relief the supply cord
- Plug the battery into the connector.
- Attach the pictogram to the electronics housing to complete the luminaire
  - Attention: the parts are polarity sensitive
- Insert the luminaire in the back plate

Take care when drilling to prevent damage to internal components.

3.2 Wiring diagrams

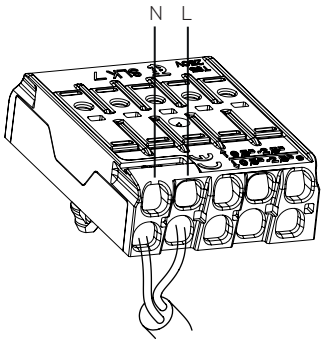


Note: Battery must be connected before mains connection.

3.3 Wiring type and cross-section

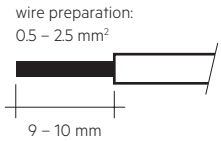
Wiring
Mains (N, L)
Through wiring possible

Cable: low smoke, halogen free



Installation of the luminaire only by a qualified person.

Use solid/stranded wire with a cross section of 0.5 – 2.5 mm² for wiring.
Strip 9 – 10 mm of insulation from the cables to ensure perfect operation of terminals.



4. Mechanical data

4.1 Housing properties

- Polycarbonate white, similar to RAL 9016
- Polycarbonate black, similar to RAL 9005

4.2 Battery connection

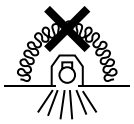
Battery pack connection
3-pole plug connection

4.3 Fixing

Several mounting options possible:
- Ceiling
- Wall
- Recessed
- Flag
- Suspended

Fixing for recess mount:
- Cut-out: 365 x 55 mm
- Ceiling thickness: 1 – 25 mm
- Ceiling void height: min. 100 mm

Two easy breakable entry holes at rear and upper part for cable entry.
Recommended screws: 3 to 4 mm diameter, avoid countersunk screws.



Device not suitable for covering with thermally insulating material

5. Electrical data

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	I_{max}	time
EM R2A BASIC	90	130	130	130	180	260	260	260	10 A	120 µs

5.2 Insulation matrix

	Mains	**Battery, LED, Indicator LED**
Mains	–	• •
Battery, LED, Indicator LED	• •	–

• Represents basic insulation

• • Represents double or reinforced insulation

5.3 Battery charge regime / discharge

EM R2A Exit Sign BASIC 231 30m, 3 h

	Type	**EM R2A Exit Sign BASIC 231 30m**
	Article no.	**89801281, 89801285**
	Cells	**1 cells**
	Duration	**3 h**
Battery charge time[①]	Initial	20 h
	Trickle charge	continuously and battery voltage controlled
Typ. charge current[②]	Initial charge	270 mA
	Trickle charge[②]	270 mA / 0 mA
Charge voltage range[③]		2.0 – 3.6 V per cell
Discharge voltage range		2.3 – 3.6 V per cell

[①] 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.

[②] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C)

[③] The battery will not be charged below 2.0 V.

5.4 Battery selection for replacement

EM R2A Exit Sign BASIC 231 30m, 3 h

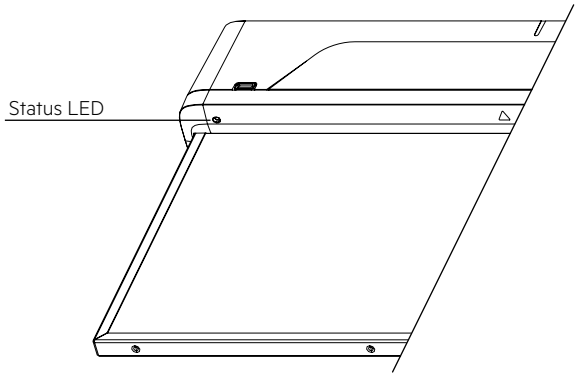
				Type	**EM R2A Exit Sign BASIC 231 30m**
				Article no.	**89801281, 89801285**
				Cells	**1 cells**
				Duration	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**
Lithium Iron Phosphate 3.3 Ah	stick	1	**ACCU-LiFePO4 3.3Ah 1A CON R2A 68MM**	**28005688**	•

Note: If the rated duration of operation cannot be reached the battery must be replaced. Remove mains during battery replacement.

6. Functions

6.1 Status indication

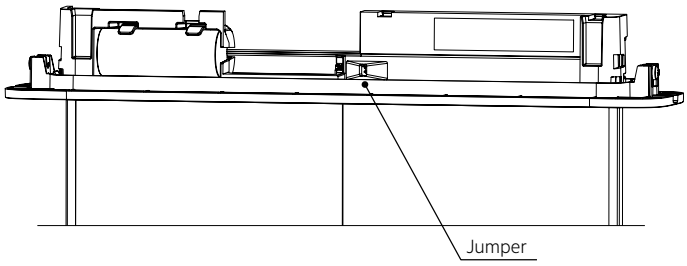
The indication LED is integrated on the bottom left of the housing.
A green LED indicates that charging current is flowing into the battery.
The battery is protected against operation at excessive temperatures (charging stops and indication LED turns off when battery cell temperature < 0 °C or > 60 °C).



6.2 Maintained / non-maintained

Can be select via jumper.
Jumper on: maintained
Jumper off: non-maintained

Battery and mains must be disconnected in order to change maintained / non-maintained.



6.3 Testing

Emergency operation can be manually tested by removal of the mains supply.

6.4 Safety

6.4.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

6.4.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

6.4.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

6.4.4 Temperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation.

6.5 Technical data batteries

Accu Lithium Iron Phosphate

Capacity 3.3 Ah

International designation	IFpR 27/67
Battery voltage/cell	3.2 V
Cell type	26650
Single cell dimensions	
Diameter	26 mm
Height	65 mm
Max. short term temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 to +35 °C
Packing quantity	1 pc. per carton

Only use Tridonic batteries.

Comply with UN 38.3, IEC 62620 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

For battery data see separate data sheet.

7. Miscellaneous

7.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (20 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

Do not damage battery and other components during battery replacement.

7.2 Black Box data recording

Recording of several parameters only accessable for Tridonic.

7.3 Additional information

Additional technical information at www.tridonic.com → Technical Data

The light source of this luminaire is not replaceable; when the light source reaches its end of life replace the whole luminaire. Lifetime declarations are informative and represent no warranty claim. No warranty if device was opened.

TRIDONIC

EM r2a Exit Sign dia

General

Product description
_ Spare directional sign (diagonal left, right, up and down)
_ Maximum viewing distance of 30 m
_ One piece of ISO 7010 rotatable direction sign
_ Suitable for EM r2a Exit Sign 2

Website
http://www.tridonic.com/28006315

EM r2a Exit Sign dia

General

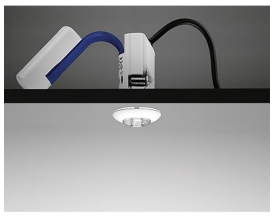
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM R2A Exit Sign 2 dia	**28006315**	30 pc(s).	0.24 kg

TRIDONIC

EM ready2apply BASIC 1 – 2 W

EM ready2apply



Product description

_ LED emergency module suitable for direct installation in ceilings
_ Complete set with integrated electronics, LED module, heat sink, optics and battery
_ Includes click-in multi-lens option for anti-panic, escape route and spot illumination
_ Emergency lighting function for manual testing
_ Small size ceiling hole, 40 – 43 mm diameter, 80 mm height
_ EM = Emergency

Properties

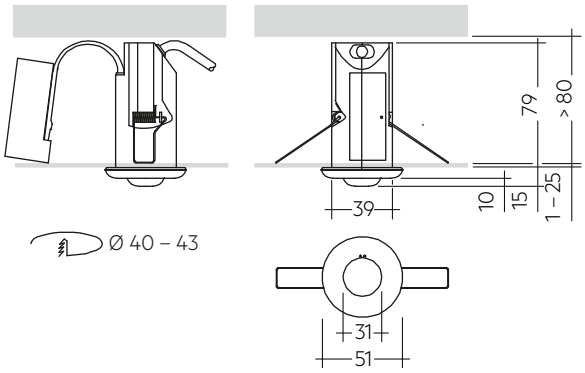
_ Output power 0.75 – 1.50 W
_ Very low stand-by power loss
_ White or black housing colour options
_ Non-maintained variants
_ 1 or 3 h rated duration (separate variants)
_ Plug-in Lithium Iron Phosphate battery with strain-relief
_ 5 years guarantee electronic (LED driver) (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website

http://www.tridonic.com/89800534

EM ready2apply BASIC 1 – 2 W

EM ready2apply



Ordering data

Type	Article number	Colour	Operating mode	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM R2A BASIC NM 111 2W	**89800534**	White	Non-maintained	1 h	1	1 pc(s).	380 pc(s).	0.18 kg
EM R2A BASIC NM 131 1W	**89800533**	White	Non-maintained	3 h	1	1 pc(s).	380 pc(s).	0.18 kg
EM R2A BASIC NM 132 2W	**89800536**	White	Non-maintained	3 h	2	1 pc(s).	380 pc(s).	0.22 kg
EM R2A BASIC NM 132 2W B	**89801051**	Black	Non-maintained	3 h	2	1 pc(s).	380 pc(s).	0.22 kg
EM R2A BASIC M 132 2W	**89800537**	White	Maintained	3 h	2	1 pc(s).	380 pc(s).	0.23 kg

Technical data

Rated supply voltage	220 – 240 V
Input voltage range AC (tolerance for safety)	198 – 264 V
Input voltage range AC (tolerance for performance)	198 – 254 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
Starting time (Emergency operation)	< 0.5 s from detection of emergency event
THD normal operation (maintained operation, at 230 V, 50 Hz, charging)	75 %
Output current tolerance	+ 5 %
LF current ripple	+ 5 %
Ambient temperature ta	5 … +30 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Impact protection degree ①	IK03
Protection class	II
Colour temperature	6,500 K
Colour tolerance	3 SDCM
Colour rendering index CRI	> 80
Lifetime	up to 50,000 h
EoFI	1

Approval marks

SELV RoHS

Standards

according to EN 50172, EN 55015, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 60598-1, EN 60598-2-2, EN 60598-2-22, EN 61000-3-2, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, EN 62384, IEC 62133 (related to Lithium Iron battery), UN 38.3 (related to Lithium Iron battery), EN 62031, EN 62471

Specific technical data

Type	Number of battery cells	Rated duration	Mains current (230 V, 50 Hz), maintained		Mains current (230 V, 50 Hz), non-maintained		Mains power (230 V, 50 Hz), maintained		Mains power (230 V, 50 Hz), non-maintained		Typ. λ (at 230 V, 50 Hz, charging)	Typ. output current	Typ. forward voltage	Output power
			Charging	Charger off	Charging	Charger off	Charging	Charger off	Charging	Charger off				
Normal operation														
EM R2A BASIC NM 111 2W	1	1 h	–	–	10 mA	5 mA	–	–	1.5 W	0.6 W	0.63C	–	–	–
EM R2A BASIC NM 131 1W	1	3 h	–	–	10 mA	5 mA	–	–	1.5 W	0.6 W	0.63C	–	–	–
EM R2A BASIC NM 132 2W	2	3 h	–	–	16 mA	5 mA	–	–	2.5 W	0.6 W	0.63C	–	–	–
EM R2A BASIC M 132 2W	2	3 h	40 mA	26 mA	–	–	5.5 W	3.2 W	–	–	0.58C	126 mA	12.0 V	1.50 W
EM R2A BASIC NM 132 2W B	2	3 h	–	–	16 mA	5 mA	–	–	2.5 W	0.6 W	0.63C	–	–	–
Emergency operation														
EM R2A BASIC NM 111 2W	1	1 h	–	–	–	–	–	–	–	–	–	126 mA	12.0 V	1.50 W
EM R2A BASIC NM 131 1W	1	3 h	–	–	–	–	–	–	–	–	–	64 mA	11.3 V	0.75 W
EM R2A BASIC NM 132 2W	2	3 h	–	–	–	–	–	–	–	–	–	126 mA	12.0 V	1.50 W
EM R2A BASIC M 132 2W	2	3 h	–	–	–	–	–	–	–	–	–	126 mA	12.0 V	1.50 W
EM R2A BASIC NM 132 2W B	2	3 h	–	–	–	–	–	–	–	–	–	126 mA	12.0 V	1.50 W

① IK rating valid for lens

LiFePO4 Battery pack 1.5 – 3.0 Ah

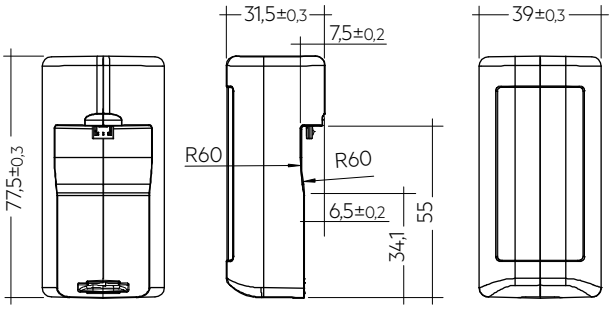
Accessory

LiFeGuard

Product description
_ Lithium Iron Phosphate replacement battery pack for use with EM ready2apply emergency lighting units
_ 8 year design life (up to 30 °C ambient temperature)
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Certified quality manufacturer
_ Casing material made of polycarbonate
_ Charge efficiency > 90 %
_ Low self discharge
_ Compact connector providing polarity safe battery connection
_ Protection and monitoring circuit built into battery enclosure
_ Battery protected against operation at excessive temperatures
_ Deep discharge protection
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website
http://www.tridonic.com/89800555



Ordering data

Type	Article number	Capacity	Packaging, carton	Weight per pc.
1.5 Ah battery pack				
PACK-LiFePO4 1.5Ah R2A	**89800555**	1.5 Ah	75 pc(s).	0.064 kg
3.0 Ah battery pack				
PACK-LiFePO4 3.0Ah R2A	**89800556**	3.0 Ah	75 pc(s).	0.104 kg

Approval marks

1. Standards

according to EN 50172
EN 55015
EN 60068-2-6
according to EN 60068-2-30
EN 60598-1
EN 60598-2-2
EN 60598-2-22
EN 61000-3-2
EN 61347-1
EN 61347-2-7
EN 61347-2-13
EN 61547
EN 62384
IEC 62133 (related to Lithium Iron battery)
UN 38.3 (related to Lithium Iron battery)
EN 62031
EN 62471

1.1 Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

2. Thermal data

2.1 Temperature range

According to the standard IEC 60598-1 a LED Driver for remote installation has a max. case temperature of 90 °C. The ambient temperature range ta for the EM R2A BASIC is defined to meet this requirement.

2.2 Expected lifetime

2.2.1 Electronics

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	ta	25 °C	30 °C	40 °C
EM R2A BASIC	lifetime	> 50,000 h	50,000 h	50,000 h

2.3 Storage conditions

- Humidity 45 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
- Storage time / temperature: max. 6 months at -20 °C up to +45 °C (< 3 months at +45 °C)

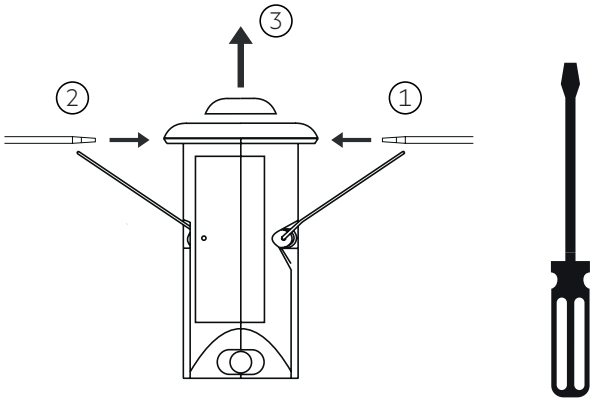
Note: The devices have to be within the specified temperature range (ta) before they are operated.

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C for up to 15 months
  – Relative humidity: 65 % ±5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

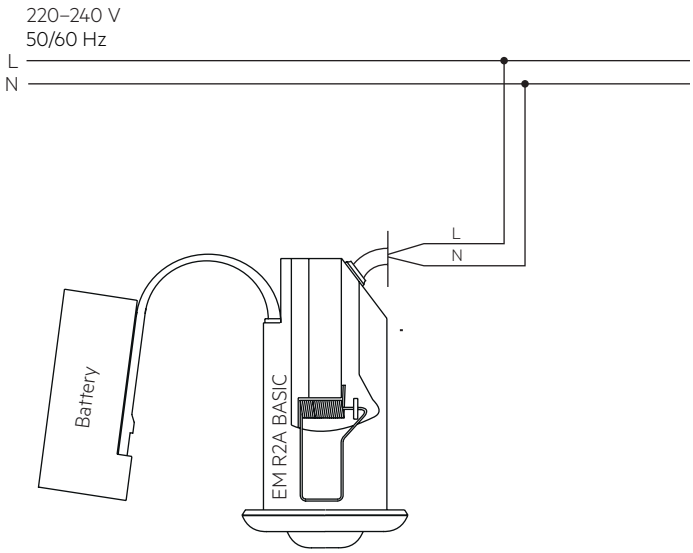
3. Installation / Wiring

3.1 Lens assembly

- Wear gloves when mounting the lens
- Take care of the mounting direction of the escape route lens
- Use screwdriver for replacing/removing lens
  1. + 2. Push lens clips with screwdriver via openings on both sides
  3. Remove lens



3.2 Wiring diagrams

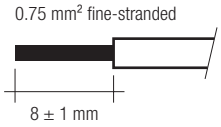


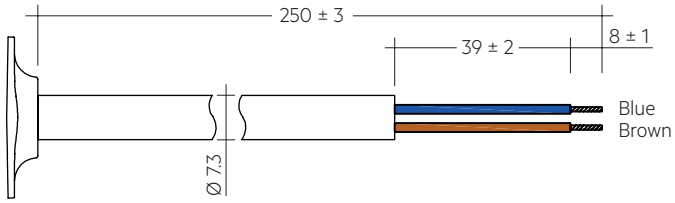
Note: Battery must be connected before mains connection.

3.3 Wiring type and cross-section

Wiring
Mains (N, L): brown, blue

Cable length: 250mm with strain relief at the R2A BASIC module
Cable: low smoke, halogen free





Recommended connector with strain-relief (plug and socket):
Wieland GST18

No terminal block included. The installation of the terminal block has to be done by a qualified person.

Only a terminal complying with EN 60998-2-1 or EN 60998-2-2 shall be used

Note: If mains cable or battery strap are damaged the luminaire must be disposed.

5. Electrical data

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	I_{max}	time
EM R2A BASIC	180	260	260	260	90	130	130	130	10 A	120 µs

5.2 Harmonic distortion in the mains supply (at 230 V / 50 Hz and 2-cell maintained charging) in %

	THD	3.	5.	7.	9.	11.
EM R2A BASIC	< 75	< 62	< 33	< 19	< 18	< 13

4. Mechanical data

4.1 Housing properties

- Polycarbonate white RAL 9016
- Polycarbonate black RAL 9005

4.2 Battery connection

Battery pack end termination
Compact micro USB type B connector providing safe battery connection

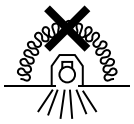
Module end termination
- Battery strap with compact micro USB type B connector
- Strain relief at the module casing and locking clip for secure connection of the battery pack
- Battery strap: low smoke, halogen free

Note: Strap not suitable for connection of any other micro USB device other than the ready2apply battery pack

4.3 Fixing

Spring fixing through hole in ceiling

- Hole diameter: 40 – 43 mm
- Ceiling thickness: 1 – 25 mm
- Ceiling void height: > 80 mm



Device not suitable for covering with thermally insulating material

5.3 Insulation matrix

	Mains	Battery
Mains	–	• •
Battery	• •	–

- • Represents basic insulation
- • • Represents double or reinforced insulation

5.4 Battery charge regime / discharge

EM R2A BASIC 1 – 2 W, 1 / 3 h

	Type	**EM R2A BASIC 2 W**	**EM R2A BASIC 2 W**	**EM R2A BASIC 1 W**
	Article no.	**89800534**	**89800536, 89801051**	**89800533**
	Cells	**1 cells**	**2 cells**	**1 cells**
	Duration	**1 h**	**3 h**	**3 h**
Battery charge time[1]	Initial	20 h		
	Recharge	12 h		
	Trickle charge	continuously and battery voltage controlled		
Typ. charge current[2]	Initial charge	140 mA	290 mA	140 mA
	Recharge	140 mA	290 mA	140 mA
	Trickle charge	140 mA / 0 mA	290 mA / 0 mA	140 mA / 0 mA
Mains power consumption	Initial charge	< 1.095 W	< 1.095 W	< 1.095 W
	Recharge	< 1.095 W	< 1.095 W	< 1.095 W
	Trickle charge	< 1.095 W / 0 W	< 1.095 W / 0 W	< 1.095 W / 0 W
Discharge current at 3.2 V (nominal)		625 mA	625 mA	320 mA

[1] 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.

[2] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C)

5.5 Battery selection for replacement

EM R2A BASIC 1 – 2 W, 1 / 3 h

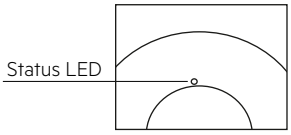
				Type	**EM R2A BASIC 2 W**	**EM R2A BASIC 2 W**	**EM R2A BASIC 1 W**
				Article no.	**89800534**	**89800536, 89801051**	**89800533**
				Cells	**1 cells**	**2 cells**	**1 cells**
				Duration	**1 h**	**3 h**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**		
Lithium Iron Phosphate 1.5 Ah	single cell	1	**PACK-LiFePO4 1,5Ah R2A**	**89800555**	•		•
Lithium Iron Phosphate 3 Ah	side by side	1 + 1	**PACK-LiFePO4 3,0Ah R2A**	**89800556**		•	

Note: If the rated duration of operation cannot be reached the battery must be replaced. Remove mains during battery replacement.

6. Functions

6.1 Status indication

The indication LED is integrated in the bezel. A green LED indicates that charging current is flowing into the battery.
The battery is protected against operation at excessive temperatures (charging stops and indication LED turns off when battery cell temperature < 0 °C or > 60 °C).



6.2 Testing

Emergency operation can be manually tested by removal of the mains supply.

6.3 Technical data batteries

Accu Lithium Iron Phosphate

Case temperature range to ensure 8 years design life	
1.5 / 3.0 Ah, insulated ceilings	+5 °C to +35 °C
Case temperature range to ensure 6 years design life	
1.5 / 3.0 Ah, non-insulated ceilings	+5 °C to +45 °C
International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Single cell dimensions	
Diameter	18 mm
Height	65 mm
Capacity one cell	1.5 Ah
Capacity two cell pack	3.0 Ah
Max. short term temperature (reduced lifetime)	55 °C
Max. number discharge cycles	50 cycles total
Packing quantity	1 pc. per carton

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

For battery data see separate data sheet.

7. Optical properties

7.1 Anti panic

EM R2A BASIC 1W – Max. spacing for >0.5 lux①

Height	Centre to end②		Centre to centre③	
	Trans	Axial	Trans	Axial
2.5 m	2.85 m	2.80 m	9.40 m	9.40 m
3.0 m	2.75 m	2.80 m	10.40 m	10.40 m
3.5 m	2.70 m	2.70 m	10.95 m	10.95 m
4.0 m	2.50 m	2.50 m	11.30 m	11.25 m
5.0 m	0.40 m	0.40 m	11.25 m	11.25 m

All values for ta = 30 °C

Luminous flux: 121 lm

① Maintainance factor = 0.8, photometric data available on request

② Distance between module and wall

③ Distance between two modules

EM R2A BASIC 2W – Max. spacing for >0.5 lux①

Height	Centre to end②		Centre to centre③	
	Trans	Axial	Trans	Axial
2.5 m	3.85 m	3.80 m	10.90 m	10.85 m
3.0 m	3.80 m	3.75 m	11.90 m	11.90 m
3.5 m	3.80 m	3.80 m	12.90 m	12.90 m
4.0 m	3.70 m	3.70 m	13.90 m	13.85 m
5.0 m	3.55 m	3.50 m	14.90 m	14.90 m
6.0 m	3.10 m	3.05 m	15.10 m	15.05 m

All values for ta = 30 °C

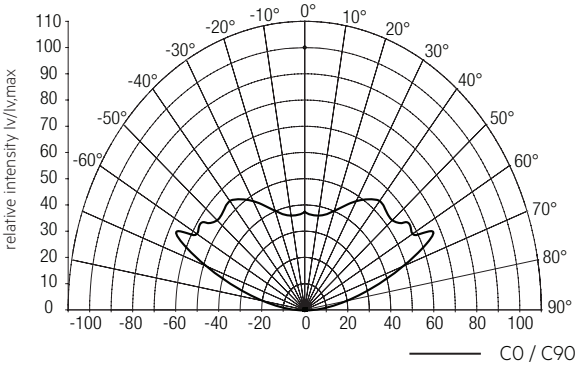
Luminous flux: 200 lm

① Maintainance factor = 0.8, photometric data available on request

② Distance between module and wall

③ Distance between two modules

Light distribution



7.2 Escape route

EM R2A BASIC 1W – Max. spacing for >1.0 lux[1]

Height	Centre to end[2]		Centre to centre[3]	
	Trans	Axial	Trans	Axial
2.5 m	3.70 m	1.10 m	9.95 m	5.70 m
3.0 m	3.90 m	1.20 m	10.20 m	4.85 m
3.5 m	4.05 m	1.30 m	10.55 m	4.80 m
4.0 m	4.20 m	1.40 m	10.95 m	3.40 m
5.0 m	4.30 m	1.45 m	11.60 m	3.80 m
6.0 m	4.25 m	1.40 m	12.05 m	4.00 m
7.0 m	3.95 m	1.20 m	12.20 m	4.10 m
8.0 m	3.20 m	0.90 m	12.15 m	4.05 m

All values for ta = 30 °C

Luminous flux: 117 lm

[1] Maintainance factor = 0.8, photometric data available on request

[2] Distance between module and wall

[3] Distance between two modules

EM R2A BASIC 2W – Max. spacing for >1.0 lux[1]

Height	Centre to end[2]		Centre to centre[3]	
	Trans	Axial	Trans	Axial
2.5 m	4.75 m	2.75 m	11.65 m	6.55 m
3.0 m	4.80 m	2.95 m	12.75 m	7.20 m
3.5 m	5.05 m	1.50 m	13.45 m	6.85 m
4.0 m	5.20 m	1.65 m	13.60 m	6.50 m
5.0 m	5.50 m	1.80 m	14.30 m	4.35 m
6.0 m	5.70 m	1.90 m	15.05 m	4.85 m
7.0 m	5.75 m	1.90 m	15.60 m	5.15 m
8.0 m	5.65 m	1.85 m	16.05 m	5.35 m

All values for ta = 30 °C

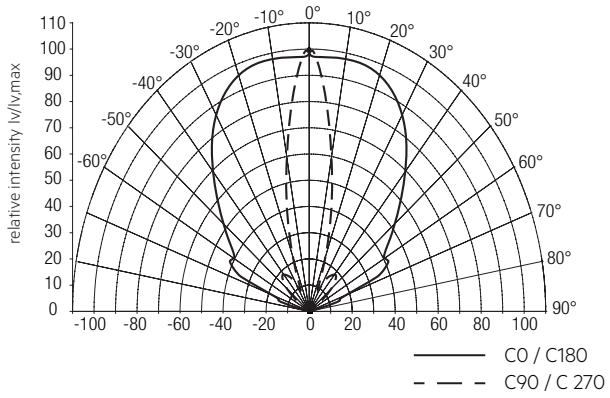
Luminous flux: 200 lm

[1] Maintainance factor = 0.8, photometric data available on request

[2] Distance between module and wall

[3] Distance between two modules

Light distribution



7.3 Spot

EM R2A BASIC 1W – Max. spacing for >0.5 lux / > 5 lux[1]

Minimum illuminance	Height	Centre to end[2]		Centre to centre[3]	
		Trans	Axial	Trans	Axial
0.5	2.5 m	1.05 m	1.90 m	4.50 m	4.30 m
	3.0 m	1.30 m	1.25 m	5.35 m	5.20 m
	3.5 m	1.50 m	1.45 m	6.25 m	6.05 m
	4.0 m	1.60 m	1.60 m	6.85 m	6.05 m
	5.0 m	1.80 m	1.80 m	6.00 m	5.95 m
	6.0 m	2.00 m	1.95 m	5.85 m	5.80 m
	7.0 m	2.10 m	2.05 m	6.00 m	6.00 m
	8.0 m	2.15 m	2.10 m	6.40 m	6.35 m
5.0	2.5 m	0.70 m	0.65 m	2.00 m	2.00 m
	3.0 m	0.70 m	0.65 m	2.20 m	2.20 m
	3.5 m	0.70 m	0.70 m	2.40 m	2.35 m
	4.0 m	0.70 m	0.70 m	2.50 m	2.50 m
	5.0 m	0.70 m	0.65 m	2.65 m	2.65 m
	6.0 m	0.60 m	0.55 m	2.70 m	2.65 m
	7.0 m	0.35 m	0.30 m	2.75 m	2.70 m

All values for ta = 30 °C

Luminous flux: 115 lm

[1] Maintainance factor = 0.8, photometric data available on request

[2] Distance between module and wall

[3] Distance between two modules

EM R2A BASIC 2W – Max. spacing for >0.5 lux / > 5 lux[1]

Minimum illuminance	Height	Centre to end[2]		Centre to centre[3]	
		Trans	Axial	Trans	Axial
0.5	2.5 m	1.05 m	1.90 m	8.40 m	4.30 m
	3.0 m	2.35 m	1.25 m	5.35 m	5.20 m
	3.5 m	2.80 m	1.45 m	6.25 m	6.05 m
	4.0 m	1.70 m	1.70 m	7.90 m	5.85 m
	5.0 m	2.10 m	2.05 m	8.90 m	8.40 m
	6.0 m	2.30 m	2.30 m	8.15 m	8.10 m
	7.0 m	2.50 m	2.45 m	8.00 m	8.00 m
	8.0 m	2.65 m	2.60 m	7.80 m	7.85 m
5.0	2.5 m	0.85 m	0.80 m	2.50 m	2.45 m
	3.0 m	0.90 m	0.85 m	2.55 m	2.55 m
	3.5 m	0.90 m	0.90 m	2.75 m	2.75 m
	4.0 m	0.90 m	0.95 m	2.95 m	2.95 m
	5.0 m	0.95 m	0.90 m	3.30 m	3.25 m
	6.0 m	0.95 m	0.90 m	3.50 m	3.45 m
	7.0 m	0.85 m	0.85 m	3.60 m	3.55 m
	8.0 m	0.75 m	0.75 m	3.60 m	3.60 m

All values for ta = 30 °C

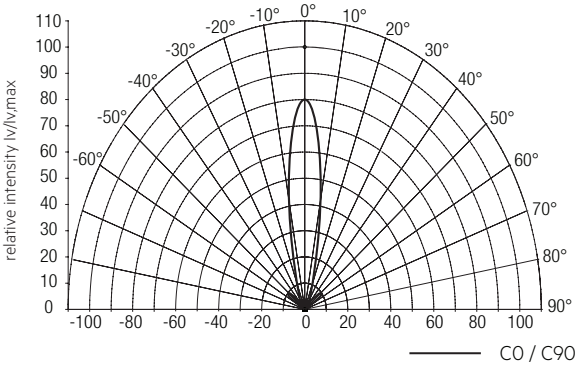
Luminous flux: 200 lm

[1] Maintainance factor = 0.8, photometric data available on request

[2] Distance between module and wall

[3] Distance between two modules

Light distribution



8. Miscellaneous

8.1 Black Box data recording

Recording of several parameters only accessable for Tridonic.

8.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

The light source of this luminaire is not replaceable; when the light source reaches its end of life replace the whole luminaire. Lifetime declarations are informative and represent no warranty claim. No warranty if device was opened.

TRIDONIC

EM ready2apply BASIC 2 – 3 W

EM ready2apply

Product description

_ LED emergency module suitable for direct installation in ceilings
_ Complete set with integrated electronics, LED module, optics and battery
_ All components replaceable on site (Battery, LED module, LED driver, lenses, etc.)
_ Emergency lighting function for manual testing
_ Small size ceiling hole, 68 – 72 mm diameter, 100 mm height
_ IP65 protection rating (in installed state)
_ EM = Emergency

Properties

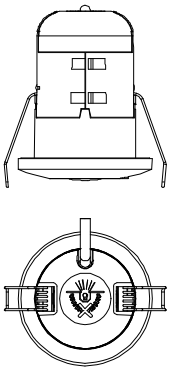
_ Output power 2 – 3 W
_ Very low stand-by power loss
_ Replaceable bezel, black as an option
_ Non-maintained variants
_ 3 h rated duration
_ Plug-in Lithium Iron Phosphate battery
_ 5 years guarantee electronic (LED driver) (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

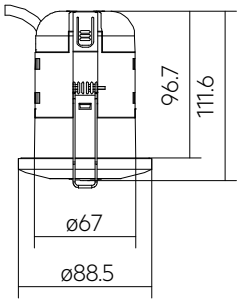
Website

http://www.tridonic.com/89801220

EM ready2apply BASIC 2 – 3 W

EM ready2apply





Ordering data

Type	Article number	Operating mode	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM R2A 68mm BASIC NM 132 AP	**89801220**	Non-maintained	3 h	1	1 pc(s).	180 pc(s).	0.375 kg
EM R2A 68mm BASIC NM 133 AP	**89801226**	Non-maintained	3 h	3	1 pc(s).	180 pc(s).	0.415 kg
EM R2A 68mm BASIC NM 132 ER	**89801221**	Non-maintained	3 h	1	1 pc(s).	180 pc(s).	0.375 kg
EM R2A 68mm BASIC NM 133 ER	**89801227**	Non-maintained	3 h	3	1 pc(s).	180 pc(s).	0.415 kg

Technical data

Rated supply voltage	220 – 240 V
Input voltage range AC (tolerance for safety)	198 – 264 V
Input voltage range AC (tolerance for performance)	198 – 254 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
Starting time (Emergency operation)	< 0.5 s from detection of emergency event
Output current tolerance	± 5 %
LF current ripple	± 5 %
Ambient temperature ta	5 … +40 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Impact protection degree	IK03
Protection class	II
Colour temperature	6,500 K
Colour tolerance	3 SDCM
Colour rendering index CRI	> 80
Lifetime	up to 50,000 h
EoFI	1

Approval marks

RoHS

Standards

according to EN 50172, EN 55015, EN 60068-2-29, EN 60068-2-30, EN 60068-2-64, EN 60598-1, EN 60598-2-2, EN 60598-2-22, EN 61000-3-2, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, EN 62384, IEC 62133 (related to Lithium Iron battery), UN 38.3 (related to Lithium Iron battery), EN 62031, EN 62471

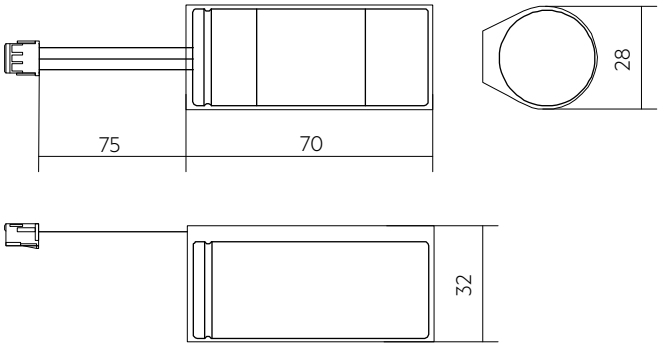
Specific technical data

Type	Number of battery cells	Rated duration	Mains current (230 V, 50 Hz), non-maintained		Typ. λ (at 230 V, 50 Hz, charging)	Typ. output current	Typ. forward voltage	Output power
			Charging	Charger off				
Normal operation								
EM R2A 68mm BASIC NM 132 AP	1	3 h	15 mA	5 mA	0.66C	–	–	–
EM R2A 68mm BASIC NM 132 ER	1	3 h	15 mA	5 mA	0.66C	–	–	–
EM R2A 68mm BASIC NM 133 AP	3	3 h	15 mA	5 mA	0.66C	–	–	–
EM R2A 68mm BASIC NM 133 ER	3	3 h	15 mA	5 mA	0.66C	–	–	–
Emergency operation								
EM R2A 68mm BASIC NM 132 AP	1	3 h	–	–	–	170 mA	12 V	2.0 W
EM R2A 68mm BASIC NM 132 ER	1	3 h	–	–	–	170 mA	12 V	2.0 W
EM R2A 68mm BASIC NM 133 AP	3	3 h	–	–	–	225 mA	12 V	2.6 W
EM R2A 68mm BASIC NM 133 ER	3	3 h	–	–	–	225 mA	12 V	2.6 W

LiFePO4 Battery pack 3.3 – 4.8 Ah

Accessory

ACCU-LiFePO4 4.8Ah 3B CON R2A 68MM



Product description
_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ 6 year design life (up to 30 °C ambient temperature)
_ 4 year design life (up to 40 °C ambient temperature)
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Certified quality manufacturer
_ Charge efficiency > 90 %
_ Low self discharge
_ Simple connection with plug-in system
_ Protection and monitoring circuit built into battery enclosure
_ Deep discharge protection
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website
http://www.tridonic.com/28005687

Ordering data

Type	Article number	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
ACCU-LiFePO4 4.8Ah 3B CON R2A 68MM	**28005687**	4.8 Ah	25 pc(s).	50 pc(s).	0.125 kg
ACCU-LiFePO4 3.3Ah 1A CON R2A 68MM	**28005688**	3.3 Ah	20 pc(s).	80 pc(s).	0.232 kg

EM r2a 68mm Bezel

Accessory

Product description
_ Replaceable bezel
_ Suitable for the use with EM r2a 68mm
_ Black (RAL 9005)
_ Polycarbonate

Website
http://www.tridonic.com/28006212

Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
EM r2a 68mm B	**28006212**	Black	100 pc(s).	0.091 kg

1. Standards

according to EN 50172
EN 55015
EN 60068-2-6
according to EN 60068-2-30
EN 60598-1
EN 60598-2-2
EN 60598-2-22
EN 61000-3-2
EN 61347-1
EN 61347-2-7
EN 61347-2-13
EN 61547
EN 62384
IEC 62133 (related to Lithium Iron battery)
UN 38.3 (related to Lithium Iron battery)
EN 62031
EN 62471

1.1 Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

2. Thermal data

2.1 Temperature range

According to the standard IEC 60598-1 a LED Driver for remote installation has a max. case temperature of 90 °C. The ambient temperature range ta for the EM R2A BASIC is defined to meet this requirement.

2.2 Expected lifetime

2.2.1 Electronics

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	ta	25 °C	30 °C	40 °C
EM R2A BASIC	lifetime	> 100,000 h	> 100,000 h	> 100,000 h

2.2.2 Lifetime, lumen maintenance and failure rate for LED module

The light output of an LED module decreases over the lifetime, this is characterized with the L value.
L70 means that the LED module will give 70 % of its initial luminous flux. This value is always related to the number of operation hours and therefore defines the lifetime of an LED module.

As the L value is a statistical value the lumen maintenance may vary over the delivered LED modules.
The B value defines the amount of modules which are below the specific L value, e.g. L70B10 means 10 % of the LED modules are below 70 % of the inital luminous flux, respectivly 90 % will be above 70 % of the initial value.

Lifetime declarations are informative and represent no warranty claim.

ta temperature	L90 / B50	L80 / B50	L70 / B10
25 °C	50,000 h	–	50,000 h
30 °C	–	50,000 h	–
40 °C	–	50,000 h	–

2.3 Storage conditions

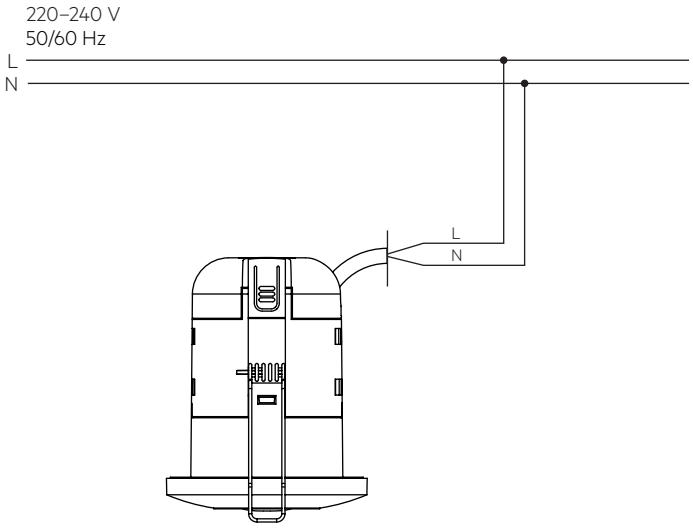
- Humidity 45 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
- Storage time / temperature: max. 6 months at -20 °C up to +45 °C (< 3 months at +45 °C)

Note: The devices have to be within the specified temperature range (ta) before they are operated.

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C for up to 15 months
  – Relative humidity: 65 % ±5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation / Wiring

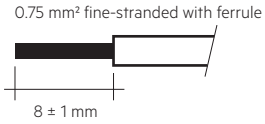
3.1 Wiring diagrams



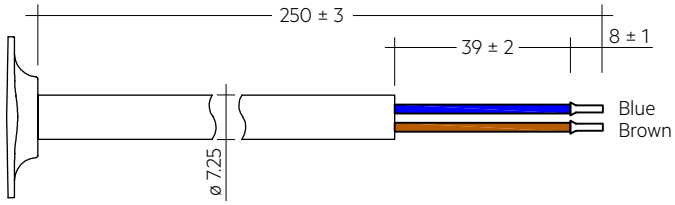
Note: Battery must be connected before mains connection.

3.2 Wiring type and cross-section

Wiring
Mains (L, N): brown, blue



Cable length: 250 mm with strain relief at the R2A BASIC module
Cable: low smoke, halogen free



Recommended connector with strain-relief (plug and socket):
Wieland GST18

No terminal block included. The installation of the terminal block has to be done by a qualified person.

Only a terminal complying with EN 60998-2-1 or EN 60998-2-2 shall be used

Note: If mains cable or battery strap are damaged the luminaire must be disposed.

4. Mechanical data

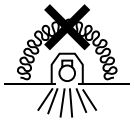
4.1 Housing properties

- Polycarbonate white RAL 9016
- Polycarbonate black RAL 9005
- Polycarbonate blue, RAL 5002

4.2 Fixing

Spring fixing through hole in ceiling

- Hole diameter: 68 – 72 mm
- Ceiling thickness: 1 – 25 mm
- Ceiling void height: > 100 mm



Device not suitable for covering with thermally insulating material

5. Electrical data

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	I_{max}	time
EM R2A BASIC	180	260	260	260	90	130	130	130	10 A	120 µs

5.2 Insulation matrix

	Mains	Battery
Mains	–	• •
Battery	• •	–

- • Represents basic insulation
- • • Represents double or reinforced insulation

5.3 Battery charge regime / discharge

EM R2A 68mm BASIC 2 – 3 W, 3 h

	Type	EM R2A 68mm BASIC 2 W	EM R2A 68mm BASIC 3 W
	Article no.	**89801220, 89801221**	**89801226, 89801227**
	Cells	**1 cell**	**3 cells**
	Duration	**3 h**	**3 h**
Battery charge time[1]	Initial	24 h	
	Recharge	24 h	
	Trickle charge	continuously and battery voltage controlled	
Typ. charge current[2]	Initial charge	270 mA	270 mA
	Recharge	270 mA	270 mA
	Trickle charge	270 mA / 0 mA	270 mA / 0 mA
Mains power consumption	Initial charge	2.3 W	2.3 W
	Recharge	2.3 W	2.3 W
	Trickle charge	2.3 W / 0 W	2.3 W / 0 W
Discharge current at 3.2 V (nominal)		715 mA	970 mA

[1] 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.

[2] Automatic recharge when battery voltage falls below 3.4 V.
Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures
(charging stopped when battery cell temperature < 0 °C or > 60 °C)

5.4 Battery selection for replacement

EM R2A 68mm BASIC 2 – 3 W, 3 h

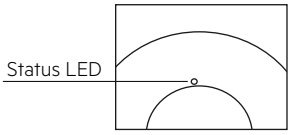
				Type	EM R2A 68mm BASIC 2 W	EM R2A 68mm BASIC 3 W
				Article no.	**89801220, 89801221**	**89801226, 89801227**
				Cells	**1 cell**	**3 cells**
				Duration	**3 h**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**	
Lithium Iron Phosphate 3.3 Ah	single cell	1	**ACCU-LiFePO4 3.3Ah 1A CON R2A 68MM**	**28005688**	•	
Lithium Iron Phosphate 4.8 Ah	pyramid	3	**ACCU-LiFePO4 4.8Ah 3B CON R2A 68MM**	**28005687**		•

Note: If the rated duration of operation cannot be reached the battery must be replaced. Remove mains during battery replacement.

6. Functions

6.1 Status indication

The indication LED is integrated in the bezel. A green LED indicates that charging current is flowing into the battery.
The battery is protected against operation at excessive temperatures (charging stops and indication LED turns off when battery cell temperature < 0 °C or > 60 °C).



6.2 Testing

Emergency operation can be manually tested by removal of the mains supply.

6.3 Technical data batteries

Accu Lithium Iron Phosphate

Capacity 3.3 Ah

International designation	IFpR 27/67
Battery voltage/cell	3.2 V
Cell type	26650
Single cell dimensions	
Diameter	26 mm
Height	65 mm
Max. short term temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +25 °C
Packing quantity	1 pc. per carton

Capacity 4.8 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Single cell dimensions	
Diameter	18 mm
Height	65 mm
Max. short term temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +25 °C
Packing quantity	1 pc. per carton

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

For battery data see separate data sheet.

7. Optical properties

7.1 Anti panic

EM R2A BASIC 2W – Max. spacing for >0.5 lux[1]

Height	Centre to end[2]		Centre to centre[3]	
	Trans	Longitudinal	Trans	Longitudinal
2.5 m	4.25 m	4.20 m	11.55 m	11.55 m
3.0 m	4.65 m	4.60 m	12.80 m	12.75 m
4.0 m	4.55 m	4.55 m	14.90 m	14.90 m
5.0 m	4.35 m	4.30 m	16.80 m	16.80 m
6.0 m	4.05 m	4.00 m	17.95 m	17.90 m
8.0 m	–	–	18.15 m	18.10 m
10.0 m	–	–	15.80 m	15.80 m
12.0 m	–	–	12.20 m	12.20 m

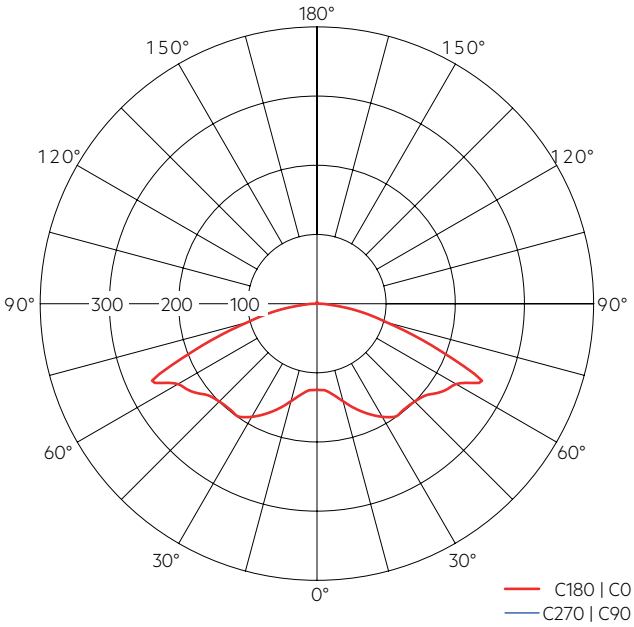
Luminous flux: 264 lm.

[1] Maintainance factor = 0.9, photometric data available on request.

[2] Distance between module and wall.

[3] Distance between two modules.

Light distribution



EM R2A BASIC 3W – Max. spacing for >0.5 lux[1]

Height	Centre to end[2]		Centre to centre[3]	
	Trans	Longitudinal	Trans	Longitudinal
2.5 m	3.10 m	3.05 m	7.10 m	7.08 m
3.0 m	3.55 m	3.50 m	8.20 m	8.20 m
4.0 m	4.40 m	4.35 m	10.30 m	10.25 m
5.0 m	5.10 m	5.05 m	12.20 m	12.20 m
6.0 m	5.20 m	5.15 m	14.05 m	14.00 m
8.0 m	4.75 m	4.70 m	17.40 m	17.40 m
10.0 m	5.00 m	4.95 m	18.30 m	18.30 m
12.0 m	5.05 m	5.05 m	19.55 m	19.55 m

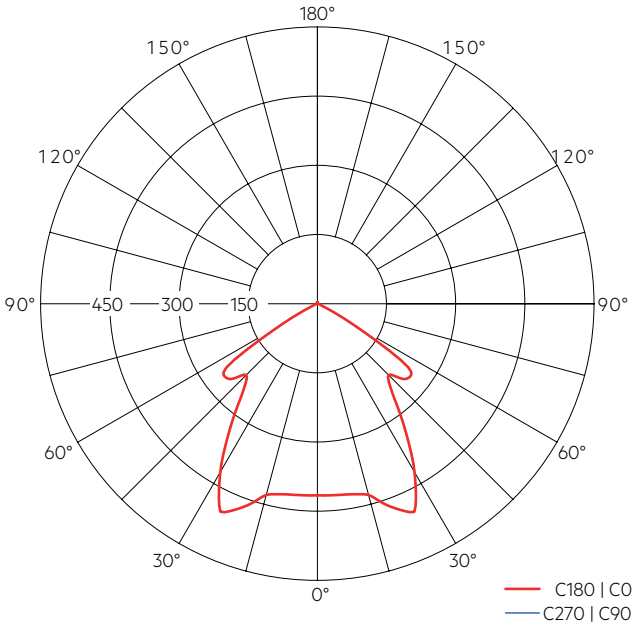
Luminous flux: 308 lm.

[1] Maintainance factor = 0.9, photometric data available on request.

[2] Distance between module and wall.

[3] Distance between two modules.

Light distribution



7.2 Escape route

EM R2A BASIC 2W – Spacing data for 2m escape route[1]

Height	Centre to end[2]		Centre to centre[3]	
	Max. spacing	Diversity	Max. spacing	Diversity
Transversal > 1 lux				
2.5 m	2.00 m	0.102	5.55 m	0.101
3.0 m	1.90 m	0.152	5.70 m	0.146
4.0 m	1.90 m	0.260	5.55 m	0.255
5.0 m	1.95 m	0.421	5.35 m	0.387
6.0 m	1.70 m	0.584	5.40 m	0.546
7.0 m	1.20 m	0.805	5.55 m	0.721
8.0 m	–	–	5.20 m	0.906
9.0 m	–	–	3.95 m	0.917
10.0 m	–	–	2.60 m	0.923
11.0 m	–	–	0.65 m	0.999
12.0 m	–	–	–	–
13.0 m	–	–	–	–
14.0 m	–	–	–	–
Longitudinal > 1 lux				
2.5 m	6.35 m	0.077	15.60 m	0.074
3.0 m	6.30 m	0.109	17.15 m	0.107
4.0 m	7.00 m	0.190	18.10 m	0.193
5.0 m	7.40 m	0.297	19.15 m	0.291
6.0 m	7.00 m	0.425	20.20 m	0.409
7.0 m	5.90 m	0.580	21.00 m	0.545
8.0 m	–	–	20.55 m	0.684
9.0 m	–	–	14.85 m	0.659
10.0 m	–	–	12.55 m	0.717
11.0 m	–	–	8.35 m	0.728
12.0 m	–	–	–	–
13.0 m	–	–	–	–
14.0 m	–	–	–	–

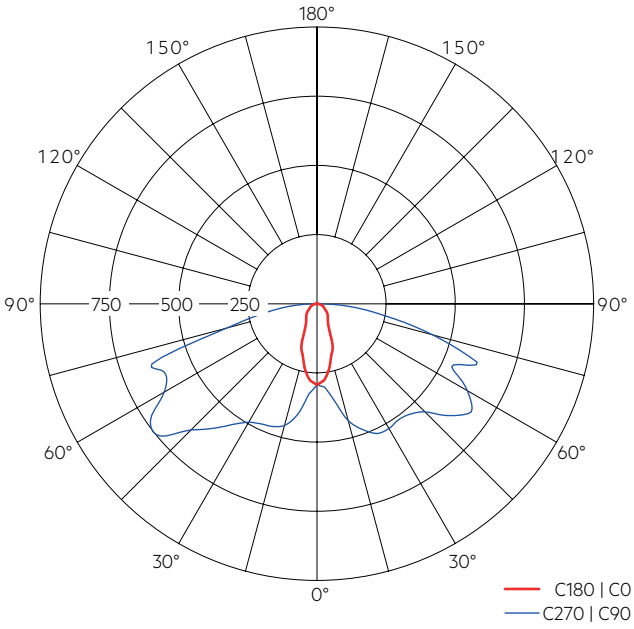
Luminous flux: 235 lm.

[1] Maintainance factor = 0.9, photometric data available on request.

[2] Distance between module and wall.

[3] Distance between two modules.

Light distribution



EM R2A BASIC 3W – Spacing data for 2m escape route[1]

Height	Centre to end[2]		Centre to centre[3]	
	Max. spacing	Diversity	Max. spacing	Diversity
Transversal > 1 lux				
2.5 m	3.40 m	0.026	7.65 m	0.026
3.0 m	3.80 m	0.038	8.70 m	0.037
4.0 m	4.15 m	0.065	10.40 m	0.066
5.0 m	2.45 m	0.101	10.75 m	0.101
6.0 m	2.50 m	0.153	10.15 m	0.145
7.0 m	2.65 m	0.201	6.90 m	0.187
8.0 m	2.75 m	0.264	7.05 m	0.237
9.0 m	2.80 m	0.335	7.30 m	0.298
10.0 m	2.80 m	0.406	7.55 m	0.362
11.0 m	2.65 m	0.499	7.75 m	0.439
12.0 m	2.45 m	0.590	7.90 m	0.528
13.0 m	2.15 m	0.691	8.00 m	0.622
14.0 m	1.75 m	0.801	7.90 m	0.734
Longitudinal > 1 lux				
2.5 m	6.00 m	0.026	13.30 m	0.026
3.0 m	6.75 m	0.037	15.05 m	0.037
4.0 m	6.80 m	0.065	18.35 m	0.065
5.0 m	7.00 m	0.102	19.70 m	0.101
6.0 m	7.30 m	0.148	19.45 m	0.145
7.0 m	7.55 m	0.199	19.90 m	0.197
8.0 m	7.65 m	0.260	20.60 m	0.256
9.0 m	7.65 m	0.328	21.15 m	0.320
10.0 m	7.50 m	0.406	21.55 m	0.389
11.0 m	7.20 m	0.494	21.75 m	0.468
12.0 m	6.85 m	0.583	21.85 m	0.552
13.0 m	6.20 m	0.687	21.80 m	0.641
14.0 m	5.30 m	0.795	21.50 m	0.732

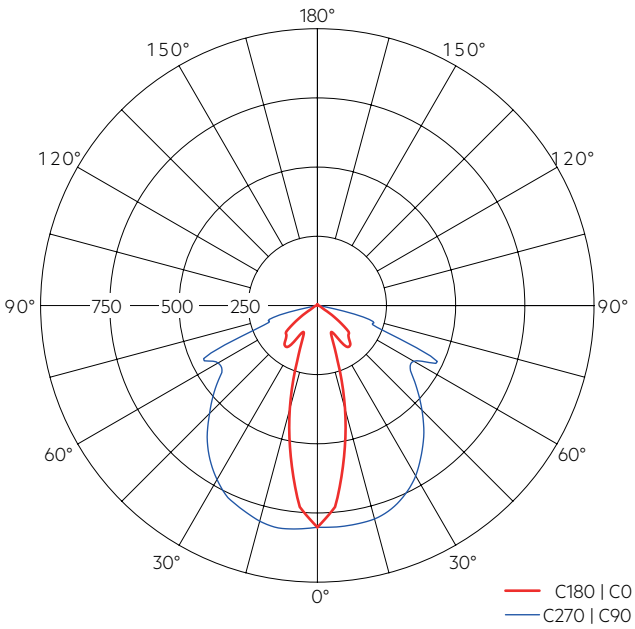
Luminous flux: 343 lm.

[1] Maintainance factor = 0.9, photometric data available on request.

[2] Distance between module and wall.

[3] Distance between two modules.

Light distribution



8. Miscellaneous

8.1 Black Box data recording

Recording of several parameters only accessable for Tridonic.

8.2 Additional information

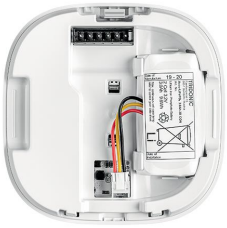
Additional technical information at www.tridonic.com → Technical Data

The light source of this luminaire is not replaceable; when the light source reaches its end of life replace the whole luminaire. Lifetime declarations are informative and represent no warranty claim. No warranty if device was opened.

TRIDONIC

EM ready2apply BASIC 2 W SM

EM ready2apply



Product description

_ LED emergency module suitable for surface mounted installation
_ Complete set with integrated electronics, LED module, heat sink, optics and battery
_ Includes click-in multi-lens option for anti-panic, escape route and spot illumination
_ Emergency lighting function for manual testing
_ BESA compatible mounting
_ EM = Emergency

Properties

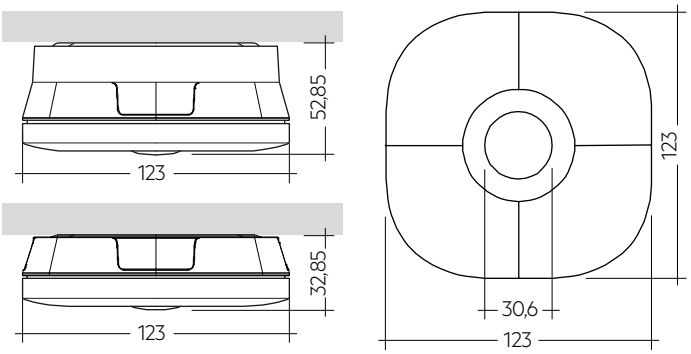
_ Output power 1.5 W
_ Very low stand-by power loss
_ Non-maintained variants
_ 1 or 3 h rated duration (separate variants)
_ Simple connection of Lithium Iron Phosphate battery with plug-in system
_ White or black housing colour options
_ Back box in two different heights available (for rear and side entry)
_ 5 years guarantee electronic (LED driver) (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website

http://www.tridonic.com/89800761

EM ready2apply BASIC 2 W SM

EM ready2apply



Ordering data

Type	Article number	Colour	Design	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM R2A BASIC NM 112 SM	**89800761**	White	low	1 h	2	1 pc(s).	400 pc(s).	0.274 kg
EM R2A BASIC NM 132 SM	**89800762**	White	low	3 h	2	1 pc(s).	400 pc(s).	0.270 kg
EM R2A BASIC NM 112 SMh	**89800763**	White	high	1 h	2	1 pc(s).	400 pc(s).	0.300 kg
EM R2A BASIC NM 132 SMh	**89800764**	White	high	3 h	2	1 pc(s).	400 pc(s).	0.300 kg
EM R2A BASIC NM 112 SM-B	**89800816**	Black	low	1 h	2	1 pc(s).	400 pc(s).	0.348 kg
EM R2A BASIC NM 132 SM-B	**89800817**	Black	low	3 h	2	1 pc(s).	400 pc(s).	0.270 kg
EM R2A BASIC NM 112 SMh-B	**89800818**	Black	high	1 h	2	1 pc(s).	400 pc(s).	0.300 kg
EM R2A BASIC NM 132 SMh-B	**89800819**	Black	high	3 h	2	1 pc(s).	400 pc(s).	0.300 kg

Technical data

Rated supply voltage	220 – 240 V
Input voltage range AC (tolerance for safety)	198 – 264 V
Input voltage range AC (tolerance for performance)	198 – 254 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
Starting time (Emergency operation)	< 0.5 s from detection of emergency event
Output current tolerance	± 5 %
LF current ripple	± 5 %
Ambient temperature ta	5 … 40 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Impact protection degree ①	IK07
Protection class	II
Colour temperature	6,500 K
Colour tolerance	3 SDCM
Colour rendering index CRI	> 80
Lifetime	up to 50,000 h

Approval marks

SELV EL RoHS

Standards

according to EN 50172, EN 55015, EN 60068-2-6, EN 60068-2-30, EN 60598-1, EN 60598-2-2, EN 60598-2-22, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, acc. to EN 62034, EN 62384, EN 62386-101, EN 62386-102, EN 62386-202, IEC 62133 (related to Lithium Iron battery), UN 38.3 (related to Lithium Iron battery), EN 62031, EN 62471

Specific technical data

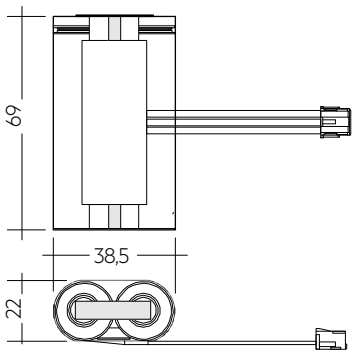
Type	Number of battery cells	Rated duration	Mains current (230 V, 50 Hz), non-maintained		Mains power (230 V, 50 Hz), non-maintained		Typ. λ (at 230 V, 50 Hz, charging)	Typ. output current	Typ. forward voltage	Output power
			Charging	Charger off	Charging	Charger off				
Normal operation										
EM R2A BASIC NM 112 SM	2	1 h	20 mA	10 mA	2.5 W	0.6 W	0.63C	–	–	–
EM R2A BASIC NM 132 SM	2	3 h	20 mA	10 mA	2.5 W	0.6 W	0.63C	–	–	–
EM R2A BASIC NM 112 SMh	2	1 h	20 mA	10 mA	2.5 W	0.6 W	0.63C	–	–	–
EM R2A BASIC NM 132 SMh	2	3 h	20 mA	10 mA	2.5 W	0.6 W	0.63C	–	–	–
EM R2A BASIC NM 112 SM-B	2	1 h	20 mA	10 mA	2.5 W	0.6 W	0.63C	–	–	–
EM R2A BASIC NM 132 SM-B	2	3 h	20 mA	10 mA	2.5 W	0.6 W	0.63C	–	–	–
EM R2A BASIC NM 112 SMh-B	2	1 h	20 mA	10 mA	2.5 W	0.6 W	0.63C	–	–	–
EM R2A BASIC NM 132 SMh-B	2	3 h	20 mA	10 mA	2.5 W	0.6 W	0.63C	–	–	–
Emergency operation										
EM R2A BASIC NM 112 SM	2	1 h	–	–	–	–	–	126 mA	12 V	1.5 W
EM R2A BASIC NM 132 SM	2	3 h	–	–	–	–	–	126 mA	12 V	1.5 W
EM R2A BASIC NM 112 SMh	2	1 h	–	–	–	–	–	126 mA	12 V	1.5 W
EM R2A BASIC NM 132 SMh	2	3 h	–	–	–	–	–	126 mA	12 V	1.5 W
EM R2A BASIC NM 112 SM-B	2	1 h	–	–	–	–	–	126 mA	12 V	1.5 W
EM R2A BASIC NM 132 SM-B	2	3 h	–	–	–	–	–	126 mA	12 V	1.5 W
EM R2A BASIC NM 112 SMh-B	2	1 h	–	–	–	–	–	126 mA	12 V	1.5 W
EM R2A BASIC NM 132 SMh-B	2	3 h	–	–	–	–	–	126 mA	12 V	1.5 W

① IK07 in case of fixing the front plate to the back box with a M3x10 self-tapping screw (not supplied). With clip fixing only IK03.

LiFePO4 Battery pack 3.0 Ah

Accessory

LiFeGuard



Product description
_ High temperature LiFePO4 cells for use with EM ready2apply surface mounted emergency lighting units
_ 6 year design life (up to 30 °C ambient temperature)
_ 4 year design life (up to 40 °C ambient temperature)
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Certified quality manufacturer
_ Charge efficiency > 90 %
_ Low self discharge
_ Simple connection with plug-in system
_ Protection and monitoring circuit built into battery enclosure
_ Deep discharge protection
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website
http://www.tridonic.com/28003554

Ordering data

Type	Article number	Capacity	Packaging, carton	Weight per pc.
PACK-LiFePO4 3.0Ah 2A CON R2A SM	**28003554**	3 Ah	75 pc(s).	0.104 kg

1. Standards

according to EN 50172
EN 55015
EN 60068-2-6
according to EN 60068-2-30
EN 60598-1
EN 60598-2-2
EN 60598-2-22
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-7
EN 61347-2-7/A1
EN 61347-2-13
EN 61347-2-13/A1
EN 61547
according to EN 62034
EN 62384
EN 62386-101
EN 62386-102
EN 62386-202
IEC 62133 (related to Lithium Iron battery)
UN 38.3 (related to Lithium Iron battery)
EN 62031
EN 62471

1.1 Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

2. Thermal data

2.1 Temperature range

According to the standard IEC 60598-1 a LED Driver for remote installation has a max. case temperature of 90 °C. The ambient temperature range ta for the EM R2A BASIC is defined to meet this requirement.

2.2 Expected lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	ta	25 °C	35 °C	40 °C
EM R2A BASIC	lifetime	> 100,000 h	> 50,000 h	50,000 h

2.3 Storage conditions

- Humidity 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

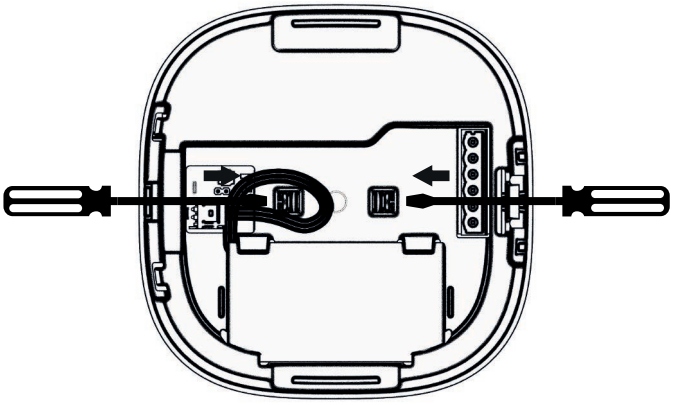
Note: The devices have to be within the specified temperature range (ta) before they are operated.

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 ... +35 °C for up to 15 months
  – Relative humidity: 65 % ±5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation / Wiring

3.1 Lens assembly

- Wear gloves when mounting the lens
- Take care of the mounting direction of the escape route lens
- Use screwdriver for replacing/removing lens
  1. + 2. Push lens clips with screwdriver via openings on both sides
  3. Remove lens



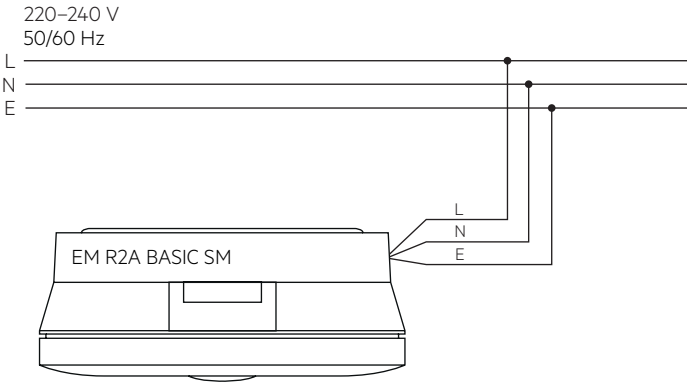
3.2 Luminaire assembly

- Back box preparation:
  - For rear entry: 2 drill locations are provided for a 20 mm hole
  - For side entry (use of deep back box): 3 locations are provided for use with 20 mm cable glands.
- If required use a M3x10 self tapping screw (not supplied) to secure the front plate to the back box. Drill a 3 mm hole in the back box indent.
- Fix the back box to the ceiling (BESA compatible mounting).
  Note: direction arrows allowing correct orientation for corridor lens.
- Change lenses if required (pre-fitted with anti panic lens).
- Wiring of the mains terminal block will require a suitable tool to open the cage clamp (size 3.5 x 0.5 mm blade).
- Plug battery into connector.
- Fix front plate to back box: locating battery side tabs first, push home, a click will be heard when front plate is inserted correctly.
- Apply power and the green charge indicator LED will be illuminated.
- The deep back box has a parking facility for up to 6 Wago 2773 series connectors (not supplied) to aid through wiring cable management.

Take care when drilling to prevent damage to internal components.

If an impact protecting rating of above IK03 to a max. of IK07 is required, use an M3x10 self-tapping screw for the assembly.

3.3 Wiring diagrams

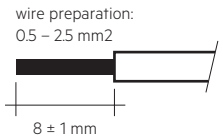


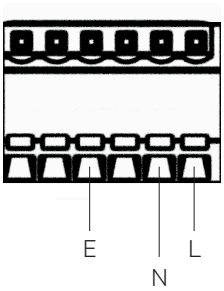
Note: Battery must be connected before mains connection.

3.4 Wiring type and cross-section

Wiring
Mains (N, L): blue, brown
Earth terminal (E)

Cable: low smoke, halogen free





The installation of the luminaire has to be done by a qualified person.

3.5 Earth terminal (E)

The earth terminal is a loose connection without function. Use it to connect the earth wire to prevent it being loose in the luminaire. There is no earth connection required for the functionality of the EM ready2apply.

4. Mechanical data

4.1 Housing properties

- Polycarbonate white RAL 9016
- Polycarbonate black RAL 9005

4.2 Battery connection

Battery pack connection
3-pole plug connection

4.3 Fixing

Surface Mount with options for cable entry by BESA, rear and side entry. To minimise dust ingress used cable entry holes will be drill out.
Screw holes for BESA and general mounting are oval shape to allow adjustment and are pre-drilled to simplify the final installation.

5. Electrical data

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	I_{max}	time
EM R2A BASIC	180	260	260	260	90	130	130	130	10 A	120 µs

5.3 Insulation matrix

	Mains	Battery
Mains	–	• •
Battery	• •	–

• • Represents double or reinforced insulation

5.4 Battery charge regime / discharge

EM R2A BASIC 2 W SM, 1 / 3 h

	Type	**EM R2A BASIC 2 W SM**
	Article no.	**89800761-64 / 89800816-19**
	Cells	**2 cells**
	Duration	**1 / 3 h**
Battery charge time[1]	Initial	20 h
	Recharge	12 h
	Trickle charge	continuously and battery voltage controlled
Typ. charge current[2]	Initial charge	290 mA
	Recharge	290 mA
	Trickle charge	290 mA / 0 mA
Discharge current at 3.2 V (nominal)		625 mA

[1] 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.

[2] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C)

5.5 Battery selection for replacement

EM R2A BASIC 2 W SM, 1 / 3 h

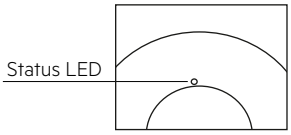
			Type	**EM R2A BASIC 2 W SM**	
			Article no.	**89800761-64 / 89800816-19**	
			Cells	**2 cells**	
			Duration	**1 / 3 h**	
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**
Lithium Iron Phosphate 3 Ah	side by side	1 + 1	**EM R2A SM ACCU-LiFePO4 3.0Ah 2A CON**	**28003554**	•

Note: If the rated duration of operation cannot be reached the battery must be replaced. Remove mains during battery replacement.

6. Functions

6.1 Status indication

The indication LED is integrated in the bezel. A green LED indicates that charging current is flowing into the battery.
The battery is protected against operation at excessive temperatures (charging stops and indication LED turns off when battery cell temperature < 0 °C or > 60 °C).



6.2 Testing

Emergency operation can be manually tested by removal of the mains supply.

6.3 Technical data batteries

Accu Lithium Iron Phosphate

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Single cell dimensions	
Diameter	18 mm
Height	65 mm
Capacity two cell pack	3.0 Ah
Max. short term temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Packing quantity	1 pc. per carton

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

For battery data see separate data sheet.

7. Optical properties

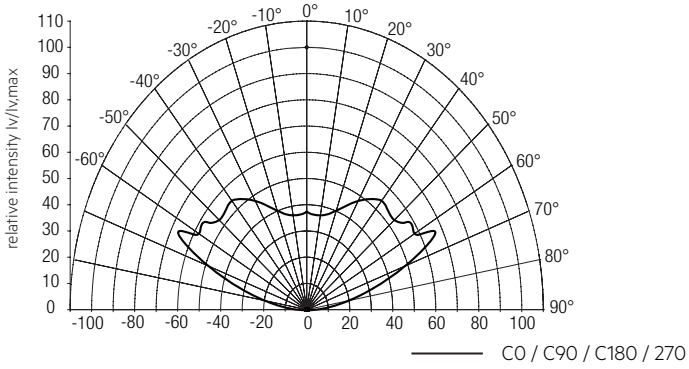
7.1 Anti panic

Max. spacing for >0.5 lux[1]

Height	Centre to end[2]		Centre to centre[3]	
	Trans	Axial	Trans	Axial
2.5 m	3.85 m	3.80 m	10.90 m	10.85 m
3.0 m	3.80 m	3.75 m	11.90 m	11.90 m
3.5 m	3.80 m	3.80 m	12.90 m	12.90 m
4.0 m	3.70 m	3.70 m	13.90 m	13.85 m
5.0 m	3.55 m	3.50 m	14.90 m	14.90 m
6.0 m	3.10 m	3.05 m	15.10 m	15.05 m

All values for ta = 30 °C
Luminous flux: 200 lm
[1] Maintainance factor = 0.8, photometric data available on request
[2] Distance between module and wall
[3] Distance between two modules

Light distribution



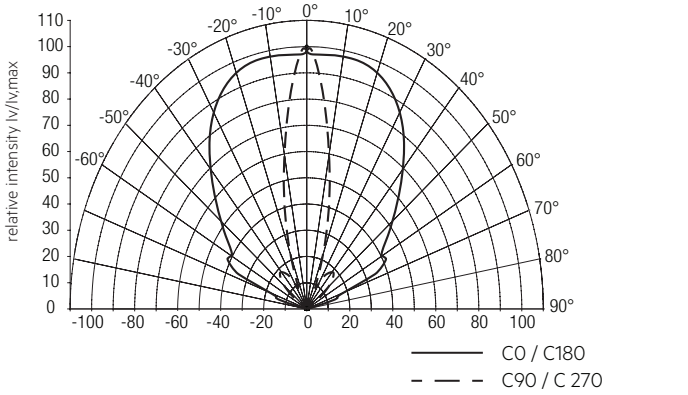
7.2 Escape route

Max. spacing for >1.0 lux[1]

Height	Centre to end[2]		Centre to centre[3]	
	Trans	Axial	Trans	Axial
2.5 m	4.75 m	2.75 m	11.65 m	6.55 m
3.0 m	4.80 m	2.95 m	12.75 m	7.20 m
3.5 m	5.05 m	1.50 m	13.45 m	6.85 m
4.0 m	5.20 m	1.65 m	13.60 m	6.50 m
5.0 m	5.50 m	1.80 m	14.30 m	4.35 m
6.0 m	5.70 m	1.90 m	15.05 m	4.85 m
7.0 m	5.75 m	1.90 m	15.60 m	5.15 m
8.0 m	5.65 m	1.85 m	16.05 m	5.35 m

All values for ta = 30 °C
Luminous flux: 200 lm
[1] Maintainance factor = 0.8, photometric data available on request
[2] Distance between module and wall
[3] Distance between two modules

Light distribution



7.3 Spot

Max. spacing for >0.5 lux / > 5 lux[1]

Minimum illuminance	Height	Centre to end[2]		Centre to centre[3]	
		Trans	Axial	Trans	Axial
0.5	2.5 m	1.05 m	1.90 m	8.40 m	4.30 m
	3.0 m	2.35 m	1.25 m	5.35 m	5.20 m
	3.5 m	2.80 m	1.45 m	6.25 m	6.05 m
	4.0 m	1.70 m	1.70 m	7.90 m	5.85 m
	5.0 m	2.10 m	2.05 m	8.90 m	8.40 m
	6.0 m	2.30 m	2.30 m	8.15 m	8.10 m
	7.0 m	2.50 m	2.45 m	8.00 m	8.00 m
	8.0 m	2.65 m	2.60 m	7.80 m	7.85 m
5.0	2.5 m	0.85 m	0.80 m	2.50 m	2.45 m
	3.0 m	0.90 m	0.85 m	2.55 m	2.55 m
	3.5 m	0.90 m	0.90 m	2.75 m	2.75 m
	4.0 m	0.90 m	0.95 m	2.95 m	2.95 m
	5.0 m	0.95 m	0.90 m	3.30 m	3.25 m
	6.0 m	0.95 m	0.90 m	3.50 m	3.45 m
	7.0 m	0.85 m	0.85 m	3.60 m	3.55 m
	8.0 m	0.75 m	0.75 m	3.60 m	3.60 m

All values for ta = 30 °C

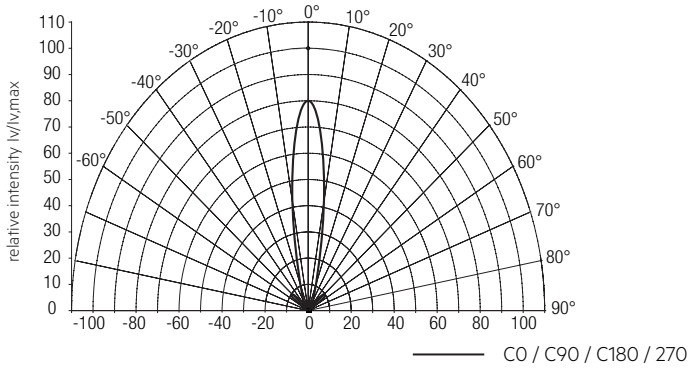
Luminous flux: 200 lm

[1] Maintainance factor = 0.8, photometric data available on request

[2] Distance between module and wall

[3] Distance between two modules

Light distribution



8. Miscellaneous

8.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

Do not damage battery and other components during battery replacement.

8.2 Black Box data recording

Recording of several parameters only accessable for Tridonic.

8.3 Additional information

Additional technical information at www.tridonic.com → Technical Data

The light source of this luminaire is not replaceable; when the light source reaches its end of life replace the whole luminaire. Lifetime declarations are informative and represent no warranty claim. No warranty if device was opened.

TRIDONIC

EM ready2apply BASIC 4 W SM

EM ready2apply

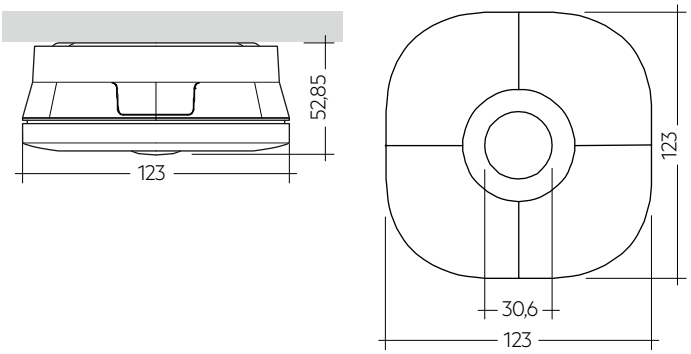
Product description
_ LED emergency module suitable for surface mounted installation
_ Complete set with integrated electronics, LED module, heat sink, optics and battery
_ Includes click-in multi-lens option for anti-panic, escape route and spot illumination
_ Emergency lighting function for manual testing
_ BESA compatible mounting
_ EM = Emergency

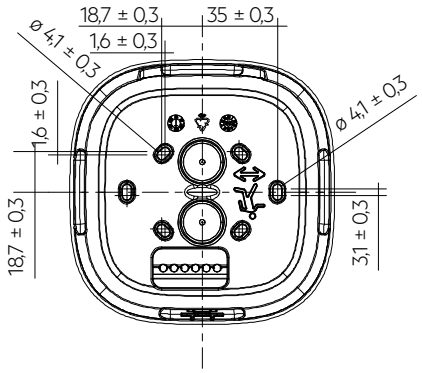
Properties
_ Luminous flux 400 lm
_ Very low stand-by power loss
_ Non-maintained variants
_ 1 or 3 h rated duration (separate variants)
_ Simple connection of Lithium Iron Phosphate battery with plug-in system
_ White or black housing colour options
_ 5 years guarantee electronic (LED driver) (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website
http://www.tridonic.com/89800983

EM ready2apply BASIC 4 W SM

EM ready2apply





Ordering data

Type	Article number	Colour	Design	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM R2A BASIC NM 114 SMh	**89800983**	White	high	1 h	2	1 pc(s).	400 pc(s).	0.452 kg
EM R2A BASIC NM 134 SMh	**89800984**	White	high	3 h	4	1 pc(s).	400 pc(s).	0.452 kg
EM R2A BASIC NM 114 SMh-B	**89800989**	Black	high	1 h	2	1 pc(s).	400 pc(s).	0.452 kg
EM R2A BASIC NM 134 SMh-B	**89800990**	Black	high	3 h	4	1 pc(s).	400 pc(s).	0.452 kg

Technical data

Rated supply voltage	220 – 240 V
Input voltage range AC (tolerance for safety)	198 – 264 V
Input voltage range AC (tolerance for performance)	198 – 254 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
Starting time (Emergency operation)	< 0.5 s from detection of emergency event
Output current tolerance	± 5 %
LF current ripple	± 5 %
Ambient temperature range	+5 … +40 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Impact protection degree ①	IK07
Protection class	II
Colour temperature	6,500 K
Colour tolerance	Mac Adams 3
Colour rendering index CRI	> 80
Lifetime	up to 50,000 h

Approval marks

SELV EL EAC CE UKCA RoHS

Standards

according to EN 50172, EN 55015, EN 60068-2-6, EN 60068-2-30, EN 60598-1, EN 60598-2-2, EN 60598-2-22, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, acc. to EN 62034, EN 62384, EN 62386-101, EN 62386-102, EN 62386-202, IEC 62133 (related to Lithium Iron battery), UN 38.3 (related to Lithium Iron battery), EN 62031, EN 62471

Specific technical data

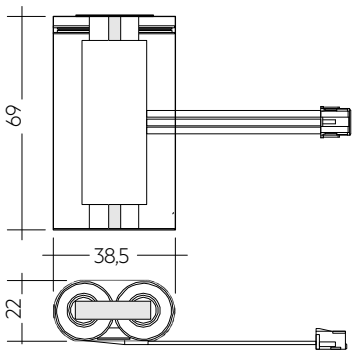
Type	Number of battery cells	Rated duration	Mains current (230 V, 50 Hz), non-maintained		Mains power (230 V, 50 Hz), non-maintained		Typ. λ (at 230 V, 50 Hz, charging)	Typ. output current	Typ. forward voltage	Output power
			Charging	Charger off	Charging	Charger off				
Normal operation										
EM R2A BASIC NM 114 SMh	2	1 h	21 mA	11 mA	2.5 W	0.7 W	0.5C	–	–	–
EM R2A BASIC NM 134 SMh	4	3 h	21 mA	11 mA	2.5 W	0.7 W	0.5C	–	–	–
EM R2A BASIC NM 114 SMh-B	2	1 h	21 mA	11 mA	2.5 W	0.7 W	0.5C	–	–	–
EM R2A BASIC NM 134 SMh-B	4	3 h	21 mA	11 mA	2.5 W	0.7 W	0.5C	–	–	–
Emergency operation										
EM R2A BASIC NM 114 SMh	2	1 h	–	–	–	–	–	254 mA	12 V	3 W
EM R2A BASIC NM 134 SMh	4	3 h	–	–	–	–	–	254 mA	12 V	3 W
EM R2A BASIC NM 114 SMh-B	2	1 h	–	–	–	–	–	254 mA	12 V	3 W
EM R2A BASIC NM 134 SMh-B	4	3 h	–	–	–	–	–	254 mA	12 V	3 W

① IK rating valid for lens

LiFePO4 Battery pack 3.0 Ah

Accessory

LiFeGuard



Product description
_ High temperature LiFePO4 cells for use with EM ready2apply surface mounted emergency lighting units
_ 6 year design life (up to 30 °C ambient temperature)
_ 4 year design life (up to 40 °C ambient temperature)
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Certified quality manufacturer
_ Charge efficiency > 90 %
_ Low self discharge
_ Simple connection with plug-in system
_ Protection and monitoring circuit built into battery enclosure
_ Deep discharge protection
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website
http://www.tridonic.com/28003554

Ordering data

Type	Article number	Capacity	Packaging, carton	Weight per pc.
PACK-LiFePO4 3.0Ah 2A CON R2A SM	**28003554**	3 Ah	75 pc(s).	0.104 kg

1. Standards

according to EN 50172
EN 55015
EN 60068-2-6
according to EN 60068-2-30
EN 60598-1
EN 60598-2-2
EN 60598-2-22
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-7
EN 61347-2-7/A1
EN 61347-2-13
EN 61347-2-13/A1
EN 61547
according to EN 62034
EN 62384
EN 62386-101
EN 62386-102
EN 62386-202
IEC 62133 (related to Lithium Iron battery)
UN 38.3 (related to Lithium Iron battery)
EN 62031
EN 62471

1.1 Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

2. Thermal data

2.1 Temperature range

According to the standard IEC 60598-1 a LED Driver for remote installation has a max. case temperature of 90 °C. The ambient temperature range ta for the EM R2A BASIC is defined to meet this requirement.

2.2 Expected lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	ta	25 °C	35 °C	40 °C
EM R2A BASIC	lifetime	> 100,000 h	> 50,000 h	50,000 h

2.3 Storage conditions

- Humidity: max. 60 % relative humidity not condensed

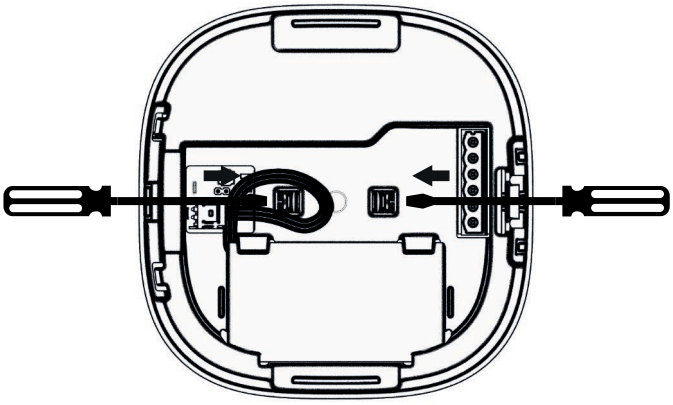
Note: The devices have to be within the specified temperature range (ta) before they are operated.

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C for up to 15 months
  – Relative humidity: 65 % ±5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation / Wiring

3.1 Lens assembly

- Wear gloves when mounting the lens
- Take care of the mounting direction of the escape route lens
- Use screwdriver for replacing/removing lens
  1. + 2. Push lens clips with screwdriver via openings on both sides
  3. Remove lens



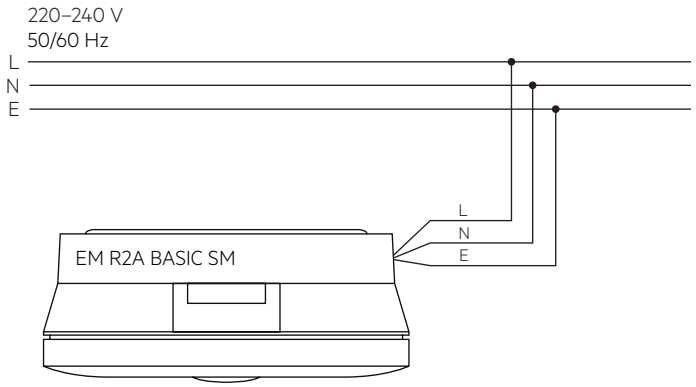
3.2 Luminaire assembly

- Back box preparation:
  - For rear entry: 2 drill locations are provided for a 20 mm hole
  - For side entry (use of deep back box): 3 locations are provided for use with 20 mm cable glands.
- If required a M3 x 10 self tapping screw (not supplied) can be used to secure the front plate to the back box. Drill a 3 mm hole in the back box indent.
- Fix the back plate to the ceiling (BESA compatible mounting)
  Note: direction arrows allowing correct orientation for corridor lens.
- Change lenses if required (pre-fitted with anti panic lens)
- Wiring of the mains terminal block will require a suitable tool to open the cage clamp (size 3.5 x 0.5 mm blade)
- Plug battery into connector
- Fix front plate to back box: locating battery side tabs first, push home, a positive click will be heard when front plate is inserted correctly
- Apply power and the green charge indicator LED will be illuminated
- The deep back box has a parking facility for up to 6 Wago 2773 series connectors (not supplied) to aid through wiring cable management

When drilling prevent damage to internal components.
Do not damage any components during battery replacement.

If an impact protecting rating of above IK03 to a max. of IK07 is required, use an M3x10 self-tapping screw for the assembly.

3.3 Wiring diagrams

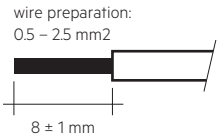


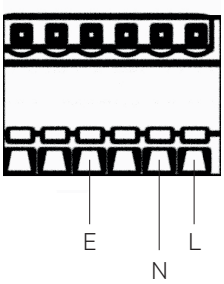
Note: Battery must be connected before mains connection.

3.4 Wiring type and cross-section

Wiring
Mains (N, L): blue, brown
Earth terminal (E)

Cable: low smoke, halogen free





The installation of the luminaire has to be done by a qualified person.

3.5 Earth terminal (E)

The earth terminal is a loose connection without function. Use it to connect the earth wire to prevent it being loose in the luminaire. There is no earth connection required for the functionality of the EM ready2apply.

4. Mechanical data

4.1 Housing properties

- Polycarbonate white RAL 9016
- Polycarbonate black RAL 9005

4.2 Battery connection

Battery pack connection
3-pole plug connection

4.3 Fixing

Surface Mount with options for cable entry by BESA, rear and side entry. To minimise dust ingress used cable entry holes will be drill out.
Screw holes for BESA and general mounting are oval shape to allow adjustment and are pre-drilled to simplify the final installation.

5. Electrical data

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	$I_{max.}$	time
EM R2A BASIC	180	260	260	260	90	130	130	130	10 A	120 µs

5.2 Insulation matrix

	Mains	Battery
Mains	–	• •
Battery	• •	–

• • Represents double or reinforced insulation

5.3 Battery charge regime / discharge

EM R2A BASIC 4 W SM, 1 / 3 h

	Type	**EM R2A BASIC 4 W SM**
	Article no.	**89800983-84 / 89800989-90**
	Cells	**2 cells / 4 cells**
	Duration	**1 / 3 h**
Battery charge time[①]	Initial	24 h
	Recharge	24 h
	Trickle charge	continuously and battery voltage controlled
Typ. charge current[②]	Initial charge	320 mA
	Recharge	320 mA
	Trickle charge	320 mA / 0 mA
Discharge current at 3.2 V (nominal)		1,250 mA

[①] 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.

[②] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C)

5.4 Battery selection for replacement

EM R2A BASIC 4 W, 1 / 3 h

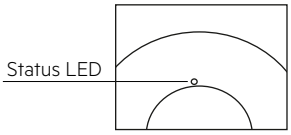
				Type	**EM R2A BASIC NM 114**	**EM R2A BASIC NM 134**
				Article no.	**89800983, 89800989**	**89800984, 89800990**
				Cells	**2 cells**	**4 cells**
				Duration	**1**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**	
$LiFePO_4$ 3 Ah	side by side	1 + 1	**ACCU-LiFePO4 3.0Ah 2B CON R2A SM**	**28003554**	•	
$LiFePO_4$ 6 Ah	side by side	2 + 2	**ACCU-LiFePO4 6.0Ah 2B CON R2A SM**	**28004233**		•

Note: If the rated duration of operation cannot be reached the battery must be replaced. Remove mains during battery replacement.

6. Functions

6.1 Status indication

The indication LED is integrated in the bezel. A green LED indicates that charging current is flowing into the battery.
The battery is protected against operation at excessive temperatures (charging stops and indication LED turns off when battery cell temperature < 0 °C or > 60 °C).



6.2 Testing

Emergency operation can be manually tested by removal of the mains supply.

6.3 Technical data batteries

Accu Lithium Iron Phosphate

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Single cell dimensions	
Diameter	18 mm
Height	65 mm
Capacity two cell pack	3.0 Ah
Capacity four cell pack	6.0 Ah
Max. short term temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Packing quantity	1 pc. per carton

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

For battery data see separate data sheet.

7. Optical properties

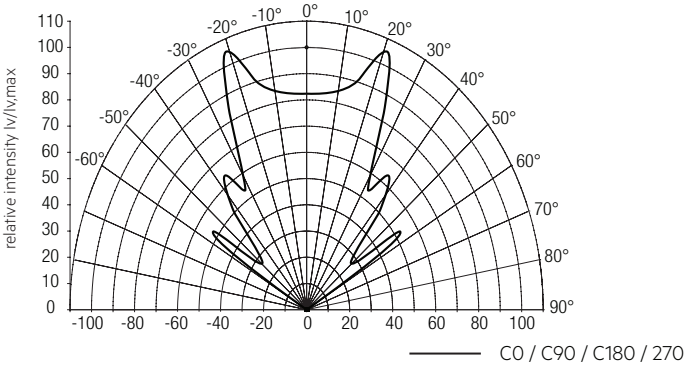
7.1 Anti panic

Max. spacing for >0.5 lux①

Height	Centre to end②		Centre to centre③	
	Trans	Axial	Trans	Axial
2.5 m	3.30	3.30	7.85	7.85
3.0 m	3.80	3.80	9.25	9.25
3.5 m	4.20	4.20	10.50	10.50
4.0 m	4.55	4.55	11.65	11.65
5.0 m	5.25	5.25	13.65	13.65
6.0 m	4.55	4.55	15.15	15.15
7.0 m	4.75	4.75	16.70	16.70
8.0 m	4.85	4.85	17.85	17.85
9.0 m	4.90	4.90	18.05	18.05
10.0 m	5.00	5.00	18.70	18.70
11.0 m	5.05	5.05	18.10	18.10
12.0 m	5.05	5.05	18.10	18.10
13.0 m	5.05	5.05	18.50	18.50
14.0 m	5.05	5.05	18.95	18.95

All values for ta = 25 °C
Luminous flux: 400 lm
① Maintainance factor = 0.8, photometric data available on request
② Distance between module and wall
③ Distance between two modules

Light distribution



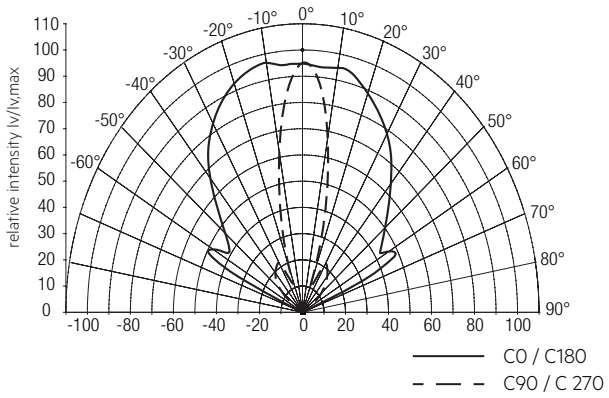
7.2 Escape route

Max. spacing for >1.0 lux①

Height	Centre to end②		Centre to centre③	
	Trans	Axial	Trans	Axial
2.5 m	5.50	3.15	11.95	6.95
3.0 m	6.35	3.65	13.90	8.05
3.5 m	7.00	4.00	15.70	9.00
4.0 m	7.20	4.20	17.35	9.90
5.0 m	6.95	4.05	19.15	11.25
6.0 m	7.20	2.15	20.05	10.05
7.0 m	7.40	2.30	19.70	9.35
8.0 m	7.65	2.45	20.20	8.70
9.0 m	7.80	2.55	20.55	6.25
10.0 m	7.75	2.60	21.05	6.60
11.0 m	7.55	2.65	21.55	6.90
12.0 m	7.25	2.60	21.95	7.20
13.0 m	6.75	2.40	22.15	7.35
14.0 m	6.10	2.10	21.95	7.40

All values for ta = 25 °C
Luminous flux: 400 lm
① Maintainance factor = 0.8, photometric data available on request
② Distance between module and wall
③ Distance between two modules

Light distribution



7.3 Spot

Max. spacing for >0.5 lux / > 5 lux①

Minimum illuminance	Height	Centre to end②		Centre to centre③	
		Trans	Axial	Trans	Axial
0.5	2.5 m	1.65	1.65	7.90	7.90
	3.0 m	1.95	1.95	7.90	7.90
	3.5 m	2.30	2.30	7.90	7.90
	4.0 m	2.60	2.60	8.05	8.05
	5.0 m	3.90	3.90	10.05	10.05
	6.0 m	3.90	3.90	12.10	12.10
	7.0 m	4.55	4.55	14.10	14.10
	8.0 m	4.35	4.35	15.10	15.10
	9.0 m	3.55	3.55	15.90	15.90
	10.0 m	3.40	3.40	16.75	16.75
	11.0 m	3.45	3.45	17.45	17.45
	12.0 m	3.55	3.55	17.80	17.80
	13.0 m	3.65	3.65	17.05	17.05
	14.0 m	3.75	3.75	16.05	16.05
5.0	2.5 m	1.40	1.40	4.70	4.70
	3.0 m	1.05	1.05	5.15	5.15
	3.5 m	1.10	1.10	5.50	5.50
	4.0 m	1.15	1.15	5.45	5.45
	5.0 m	1.25	1.25	4.95	4.95
	6.0 m	1.30	1.30	4.25	4.25
	7.0 m	1.30	1.30	4.35	4.35
	8.0 m	1.20	1.20	4.55	4.55
	9.0 m	1.15	1.15	4.75	4.75
	10.0 m	1.05	1.05	4.95	4.95
	11.0 m	0.95	0.95	5.05	5.05
	12.0 m	0.85	0.85	5.15	5.15
	13.0 m	0.60	0.60	5.10	5.10
	14.0 m	0.20	0.20	5.00	5.00

All values for ta = 25 °C

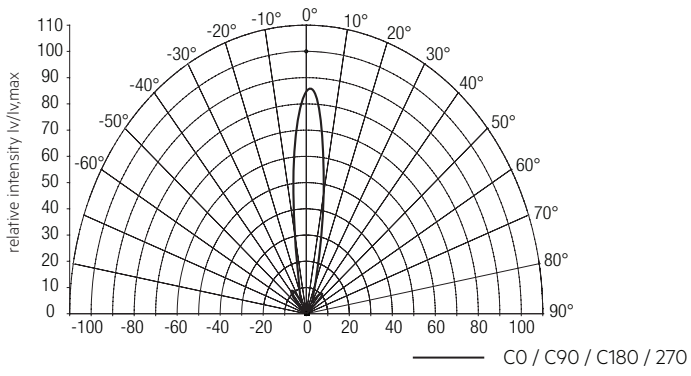
Luminous flux: 400 lm

① Maintainance factor = 0.8, photometric data available on request

② Distance between module and wall

③ Distance between two modules

Light distribution



8. Miscellaneous

8.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

Do not damage battery and other components during battery replacement.

8.2 Black Box data recording

Recording of several parameters only accessable for Tridonic.

8.3 Additional information

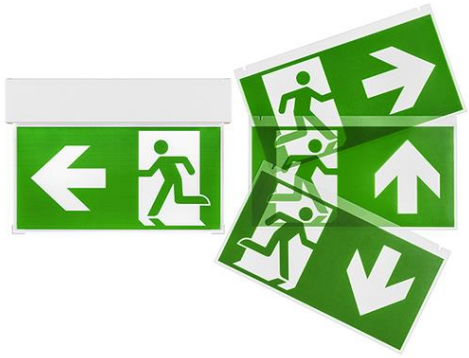
Additional technical information at www.tridonic.com → Technical Data

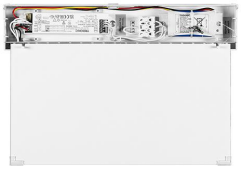
The light source of this luminaire is not replaceable; when the light source reaches its end of life replace the whole luminaire. Lifetime declarations are informative and represent no warranty claim. No warranty if device was opened.

TRIDONIC

EM ready2apply BASIC Exit 30m

EM ready2apply





Product description

_ LED emergency exit sign suitable for various mounting options (ceiling, wall)
_ Complete set with integrated electronics, pictograms (5 pcs. included) and battery
_ Emergency lighting function for manual testing
_ EM = Emergency

Properties

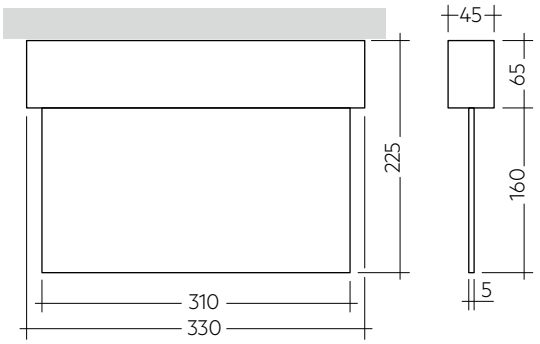
_ Viewing distance up to 30 m, single and double sided
_ Non-maintained and maintained operation
_ Very low stand-by power loss
_ 3 h rated duration
_ Two breakable entrance holes at the back and top
_ Simple connection of Lithium Iron Phosphate battery with plug-in system
_ Integrated status LED and test switch
_ 5 years guarantee electronic (LED driver) (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ 3 years guarantee battery (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website

http://www.tridonic.com/28004646

EM ready2apply BASIC Exit 30m

EM ready2apply



Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM r2a Exit BASIC 30m	**28004646**	3 h	2	1 pc(s).	198 pc(s).	1 kg

Technical data

Rated supply voltage	220 – 240 V
Input voltage range AC (tolerance for safety)	198 – 264 V
Input voltage range AC (tolerance for performance)	198 – 254 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
Starting time (Emergency operation)	< 0.5 s from detection of emergency event
Output current tolerance	± 10 %
LF current ripple	± 5 %
Ambient temperature range	+5 … +40 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP40
Impact protection degree	IK03
Protection class	II
Colour temperature	6,500 K
Colour tolerance	Mac Adams 3
Colour rendering index CRI	> 80
Lifetime	up to 50,000 h

Approval marks

SELV EL CE UKCA RoHS

Standards

EN 50172, EN 55015, EN 60068-2-6, EN 60068-2-30, EN 60598-1, EN 60598-2-2, EN 60598-2-22, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, EN 62384, IEC 62133 (related to Lithium Iron battery), UN 38.3 (related to Lithium Iron battery), EN 62031, EN 62471, ISO 3864-1, ISO 7010

Specific technical data

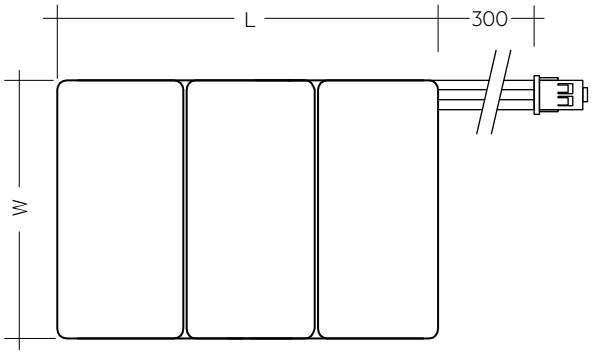
Type①	Rated duration	Number of LEDs	Typ. λ (at 230 V, 50 Hz)	Forward voltage range LED module②	Non-maintained operation		Maintained operation	
					Mains current in charging④ operation	Mains power in charging④ operation	Mains current in charging④ operation	Mains power in charging④ operation
EM r2a Exit BASIC 30m	3 h	1	0.55C	2.4 – 3.4 V	16 / 9 mA	1.6 / 0.8 W	27 / 21 mA	3.5 / 2.5 W

① EM = Emergency
② When exceeding the rated power of 1 respectively 2 W the LED current is reduced proportionally.
③ Tolerance range for electrical data: ±10 %.
④ For LiFePO4 batteries voltage dependent constant current charging is used. The values displayed are for charging on / charging off.

LiFePO4 Accus 1.5 – 9.0 Ah

Accessory

Side by side



Side by side

Product description
_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Environmental friendly technology
_ High energy density
_ Low profile cross-section with removable end caps
_ Constant high-temperature operation
_ Good charging properties at high temperature
_ Electronic thermal battery management
_ High energy maintenance of the charged battery
_ Long shelf life
_ Integrated electronics
_ Safety features incorporated
_ Certified quality manufacturer
_ In various configurations
_ Simple connection with plug-in system
_ With polycarbonate fixing caps
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website
http://www.tridonic.com/28002319

Ordering data

Type	Article number	Number of cells	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
LiFePO4 cells – side by side, 3.0 – 9.0 Ah						
ACCU-LiFePO4 3.0Ah 2B CON	**28002319**	2 x 1	3.0 Ah	5 pc(s).	25 pc(s).	0.100 kg

1. Standards

according to EN 50172
EN 55015
EN 60068-2-6
according to EN 60068-2-30
EN 60598-1
EN 60598-2-2
EN 60598-2-22
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-7
EN 61347-2-7/A1
EN 61347-2-13
EN 61347-2-13/A1
EN 61547
EN 62384
IEC 62133 (related to Lithium Iron battery)
UN 38.3 (related to Lithium Iron battery)
EN 62031
EN 62471
ISO 3864-1
ISO 7010

1.1 Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

2. Thermal data

2.1 Temperature range

According to the standard IEC 60598-1 a LED driver for remote installation has a max. case temperature of 90 °C. The ambient temperature range ta for the EM R2A BASIC is defined to meet this requirement.

2.2 Expected lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	ta	25 °C	35 °C	40 °C
EM R2A BASIC	lifetime	> 100,000 h	> 50,000 h	50,000 h

2.3 Storage conditions

- Humidity 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Note: The devices have to be within the specified temperature range (ta) before they are operated.

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C for up to 15 months
  – Relative humidity: 65 % ±5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

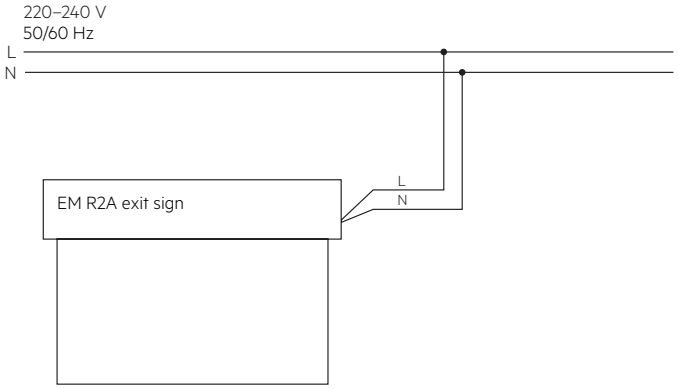
3. Installation / Wiring

3.1 Luminaire assembly

- Wear gloves when mounting the EM ready2apply Exit.
- Use a screwdriver for opening the front cover of the housing.
- Select mounting option:
  - Ceiling
  - Wall
- The mounting holes on the back plate are prepared and can be drilled through with a screwdriver or a drill.
- The mounting holes for ceiling mounting are on the top side and the mounting holes for wall mounting are on the front side of the back plate.
- Fix the back plate on the ceiling or on the wall.
- Wire the mains terminal block
- Plug the battery into the connector.
- Attach the back plate for the pictograms to the back plate of the housing. Fix the back plate with the hook to the cable ties of the battery to prevent it from falling down.
- Fix the front plate of the housing to the back box. A click will be heard when front plate is inserted correctly.
- Attach a pictogram to the back plate and fix it with brackets at the corners.
  For use with one sign: use a white back plate.
  For use with two signs: use without a white back plate.

Take care when drilling to prevent damage to internal components.

3.2 Wiring diagrams

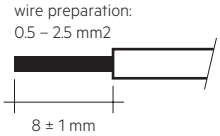


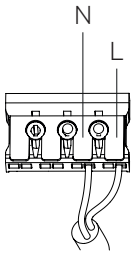
Note: Battery must be connected before mains connection.

3.3 Wiring type and cross-section

Wiring
Mains (N, L)

Cable: low smoke, halogen free





Installation of the luminaire only by a qualified person.

4. Mechanical data

4.1 Housing properties

- Polycarbonate white, similar to RAL 9016

4.2 Battery connection

Battery pack connection
3-pole plug connection

4.3 Fixing

Several mounting options possible:
- Ceiling
- Wall

Two easy breakable entry holes at rear and upper part for cable entry.

5. Electrical data

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	C10	C13	C16	C20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	2.5 mm²	I_{max}	time
EM R2A BASIC	90	130	130	130	180	260	260	260	5 A	55 µs

5.2 Insulation matrix

	Mains	Switched Live	Battery, LED, Test switch, Indicator LED
Mains	–	•	• •
Switched Live	•	–	• •
Battery, LED, Test switch, Indicator LED	• •	• •	–

• Represents basic insulation

• • Represents double or reinforced insulation

5.3 Battery charge regime / discharge

EM R2A BASIC Exit 30m, 3 h

	Type	EM R2A BASIC Exit 30m
	Article no.	**28004646**
	Cells	**2 cells**
	Duration	**3 h**
Battery charge time[1]	Initial	24 h
	Trickle charge	continuously and battery voltage controlled
Typ. charge current[2]	Initial charge	455 – 505 mA
	Trickle charge[2]	455 – 505 mA / 0 mA
Charge voltage range[3]		2.0 – 3.6 V per cell
Discharge voltage range		2.3 – 3.6 V per cell

[1] 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.

[2] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C)

[3] The battery will not be charged below 2.0 V.

5.4 Battery selection for replacement

EM R2A BASIC Exit 30m, 3 h

				Type	EM R2A BASIC Exit 30m
				Article no.	**28004646**
				Cells	**2 cells**
				Duration	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**
Lithium Iron Phosphate 3 Ah	side by side	2 x 1	**ACCU-LiFePO4 3.0Ah 2B CON**	**28002319**	•

Note: If the rated duration of operation cannot be reached the battery must be replaced. Remove mains during battery replacement.

6. Functions

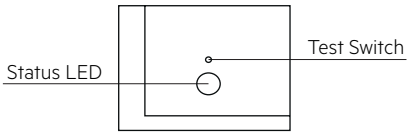
6.1 Status indication

The indication LED is integrated on the bottom left of the housing. A green LED indicates that charging current is flowing into the battery.
The battery is protected against operation at excessive temperatures (charging stops and indication LED turns off when battery cell temperature < 0 °C or > 60 °C).

6.2 Test switch

Test switch is integrated on the bottom left of the housing. This can be used to to execute function test as long as the switch pressed > 1 s

To initiate a test use a suitable tool, refer to drawing below.



Note: Press test switch carefully to avoid damaging it.

6.3 Safety

6.3.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

6.3.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

6.3.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

6.3.4 Temperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation.

6.4 Technical data batteries

Accu Lithium Iron Phosphate

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Single cell dimensions	
Diameter	18 mm
Height	65 mm
Capacity two cell pack	3.0 Ah
Max. short term temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Packing quantity	1 pc. per carton

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

For battery data see separate data sheet.

7. Miscellaneous

7.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

Do not damage battery and other components during battery replacement.

7.2 Black Box data recording

Recording of several parameters only accessable for Tridonic.

7.3 Additional information

Additional technical information at www.tridonic.com → Technical Data

The light source of this luminaire is not replaceable; when the light source reaches its end of life replace the whole luminaire. Lifetime declarations are informative and represent no warranty claim. No warranty if device was opened.

TRIDONIC

EM ready2apply bDW 2 – 3 W

EM ready2apply

Product description

_ Can be integrated in Casambi systems (Casambi Ready)
_ Wireless controllable with an Android / iOS smart device
_ LED emergency module suitable for direct installation in ceilings
_ Complete set with integrated electronics, LED module, optics and battery
_ Small size ceiling hole, 68 – 72 mm diameter, 100 mm height
_ IP65 protection rating (in installed state)
_ EM = Emergency

Properties

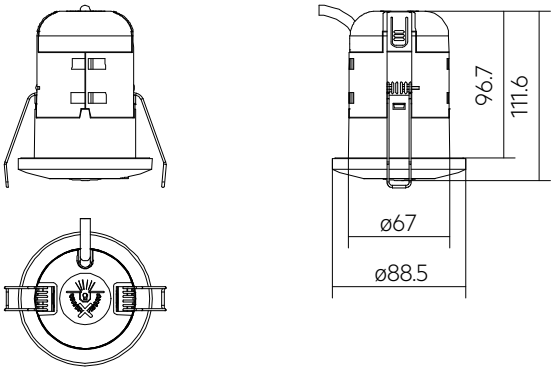
_ Output power 2 – 3 W
_ Very low stand-by power loss
_ Replaceable bezel, black as an option
_ Non-maintained variants
_ 3 h rated duration
_ Plug-in Lithium Iron Phosphate battery
_ 5 years guarantee electronic (LED driver) (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Website

http://www.tridonic.com/89801232

EM ready2apply bDW 2 – 3 W

EM ready2apply



Ordering data

Type	Article number	Operating mode	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM R2A 68mm bDW NM 132 AP	**89801232**	Non-maintained	3 h	1	1 pc(s).	180 pc(s).	0.375 kg
EM R2A 68mm bDW NM 133 AP	**89801234**	Non-maintained	3 h	1	1 pc(s).	180 pc(s).	0.415 kg
EM R2A 68mm bDW NM 132 ER	**89801233**	Non-maintained	3 h	1	1 pc(s).	180 pc(s).	0.375 kg
EM R2A 68mm bDW NM 133 ER	**89801235**	Non-maintained	3 h	1	1 pc(s).	180 pc(s).	0.415 kg

Technical data

Rated supply voltage	220 – 240 V
Input voltage range AC (tolerance for safety)	198 – 264 V
Input voltage range AC (tolerance for performance)	198 – 254 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
Starting time (Emergency operation)	< 0.5 s from detection of emergency event
Output current tolerance	± 5 %
LF current ripple	± 5 %
Ambient temperature ta	5 … +40 °C
Radio transceiver operating frequencies	2.4 – 2.483 GHz
Max. output power radio transceiver (E.I. R.P.) ①	< + 20 dBm
Radio protocol	Bluetooth 4.0 or 5.0 Low Energy (BLE)
Capable for mesh network	Up to 250 nodes / Standard networks and Long Range
Mains voltage changeover threshold	According to EN 60598-2-22
Type of protection	IP20
Impact protection degree	IK03
Protection class	II
Colour temperature	6,500 K
Colour tolerance	3 SDCM
Colour rendering index CRI	> 80
Lifetime	up to 50,000 h
EoFI	1

Approval marks

EL-T RoHS

Standards

according to EN 50172, EN 55015, EN 60068-2-6, EN 60068-2-30, EN 60598-1, EN 60598-2-2, EN 60598-2-22, EN 61000-3-2, EN 61000-3-3, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, acc. to EN 62034, EN 62384, IEC 62133 (related to Lithium Iron battery), UN 38.3 (related to Lithium Iron battery), EN 62031, EN 62471, EN 300 328, EN 301 489-1, EN 301 489-17

Specific technical data

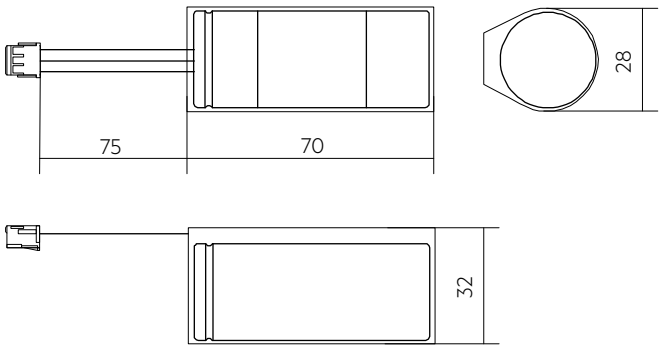
Type	Number of battery cells	Rated duration	Mains current (230 V, 50 Hz), non-maintained		Typ. λ (at 230 V, 50 Hz, charging)	Typ. output current	Typ. forward voltage	Output power
			Charging	Charger off				
Normal operation								
EM R2A 68mm bDW NM 132 AP	1	3 h	14 mA	4 mA	0.66C	–	–	–
EM R2A 68mm bDW NM 132 ER	1	3 h	14 mA	4 mA	0.66C	–	–	–
EM R2A 68mm bDW NM 133 AP	1	3 h	14 mA	4 mA	0.66C	–	–	–
EM R2A 68mm bDW NM 133 ER	1	3 h	14 mA	4 mA	0.66C	–	–	–
Emergency operation								
EM R2A 68mm bDW NM 132 AP	1	3 h	–	–	–	170 mA	12 V	2.0 W
EM R2A 68mm bDW NM 132 ER	1	3 h	–	–	–	170 mA	12 V	2.0 W
EM R2A 68mm bDW NM 133 AP	1	3 h	–	–	–	225 mA	12 V	2.6 W
EM R2A 68mm bDW NM 133 ER	1	3 h	–	–	–	225 mA	12 V	2.6 W

① E.I.R.P.: Equivalent Isotropically Radiated Power.

LiFePO4 Battery pack 3.3 – 4.8 Ah

Accessory

ACCU-LiFePO4 4.8Ah 3B CON R2A 68MM



Product description
_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ 6 year design life (up to 30 °C ambient temperature)
_ 4 year design life (up to 40 °C ambient temperature)
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Certified quality manufacturer
_ Charge efficiency > 90 %
_ Low self discharge
_ Simple connection with plug-in system
_ Protection and monitoring circuit built into battery enclosure
_ Deep discharge protection
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website
http://www.tridonic.com/28005687

Ordering data

Type	Article number	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
ACCU-LiFePO4 4.8Ah 3B CON R2A 68MM	**28005687**	4.8 Ah	25 pc(s).	50 pc(s).	0.125 kg
ACCU-LiFePO4 3.3Ah 1A CON R2A 68MM	**28005688**	3.3 Ah	20 pc(s).	80 pc(s).	0.232 kg

EM r2a 68mm Bezel

Accessory

Product description
_ Replaceable bezel
_ Suitable for the use with EM r2a 68mm
_ Black (RAL 9005)
_ Polycarbonate

Website
http://www.tridonic.com/28006212

Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
EM r2a 68mm B	**28006212**	Black	100 pc(s).	0.091 kg

1. Standards

according to EN 50172
EN 55015
EN 60068-2-6
according to EN 60068-2-30
EN 60598-1
EN 60598-2-2
EN 60598-2-22
EN 61000-3-2
EN 61000-3-3
EN 61347-1
EN 61347-2-7
EN 61347-2-7/A1
EN 61347-2-13
EN 61347-2-13/A1
EN 61547
according to EN 62034
EN 62384
IEC 62133 (related to Lithium Iron battery)
UN 38.3 (related to Lithium Iron battery)
EN 62031
EN 62471
EN 300 328
EN 301 489-1
EN 301 489-17

1.1 Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

2. Thermal data

2.1 Temperature range

According to the standard IEC 60598-1 a LED Driver for remote installation has a max. case temperature of 90 °C. The ambient temperature range ta for the EM R2A bDW is defined to meet this requirement.

2.2 Expected lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

Type	ta	25 °C	35 °C	40 °C
EM R2A bDW	lifetime	> 100,000 h	> 100,000 h	> 100,000 h

2.3 Storage conditions

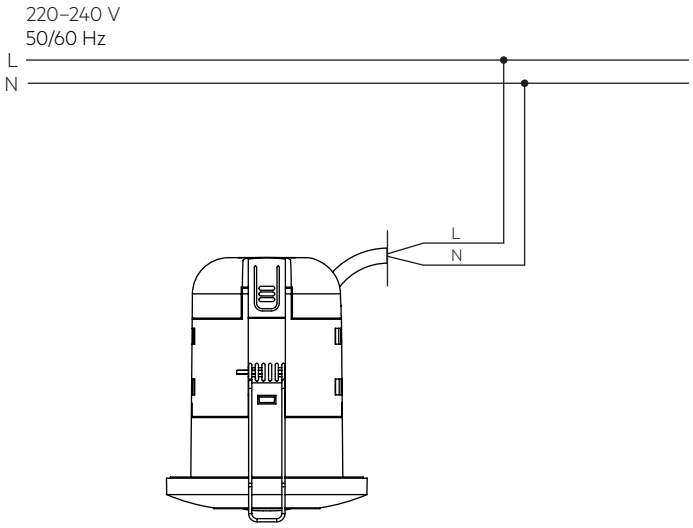
- Humidity 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Note: The devices have to be within the specified temperature range (ta) before they are operated.

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C for up to 15 months
  – Relative humidity: 65 % ±5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation / Wiring

3.1 Wiring diagram

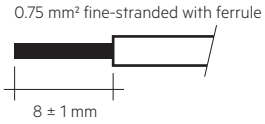


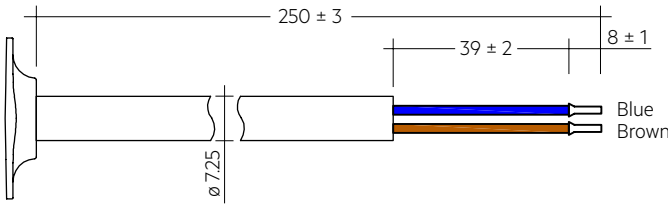
Note: Battery must be connected before mains connection.

3.2 Wiring type and cross-section

Wiring
Mains (L, N): brown, blue

Cable length: 250 mm with strain relief at the R2A bDW module
Cable: low smoke, halogen free





Recommended connector with strain-relief (plug and socket):
Wieland GST18

No terminal block included. The installation of the terminal block has to be done by a qualified person.

Only a terminal complying with EN 60998-2-1 or EN 60998-2-2 shall be used

Note: If mains cable or battery strap are damaged the luminaire must be disposed.

4. Mechanical data

4.1 Housing properties

- Polycarbonate white RAL 9016
- Polycarbonate black RAL 9005
- Polycarbonate blue, RAL 5002

4.2 Battery connection

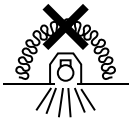
Battery pack connection
Simple connection with plug-in system (polarity reversal protection)

Module connection
Insert the battery in the designated position in the luminaire, plug the connector into the EM ready2apply and attach the safety cap.

4.3 Fixing

Spring fixing through hole in ceiling

- Hole diameter: 68 – 72 mm
- Ceiling thickness: 1 – 25 mm
- Ceiling void height: > 100 mm



Device not suitable for covering with thermally insulating material

5. Electrical data

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm^2	1.5 mm^2	2.5 mm^2	4 mm^2	1.5 mm^2	1.5 mm^2	2.5 mm^2	4 mm^2	I_{max}	time
EM R2A bDW	180	260	260	260	90	130	130	130	10 A	120 µs

5.2 Insulation matrix

	Mains	Battery
Mains	–	• •
Battery	• •	–

- • Represents basic insulation
- • • Represents double or reinforced insulation

5.3 Battery charge regime / discharge

EM R2A 68mm bDW 2 – 3 W, 3 h

	Type	EM R2A 68mm bDW 2 W	EM R2A 68mm bDW 3 W
	Article no.	**89801232, 89801233**	**89801234, 89801235**
	Cells	**1 cell**	**3 cells**
	Duration	**3 h**	**3 h**
Battery charge time[1]	Initial	24 h	
	Recharge	24 h	
	Trickle charge	continuously and battery voltage controlled	
Typ. charge current[2]	Initial charge	270 mA	270 mA
	Recharge	270 mA	270 mA
	Trickle charge	270 mA / 0 mA	270 mA / 0 mA
Mains power consumption	Initial charge	2.2 W	2.2 W
	Recharge	2.2 W	2.2 W
	Trickle charge	2.2 W / 0 W	2.2 W / 0 W
Discharge current at 3.2 V (nominal)		715 mA	970 mA

[1] 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.

[2] Automatic recharge when battery voltage falls below 3.4 V.
Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures
(charging stopped when battery cell temperature < 0 °C or > 60 °C)

5.4 Battery selection for replacement

EM R2A 68mm bDW 2 – 3 W, 3 h

				Type	EM R2A 68mm bDW 2 W	EM R2A 68mm bDW 3 W
				Article no.	**89801232, 89801233**	**89801234, 89801235**
				Cells	**1 cell**	**3 cells**
				Duration	**3 h**	**3 h**
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**	
Lithium Iron Phosphate 3.3 Ah	single cell	1	**ACCU-LiFePO4 3.3Ah 1A CON R2A 68MM**	**28005688**	•	
Lithium Iron Phosphate 4.8 Ah	pyramid	3	**ACCU-LiFePO4 4.8Ah 3B CON R2A 68MM**	**28005687**		•

Note: If the rated duration of operation cannot be reached the battery must be replaced. Remove mains during battery replacement.

6. Software / Programming / Interfaces

6.1 Software / programming

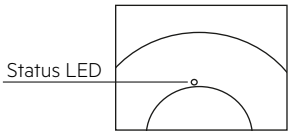
With appropriate software and an interface different functions can be activated and various parameters can be configured in the LED driver. To do so, the software (Casambi Utility App) is required.

7. Functions

For proper function a DALI gateway and an external EM controller are needed.

7.1 Status indication

System status is indicated by a bi-colour LED and by a DALI status flag. The indication LED is integrated in the bezel.



LED indiction	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged / Incorrect battery voltage / Battery is outside of its temperature range for charging (0 – 60 °C)
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	DALI Inhibit	Switching into DALI inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

7.2 Testing

Emergency operation can be manually tested by removal of the mains supply.

DALI Control
A DALI command from a suitable control unit can be used to initiate function and duration tests at individually selected times. Status flags are set for report back and data logging of results.

When a DALI bus has not been connected or when a DALI bus is connected but the DALI default DELAY and INTERVAL times have not been re-set by sending appropriate DALI commands, then the EM R2A bDW will conduct self-tests in accordance with the default times set within the EEPROM . These default times are factory pre-set, in accordance with the DALI standard EN 62386-202, to conduct an automatic function test every 7 days and a duration test every 52 weeks. Since the DELAY time is factory pre-set to Zero, all units are tested at the same time. Test times can be changed with a command over the DALI bus.

The DELAY and INTERVAL time values must be re-set when the emergency system test times are to be scheduled by a DALI control and monitoring system.
Note that once the default values have been set to Zero, tests will only be conducted following a command from the control system. If the DALI bus is disconnected the EM R2A bDW does not revert to self-testing mode.

Note: If the battery is connected the DALI communication is only possible after power reset.

Addressing
The EM R2A bDW includes the EZ easy addressing system which allows addressing and identification by using the bi-colour LED. Binary address codes given by the LED can be simply converted to the DALI addresses 0 to 63. For single handed addressing using this method it is necessary to send a broadcast ident command every 3 to 9 seconds. During this command the LEDs will be switched off and the indication LED will flash the 6 bit binary address preceded by a 3 second start indication period.

Commissioning
After installation of the luminaire and initial connection of the mains supply and battery supply to the EM R2A bDW the unit will commence charging the batteries for 24 hours (initial charge). Afterwards the module will conduct a commissioning test for the full duration. The 24 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition. The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 24 hrs) and the interval time is not set to zero, otherwise the system is expected to perform the testing.

Functional test
The time of day and frequency of the 5 seconds function test can be set by the DALI controller. The default setting is a 5 seconds test on a weekly basis.

Duration test
The time of day and frequency of the duration test can be set by the DALI controller. The default setting is a duration test conducted every 52 weeks.

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.

Prolong time
Prolong time can be set by the DALI controller. This is the delay time between return of the mains supply and the end of the emergency operation. The default prolong time is set as 0 minutes as specified within the DALI standard.
Indicator LED will stay off for the duration of the prolong time.

Rest Mode
Rest mode can be initiated by the DALI controller. The appropriate command should be sent after the mains supply has been disconnected and whilst the module is in emergency operation. After a mains reset the EM R2A bDW exits the rest mode. EM R2A bDW supports the re-light command via the DALI bus.
Max. rest mode duration: 21 days from fully charged battery

DALI Controller
DALI controllers and hardware/software solutions are available from Tridonic. Please refer to the Lighting controls section.

7.3 Safety

7.3.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

7.3.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.3.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7.3.4 Temperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation.

7.4 Technical data batteries

Accu Lithium Iron Phosphate

Capacity 3.3 Ah

International designation	IFpR 27/67
Battery voltage/cell	3.2 V
Cell type	26650
Single cell dimensions	
Diameter	26 mm
Height	65 mm
Max. short term temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +25 °C
Packing quantity	1 pc. per carton

Capacity 4.8 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2 V
Cell type	18650
Single cell dimensions	
Diameter	18 mm
Height	65 mm
Max. short term temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +25 °C
Packing quantity	1 pc. per carton

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

For battery data see separate data sheet.

8. Optical properties

8.1 Anti panic

EM R2A bDW 2W – Max. spacing for >0.5 lux[1]

Height	Centre to end[2]		Centre to centre[3]	
	Trans	Longitudinal	Trans	Longitudinal
2.5 m	4.25 m	4.20 m	11.55 m	11.55 m
3.0 m	4.65 m	4.60 m	12.80 m	12.75 m
4.0 m	4.55 m	4.55 m	14.90 m	14.90 m
5.0 m	4.35 m	4.30 m	16.80 m	16.80 m
6.0 m	4.05 m	4.00 m	17.95 m	17.90 m
8.0 m	–	–	18.15 m	18.10 m
10.0 m	–	–	15.80 m	15.80 m
12.0 m	–	–	12.20 m	12.20 m

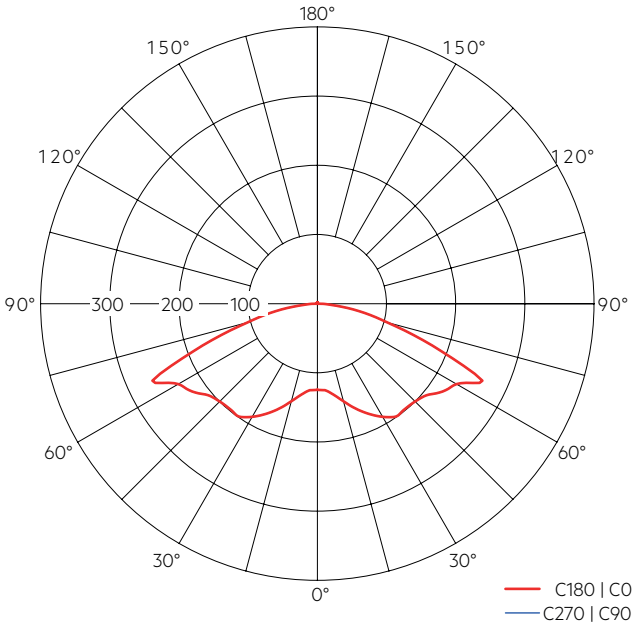
Luminous flux: 264 lm.

[1] Maintainance factor = 0.9, photometric data available on request.

[2] Distance between module and wall.

[3] Distance between two modules.

Light distribution



EM R2A bDW 3W – Max. spacing for >0.5 lux[1]

Height	Centre to end[2]		Centre to centre[3]	
	Trans	Longitudinal	Trans	Longitudinal
2.5 m	3.10 m	3.05 m	7.10 m	7.08 m
3.0 m	3.55 m	3.50 m	8.20 m	8.20 m
4.0 m	4.40 m	4.35 m	10.30 m	10.25 m
5.0 m	5.10 m	5.05 m	12.20 m	12.20 m
6.0 m	5.20 m	5.15 m	14.05 m	14.00 m
8.0 m	4.75 m	4.70 m	17.40 m	17.40 m
10.0 m	5.00 m	4.95 m	18.30 m	18.30 m
12.0 m	5.05 m	5.05 m	19.55 m	19.55 m

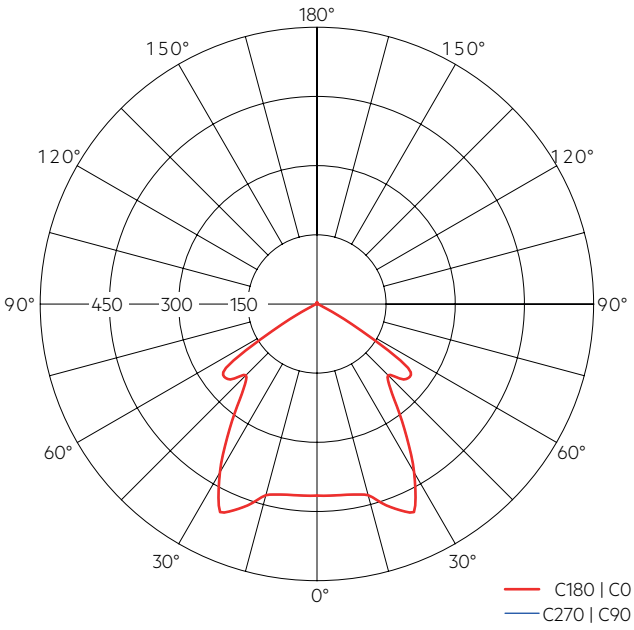
Luminous flux: 308 lm.

[1] Maintainance factor = 0.9, photometric data available on request.

[2] Distance between module and wall.

[3] Distance between two modules.

Light distribution



8.2 Escape route

EM R2A bDW 2W – Spacing data for 2m escape route[1]

Height	Centre to end[2]		Centre to centre[3]	
	Max. spacing	Diversity	Max. spacing	Diversity
Transversal > 1 lux				
2.5 m	2.00 m	0.102	5.55 m	0.101
3.0 m	1.90 m	0.152	5.70 m	0.146
4.0 m	1.90 m	0.260	5.55 m	0.255
5.0 m	1.95 m	0.421	5.35 m	0.387
6.0 m	1.70 m	0.584	5.40 m	0.546
7.0 m	1.20 m	0.805	5.55 m	0.721
8.0 m	–	–	5.20 m	0.906
9.0 m	–	–	3.95 m	0.917
10.0 m	–	–	2.60 m	0.923
11.0 m	–	–	0.65 m	0.999
12.0 m	–	–	–	–
13.0 m	–	–	–	–
14.0 m	–	–	–	–
Longitudinal > 1 lux				
2.5 m	6.35 m	0.077	15.60 m	0.074
3.0 m	6.30 m	0.109	17.15 m	0.107
4.0 m	7.00 m	0.190	18.10 m	0.193
5.0 m	7.40 m	0.297	19.15 m	0.291
6.0 m	7.00 m	0.425	20.20 m	0.409
7.0 m	5.90 m	0.580	21.00 m	0.545
8.0 m	–	–	20.55 m	0.684
9.0 m	–	–	14.85 m	0.659
10.0 m	–	–	12.55 m	0.717
11.0 m	–	–	8.35 m	0.728
12.0 m	–	–	–	–
13.0 m	–	–	–	–
14.0 m	–	–	–	–

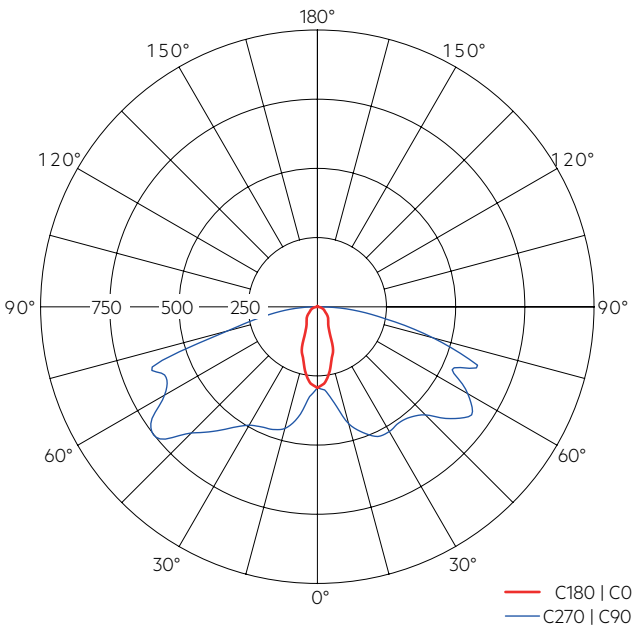
Luminous flux: 235 lm.

[1] Maintainance factor = 0.9, photometric data available on request.

[2] Distance between module and wall.

[3] Distance between two modules.

Light distribution



EM R2A bDW 3W – Spacing data for 2m escape route[1]

Height	Centre to end[2]		Centre to centre[3]	
	Max. spacing	Diversity	Max. spacing	Diversity
Transversal > 1 lux				
2.5 m	3.40 m	0.026	7.65 m	0.026
3.0 m	3.80 m	0.038	8.70 m	0.037
4.0 m	4.15 m	0.065	10.40 m	0.066
5.0 m	2.45 m	0.101	10.75 m	0.101
6.0 m	2.50 m	0.153	10.15 m	0.145
7.0 m	2.65 m	0.201	6.90 m	0.187
8.0 m	2.75 m	0.264	7.05 m	0.237
9.0 m	2.80 m	0.335	7.30 m	0.298
10.0 m	2.80 m	0.406	7.55 m	0.362
11.0 m	2.65 m	0.499	7.75 m	0.439
12.0 m	2.45 m	0.590	7.90 m	0.528
13.0 m	2.15 m	0.691	8.00 m	0.622
14.0 m	1.75 m	0.801	7.90 m	0.734
Longitudinal > 1 lux				
2.5 m	6.00 m	0.026	13.30 m	0.026
3.0 m	6.75 m	0.037	15.05 m	0.037
4.0 m	6.80 m	0.065	18.35 m	0.065
5.0 m	7.00 m	0.102	19.70 m	0.101
6.0 m	7.30 m	0.148	19.45 m	0.145
7.0 m	7.55 m	0.199	19.90 m	0.197
8.0 m	7.65 m	0.260	20.60 m	0.256
9.0 m	7.65 m	0.328	21.15 m	0.320
10.0 m	7.50 m	0.406	21.55 m	0.389
11.0 m	7.20 m	0.494	21.75 m	0.468
12.0 m	6.85 m	0.583	21.85 m	0.552
13.0 m	6.20 m	0.687	21.80 m	0.641
14.0 m	5.30 m	0.795	21.50 m	0.732

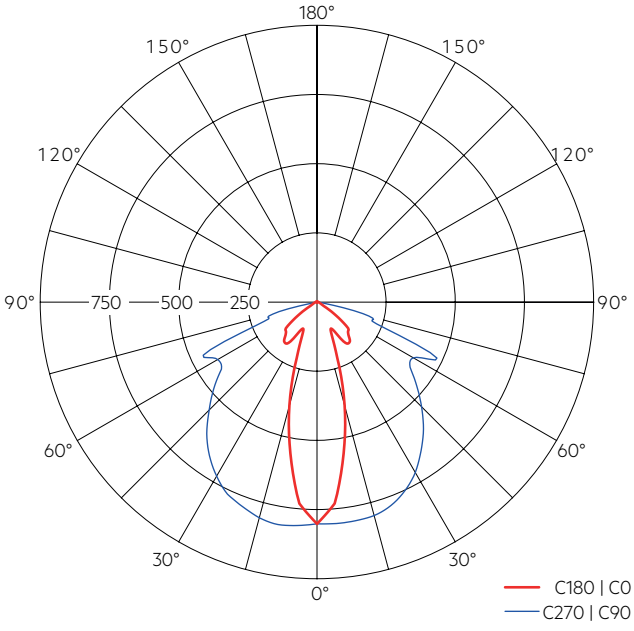
Luminous flux: 343 lm.

[1] Maintainance factor = 0.9, photometric data available on request.

[2] Distance between module and wall.

[3] Distance between two modules.

Light distribution



9. Miscellaneous

9.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

Do not damage battery and other components during battery replacement.

9.2 Black Box data recording

Recording of several parameters only accessable for Tridonic.

9.3 Additional information

Additional technical information at www.tridonic.com → Technical Data

The light source of this luminaire is not replaceable; when the light source reaches its end of life replace the whole luminaire. Lifetime declarations are informative and represent no warranty claim. No warranty if device was opened.

TRIDONIC

EM ready2apply NM 132 2 W PCB

EM ready2apply

EM R2A NM BASIC

EM R2A NM ST/PRO

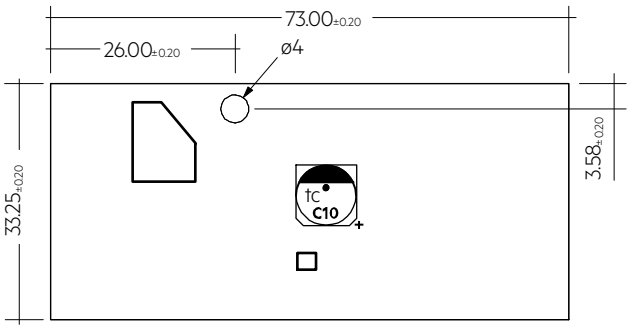
Product description
_ Emergency lighting LED driver
_ Electronic circuit board
_ Emergency lighting function for manual testing, self-test or DALI autotest
_ EM = Emergency

Properties
_ Output power 1.5 W
_ Very low stand-by power loss
_ Non maintained operation
_ 3 h rated duration
_ Plug-in Lithium Iron Phosphate battery
_ 5 years guarantee electronic (LED driver) (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ 5 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

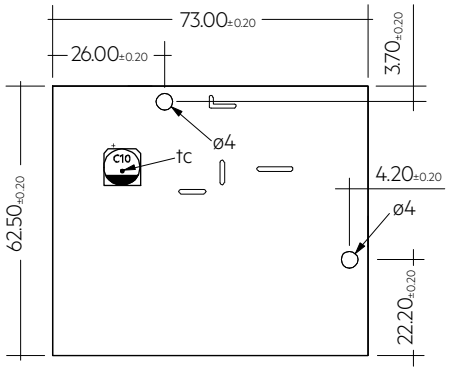
Website
http://www.tridonic.com/89800680

EM ready2apply NM 132 2 W PCB

EM ready2apply



EM R2A NM BASIC



EM R2A NM ST/PRO

Ordering data

Type	Article number	Rated duration	Number of cells	Packaging, carton	Packaging, pallet	Weight per pc.
EM R2A BASIC NM 132 2W PCB	**89800680**	3 h	2	15 pc(s).	480 pc(s).	0.019 kg
EM R2A ST NM 132 2W PCB	**89800681**	3 h	2	15 pc(s).	480 pc(s).	0.031 kg
EM R2A PRO NM 132 2W PCB	**89800682**	3 h	2	15 pc(s).	480 pc(s).	0.031 kg

Technical data

Rated supply voltage	220 – 240 V
Input voltage range AC (tolerance for safety)	198 – 264 V
Input voltage range AC (tolerance for performance)	198 – 254 V
Mains frequency	50 / 60 Hz
Overvoltage protection	320 V (for 48 h)
Starting time (Emergency operation)	< 0.5 s from detection of emergency event
Output current tolerance	± 5 %
LF current ripple	± 5 %
Ambient temperature range	+5 … +45 °C
Max. casing temperature tc	60 °C
Mains voltage changeover threshold	According to EN 60598-2-22
Lifetime	up to 50,000 h
EoFI	1

Approval marks

SELV EL EL-T CE RoHS

Standards

according to EN 50172, EN 55015, EN 60068-2-6, according to EN 60068-2-30, EN 61000-3-2, EN 61347-1, EN 61347-2-7, EN 61347-2-13, EN 61547, EN 62384

Specific technical data

Type	Number of battery cells	Rated duration	Mains current (230 V, 50 Hz), non-maintained		Mains power (230 V, 50 Hz), non-maintained		Typ. λ (at 230 V, 50 Hz, charging)	Typ. output current	Output voltage range	Output power
			Charging	Charger off	Charging	Charger off				
Normal operation										
EM R2A BASIC NM 132 2W PCB	2	3 h	16 mA	5 mA	2.5 W	0.6 W	0.63C	–	–	–
EM R2A ST NM 132 2W PCB	2	3 h	20 mA	10 mA	2.5 W	0.6 W	0.63C	–	–	–
EM R2A PRO NM 132 2W PCB	2	3 h	20 mA	10 mA	2.5 W	0.6 W	0.63C	–	–	–
Emergency operation										
EM R2A BASIC NM 132 2W PCB	2	3 h	–	–	–	–	–	126 mA	11 – 13.5 V	1.5 W
EM R2A ST NM 132 2W PCB	2	3 h	–	–	–	–	–	126 mA	11 – 13.5 V	1.5 W
EM R2A PRO NM 132 2W PCB	2	3 h	–	–	–	–	–	126 mA	11 – 13.5 V	1.5 W

LED+LENS KIT

Accessory

Product description
_ Bezel and lenses for the EM ready2apply PCB
_ Status LED and test switch included
_ Integrated LED module with heat sink
_ Click-in multi lens option
_ Anti-panic, escape route and spot illumination
_ Simple connection with plug-in system

Website
http://www.tridonic.com/89800684

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM R2A NM LED+LENS KIT 40mm	**89800684**	15 pc(s).	0.04 kg

Connection Cable EM R2A LED

Accessory

Product description
_ Extension cable for EM LED+LENS KIT
_ Cable length 100 mm
_ 4-pole connection

Website
http://www.tridonic.com/28002676

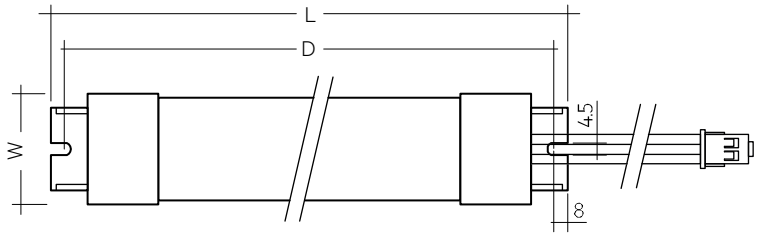
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EXTENSION CABLE EM R2A LED 100mm	**28002676**	3,000 pc(s).	0.002 kg

LiFePO4 Accus 1.5 – 9.0 Ah

Accessory

Stick



Stick

Product description

_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Environmental friendly technology
_ High energy density
_ Low profile cross-section with removable end caps
_ Constant high-temperature operation
_ Good charging properties at high temperature
_ Electronic thermal battery management
_ High energy maintenance of the charged battery
_ Long shelf life
_ Integrated electronics
_ Safety features incorporated
_ Certified quality manufacturer
_ In various configurations
_ Simple connection with plug-in system
_ With polycarbonate fixing caps
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

http://www.tridonic.com/28002318

Ordering data

Type	Article number	Number of cells	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
LiFePO4 cells – stick, 1.5 – 9.0 Ah						
ACCU-LiFePO4 3.0Ah 2A CON	**28002318**	1 x 2	3.0 Ah	5 pc(s).	25 pc(s).	0.108 kg
LiFePO4 cells – side by side, 3.0 – 9.0 Ah						
ACCU-LiFePO4 3.0Ah 2B CON	**28002319**	2 x 1	3.0 Ah	5 pc(s).	25 pc(s).	0.100 kg

1. Standards

according to EN 50172
EN 55015
EN 60068-2-6
according to EN 60068-2-30
EN 61000-3-2
EN 61347-1
EN 61347-2-7
EN 61347-2-13
EN 61547
EN 62384

2. Thermal data

2.1 Expected lifetime

Average lifetime 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

Expected lifetime

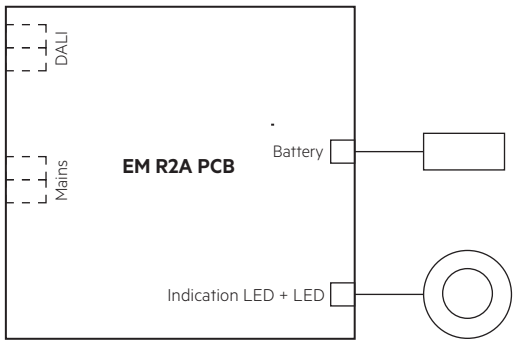
Type	ta	25 °C	30 °C	40 °C
EM R2A	lifetime	> 50,000 h	50,000 h	50,000 h

2.2 Storage conditions

- Humidity 45 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)
- Storage time / temperature: max. 6 months at -20 °C up to +45 °C (< 3 months at +45 °C)

Note: The devices have to be within the specified temperature range (ta) before they are operated.

3. Installation / Wiring



EM R2A BASIC version: Green indication LED
EM R2A ST/PRO version: Green / Red indication LED

3.1 Wiring type and cross-section

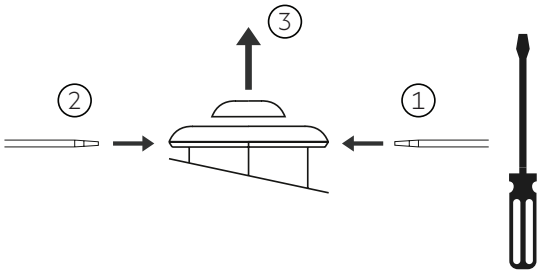
Wiring PRO:
Mains (N, L): blue, brown
DALI (DA, DA): orange, orange

Wiring SELFTEST:
Mains (N, L): blue, brown
Rest: orange, orange

Wiring BASIC:
Mains (N, L): blue, brown

3.2 Lens assembly

- Wear gloves when mounting the lens
- Take care of the mounting direction of the escape route lens
- Use screwdriver for replacing/removing lens
  1. + 2. Push lens clips with screwdriver via openings on both sides
  3. Remove lens



4. Mechanical data

4.1 Battery connection

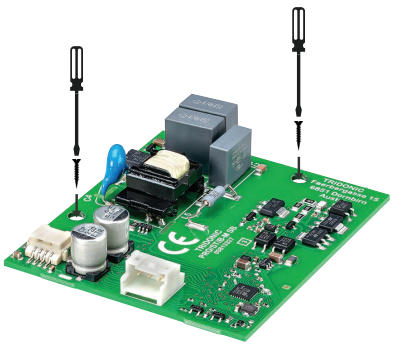
Battery pack end termination
Compact 3-pole connector providing safe battery connection

4.2 Fixing of PCB

For fixing the PCB in the luminaire housing use 1 x M4 self tapping screw for EM R2A BASIC variant and 2 x M4 self tapping screw for EM R2A ST/PRO variants in combination with an moulded boss in polycarbonate or a washer.

Ensure that the mains connector is on the bottom side of the PCB. Therefore fix the PCB to the luminaire housing with a spacer (made of a non-conductive material e.g. plastic).

The max. torque is 1.6 Nm.



5. Electrical data

5.1 Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	1.5 mm²	1.5 mm²	2.5 mm²	4 mm²	I_{max}	time
EM R2A	180	260	260	260	90	130	130	130	10 A	120 µs

5.2 Harmonic distortion in the mains supply (at 230 V / 50 Hz and 2-cell maintained charging) in %

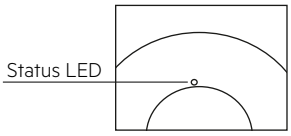
	THD	3.	5.	7.	9.	11.
EM R2A	< 75	< 62	< 33	< 19	< 18	< 13

6. Functions

6.1 BASIC

6.1.1 Status indication

The indication LED is integrated in the bezel. A green LED indicates that charging current is flowing into the battery.
LED current: 9 mA
The battery is protected against operation at excessive temperatures (charging stops and indication LED turns off when battery cell temperature < 0 °C or > 60 °C).



6.1.2 Testing

Emergency operation can be manually tested by removal of the mains supply.

6.2 SELFTEST

6.2.1 Status indication

The indication LED is integrated in the bezel. The system status is indicated by a bi-colour LED.
LED current: 9 mA

LED indiction	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged / Incorrect battery voltage / Battery is outside of its temperature range for charging (0 – 60 °C)
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	DALI Inhibit	Switching into DALI inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

6.2.2 Testing

Emergency operation can be manually tested by removal of the mains supply.

Commissioning test
A full commissioning test is carried out automatically after permanent connection of the supply for 5 days. The easy commissioning feature will set the initial test day and time to ensure random testing of units.

Functional test
Functional tests are carried out for 5 seconds on a weekly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

Duration test
A full duration test is carried out yearly to check the capacity of the batteries.

For a full description of commissioning and test features please refer to application notes.

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.

Rest mode
Initiate the rest mode by applying a short pulse of between 9.5 V_{DC} and 22.5 V_{DC} in amplitude for a period of between 150 ms and 1.0 s. Apply this to the terminals marked “Rest” after the mains supply has been disconnected and whilst the module is in emergency operation.
Terminals are not sensitive to polarity.
After a mains reset the EM R2A ST exits the rest mode. The EM R2A ST supports the re-light function.

Pulse/Mode	Standby	Emergency	Rest
150 – 1,000 ms	Inhibit	Rest	–
1,001 – 2,000 ms	Cancel inhibit	–	re-light

6.3 PRO

6.3.1 Status indication

The indication LED is integrated in the bezel. System status is indicated by a bi-colour LED and by a DALI status flag.
LED current: 9 mA

LED indiction	Status	Comment
Permanent green	System OK	AC mode
Fast flashing green (0,1 sec on – 0,1 sec off)	Function test underway	
Slow flashing green (1 sec on – 1 sec off)	Duration test underway	
Red LED on	Load failure	Open circuit / Short circuit / LED failure
Slow flashing red (1 sec on – 1 sec off)	Battery failure	Battery failed the duration test or function test / Battery is defect or deep discharged / Incorrect battery voltage / Battery is outside of its temperature range for charging (0 – 60 °C)
Fast flashing red (0,1 sec on – 0,1 sec off)	Charging failure	Incorrect charging current
Double pulsing green	DALI Inhibit	Switching into DALI inhibit mode via controller
Binary transmission of address via green/red LED	Address identification	During address identification mode
Green and red off	DC mode	Battery operation (emergency mode)

6.3.2 Testing

Emergency operation can be manually tested by removal of the mains supply.

DALI Control
A DALI command from a suitable control unit can be used to initiate function and duration tests at individually selected times. Status flags are set for report back and data logging of results.

When a DALI bus has not been connected or when a DALI bus is connected but the DALI default DELAY and INTERVAL times have not been re-set by sending appropriate DALI commands, then the EM R2A PRO will conduct self-tests in accordance with the default times set within the EEPROM . These default times are factory pre-set, in accordance with the DALI standard EN 62386-202, to conduct an automatic function test every 7 days and a duration test every 52 weeks. Since the DELAY time is factory pre-set to Zero, all units are tested at the same time. Test times can be changed with a command over the DALI bus.

The DELAY and INTERVAL time values must be re-set when the emergency system test times are to be scheduled by a DALI control and monitoring system.
Note that once the default values have been set to Zero, tests will only be conducted following a command from the control system. If the DALI bus is disconnected the EM R2A PRO does not revert to self-testing mode.

Note: If the battery is connected the DALI communication is only possible after power reset.

Commissioning
After installation of the luminaire and initial connection of the mains supply and battery supply to the EM R2A PRO the unit will commence charging the batteries for 20 hours (initial charge). Afterwards the module will conduct a commissioning test for the full duration. The 20 hours recharge occurs also if a new battery is connected or the module exits the rest mode condition. The following automatic commissioning duration test is only performed when a battery is replaced and fully charged (after 20 hrs) and the interval time is not set to zero, otherwise the system is expected to perform the testing.

Functional test
The time of day and frequency of the 5 seconds function test can be set by the DALI controller. The default setting is a 5 seconds test on a weekly basis.

Duration test
The time of day and frequency of the duration test can be set by the DALI controller. The default setting is a duration test conducted every 52 weeks.

For 2 h operation:
The first commissioning duration test has a time of 120 minutes, subsequent through life tests are conducted for 90 minutes. When the battery is changed or disconnected and re-connected the unit will next conduct a 120 minute test.

Timer reset functionality
The timer for function and duration test can be set to a particular time of the day by cycling the unswitched line supply 5 times within 1 minute. The timer adjustment will enable the test start time to be defined manually at time in day when the timer was reset. It will also disable the adaptive test algorithm thereby forcing the unit to perform the test at the same time rather than it being defined by the adaptive algorithm. This function will only work provided the interval time is greater than zero (automatic test mode enabled). The delay timer value set when the unit was commissioned will be reloaded in order to randomise the tests between adjacent units.

Prolong time
Prolong time can be set by the DALI controller. This is the delay time between return of the mains supply and the end of the emergency operation. The default prolong time is set as 0 minutes as specified within the DALI standard. Indicator LED will stay off for the duration of the prolong time.

Rest Mode
Rest mode can be initiated by the DALI controller. The appropriate command should be sent after the mains supply has been disconnected and whilst the module is in emergency operation. After a mains reset the EM R2A PRO exits the rest mode. EM R2A PRO supports the re-light command via the DALI bus.
Max. rest mode duration: 21 days from fully charged battery

DALI Controller
DALI controllers and hardware/software solutions are available from Tridonic. Please refer to the Lighting controls section.

7. Battery data

7.1 Battery charge / discharge

EM R2A BASIC/ST/PRO 3 h

	Device configuration	**EM R2A BASIC/ST/PRO**
	Article no.	**89800680 / 89800681 / 89800682**
	Cells	**2 cells**
	Duration	**3 h**
Battery charge time[1]	Initial	20 h
	Recharge	12 h
	Trickle charge	continuously and battery voltage controlled
Typ. charge current[2]	Initial charge	290 mA
	Recharge	290 mA
	Trickle charge	290 mA / 0 mA
Mains power consumption	Initial charge	< 1.095 W
	Recharge	< 1.095 W
	Trickle charge	< 1.095 W / 0 W
Discharge current at 3.2 V (nominal)		625 mA
Charge voltage range		2.0 – 3.6 V
Discharge voltage range		2.3 – 3.6 V

[1] 12 h battery charging time for 2 h emergency lighting function when used with LiFePO4 batteries.

[2] Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < 0 °C or > 60 °C)

7.2 Accu-LiFePO4

1.5 Ah

International designation	18650
Battery voltage/cell	3.2 V
Cell type	18650
Case temperature range to ensure	
4 years design life	+55 °C
6 years design life	+45 °C
8 years design life	+35 °C
Max. short term temperature (reduced lifetime)	70 °C
Max. number discharge cycles	50 cycles total
Max. storage time	15 months at -20 °C to +35 °C

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

8. Miscellaneous

8.1 Black Box data recording

Recording of several parameters only accessable for Tridonic.

8.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.

TRIDONIC

EMcLED Strain-relief set 240x43x30mm

LED+LENS KIT

Product description

_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (240 x 43 x 30 mm)

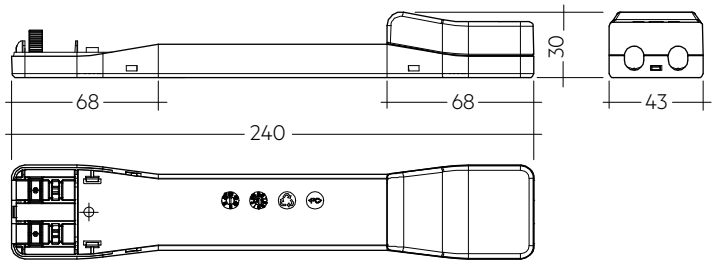
Website

http://www.tridonic.com/28003813

TRIDONIC

EMcLED Strain-relief set 240x43x30mm

LED+LENS KIT



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM cLED SR	**28003813**	10 pc(s).	0.08 kg

Approval marks

TRIDONIC

EMpLED Strain-relief set 200x43x25.5mm

General

Product description

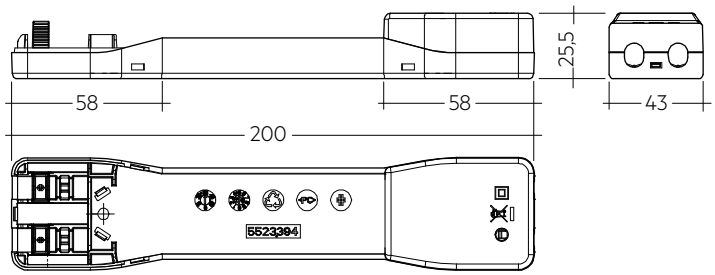
_ Optional strain-relief for independent applications
_ Transforms the LED driver into a fully class II compatible LED driver (e.g. ceiling installation)
_ Easy and tool-free mounting to the LED driver, screwless cable-clamp channels with strain-relief (200 x 43 x 25.5 mm)

Website
http://www.tridonic.com/28004033

TRIDONIC

EMpLED Strain-relief set 200x43x25.5mm

General



Permissible cable jacket diameter 2.2 – 9 mm

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
EM pLED SR	**28004033**	10 pc(s).	0.05 kg

Approval marks

TRIDONIC

Front cover bDW rs BK

Casambi Ready wireless sensor

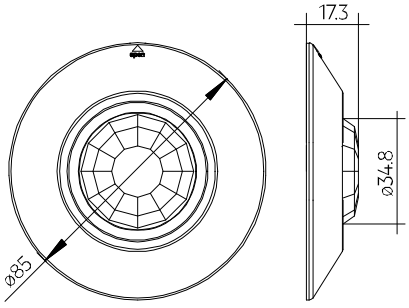
Product description
_ Black front cover for bDW sensor

Website
http://www.tridonic.com/28006131

TRIDONIC

Front cover bDW rs BK

Casambi Ready wireless sensor



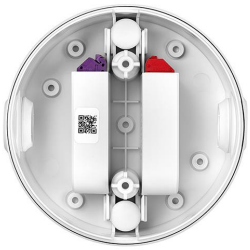
Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
Front cover bDW rs BK	**28006131**	Black	150 pc(s).	0.016 kg

TRIDONIC

Housing base ACU 037 IP20 WH

Accessory for DALI MSensor



Product description

_ Mounting base for wired 5/10/DPI/WDA sensors allowing direct mounting to the ceiling
_ 2x mounting options for Tridonic standard control units-housing with mounting flaps (e.g. DALI PS3 or sceneCOM RTC) allowing vertical or horizontal fixation
_ Vertical fixation possible using special fixation slots and horizontal fixation can be done using screw connection points in the bottom part of the accessory
_ Housing provides IP 66, depending on the used Sensor and housing it can be less
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatile with: 28005943 Sensor Housing ACU 035 5DPI IP20 WH & 28005944 Sensor housing ACU 036 10DPI/WDA IP20 WH (not included in the scope of delivery)
_ The dimensional drawing shows the final dimensions when mounted with 28005943 or 28005944
_ System Solution: MSensor G3, basicDIM ILD G2/FSL, MSensor G3 SSM, basic DIM ILD G2 SSM, DALI PS3, airASECT, basicDIM IPS, basicDIM Wireless module G2, basicDIM Wireless passive module G2, sceneCOM S RTC
_ Sensor not included

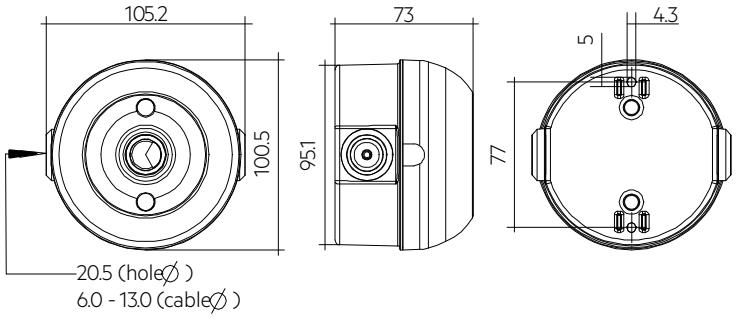
Website

http://www.tridonic.com/28005945

TRIDONIC

Housing base ACU 037 IP20 WH

Accessory for DALI MSensor



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Housing base ACU 037 IP20 WH	**28005945**	57 pc(s).	0.068 kg

TRIDONIC

ID ECCO Smart 2D-TR

NFC programmer with QR code reader for current programming

Product description

_ ID ECCO Smart 2D-TR is a mobile Barcode & RFID detection device with performant scan engine and powerful NFC interface
_ For efficient programming of Tridonic LED drivers either by reading a predefined QR code or use the device in combination with the 4service NFC mobile App
_ Further Information see www.tridonic.com/ES2D

Premium features available

_ Two additional functions: chronoSTEP and eCLO
_ Maximize your savings and save time with a more efficient process: One QR Code can now program all functions
_ Benefit from faster shipping and faster field adjustments for outdoor lighting
_ For further information contact your sales representive: https://www.tridonic.com/en/int/contact/sales

Website

http://www.tridonic.com/28004649

TRIDONIC

ID ECCO Smart 2D-TR

NFC programmer with QR code reader for current programming

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Feig ID ECCO Smart 2D-TR	**28004649**	50 pc(s).	0.098 kg

Technical data

Housing material body	Double-walled inside: robust ABS, outside: protective rubber coating
Ambient temperature ta	-20 … +55 °C
Storage temperature ts	-20 … +60 °C
Type of protection	IP64
Dimensions L x W x H	87 x 48 x 26 mm

Approval marks

1. Common

ID ECCO Smart 2D-TR is a mobile Barcode & RFID detection device with performant scan engine and powerful NFC interface for efficient programing of Tridonic LED drivers either by reading a special QR code or use the device in combination with the 4serviceAPP NFC mobile App.

Hardware compatibility:
The driver must have an NFC interface. Only current can be set.
The ECCO Smart hardware is a product of FEIG ELECTRONIC in Germany. Therefore, the Tridonic version we distributed differs only in the installed firmware. This firmware is written exclusively for us.
An ECCO Smart purchased directly from Feig or another source does not have the same range of functions and cannot be used with Tridonic NFC drivers.
Following drivers are not supported:
28003875, 28003876, 28003877, 28003878, 28003879, 28003880, 28004330.

Manual:
The user manual and information about the QR codes can be found here:
www.tridonic.com/ES2D

2. Additional technical data

Battery	1,300 mAh Lithium Polymer, 3.7 V
Operation time	up to 16 hours
Loading time battery	approx. 3 – 4 hours
Loading note	charging via USB mini port, cable included
Temperature range loading battery	0 … +55 °C
Operating frequency	13.56 MHz
Antenna	integrated
RF transmitting power	1.5 W HF Reader IC
Supported Barcodes 2D	DataMatrix, QR Code
Protocol	Zhaga Book 25
Indicator	LED (red, green, yellow, blue) Speaker Vibration feedback
Keyboard	4 keys
Interfaces	USB, Bluetooth LE
Drop	1.6 m drop to concrete

3. Miscellaneous

3.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

3.2 Conditions of use and storage

Environmental conditions: 5 % up to max. 95 %, not condensed

Storage temperature: -20 °C up to max. +60 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

3.3 Additional information

The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by Zumtobel Group AG is under license.
Tridonic GmbH & Co. KG is a subsidiary of Zumtobel Group AG.

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

LiFePO4 Battery pack 1.5 – 3.0 Ah

Lithium Iron Phosphate cells (LiFePO4)

LiFeGuard

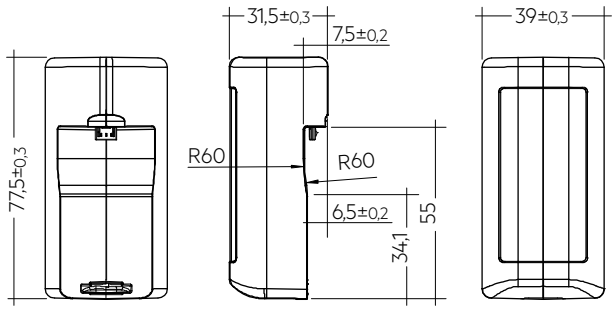
Product description
_ Lithium Iron Phosphate replacement battery pack for use with EM ready2apply emergency lighting units
_ 8 year design life (up to 30 °C ambient temperature)
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties
_ Certified quality manufacturer
_ Casing material made of polycarbonate
_ Charge efficiency > 90 %
_ Low self discharge
_ Compact connector providing polarity safe battery connection
_ Protection and monitoring circuit built into battery enclosure
_ Battery protected against operation at excessive temperatures
_ Deep discharge protection
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website
http://www.tridonic.com/89800555

LiFePO4 Battery pack 1.5 – 3.0 Ah

Lithium Iron Phosphate cells (LiFePO4)



Ordering data

Type	Article number	Capacity	Packaging, carton	Weight per pc.
1.5 Ah battery pack				
PACK-LiFePO4 1.5Ah R2A	**89800555**	1.5 Ah	75 pc(s).	0.064 kg
3.0 Ah battery pack				
PACK-LiFePO4 3.0Ah R2A	**89800556**	3.0 Ah	75 pc(s).	0.104 kg

Technical data

Battery voltage per cell	3.2 V
Battery capacity per cell	1.5 Ah
Ambient temperature range (design life of 8 years)	+5 … +35 °C

Approval marks

Standards

according to EN 60598-2-22

Specific technical data

Type	Article number	Number of cells	Capacity	Dimensions L x W x
1.5 Ah battery pack				
PACK-LiFePO4 1.5Ah R2A	**89800555**	1	1.5 Ah	77.5 x 39 x 31.5 mm
3.0 Ah battery pack				
PACK-LiFePO4 3.0Ah R2A	**89800556**	2	3.0 Ah	77.5 x 39 x 31.5 mm

1. Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 62133 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598 2.22.

1.1 Glow-wire test

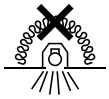
according to EN60598-1 with increased temperature of 850 °C passed (valid for housing).

2. Thermal data

2.1 Storage conditions

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C up to 15 months after printed date of manufacture
  – Relative humidity: 60 ± 5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation & commissioning



Device not suitable for covering with thermally insulating material.

3.1 Activating $LiFePO_4$ batteries

When using rechargeable $LiFePO_4$ batteries for emergency lighting following point are essential in order to achieve the specified design life time of the batteries:

In order to activate new batteries, 2-3 full charging-discharging are needed to make sure batteries achieve their rated capacity. This activating process is defined by running 2-3 full charging (24 hrs) and discharging (1/2/3 hrs) cycles of the batteries. If the first duration test fails, please repeat the test once again after a 24 hour charging period.

3.2 Avoidance of excessive cycling

During building installations, in many cases, mains supply is not available on a permanent 24-hour basis which then leads to unwanted, uncontrolled excessive battery cycles. This has a very strong effect on the design life time of the battery. Make sure that in such situations, the battery remains disconnected in the luminaire till the mains power supply is stable on a 24-hour basis.
It is strongly recommended to refer to the datasheets of Tridonic emergency control gears to avoid excessive cycling. At the same time, make sure that this information is handed over to the installation staff / electrician in order to ensure a proper way of installation and commissioning.

3.3 Avoidance of deep-discharge conditions

It is very important that $LiFePO_4$ batteries are not left connected for long periods in a discharged state. Following options may lead to a deep discharge situation and must be avoided:

- Storage periods of rechargeable batteries of over 15 month without recharging the battery packs.
- Shipment, storage of assembled emergency luminaires with battery pack connected to the emergency driver.
- Long periods of mains-interruptions of more than two weeks, once, the emergency system is installed and the battery pack is connected to the emergency driver.

4. Technical data Accu

Capacity	
Rated minimum capacity	1.5 Ah
Typical weight per cell	48 g
Cell dimensions	
Diameter	19 mm
Height	70 mm

5. Safety

- Do not short-circuit the battery pack – when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery pack or throw it into a fire.
- Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.
- Do not connect device other than to the EM ready2apply

Damage/improper use
If the battery is damaged or used incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

5.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

5.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

5.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

5.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation.

6. Disposal

- Do not dispose of batteries with normal waste.
- Comply with local regulations when disposing of batteries.

7. Miscellaneous

7.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if battery pack was opened.

TRIDONIC

LiFePO4 Battery pack 1.5 – 6.0 Ah

Lithium Iron Phosphate cells (LiFePO4)

Battery pack 3.0 Ah

Battery pack 3.0 Ah

LiFeGuard

Product description

_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ 4 – 8 years design life for LiFePO4 batteries
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Certified quality manufacturer
_ Casing material made of polycarbonate
_ Environmental friendly technology
_ High energy density
_ Electronic thermal battery management
_ High energy maintenance of the charged battery
_ Long shelf life
_ Integrated electronics
_ Safety features incorporated
_ 1.0 mm² stranded wire
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

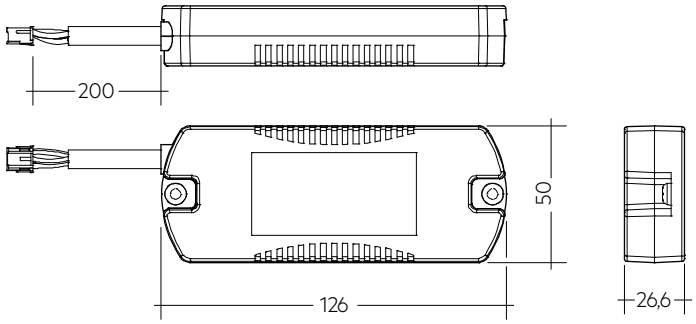
Website

http://www.tridonic.com/28003806

TRIDONIC

LiFePO4 Battery pack 1.5 – 6.0 Ah

Lithium Iron Phosphate cells (LiFePO4)



Battery pack 3.0 Ah

Ordering data

Type	Article number	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
PACK-LiFePO4 4.5Ah 3 CON	**28003806**	4.5 Ah	5 pc(s).	25 pc(s).	0.15 kg

Technical data

Battery voltage per cell	3.2 V
Battery capacity per cell	1.5 Ah
Casing temperature tc	50 °C
Ambient temperature range (design life of 8 years)	+5 … +25 °C

Specific technical data

Type	Article number	Number of cells	Capacity	Dimensions L x W x H ①
PACK-LiFePO4 4.5Ah 3 CON	**28003806**	3	4.5 Ah	126 x 50 x 40.5 mm

① Manufacturing tolerances: Length +/-3 mm, Width/Height +/-2 mm.

1. Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 62133 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598 2.22.

1.1 Glow-wire test

according to EN60598-1 with increased temperature of 850 °C passed (valid for housing).

2. Thermal data

2.1 Storage conditions

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C up to 15 months after printed date of manufacture
  – Relative humidity: 60 ± 5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation & commissioning

3.1 Activating $LiFePO_4$ batteries

When using rechargeable $LiFePO_4$ batteries for emergency lighting following point are essential in order to achieve the specified design life time of the batteries:

In order to activate new batteries, 2-3 full charging-discharging are needed to make sure batteries achieve their rated capacity. This activating process is defined by running 2-3 full charging (24 hrs) and discharging (1/2/3 hrs) cycles of the batteries. If the first duration test fails, please repeat the test once again after a 24 hour charging period.

3.2 Avoidance of excessive cycling

During building installations, in many cases, mains supply is not available on a permanent 24-hour basis which then leads to unwanted, uncontrolled excessive battery cycles. This has a very strong effect on the design life time of the battery. Make sure that in such situations, the battery remains disconnected in the luminaire till the mains power supply is stable on a 24-hour basis.
It is strongly recommended to refer to the datasheets of Tridonic emergency control gears to avoid excessive cycling. At the same time, make sure that this information is handed over to the installation staff / electrician in order to ensure a proper way of installation and commissioning.

3.3 Avoidance of deep-discharge conditions

It is very important that $LiFePO_4$ batteries are not left connected for long periods in a discharged state. Following options may lead to a deep discharge situation and must be avoided:

- Storage periods of rechargeable batteries of over 15 month without recharging the battery packs.
- Shipment, storage of assembled emergency luminaires with battery pack connected to the emergency driver.
- Long periods of mains-interruptions of more than two weeks, once, the emergency system is installed and the battery pack is connected to the emergency driver.

4. Technical data

Capacity	
Rated minimum capacity	1.5 Ah
Typical weight per cell	45 g
Cell dimensions	
Diameter	18 mm
Height	65 mm

5. Safety

- Do not short-circuit the battery pack – when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery pack or throw it into a fire.
- Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.

Damage/improper use
If the battery is damaged or used incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

5.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

5.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

5.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

5.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation.

6. Disposal

- Do not dispose of batteries with normal waste.
- Comply with local regulations when disposing of batteries.

7. Miscellaneous

7.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if battery pack was opened.

TRIDONIC

LiFePO4 Battery pack 3.0 – 7.5 Ah

Lithium Iron Phosphate cells (LiFePO4)

Battery pack 4.5 Ah

Battery pack 6.0 Ah

Battery pack 7.5 Ah

Product description

_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ 4 – 8 years design life for LiFePO4 batteries
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Certified quality manufacturer
_ Casing material made of polycarbonate
_ Environmental friendly technology
_ High energy density
_ Electronic thermal battery management
_ High energy maintenance of the charged battery
_ Long shelf life
_ Integrated electronics
_ Safety features incorporated
_ 1.0 mm² stranded wire
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

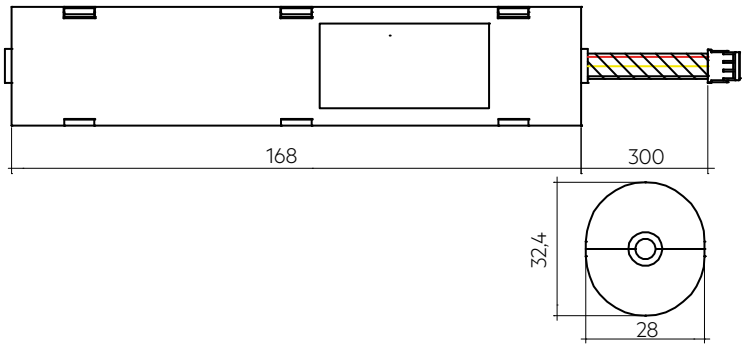
Website

http://www.tridonic.com/28005854

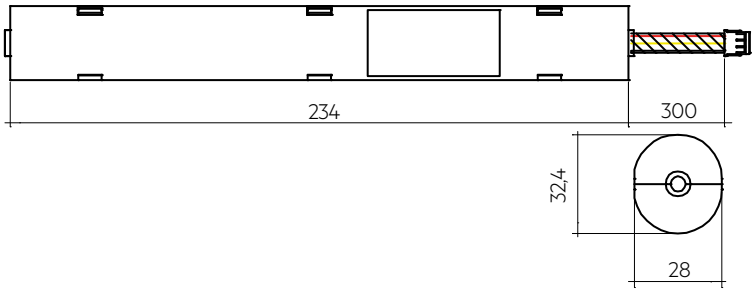
TRIDONIC

LiFePO4 Battery pack 3.0 – 7.5 Ah

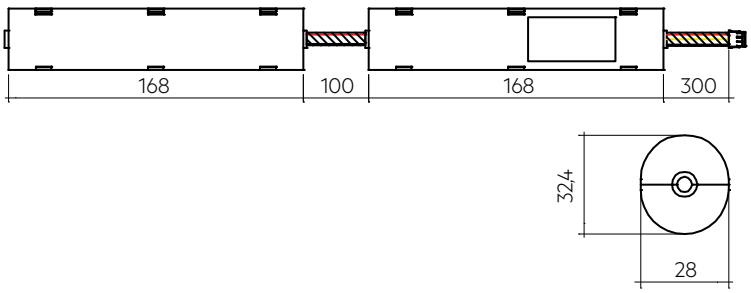
Lithium Iron Phosphate cells (LiFePO4)



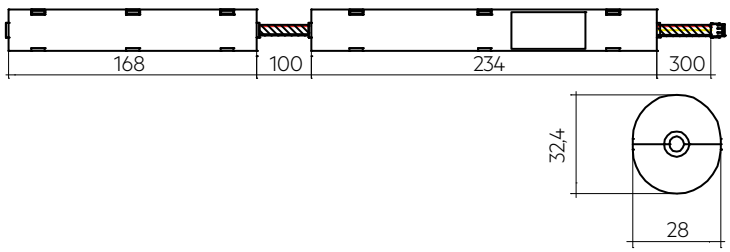
Battery pack 3.0 Ah



Battery pack 4.5 Ah



Battery pack 6.0 Ah



Battery pack 7.5 Ah

Ordering data

Type	Article number	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
PACK-LiFePO4 3.0Ah 2 CON	**28005854**	3.0 Ah	5 pc(s).	25 pc(s).	0.143 kg
PACK-LiFePO4 4.5Ah 3 CON	**28005855**	4.5 Ah	5 pc(s).	25 pc(s).	0.201 kg
PACK-LiFePO4 6.0Ah 4 CON	**28005856**	6.0 Ah	5 pc(s).	25 pc(s).	0.274 kg
PACK-LiFePO4 7.5Ah 5 CON	**28005857**	7.5 Ah	5 pc(s).	25 pc(s).	0.333 kg

Technical data

Battery voltage per cell	3.2 V
Battery capacity per cell	1.5 Ah
Ambient temperature range (design life of 8 years)	+5 … +25 °C

Specific technical data

Type	Article number	Number of cells	Capacity	Dimensions L x W x H ①
PACK-LiFePO4 3.0Ah 2 CON	**28005854**	2	3.0 Ah	168 x 28 x 32.4 mm
PACK-LiFePO4 4.5Ah 3 CON	**28005855**	3	4.5 Ah	234 x 28 x 32.4 mm
PACK-LiFePO4 6.0Ah 4 CON	**28005856**	4	6.0 Ah	168 x 28 x 32.4 mm
PACK-LiFePO4 7.5Ah 5 CON	**28005857**	5	7.5 Ah	234 x 28 x 32.4 mm

① Manufacturing tolerances: Length +/-3 mm, Width/Height +/-2 mm.

1. Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 62133 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598 2.22.

1.1 Glow-wire test

according to EN60598-1 with increased temperature of 850 °C passed (valid for housing).

2. Thermal data

2.1 Storage conditions

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C up to 15 months after printed date of manufacture
  – Relative humidity: 60 ± 5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation & commissioning

3.1 Activating $LiFePO_4$ batteries

When using rechargeable $LiFePO_4$ batteries for emergency lighting following point are essential in order to achieve the specified design life time of the batteries:

In order to activate new batteries, 2-3 full charging-discharging are needed to make sure batteries achieve their rated capacity. This activating process is defined by running 2-3 full charging (24 hrs) and discharging (1/2/3 hrs) cycles of the batteries. If the first duration test fails, please repeat the test once again after a 24 hour charging period.

3.2 Avoidance of excessive cycling

During building installations, in many cases, mains supply is not available on a permanent 24-hour basis which then leads to unwanted, uncontrolled excessive battery cycles. This has a very strong effect on the design life time of the battery. Make sure that in such situations, the battery remains disconnected in the luminaire till the mains power supply is stable on a 24-hour basis.
It is strongly recommended to refer to the datasheets of Tridonic emergency control gears to avoid excessive cycling. At the same time, make sure that this information is handed over to the installation staff / electrician in order to ensure a proper way of installation and commissioning.

3.3 Avoidance of deep-discharge conditions

It is very important that $LiFePO_4$ batteries are not left connected for long periods in a discharged state. Following options may lead to a deep discharge situation and must be avoided:

- Storage periods of rechargeable batteries of over 12 month without recharging the battery packs.
- Shipment, storage of assembled emergency luminaires with battery pack connected to the emergency driver.
- Long periods of mains-interruptions of more than two weeks, once, the emergency system is installed and the battery pack is connected to the emergency driver.

4. Technical data

Capacity	
Rated minimum capacity	1.5 Ah
Typical weight per cell	45 g
Cell dimensions	
Diameter	18 mm
Height	65 mm

5. Safety

- Do not short-circuit the battery pack – when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery pack or throw it into a fire.
- Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.

Damage/improper use
If the battery is damaged or used incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

5.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

5.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

5.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

5.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation.

6. Disposal

- Do not dispose of batteries with normal waste.
- Comply with local regulations when disposing of batteries.

7. Miscellaneous

7.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if battery pack was opened.

TRIDONIC

LiFePO4 Battery pack 3.0 Ah

Lithium Iron Phosphate cells (LiFePO4)

LiFeGuard

Product description

_ High temperature LiFePO4 cells for use with EM ready2apply surface mounted emergency lighting units
_ 6 year design life (up to 30 °C ambient temperature)
_ 4 year design life (up to 40 °C ambient temperature)
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Certified quality manufacturer
_ Charge efficiency > 90 %
_ Low self discharge
_ Simple connection with plug-in system
_ Protection and monitoring circuit built into battery enclosure
_ Deep discharge protection
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

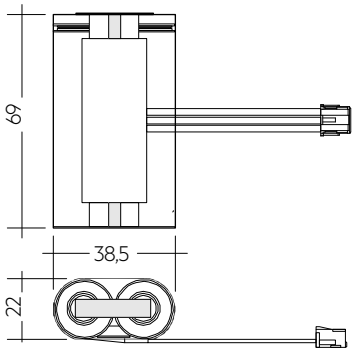
Website

http://www.tridonic.com/28003554

TRIDONIC

LiFePO4 Battery pack 3.0 Ah

Lithium Iron Phosphate cells (LiFePO4)



Ordering data

Type	Article number	Capacity	Packaging, carton	Weight per pc.
PACK-LiFePO4 3.0Ah 2A CON R2A SM	**28003554**	3 Ah	75 pc(s).	0.104 kg

Technical data

Battery voltage per cell	3.2 V
Battery capacity per cell	1.5 Ah
Ambient temperature range (design life of 6 years)	+5 … +30 °C

Specific technical data

Type	Article number	Number of cells	Capacity	Dimensions L x W x H ①
PACK-LiFePO4 3.0Ah 2A CON R2A SM	**28003554**	2	3 Ah	69 x 38.5 x 22 mm

① Manufacturing tolerances: Length +/-3 mm, Width/Height +/-2 mm.

1. Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 62133 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598 2.22.

1.1 Glow-wire test

according to EN60598-1 with increased temperature of 850 °C passed.

2. Thermal data

2.1 Storage conditions

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C up to 15 months after printed date of manufacture
  – Relative humidity: 60 ± 5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation & commissioning

3.1 Activating $LiFePO_4$ batteries

When using rechargeable $LiFePO_4$ batteries for emergency lighting following point are essential in order to achieve the specified design life time of the batteries:

In order to activate new batteries, 2-3 full charging-discharging are needed to make sure batteries achieve their rated capacity. This activating process is defined by running 2-3 full charging (24 hrs) and discharging (1/2/3 hrs) cycles of the batteries. If the first duration test fails, please repeat the test once again after a 24 hour charging period.

3.2 Avoidance of excessive cycling

During building installations, in many cases, mains supply is not available on a permanent 24-hour basis which then leads to unwanted, uncontrolled excessive battery cycles. This has a very strong effect on the design life time of the battery. Make sure that in such situations, the battery remains disconnected in the luminaire till the mains power supply is stable on a 24-hour basis.
It is strongly recommended to refer to the datasheets of Tridonic emergency control gears to avoid excessive cycling. At the same time, make sure that this information is handed over to the installation staff / electrician in order to ensure a proper way of installation and commissioning.

3.3 Avoidance of deep-discharge conditions

It is very important that $LiFePO_4$ batteries are not left connected for long periods in a discharged state. Following options may lead to a deep discharge situation and must be avoided:

- Storage periods of rechargeable batteries of over 15 month without recharging the battery packs.
- Shipment, storage of assembled emergency luminaires with battery pack connected to the emergency driver.
- Long periods of mains-interruptions of more than two weeks, once, the emergency system is installed and the battery pack is connected to the emergency driver.

4. Technical data Cell

Rated minimum capacity	1.5 Ah
Typical weight per cell	48 g
Diameter	18 mm
Height	65 mm

Consult individual emergency control gear data sheet for maximum allowable temperatures and allowed number of discharge cycles.

5. Safety

- Do not short-circuit the battery pack – when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery pack or throw it into a fire.
- Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.
- Do not connect device other than to the EM ready2apply

Damage/improper use
If the battery is damaged or used incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

5.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

5.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

5.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

5.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation.

6. Disposal

- Do not dispose of batteries with normal waste.
- Comply with local regulations when disposing of batteries.

7. Miscellaneous

7.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if battery pack was opened.

TRIDONIC

LiFePO4 Accus 1.5 – 9.0 Ah

Lithium Iron Phosphate cells (LiFePO4)

Stick

Stick + Stick

Side by side

Product description

_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

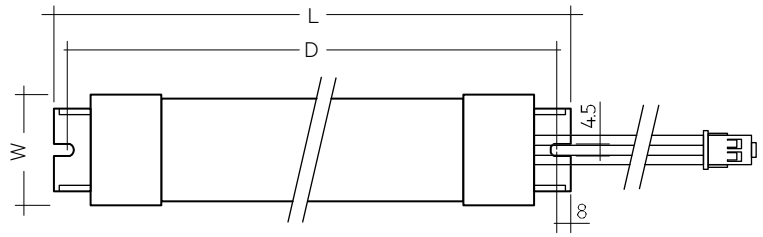
_ Environmental friendly technology
_ High energy density
_ Low profile cross-section with removable end caps
_ Constant high-temperature operation
_ Good charging properties at high temperature
_ Electronic thermal battery management
_ High energy maintenance of the charged battery
_ Long shelf life
_ Integrated electronics
_ Safety features incorporated
_ Certified quality manufacturer
_ In various configurations
_ Simple connection with plug-in system
_ With polycarbonate fixing caps
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

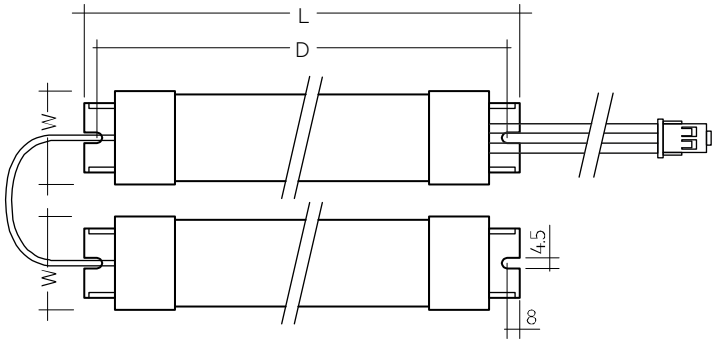
http://www.tridonic.com/28002317

LiFePO4 Accus 1.5 – 9.0 Ah

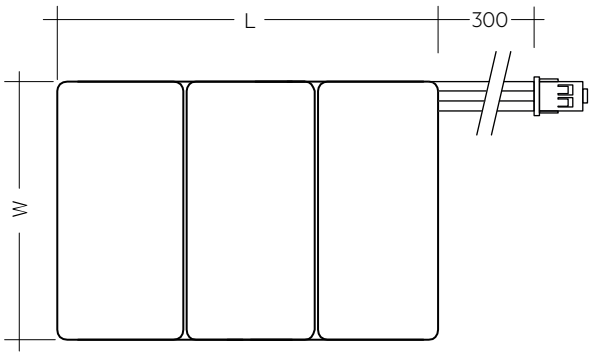
Lithium Iron Phosphate cells (LiFePO4)



Stick



Stick + Stick



Side by side

Ordering data

Type	Article number	Number of cells	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
LiFePO4 cells – stick, 1.5 – 9.0 Ah						
ACCU-LiFePO4 1.5Ah 1A CON	**28002317**	1 x 1	1.5 Ah	5 pc(s).	25 pc(s).	0.064 kg
ACCU-LiFePO4 3.0Ah 2A CON	**28002318**	1 x 2	3.0 Ah	5 pc(s).	25 pc(s).	0.108 kg
ACCU-LiFePO4 4.5Ah 3A CON	**28002320**	1 x 3	4.5 Ah	5 pc(s).	25 pc(s).	0.128 kg
ACCU-LiFePO4 6.0Ah 4A CON	**28002322**	1 x 4	6.0 Ah	5 pc(s).	25 pc(s).	0.200 kg
ACCU-LiFePO4 7.5Ah 5A CON	**28002325**	1 x 5	7.5 Ah	5 pc(s).	25 pc(s).	0.240 kg
ACCU-LiFePO4 9.0Ah 6A CON	**28002328**	1 x 6	9.0 Ah	5 pc(s).	25 pc(s).	0.200 kg
LiFePO4 cells – stick + stick, 6.0 – 9.0 Ah						
ACCU-LiFePO4 6.0Ah 4C CON	**28002324**	2 + 2	6.0 Ah	5 pc(s).	25 pc(s).	0.204 kg
ACCU-LiFePO4 7.5Ah 5C CON	**28002327**	3 + 2	7.5 Ah	5 pc(s).	25 pc(s).	0.233 kg
ACCU-LiFePO4 9.0Ah 6C CON	**28002330**	3 + 3	9.0 Ah	5 pc(s).	25 pc(s).	0.288 kg
LiFePO4 cells – side by side, 3.0 – 9.0 Ah						
ACCU-LiFePO4 3.0Ah 2B CON	**28002319**	2 x 1	3.0 Ah	5 pc(s).	25 pc(s).	0.100 kg
ACCU-LiFePO4 4.5Ah 3B CON	**28002321**	3 x 1	4.5 Ah	5 pc(s).	25 pc(s).	0.144 kg
ACCU-LiFePO4 6.0Ah 4B CON	**28002323**	4 x 1	6.0 Ah	5 pc(s).	25 pc(s).	0.188 kg
ACCU-LiFePO4 7.5Ah 5B CON	**28002326**	5 x 1	7.5 Ah	5 pc(s).	25 pc(s).	0.232 kg
ACCU-LiFePO4 9.0Ah 6B CON	**28002329**	6 x 1	9.0 Ah	5 pc(s).	25 pc(s).	0.268 kg

Technical data

Battery voltage per cell	3.2 V
Battery capacity per cell	1.5 Ah
Min. battery casing temp. (design life of 4 – 8 years)	+ 5 °C
Max. battery casing temp. (design life of 4/8 years)	Refer to emergency control gear datasheet

Standards

according to EN 60598-2-22

Specific technical data

Type	Article number	Number of cells	Capacity	Hole spacing D	Dimension s L x W x H ①
LiFePO4 cells – stick, 1.5 – 9.0 Ah					
ACCU-LiFePO4 1.5Ah 1A CON	**28002317**	1	1.5 Ah	82 mm	94 x 22 x 24.0 mm
ACCU-LiFePO4 3.0Ah 2A CON	**28002318**	2	3.0 Ah	146 mm	158 x 22 x 24.0 mm
ACCU-LiFePO4 4.5Ah 3A CON	**28002320**	3	4.5 Ah	211 mm	223 x 22 x 24.0 mm
ACCU-LiFePO4 6.0Ah 4A CON	**28002322**	4	6.0 Ah	277 mm	289 x 22 x 24.0 mm
ACCU-LiFePO4 7.5Ah 5A CON	**28002325**	5	7.5 Ah	342 mm	354 x 22 x 24.0 mm
ACCU-LiFePO4 9.0Ah 6A CON	**28002328**	6	9.0 Ah	408 mm	420 x 22 x 24.0 mm
LiFePO4 cells – stick + stick, 6.0 – 9.0 Ah					
ACCU-LiFePO4 6.0Ah 4C CON	**28002324**	4	6.0 Ah	146 mm	158 x 22 x 24.0 mm
ACCU-LiFePO4 7.5Ah 5C CON	**28002327**	5	7.5 Ah	211 mm	223 x 22 x 24.0 mm
ACCU-LiFePO4 9.0Ah 6C CON	**28002330**	6	9.0 Ah	211 mm	223 x 22 x 24.0 mm
LiFePO4 cells – side by side, 3.0 – 9.0 Ah					
ACCU-LiFePO4 3.0Ah 2B CON	**28002319**	2	3.0 Ah	–	37 x 72 x 19.5 mm
ACCU-LiFePO4 4.5Ah 3B CON	**28002321**	3	4.5 Ah	–	56 x 72 x 19.5 mm
ACCU-LiFePO4 6.0Ah 4B CON	**28002323**	4	6.0 Ah	–	74 x 72 x 19.5 mm
ACCU-LiFePO4 7.5Ah 5B CON	**28002326**	5	7.5 Ah	–	92 x 72 x 19.5 mm
ACCU-LiFePO4 9.0Ah 6B CON	**28002329**	6	9.0 Ah	–	111 x 72 x 19.5 mm

① Manufacturing tolerances: Length +/-3 mm, Width/Height +/-2 mm.

1. Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 62133 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598-2-22.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed (valid for connectors and caps).

2. Thermal data

2.1 Storage conditions

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C up to 15 months after printed date of manufacture
  – Relative humidity: 60 ± 5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation & commissioning

3.1 Activating $LiFePO_4$ batteries

When using rechargeable $LiFePO_4$ batteries for emergency lighting following point are essential in order to achieve the specified design life time of the batteries:

In order to activate new batteries, 2-3 full charging-discharging are needed to make sure batteries achieve their rated capacity. This activating process is defined by running 2-3 full charging (24 hrs) and discharging (1/2/3 hrs) cycles of the batteries. If the first duration test fails, please repeat the test once again after a 24 hour charging period.

3.2 Avoidance of excessive cycling

During building installations, in many cases, mains supply is not available on a permanent 24-hour basis which then leads to unwanted, uncontrolled excessive battery cycles. This has a very strong effect on the design life time of the battery. Make sure that in such situations, the battery remains disconnected in the luminaire till the mains power supply is stable on a 24-hour basis.
It is strongly recommended to refer to the datasheets of Tridonic emergency control gears to avoid excessive cycling. At the same time, make sure that this information is handed over to the installation staff / electrician in order to ensure a proper way of installation and commissioning.

3.3 Avoidance of deep-discharge conditions

It is very important that $LiFePO_4$ batteries are not left connected for long periods in a discharged state. Following options may lead to a deep discharge situation and must be avoided:

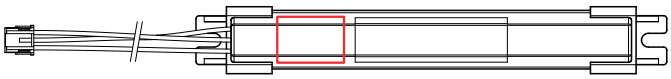
- Storage periods of rechargeable batteries of over 6/15 month without recharging the battery.
- Shipment, storage of assembled emergency luminaires with battery connected to the emergency driver.
- Long periods of mains-interruptions of more than two weeks, once, the emergency system is installed and the battery is connected to the emergency driver.

3.4 Thermal sensor

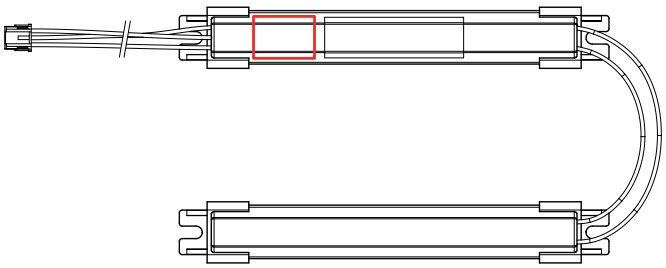
Battery has built in thermal sensor for safe charging. Mount battery away from heat source.

3.4.1 Position of thermal sensor

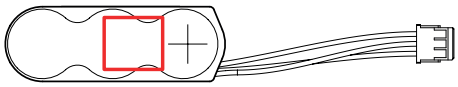
Stick:



Stick + Stick:



Side by side:



4. Mechanical details

4.1 Battery leads and connection

Max. length: 800 mm

- 300 mm on battery side with connector to connect into the Emergency lighting unit
- 500 mm with connectors on both sides to extend the battery wiring to max. 800 mm (separate article number)

5. Technical data Cell

Rated minimum capacity	1.5 Ah
Typical weight per cell	48 g
Diameter	18 mm
Height	65 mm

Consult individual emergency control gear data sheet for maximum allowable temperatures and allowed number of discharge cycles.

6. Safety

- Do not short-circuit the battery – when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery or throw it into a fire.
- Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.

Damage/improper use
If the battery is damaged or used incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

6.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

6.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

6.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7. Disposal

- Do not dispose of batteries with normal waste.
- Comply with local regulations when disposing of batteries.

8. Miscellaneous

8.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

No warranty if battery was opened.

TRIDONIC

LiFePO4 Akkus 1.5 – 9.0 Ah BAS

Lithium Iron Phosphate cells (LiFePO4)

Stick

Stick + Stick

LiFeGuard

Product description

_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ Up to 4 year design life
_ 4 years guarantee battery (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

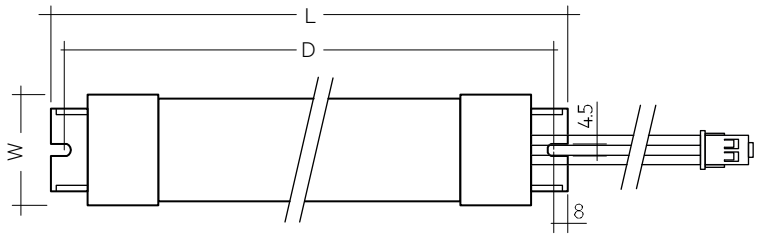
_ Environmental friendly technology
_ High energy density
_ Low profile cross-section with removable end caps
_ Constant high-temperature operation
_ Good charging properties at high temperature
_ Electronic thermal battery management
_ High energy maintenance of the charged battery
_ Long shelf life
_ Integrated electronics
_ Safety features incorporated
_ Certified quality manufacturer
_ In various configurations
_ Simple connection with plug-in system
_ With polycarbonate fixing caps
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

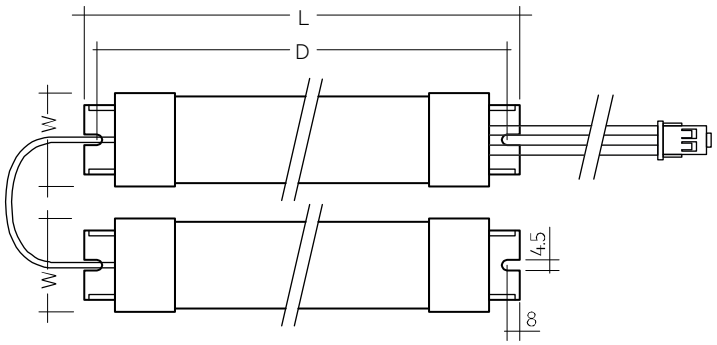
http://www.tridonic.com/28006317

LiFePO4 Akkus 1.5 – 9.0 Ah BAS

Lithium Iron Phosphate cells (LiFePO4)



Stick



Stick + Stick

Ordering data

Type	Article number	Number of cells	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
LiFePO4 cells – stick, 1.5 – 6.0 Ah						
ACCU-LiFePO4 1.5Ah 1A CON BAS	**28006317**	1 x 1	1.5 Ah	5 pc(s).	–	0.060 kg
ACCU-LiFePO4 3.0Ah 2A CON BAS	**28006318**	1 x 2	3.0 Ah	5 pc(s).	25 pc(s).	0.099 kg
ACCU-LiFePO4 4.5Ah 3A CON BAS	**28006319**	1 x 3	4.5 Ah	5 pc(s).	25 pc(s).	0.140 kg
ACCU-LiFePO4 6.0Ah 4A CON BAS	**28006320**	1 x 4	6.0 Ah	5 pc(s).	25 pc(s).	0.182 kg
LiFePO4 cells – stick + stick, 7.5 – 9.0 Ah						
ACCU-LiFePO4 7.5Ah 5C CON BAS	**28006321**	3 + 2	7.5 Ah	5 pc(s).	25 pc(s).	0.233 kg
ACCU-LiFePO4 9.0Ah 6C CON BAS	**28006322**	3 + 3	9.0 Ah	5 pc(s).	25 pc(s).	0.277 kg

Technical data

Battery voltage per cell	3.2 V
Battery capacity per cell	1.5 Ah
Min. battery casing temp. (design life of 4 years)	+ 5 °C
Max. battery casing temp. (design life of 4 years)	Refer to emergency control gear datasheet

Standards

according to EN 60598-2-22

Specific technical data

Type	Article number	Number of cells	Capacity	Hole spacing D	Dimensions L x W x H ①
LiFePO4 cells – stick, 1.5 – 6.0 Ah					
ACCU-LiFePO4 1.5Ah 1A CON BAS	**28006317**	1	1.5 Ah	82 mm	94 x 22 x 24 mm
ACCU-LiFePO4 3.0Ah 2A CON BAS	**28006318**	2	3.0 Ah	146 mm	158 x 22 x 24 mm
ACCU-LiFePO4 4.5Ah 3A CON BAS	**28006319**	3	4.5 Ah	211 mm	223 x 22 x 24 mm
ACCU-LiFePO4 6.0Ah 4A CON BAS	**28006320**	4	6.0 Ah	277 mm	289 x 22 x 24 mm
LiFePO4 cells – stick + stick, 7.5 – 9.0 Ah					
ACCU-LiFePO4 7.5Ah 5C CON BAS	**28006321**	5	7.5 Ah	211 mm	223 x 22 x 24 mm
ACCU-LiFePO4 9.0Ah 6C CON BAS	**28006322**	6	9.0 Ah	211 mm	223 x 22 x 24 mm

① Manufacturing tolerances: Length +/-3 mm, Width/Height +/-2 mm.

1. Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 62133 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598-2-22.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed (valid for connectors and caps).

2. Thermal data

2.1 Storage conditions

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C up to 15 months after printed date of manufacture
  – Relative humidity: 60 ± 5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation & commissioning

3.1 Activating $LiFePO_4$ batteries

When using rechargeable $LiFePO_4$ batteries for emergency lighting following point are essential in order to achieve the specified design life time of the batteries:

In order to activate new batteries, 2-3 full charging-discharging are needed to make sure batteries achieve their rated capacity. This activating process is defined by running 2-3 full charging (24 hrs) and discharging (1/2/3 hrs) cycles of the batteries. If the first duration test fails, please repeat the test once again after a 24 hour charging period.

3.2 Avoidance of excessive cycling

During building installations, in many cases, mains supply is not available on a permanent 24-hour basis which then leads to unwanted, uncontrolled excessive battery cycles. This has a very strong effect on the design life time of the battery. Make sure that in such situations, the battery remains disconnected in the luminaire till the mains power supply is stable on a 24-hour basis.
It is strongly recommended to refer to the datasheets of Tridonic emergency control gears to avoid excessive cycling. At the same time, make sure that this information is handed over to the installation staff / electrician in order to ensure a proper way of installation and commissioning.

3.3 Avoidance of deep-discharge conditions

It is very important that $LiFePO_4$ batteries are not left connected for long periods in a discharged state. Following options may lead to a deep discharge situation and must be avoided:

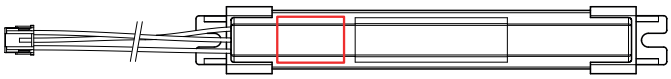
- Storage periods of rechargeable batteries of over 6/15 month without recharging the battery.
- Shipment, storage of assembled emergency luminaires with battery connected to the emergency driver.
- Long periods of mains-interruptions of more than two weeks, once, the emergency system is installed and the battery is connected to the emergency driver.

3.4 Thermal sensor

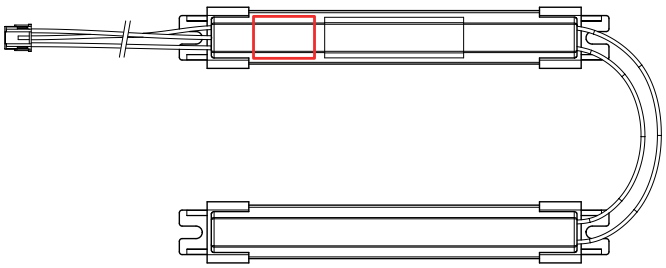
Battery has built in thermal sensor for safe charging. Mount battery away from heat source.

3.4.1 Position of thermal sensor

Stick:



Stick + Stick:



4. Mechanical details

4.1 Battery leads and connection

Max. length: 800 mm
- 300 mm on battery side with connector to connect into the Emergency lighting unit
- 500 mm with connectors on both sides to extend the battery wiring to max. 800 mm (separate article number)

5. Technical data Cell

Rated minimum capacity	1.5 Ah
Typical weight per cell	48 g
Diameter	18 mm
Height	65 mm

Consult individual emergency control gear data sheet for maximum allowable temperatures and allowed number of discharge cycles.

6. Safety

- Do not short-circuit the battery – when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery or throw it into a fire.
- Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.

Damage/improper use
If the battery is damaged or used incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

6.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

6.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

6.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7. Disposal

- Do not dispose of batteries with normal waste.
- Comply with local regulations when disposing of batteries.

8. Miscellaneous

8.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

No warranty if battery was opened.

TRIDONIC

LiFePO4 Accus 3.3 – 6.6 Ah

Lithium Iron Phosphate cells (LiFePO4)

Stick

Side by side, 4 cells

Side by side, 6 cells

Product description

_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ LiFePO4: up to 12 years design life
_ 8 years guarantee for LiFePO4 batteries (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

_ Environmental friendly technology
_ High energy density
_ Low profile cross-section with removable end caps
_ Constant high-temperature operation
_ Good charging properties at high temperature
_ Electronic thermal battery management
_ High energy maintenance of the charged battery
_ Long shelf life
_ Integrated electronics
_ Safety features incorporated
_ Certified quality manufacturer
_ In various configurations
_ Simple connection with plug-in system
_ With polycarbonate fixing caps
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

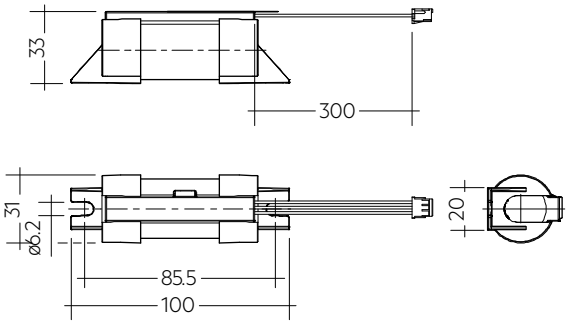
Website

http://www.tridonic.com/28005171

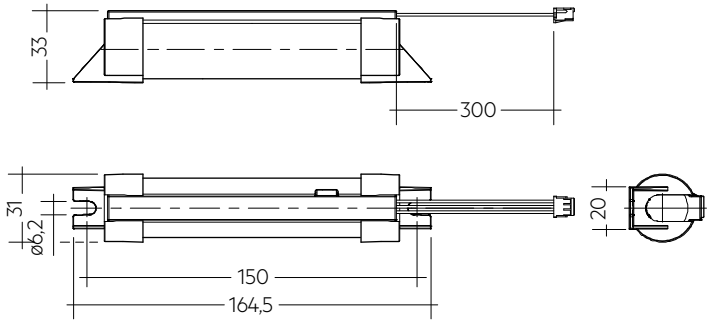
TRIDONIC

LiFePO4 Accus 3.3 – 6.6 Ah

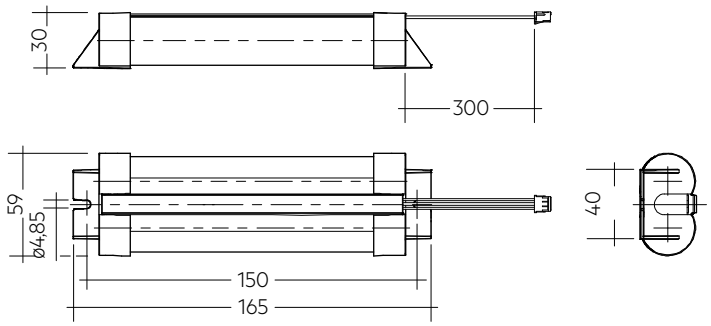
Lithium Iron Phosphate cells (LiFePO4)



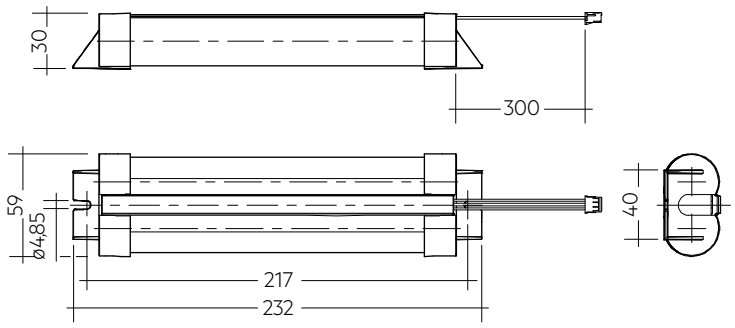
Stick, 1 cell



Stick, 2 cells



Side by side, 4 cells



Side by side, 6 cells

Ordering data

Type	Article number	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
ACCU-LiFePO4 3.3Ah 1A 1S1P CON	**28005171**	3.3 Ah	5 pc(s).	–	0.100 kg
ACCU-LiFePO4 3.3Ah 2A 2S1P CON	**28003814**	3.3 Ah	5 pc(s).	25 pc(s).	0.232 kg
ACCU-LiFePO4 6.6Ah 4A 2S2P CON	**28003815**	6.6 Ah	5 pc(s).	25 pc(s).	0.412 kg
ACCU-LiFePO4 6.6Ah 6A 3S2P CON	**28003816**	6.6 Ah	5 pc(s).	25 pc(s).	0.600 kg

Technical data

Battery voltage per cell	3.2 V
Battery capacity per cell ①	3.6 Ah
Min. battery casing temp. (design life of 4 – 8 years)	+ 5 °C
Max. battery casing temp. (design life of 4/8 years)	Refer to emergency control gear datasheet

Specific technical data

Type	Article number	Number of cells	Capacity	Dimensions L x W x H ②
ACCU-LiFePO4 3.3Ah 1A 1S1P CON	**28005171**	1	3.3 Ah	100.0 x 31 x 33 mm
ACCU-LiFePO4 3.3Ah 2A 2S1P CON	**28003814**	2	3.3 Ah	164.5 x 31 x 33 mm
ACCU-LiFePO4 6.6Ah 4A 2S2P CON	**28003815**	4	6.6 Ah	165.0 x 59 x 30 mm
ACCU-LiFePO4 6.6Ah 6A 3S2P CON	**28003816**	6	6.6 Ah	232.0 x 59 x 30 mm

① For article number 28005171 3.3 Ah applies.
② Manufacturing tolerances: Length +/-3 mm, Width/Height +/-2 mm.

1. Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 62133 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598-2-22.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed (valid for connectors and caps).

2. Thermal data

2.1 Storage conditions

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C up to 15 months after printed date of manufacture
  – Relative humidity: 60 ± 5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation & commissioning

3.1 Activating $LiFePO_4$ batteries

When using rechargeable $LiFePO_4$ batteries for emergency lighting following point are essential in order to achieve the specified design life time of the batteries:

In order to activate new batteries, 2-3 full charging-discharging are needed to make sure batteries achieve their rated capacity. This activating process is defined by running 2-3 full charging (24 hrs) and discharging (1/2/3 hrs) cycles of the batteries. If the first duration test fails, please repeat the test once again after a 24 hour charging period.

3.2 Avoidance of excessive cycling

During building installations, in many cases, mains supply is not available on a permanent 24-hour basis which then leads to unwanted, uncontrolled excessive battery cycles. This has a very strong effect on the design life time of the battery. Make sure that in such situations, the battery remains disconnected in the luminaire till the mains power supply is stable on a 24-hour basis.
It is strongly recommended to refer to the datasheets of Tridonic emergency control gears to avoid excessive cycling. At the same time, make sure that this information is handed over to the installation staff / electrician in order to ensure a proper way of installation and commissioning.

3.3 Avoidance of deep-discharge conditions

It is very important that $LiFePO_4$ batteries are not left connected for long periods in a discharged state. Following options may lead to a deep discharge situation and must be avoided:

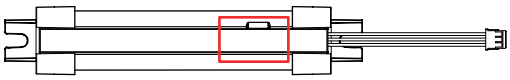
- Storage periods of rechargeable batteries of over 6/15 month without recharging the battery.
- Shipment, storage of assembled emergency luminaires with battery connected to the emergency driver.
- Long periods of mains-interruptions of more than two weeks, once, the emergency system is installed and the battery is connected to the emergency driver.

3.4 Thermal sensor

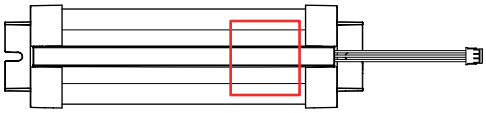
Battery has built in thermal sensor for safe charging. Mount battery away from heat source.

3.4.1 Position of thermal sensor

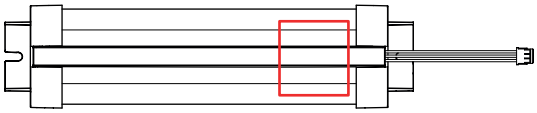
Stick, 1 or 2 cells (1A, 2A):



Side by side, 4 cells (4A):



Side by side, 6 cells (6A):



4. Mechanical details

4.1 Battery leads and connection

Max. length: 800 mm
- 300 mm on battery side with connector to connect into the Emergency lighting unit
- 500 mm with connectors on both sides to extend the battery wiring to max. 800 mm (separate article number)

5. Technical data Cell

Capacity	
Rated minimum capacity	3.3 Ah
Typical weight per cell	90 g
Cell dimensions	
Diameter	26 mm
Height	65 mm

Consult individual emergency control gear data sheet for maximum allowable temperatures and allowed number of discharge cycles.

6. Safety

- Do not short-circuit the battery – when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery or throw it into a fire.
- Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.

Damage/improper use
If the battery is damaged or used incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

6.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

6.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

6.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7. Disposal

- Do not dispose of batteries with normal waste.
- Comply with local regulations when disposing of batteries.

8. Miscellaneous

8.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

No warranty if battery was opened.

TRIDONIC

LiFePO4 Akkus 3.3 – 6.6 Ah BAS

Lithium Iron Phosphate cells (LiFePO4)

Stick

Product description

_ High-temperature LiFePO4 cells only for use with Tridonic emergency lighting units
_ Up to 4 year design life
_ 4 years guarantee battery (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

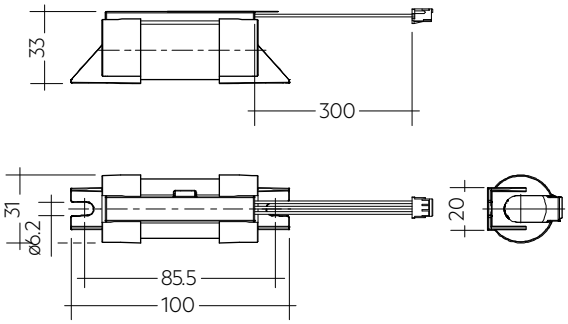
_ Environmental friendly technology
_ High energy density
_ Low profile cross-section with removable end caps
_ Constant high-temperature operation
_ Good charging properties at high temperature
_ Electronic thermal battery management
_ High energy maintenance of the charged battery
_ Long shelf life
_ Integrated electronics
_ Safety features incorporated
_ Certified quality manufacturer
_ In various configurations
_ Simple connection with plug-in system
_ With polycarbonate fixing caps
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

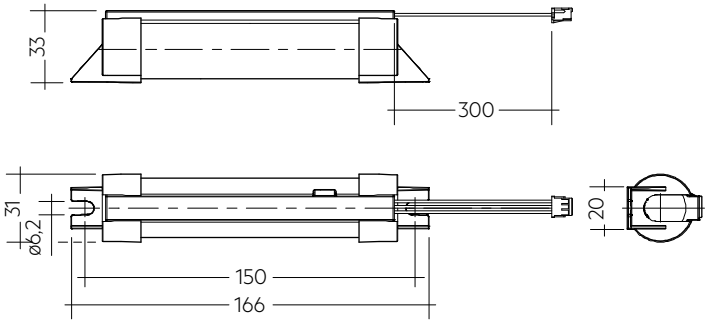
http://www.tridonic.com/28006323

LiFePO4 Akkus 3.3 – 6.6 Ah BAS

Lithium Iron Phosphate cells (LiFePO4)



Stick, 1 cell



Stick, 2 cells

Ordering data

Type	Article number	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
ACCU-LiFePO4 3.3Ah 1A 1S1P CON BAS	**28006323**	3.3 Ah	5 pc(s).	–	0.100 kg
ACCU-LiFePO4 6.6Ah 2A 1S2P CON BAS	**28006324**	6.6 Ah	5 pc(s).	25 pc(s).	0.185 kg

Technical data

Battery voltage per cell	3.2 V
Battery capacity per cell	3.3 Ah
Min. battery casing temp. (design life of 4 years)	+ 5 °C
Max. battery casing temp. (design life of 4 years)	Refer to emergency control gear datasheet

Standards

according to EN 60598-2-22

Specific technical data

Type	Article number	Number of cells	Capacity	Dimensions L x W x H ①
ACCU-LiFePO4 3.3Ah 1A 1S1P CON BAS	**28006323**	1	3.3 Ah	100 x 31 x 33 mm
ACCU-LiFePO4 6.6Ah 2A 1S2P CON BAS	**28006324**	2	6.6 Ah	166 x 31 x 33 mm

① Manufacturing tolerances: Length +/-3 mm, Width/Height +/-2 mm.

1. Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 62133 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598-2-22.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed (valid for connectors and caps).

2. Thermal data

2.1 Storage conditions

- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – Temperature: -20 … +35 °C up to 15 months after printed date of manufacture
  – Relative humidity: 60 ± 5 %
- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries

3. Installation & commissioning

3.1 Activating $LiFePO_4$ batteries

When using rechargeable $LiFePO_4$ batteries for emergency lighting following point are essential in order to achieve the specified design life time of the batteries:

In order to activate new batteries, 2-3 full charging-discharging are needed to make sure batteries achieve their rated capacity. This activating process is defined by running 2-3 full charging (24 hrs) and discharging (1/2/3 hrs) cycles of the batteries. If the first duration test fails, please repeat the test once again after a 24 hour charging period.

3.2 Avoidance of excessive cycling

During building installations, in many cases, mains supply is not available on a permanent 24-hour basis which then leads to unwanted, uncontrolled excessive battery cycles. This has a very strong effect on the design life time of the battery. Make sure that in such situations, the battery remains disconnected in the luminaire till the mains power supply is stable on a 24-hour basis.
It is strongly recommended to refer to the datasheets of Tridonic emergency control gears to avoid excessive cycling. At the same time, make sure that this information is handed over to the installation staff / electrician in order to ensure a proper way of installation and commissioning.

3.3 Avoidance of deep-discharge conditions

It is very important that $LiFePO_4$ batteries are not left connected for long periods in a discharged state. Following options may lead to a deep discharge situation and must be avoided:

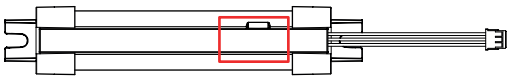
- Storage periods of rechargeable batteries of over 6/15 month without recharging the battery.
- Shipment, storage of assembled emergency luminaires with battery connected to the emergency driver.
- Long periods of mains-interruptions of more than two weeks, once, the emergency system is installed and the battery is connected to the emergency driver.

3.4 Thermal sensor

Battery has built in thermal sensor for safe charging. Mount battery away from heat source.

3.4.1 Position of thermal sensor

Stick, 1 or 2 cells (1A, 2A):



4. Mechanical details

4.1 Battery leads and connection

Max. length: 800 mm
- 300 mm on battery side with connector to connect into the Emergency lighting unit
- 500 mm with connectors on both sides to extend the battery wiring to max. 800 mm (separate article number)

5. Technical data Cell

Capacity	
Rated minimum capacity	3.3 Ah
Typical weight per cell	90 g
Cell dimensions	
Diameter	26 mm
Height	65 mm

Consult individual emergency control gear data sheet for maximum allowable temperatures and allowed number of discharge cycles.

6. Safety

- Do not short-circuit the battery – when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery or throw it into a fire.
- Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.

Damage/improper use
If the battery is damaged or used incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

6.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

6.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

6.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

7. Disposal

- Do not dispose of batteries with normal waste.
- Comply with local regulations when disposing of batteries.

8. Miscellaneous

8.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

No warranty if battery was opened.

TRIDONIC

Module EM-ES 08/10/12 Mk2

EM LED linear / area

Product description
_ Lighting module with 8, 10 or 12 LEDs
_ For use in escape route signs
_ Compatible with EM powerLED 1 W & 2 W
_ EM = Emergency
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

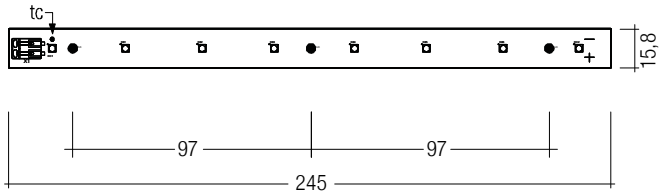
Properties
_ Suitable for Tridonic EM powerLED emergency lighting units
_ For permanent and standby operation
_ Wide 120° distribution of light for uniform illumination
_ Operation on a constant current source
_ Replacement for 8 W T5 flourescent lamp
_ Several options for uniform light distribution
_ Can be interconnected to create longer strips
_ Low energy consumption
_ Long lifetime thanks to low operating temperature
_ Provides a maintenance-free escape sign system
_ Simple mounting/installation
_ Push-in terminals for simple and quick wiring

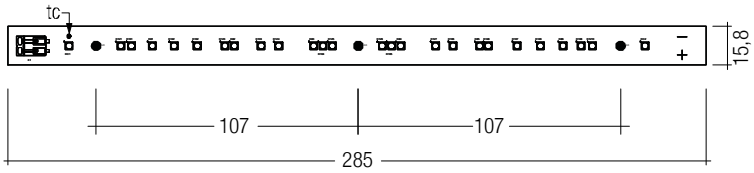
Note
Separate status LED required

Website
http://www.tridonic.com/89800248

Module EM-ES 08/10/12 Mk2

EM LED linear / area





Ordering data

Type	Article number	Colour	Colour temperature	Packaging, carton	Packaging, pallet	Weight per pc.
12 light points per module						
ES 12 285 Mk2	**89800248**	Daylight white	6,500 K	54 pc(s).	972 pc(s).	0.018 kg
8 light points per module						
ES 08 246 Mk2	**89800249**	Daylight white	6,500 K	54 pc(s).	972 pc(s).	0.014 kg
ES 08 285 Mk2	**89800250**	Daylight white	6,500 K	54 pc(s).	972 pc(s).	0.016 kg
10 light points per module						
ES 10 285 Mk2	**89800251**	Daylight white	6,500 K	54 pc(s).	972 pc(s).	0.017 kg

Technical data

Ambient temperature ta	-30 … +55 °C
Typ. tc point ①	60 °C
Typ. luminous flux at 25 °C ②③	130 lm
Max. forward current ④	600 mA
Min. forward voltage	2.7 V
Typ. forward voltage at 25 °C	3 V
Max. forward voltage	3.2 V
Typ. power ③	1.05 W
Colour rendering index CRI	80
Beam characteristic	120°
Risk group (IEC 62471)	RG0
Type of protection	IP00
Lifetime	up to 50,000 h
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

RoHS

Standards

EN 62031, EN 62471

Specific technical data

Type	Article number	Dimensions L x W x	Hole spacing D
ES 08 246 Mk2	**89800249**	245 x 15.8 x 6 mm	97 mm
ES 08 285 Mk2	**89800250**	285 x 15.8 x 6 mm	107 mm
ES 10 285 Mk2	**89800251**	285 x 15.8 x 6 mm	107 mm
ES 12 285 Mk2	**89800248**	285 x 15.8 x 6 mm	107 mm

① If the max. temperature limits are exceeded, the life of the module will be reduced or the module may be damaged. The temperature of the LED module at the tc-point is to be measured in the thermally stable state. For tc-point see the above diagram.
② Tolerance range for optical data: ±15 %.
③ Data for operation with 350 mA.
④ Exceeding the max. operating current leads to an overload on the LED module. This may in turn result in a significant reduction in lifetime or even destruction of the LED module.

Status indication green LED EM

Accessory

Product description
_ A green LED indicates that charging current is flowing into the battery

Website
http://www.tridonic.com/89899605

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green	**89899605**	25 pc(s).	200 pc(s).	0.013 kg
LED EM green, ultra high brightness	**89899756**	25 pc(s).	200 pc(s).	0.013 kg

Approval marks

RoHS

Status indication bi-colour LED EM

Accessory

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

Thermal design and heat sink
The rated life of LED products depends to a large extent on the temperature. If the permissible temperature limits are exceeded, the life of the EM-ES will be greatly reduced or the EM-ES may be destroyed.

tc point, ambient temperature and lifetime
The temperature at tp reference point is crucial for the light output and lifetime of a LED product.

EM-ES Mk2						
tp temperature	L90 / B10	L90 / B50	L80 / B10	L80 / B50	L70 / B10	L70 / B50
60 °C	50,000 h	50,000 h	50,000 h	50,000 h	50,000 h	50,000 h
75 °C	50,000 h	x	x	x	x	x

Operating unit
EM powerLED 1 – 2 W (see separate data sheet)

Precautions in Handling

Safety Precautions
The LED light output is intense enough to cause injury to human eyes if viewed directly. Precautions must be taken to avoid looking directly at the LEDs with unprotected eyes [according IEC 60825-1 (EN 60825-1)].

The EM-ES are delivered in an ESD protected packaging.

Precaution in driving
Products are designed exclusively for forward current driving. Please avoid driving system with reverse voltage, which may cause migration which damages the product.
Reverse polarity and secondary switching can damage the LED module.

Cleaning
Chemical solvents or cleaning agents must not be used to clean the LED component.
Mechanical stress on the LED component must be avoided. It is best to use a soft brush, damp cloth or low-pressure compressed air.

Storage
The products should be stored away from direct light in dry location.
The LEDs should be kept at 30 °C or less and 70 % RH or less. Please avoid rapid transitions in ambient temperature, especially in high humidity environments where condensation could occur.

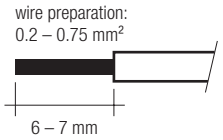
Mounting instruction

None of the components of the EM-ES (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.

Max. torque for fixing: 0.5 Nm.

The LED modules are mounted with 4 screws per module.
In order not to damage the modules only rounded head screws and an additional plastic flat washer should be used.
Fixing can be achieved using M4 plastic screws or M4 plastic rivets through the holes provided or alternatively by appropriate adhesive pads positioned in the fixing areas.

Wiring type and cross section
The wiring can be solid cable with a cross section of 0.2 to 0.75 mm². For the push-wire connection you have to strip the insulation (6–7 mm).



Inserting stranded wires / removing wires by lightly pressing on the push button.

Chemical substance may harm the LED module. Chemical reactions could lead to colour shift, reduced luminous flux or a total failure of the module caused by corrosion of electrical connections.

Materials which are used in LED applications (e.g. sealings, adhesives) must not produce dissolver gas. They must not be condensation curing based, acetate curing based or contain sulfur, chlorine or phthalate.
Avoid corrosive atmosphere during usage and storage.

EOS/ESD safety guidelines

The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice. Please note the requirements set out in the document EOS / ESD guidelines (Guideline_EOS_ESD.pdf) at: http://www.tridonic.com/com/en/technical-docs.asp

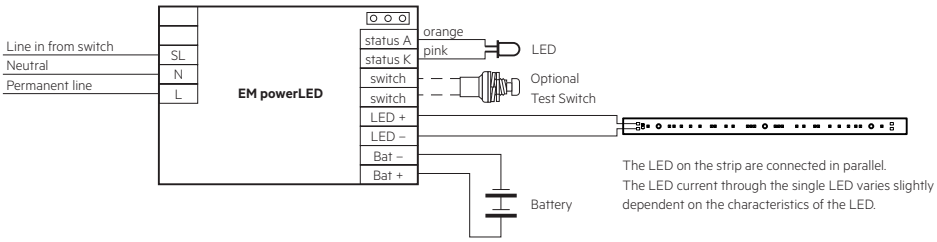
Precautions for safe operation

The operating unit must be SELV classified or else the circuit board must be insulated by the luminaire.

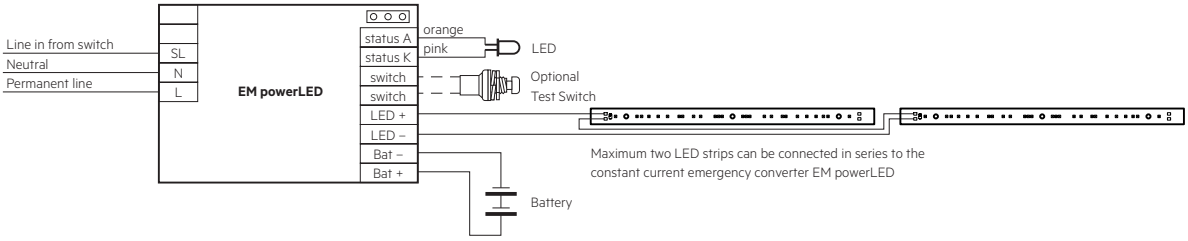
Standards
- EN 62031
- EN 62471

ⓘ For further technical information particulary with regard to the installation of LED modules please refer to www.tridonic.com

Wiring example for one LED strip



Wiring example for two LED strips connected in series



Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.

TRIDONIC

Mounting box 16DPI

Compact control module with ambient light sensor and motion sensor

ACU MOUNTING BOX 16DPI HIGHBAY

ACU MOUNTING BOX 16DPI HIGHBAY with sensor

Product description

_ Easy adaptation of suspended lighting fixtures to a sensor solution, just by adding one additional hole
_ Side entry screw connection in combination with rubber gasket gives a true IP65 protection for industrial applications
_ Easy remote commissioning with IR interface while sensor is still protected
_ Tightening torque = 0.6 Nm

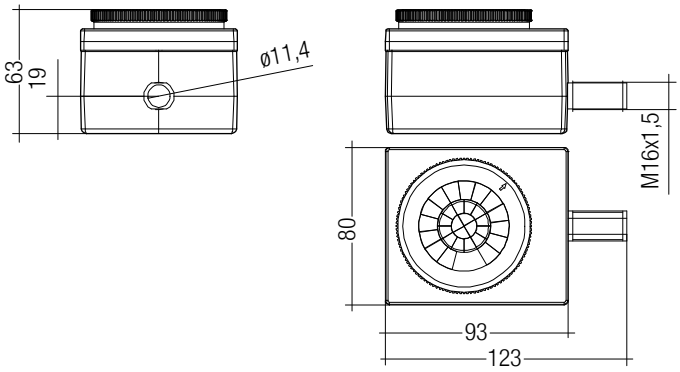
Website

http://www.tridonic.com/28001568

TRIDONIC

Mounting box 16DPI

Compact control module with ambient light sensor and motion sensor



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU MOUNTING BOX 16DPI HIGHBAY	**28001568**	64 pc(s).	0.105 kg

TRIDONIC

NiMH Accus 2.2 Ah

Nickel-Metal Hydride cells (NiMH)

Stick

Stick + Stick

Side by side

Product description

_ High-temperature NiMH cells for use with emergency lighting units
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

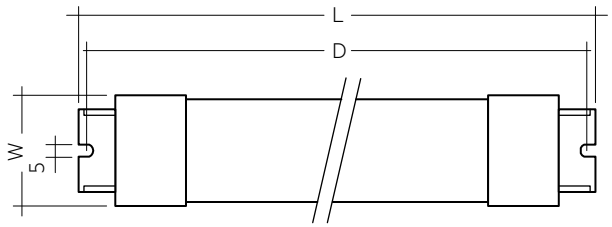
_ Cadmium free
_ Constant high-temperature operation – depending on the emergency lighting unit used (refer to respective emergency control gear data sheet)
_ Low profile cross-section 23 mm (without end caps)
_ Good charging properties at high temperature
_ High energy maintenance of the charged battery
_ Certified quality manufacturer
_ In various configurations
_ Simple connection with blade terminal
_ With polycarbonate fixing caps and connecting cable
_ Electrical connection with mounted end caps possible
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

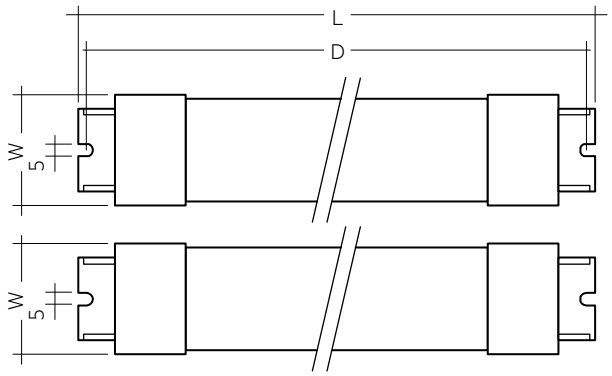
http://www.tridonic.com/28002087

NiMH Accus 2.2 Ah

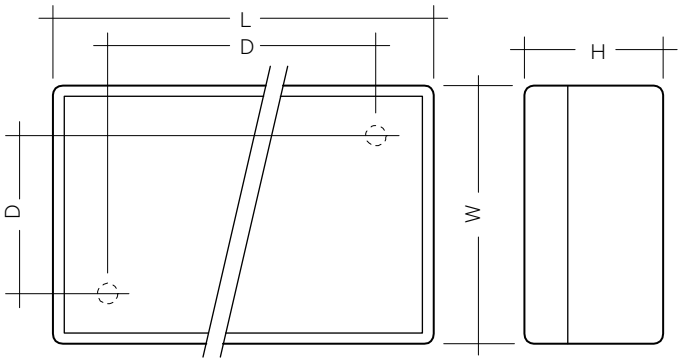
Nickel-Metal Hydride cells (NiMH)



Stick



Stick + Stick



Side by side

Ordering data

Type	Article number	Number of cells	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
NiMH Cs cells – stick, 2,2 Ah						
Accu-NiMH 2.2Ah 2A	**28002087**	2	2.2 Ah	5 pc(s).	25 pc(s).	0.106 kg
Accu-NiMH 2.2Ah 3A	**28002088**	3	2.2 Ah	5 pc(s).	25 pc(s).	0.188 kg
Accu-NiMH 2.2Ah 4A	**28002089**	4	2.2 Ah	5 pc(s).	25 pc(s).	0.246 kg
Accu-NiMH 2.2Ah 5A	**28002090**	5	2.2 Ah	5 pc(s).	25 pc(s).	0.298 kg
Accu-NiMH 2.2Ah 6A	**28002091**	6	2.2 Ah	5 pc(s).	25 pc(s).	0.360 kg
NiMH Cs cells – stick + stick, 2,2 Ah						
Accu-NiMH 2.2Ah 6C	**28002092**	6	2.2 Ah	5 pc(s).	25 pc(s).	0.364 kg
NiMH Cs cells – side by side, 2,2 Ah						
Accu-NiMH 2.2Ah 5B	**28002093**	5	2.2 Ah	5 pc(s).	25 pc(s).	0.310 kg

Technical data

Battery voltage per cell	1.2 V
Min. battery casing temp. (design life of 4 years)	5 °C
Max. battery casing temp. (design life of 4 years)	Refer to emergency control gear datasheet

Standards

according to EN 60598-2-22

Specific technical data

Type	Article number	Number of cells	Capacity	Length L①	Hole spacing D	Hole spacing D	Width B	Height H
NiMH Cs cells – stick, 2,2 Ah								
Accu-NiMH 2.2Ah 2A	**28002087**	2	2.2 Ah	125 mm	–	109 mm	28.0 mm	27.0 mm
Accu-NiMH 2.2Ah 3A	**28002088**	3	2.2 Ah	167 mm	–	152 mm	28.0 mm	27.0 mm
Accu-NiMH 2.2Ah 4A	**28002089**	4	2.2 Ah	209 mm	–	194 mm	28.0 mm	27.0 mm
Accu-NiMH 2.2Ah 5A	**28002090**	5	2.2 Ah	252 mm	–	237 mm	28.0 mm	27.0 mm
Accu-NiMH 2.2Ah 6A	**28002091**	6	2.2 Ah	294 mm	–	280 mm	28.0 mm	27.0 mm
NiMH Cs cells – stick + stick, 2,2 Ah								
Accu-NiMH 2.2Ah 6C	**28002092**	6	2.2 Ah	167 mm	–	152 mm	28.0 mm	27.0 mm
NiMH Cs cells – side by side, 2,2 Ah								
Accu-NiMH 2.2Ah 5B	**28002093**	5	2.2 Ah	134 mm	24 x 112 mm	–	48.5 mm	28.5 mm

① Manufacturing tolerances: Length +/-3 mm, Width/Height +/-2 mm.

1. Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 61951-2 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598 2.22.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 850 °C passed (valid for connectors and caps).

2. Thermal data

2.1 Storage conditions

- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries
- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – relative humidity: < 60 %
  – temperature: -20 … +25 °C for up to 12 months after printed date of manufacture
- A long term storage in open circuit leads to battery self discharge and deactivation of chemical components. It could be required to charge and discharge the batteries a few times to recover the initial performance.

3. Installation & commissioning

3.1 Activating NiMH batteries

When using rechargeable NiMH batteries for emergency lighting following point are essential in order to achieve the specified design life time of the batteries:

In order to activate new batteries, 2-3 full charging-discharging are needed to make sure batteries achieve their rated capacity. This activating process is defined by running 2-3 full charging (24 hrs) and discharging (1/2/3 hrs) cycles of the batteries. If the first duration test fails, please repeat the test once again after a 24 hour charging period.

3.2 Avoidance of excessive cycling

During building installations, in many cases, mains supply is not available on a permanent 24-hour basis which then leads to unwanted, uncontrolled excessive battery cycles. This has a very strong effect on the design life time of the battery. Make sure that in such situations, the battery remains disconnected in the luminaire till the mains power supply is stable on a 24-hour basis.
It is strongly recommended to refer to the datasheets of Tridonic emergency control gears to avoid excessive cycling. At the same time, make sure that this information is handed over to the installation staff / electrician in order to ensure a proper way of installation and commissioning.

3.3 Avoidance of deep-discharge conditions

If NiMH batteries or individual cells within a battery pack, are driven into deep discharge state they will not recover after charge / discharge cycles. Therefore it is very important that NiMH batteries are not left connected for long periods in a discharged state.

Following options may lead to a deep discharge situation and must be avoided:
- Storage periods of rechargeable batteries of over 12 month without recharging the battery packs.
- Shipment, storage of assembled emergency luminaires with battery pack connected to the emergency driver.
- Long periods of mains-interruptions of more than two weeks, once, the emergency system is installed and the battery pack is connected to the emergency driver.

4. Mechanical details

Battery leads
- Delivery quantity: 1 red and 1 black
- Length: 1,300 mm
- Wire type: 0.5 mm² solid conductor
- Insulation temperature rating: 90 °C
- Polarity: red (positiv +), black (negative -)

Battery end termination
Push on 4.8 mm receptacle to suit battery soade fitted with insulating cover

Module end termination
5.0 mm stripped insulation

Two-piece batteries are supplied with a 200 mm lead with 4.8 mm receptacles at each end and insulating covers to connect the separate sticks together. Connect two battery sticks in series by connecting plus to minus.

Batteries
Connection method: 4.8 x 0.5 mm spade tag welded to end of cell.

For stick packs this connection is accessible after the battery caps have been fitted.

To inhibit inverter operation disconnect the batteries by removing the connector from the battery spade tag.

5. Technical data Accu

Capacity Cs	
Rated minimum capacity	2.20 Ah
Typical capacity	2.42 Ah
Typical weight per cell	53 g
Cell dimensions	
Diameter	22.5 mm
Height	43.5 mm

International designation
- 2.2 Ah HRMU 23/43

Consult individual emergency control gear data sheet for maximum allowable temperatures and allowed number of discharge cycles.

6. Safety

- Do not short-circuit the battery pack – when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery pack or throw it into a fire.
- Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.

Damage/improper use
If the battery is damaged or user incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

7. Disposal

- Do not dispose of batteries with normal waste.
- Comply with local regulations when disposing of batteries.

8. Miscellaneous

8.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

No warranty if battery was opened.

TRIDONIC

NiMH Accus 4.0 Ah

Nickel-Metal Hydride cells (NiMH)

Stick

Stick + Stick

Product description

_ High-temperature NiMH cells for use with emergency lighting units
_ 4 year design life
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Properties

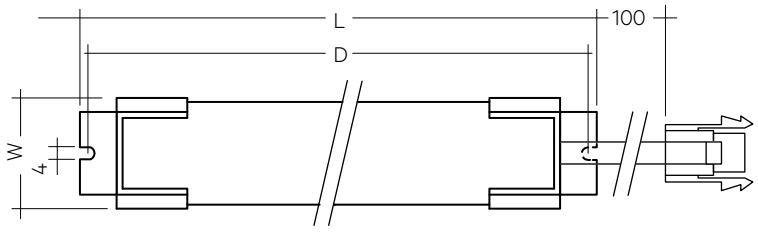
_ Cadmium free
_ Constant high-temperature operation – depending on the emergency lighting unit used (refer to respective emergency control gear data sheet)
_ Low profile cross-section 21 mm
_ Good charging properties at high temperature
_ High energy maintenance of the charged battery
_ Certified quality manufacturer
_ In various configurations
_ Simple connection with plug-in system
_ With polycarbonate fixing caps
_ Suitable for emergency lighting equipment as per IEC 60598-2-22

Website

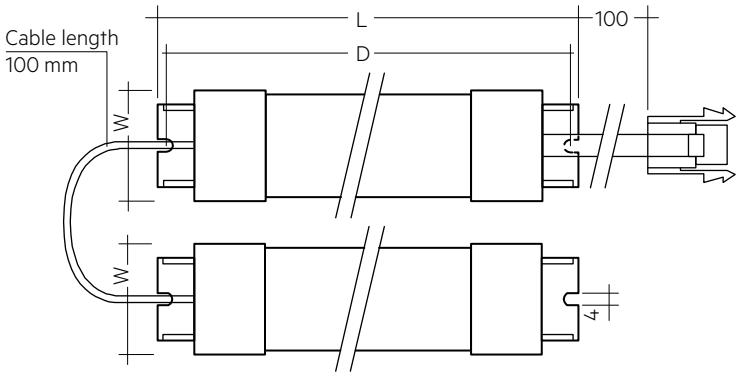
http://www.tridonic.com/28002316

NiMH Accus 4.0 Ah

Nickel-Metal Hydride cells (NiMH)



Stick



Stick + Stick

Ordering data

Type	Article number	Number of cells	Capacity	Packaging, carton	Packaging, outer box	Weight per pc.
NiMH cells – stick, 4 Ah						
Accu-NiMH 4Ah 2A CON	**28002316**	2	4 Ah	5 pc(s).	25 pc(s).	0.170 kg
Accu-NiMH 4Ah 3A CON	**89800441**	3	4 Ah	5 pc(s).	25 pc(s).	0.274 kg
Accu-NiMH 4Ah 4A CON	**89800442**	4	4 Ah	5 pc(s).	25 pc(s).	0.340 kg
NiMh cells – stick + stick, 4 Ah						
Accu-NiMH 4Ah 4C CON	**89800438**	4	4 Ah	5 pc(s).	25 pc(s).	0.347 kg
Accu-NiMH 4Ah 5C CON	**89800439**	5	4 Ah	5 pc(s).	25 pc(s).	0.450 kg
Accu-NiMH 4Ah 6C CON	**89800440**	6	4 Ah	5 pc(s).	25 pc(s).	0.510 kg

Technical data

Battery voltage per cell	1.2 V
Min. battery casing temp. (design life of 4 years)	+ 5 °C
Max. battery casing temp. (design life of 4 years)	Refer to emergency control gear datasheet

Standards

according to EN 60598-2-22

Specific technical data

Type	Article number	Number of cells	Capacity	Length L①	Hole spacing D	Width B	Height H
NiMH cells – stick, 4 Ah							
Accu-NiMH 4Ah 2A CON	**28002316**	2	4 Ah	210 mm	200 mm	22 mm	21 mm
Accu-NiMH 4Ah 3A CON	**89800441**	3	4 Ah	294 mm	284 mm	22 mm	21 mm
Accu-NiMH 4Ah 4A CON	**89800442**	4	4 Ah	382 mm	372 mm	22 mm	21 mm
NiMh cells – stick + stick, 4 Ah							
Accu-NiMH 4Ah 4C CON	**89800438**	4	4 Ah	204 + 204 mm	194 + 194 mm	22 mm	21 mm
Accu-NiMH 4Ah 5C CON	**89800439**	5	4 Ah	204 + 294 mm	194 + 284 mm	22 mm	21 mm
Accu-NiMH 4Ah 6C CON	**89800440**	6	4 Ah	294 + 294 mm	284 + 284 mm	22 mm	21 mm

① Manufacturing tolerances: Length +/-3 mm, Width/Height +/-2 mm.

1. Standards

The battery cells are designed to comply with the IEC international standard and tested according to the normative permanent charge endurance test described in the IEC 61951-2 standard. This performance is mandatory for use in Emergency Lighting Units to comply with the IEC 60598 2.22.

1.1 Glow-wire test

according to EN 61347-1 with increased temperature of 960 °C passed (valid for connectors and caps).

2. Thermal data

2.1 Storage conditions

- Avoid atmosphere with corrosive gas
- Disconnect batteries before store or delivery
- Avoid storage of discharged batteries
- Store batteries within the specified temperature range in low humidity conditions. Optimal storage conditions are:
  – relative humidity: < 60 %
  – temperature: -20 … +25 °C for up to 12 months after printed date of manufacture
- A long term storage in open circuit leads to battery self discharge and deactivation of chemical components. It could be required to charge and discharge the batteries a few times to recover the initial performance.

3. Installation & commissioning

3.1 Activating NiMH batteries

When using rechargeable NiMH batteries for emergency lighting following point are essential in order to achieve the specified design life time of the batteries:

In order to activate new batteries, 2-3 full charging-discharging are needed to make sure batteries achieve their rated capacity. This activating process is defined by running 2-3 full charging (24 hrs) and discharging (1/2/3 hrs) cycles of the batteries. If the first duration test fails, please repeat the test once again after a 24 hour charging period.

3.2 Avoidance of excessive cycling

During building installations, in many cases, mains supply is not available on a permanent 24-hour basis which then leads to unwanted, uncontrolled excessive battery cycles. This has a very strong effect on the design life time of the battery. Make sure that in such situations, the battery remains disconnected in the luminaire till the mains power supply is stable on a 24-hour basis.
It is strongly recommended to refer to the datasheets of Tridonic emergency control gears to avoid excessive cycling. At the same time, make sure that this information is handed over to the installation staff / electrician in order to ensure a proper way of installation and commissioning.

3.3 Avoidance of deep-discharge conditions

If NiMH batteries or individual cells within a battery pack, are driven into deep discharge state they will not recover after charge / discharge cycles. Therefore it is very important that NiMH batteries are not left connected for long periods in a discharged state. Following options may lead to a deep discharge situation and must be avoided:

- Storage periods of rechargeable batteries of over 12 month without recharging the battery packs.
- Shipment, storage of assembled emergency luminaires with battery pack connected to the emergency driver.
- Long periods of mains-interruptions of more than two weeks, once, the emergency system is installed and the battery pack is connected to the emergency driver.

4. Mechanical details

4.1 Battery leads

- Quantity: 1 red and 1 black lead with plug-in connection suitable for the plug-in connection of the battery
- Total length: 1,000 mm (100 mm on battery side / 900 mm on device side)
- Wire type: 0.5 mm² solid conductor
- Insulation temperature rating: 90 °C
- Polarity: red (positiv +), black (negative -)

4.2 Battery end termination

Total length: 1,000 mm
- 100 mm on battery side with connector
- 900 mm on device side with connector

4.3 Emergency lighting unit end termination

8.0 mm stripped insulation

Two-piece batteries are supplied with a 100 mm firmly welded lead to connect the separate sticks together.
A lockable plug connection is used to connect the battery on the battery side. On the device side the cable has a strip length of 8 mm from factory.

5. Technical data Accu

Capacity		
Rated minimum capacity	4.0 Ah	3.9 Ah
Typical weight per cell	80 g	–
Cell dimensions		
Diameter	18.3 mm	–
Height	90 mm	–

International designation
- 4.0 Ah HRMU 19/90

Consult individual emergency control gear data sheet for maximum allowable temperatures and allowed number of discharge cycles.

6. Safety

- Do not short-circuit the battery pack – when installing the luminaire make sure sharp edges do not come into contact with cables.
- Do not open or damage the battery pack or throw it into a fire.
- Protect the battery against moisture and keep away from water.
- Do not expose the battery to direct sunlight or excessive heat (see storage conditions).
- Transport and store the battery only in its original packaging.
- Comply with the transport conditions of the transport company.
- Follow the instructions on the safety data sheets.

Damage/improper use
If the battery is damaged or user incorrectly vapours and liquids may escape from it. If you come into contact with battery fluid wash immediate with water and seek medical assistance if necessary.

7. Disposal

- Do not dispose of batteries with normal waste.
- Comply with local regulations when disposing of batteries.

8. Miscellaneous

8.1 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if battery was opened.

TRIDONIC

Power supply MW 24VDC

General

Product description
_ Ultra slim design with 35 mm (2SU) width
_ Power input on stand-by < 0.3 W
_ Isolation class II
_ Pass LPS (Limited Power Source)
_ DC output voltage adjustable
_ Protective features (short circuit, overload, over voltage)
_ Cooling by free air convection (working temperature: -30 … +70 °C)
_ DIN rail TS-35/7.5 or 15 mountable
_ LED indicator for power on
_ 3 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

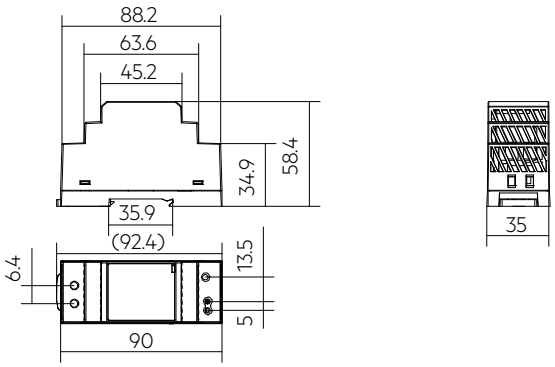
Typical applications
_ lichtMONITOR server x5 (28004946)
_ sceneCOM evo Touchpanel (28005694)

Website
http://www.tridonic.com/28005796

TRIDONIC

Power supply MW 24VDC

General



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Power supply MW 24VDC	**28005796**	96 pc(s).	0.13 kg

Technical data

Rated supply voltage ①	110 – 240 V
Mains frequency	50 / 60 Hz
Typ. current	1.5 A
Power consumption	36 W
Efficiency	89 %
Typ. power consumption on stand-by	0.3 W
Output DC	24 V
Output power	30 W
Ambient temperature ta	-30 … +70 °C
Storage temperature ts	-40 … +85 °C
Humidity ②	10 … 95 %
Type of protection	IP20
Dimensions L x W x H	35 x 90 x 54.4 mm
Guarantee (conditions at www.tridonic.com)	3 Year(s)

Approval marks

Standards

EN 55032, EN 55035, EN 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, EN 61000-6-2, EN 61204-3

① 277 V AC operational.
② Relative humidity non-condensing.

1. Standards

EN 55032
EN 55035
EN 61000-3-2
EN 61000-3-3
EN 61000-4-2
EN 61000-4-3
EN 61000-4-4
EN 61000-4-5
EN 61000-4-6
EN 61000-4-8
EN 61000-4-11
EN 61000-6-2
EN 61204-3

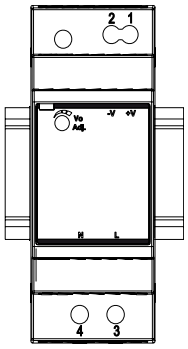
2. Common

2.1 Functional description

The 24 V DC Power supply is a compact, 30 W DIN rail power supply designed for space-saving installation. It supports a wide AC input range and meets EU standards for harmonic current. With a plastic housing for safety, it operates efficiently (up to 90 %) in temperatures from -30 to 70 °C.
It has comprehensive protection features and certifications, making it suitable for lichtMONITOR server x 5 and sceneCOM evo Touchpanel applications.

3. Installation

3.1 Terminals

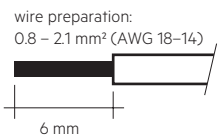


Pin number	Assignment
1	V+
2	V–
3	AC/L
4	AC/N

Note: Ensure proper ventilation by maintaining clearances of 5 mm on the sides, 40 mm above and 20 mm below the unit during use to prevent overheating.

3.2 Cable types and cable cross-sections

For wiring use stranded wire with ferrules or solid wire from 0.8–2.1 mm² (AWG 18–14).
Strip 6 mm of insulation from the cables to ensure perfect operation of the screw terminals. The recommended screwdriver is a 3 mm slotted type.
Use one wire for each terminal connector only.



AWG	18	16	14
Cross section (mm²)	0.8 mm²	1.3 mm²	2.1 mm²
Rated current of equipment (A)	7 A	10 A	15 A

When using 4 – 6 wires connected to the unit, the current each wire carries should be reduced to 80% of the recommended value.

Ensure that all strands of each stranded wire are fully inserted into the terminal connection and that the screw terminals are tightly secured to avoid poor contact. If the power supply has multiple output terminals, make sure each contact is connected to wires to prevent excessive current stress on any single contact.

Use wires capable of withstanding temperatures of at least 80 °C.

The recommended torque setting for terminals is 0.5 – 0.67 Nm (input side) and 0.49 Nm (output side).

	Fuse	Circuit breaker	
	T3.15A/H250V	C16	D16
Number of power supplies	1	12	24

3.3 Safety instructions

- Risk of electrical shock and energy hazard. Any failures should be inspected by a qualified technician. Do not attempt to remove the power supply case yourself!
- Risk of electric arcs and shock (life-threatening).
  It is prohibited to connect the primary and secondary sides together.
- Risk of burn hazard. Avoid touching the unit while it is operating and immediately after it has been disconnected!
- Risk of fire and short circuit. Ensure the openings are protected from foreign objects and dripping liquids.
- Avoid installing the unit in areas with high moisture or near water.
- Disconnect the system from the supply voltage:
  Before starting any installation, maintenance, or modification work, ensure your system is disconnected from the supply voltage.
  Make certain that accidental reconnection is impossible!

4. Miscellaneous

4.1 Disposal

According to the WEEE directive return old equipment at appropriate collection facilities.

4.2 Additional information

Additional technical information at www.tridonic.com → Technical Data
Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

ready2mains Gateway 400VA

ready2mains

Product description

_ Interface for transmitting digital control and dimming commands to ready2mains-compatible LED drivers via the mains wiring
_ Simple integration of sensors and momentary-action switch thanks to one4all interface: DALI, DSI, switchDIM, corridorFUNCTION
_ Total connected load: 400 VA max. (maximum of 15 LED drivers)
_ Short-circuit and overload shutdown with automatic restart, overtemperature protection
_ Double terminals for through wiring
_ Rapid installation of cable clamp and terminal cover, no tool required
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Interfaces

_ one4all (DALI DT 254, DSI, switchDIM, corridorFUNCTION)

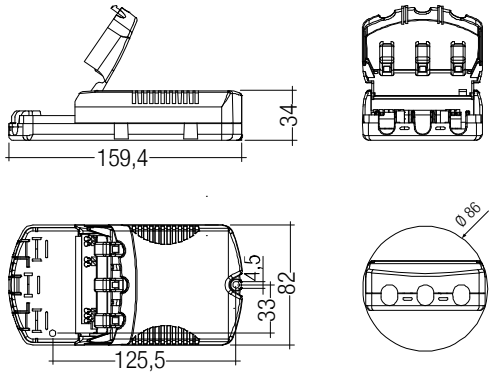
Website

http://www.tridonic.com/28001248

TRIDONIC

ready2mains Gateway 400VA

ready2mains



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ready2mains Gateway 400VA	**28001248**	10 pc(s).	0.22 kg

Technical data

Rated supply voltage	220 – 240 V
Input voltage AC	198 – 264 V
Max. input current (at 230 V, 50 Hz, full load)	1.74 A
Mains frequency	50 / 60 Hz
Connected load	0 – 400 VA
Power loss ①	0.75 W (1.35 W at full load)
Input, DALI/DSI control input and switchDIM	1
Current consumption of DALI	2 mA
Number of DALI addresses	1
Control range, DSI ②	0 – 100 %
Control range, DALI ②	0 – 100 %
Terminals	0.5 – 1.5 mm²
Max. cable length at 1.5 mm² ③	250 m
Ambient temperature ta	0 … +60 °C
Type of protection	IP20
Housing	Polycarbonat white RAL colour 9016
Dimensions L x W x H	159.4 x 82 x 34 mm

Approval marks

Standards

EN 61347-1, EN 61347-2-11, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, EN 62386-101, EN 62386-102

① Connected luminaires are switched off from mains (no stand-by losses of the connected LED drivers).
② Dimming range depends on the connected LED drivers.
③ The regional and national rules and guidelines must be observed.

1. Standards

EN 61347-1
EN 61347-2-11
EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547
According to DALI Standard V2
EN 62386-101
EN 62386-102

1.1 Glow wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

2. Common

2.1 Overview ready2mains Gateway 400VA

ready2mains enables digital information to be transmitted via the mains cable with the aid of phase control. The procedure used ensures robust interference-free communication.
The ready2mains Gateway described here receives control signals via the one4all interface and transmits them to the mains cable and to all the ready2mains-compatible LED drivers connected on th secondary side. Sensors can be easily integrated. The relevant information is broadcast simultaneously to all the LED drivers.

3. Interfaces / communication

3.1 Control input (DA/N, DA/L)

Digital signals (DALI, DSI) or switchDIM can be wired on the same terminals (DA/N and DA/L).

3.2 Digital signal DALI/DSI

The control input is non-polar for digital control signals (DALI, DSI). The control signal is not SELV. Control cable has to be installed in accordance to the requirements of low voltage installations.
Different functions depending on each module.
The possible functions depend on the LED driver used.
The step width corresponds to the DALI standard.
A continuous communication (e.g. caused by dynamic dimming applications) shall be avoided as increased traffic may lead to increased operating temperature (see “Overtemperature protection”).

3.3 switchDIM

Integrated switchDIM function allows a direct connection of a push to make switch for dimming and switching.
Brief push (< 0.6 s) switches LED driver ON and OFF. The LED drivers switch-ON at light level set at switch-OFF.
When the push to make switch is held, LED drivers are dimmed.
After repush the LED drivers are dimmed in the opposite direction.
In installations with LED drivers with different dimming levels or opposite dimming directions (e.g. after a system extension), all LED drivers can be synchronized to 50 % dimming level by a 10 s push.
Use of push to make switch with indicator lamp is not permitted.

3.4 corridorFUNCTION

The corridorFUNCTION can be programmed in two different ways.
To program the corridorFUNCTION by means of software a DALI-USB interface is needed in combination with a DALI PS. The software can be the masterCONFIGURATOR.
To activate the corridorFUNCTION without using software a voltage of 230 V simply has to be applied for five minutes at the switchDIM connection.
The unit will then switch automatically to the corridorFUNCTION.

Note:
If the corridorFUNCTION is wrongly activated in a switchDIM system (for example a switch is used instead of pushbutton), there is the option of installing a pushbutton and deactivating the corridorFUNCTION mode by five short pushes of the button within three seconds.

switchDIM and corridorFUNCTION are very simple tools for controlling LED driver with conventional momentary-action switches or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings. Serious mains faults may impair the operation of switchDIM and corridorFUNCTION.

4. Installation

- The ready2mains Gateway may only be used on conjunction with ready2mains-compatible LED drivers.
  LED drivers without ready2mains technology and any other loads must not be operated via the ready2mains Gateway.
- DSI / DALI is not SELV. Apply the installation instructions for mains voltage.
- Make sure the L and N polarity on the primary side is correct.
  If the polarity is incorrect the neutral conductor will be live!
- For the system and its protective equipment to operate correctly, L and L_out as well as N and N_out must be strictly separated via the Gateway. L_out and N_out may only be used to operate ready2mains-compatible LED drivers.
- Do not exceed the maximum permissible number of connected LED drivers. For more information see the section on „Maximum number of LED drivers“.
- Gateways must not be cascaded.
- Gateways can be operated on a 3-phase power supply.
  On the output side each Gateway must have its own neutral conductor however. Secondary-side neutral conductors must not be connected together!
- Connecting and disconnecting luminaires to the secondary side while Gateway is powered up can cause non-reversible damage.

4.1 LED drivers to be connected

Only ready2mains-compatible LED drivers may be connected to the Gateway. Any other mode of operation may damage the Gateway and/or the connected LED drivers.

ready2mains-compatible LED drivers can be identified by the label „supports ready2mains“ and an appropriate indication in the data sheet.

4.2 Maximum number of LED drivers

- The total connected apparent power must not exceed the maximum connected load of the Gateway.
- No more than 15 LED drivers may be connected.
  This limitation is necessary because of the discharge currents that have to be handled by the Gateway during generation of the ready2mains signals.

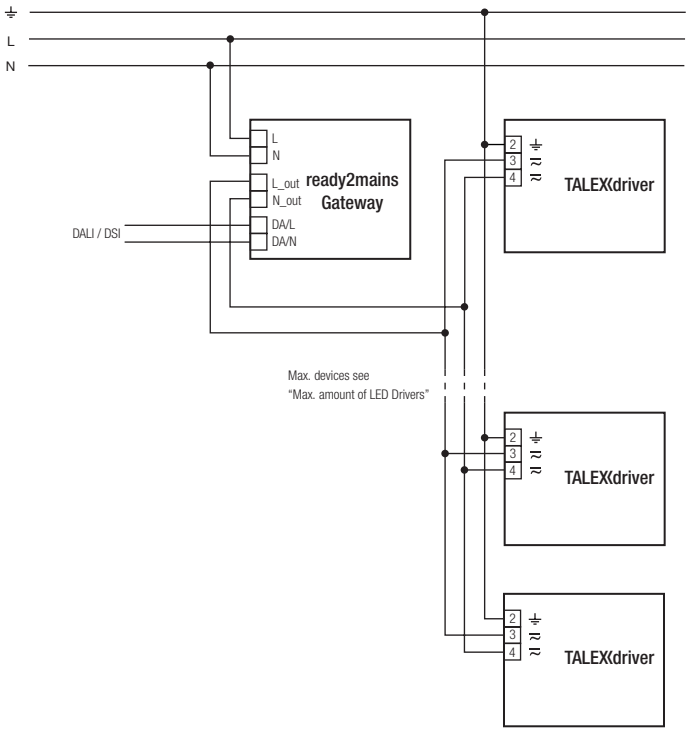
Neither of these limitation may be exceeded.

4.3 Calculation of the apparent power

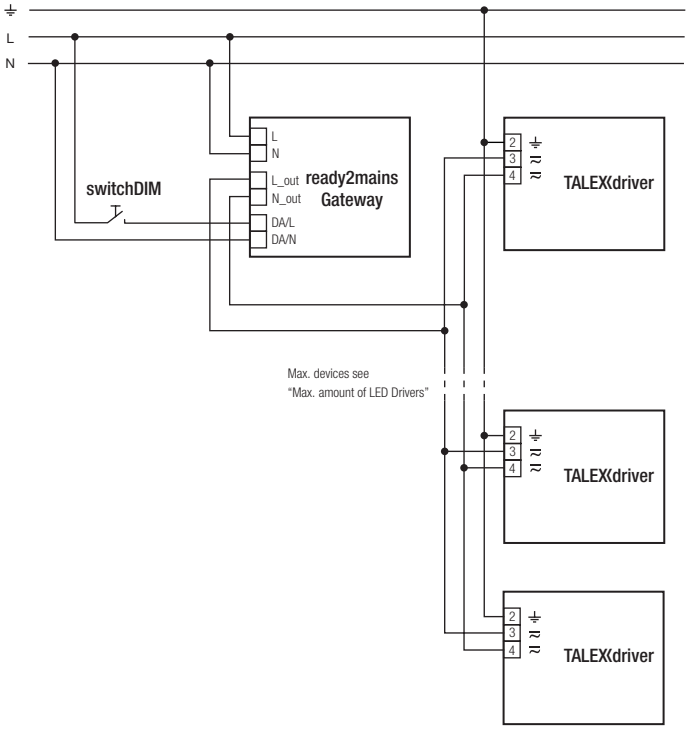
The maximum connected load of the Gateway is specified in the „Technical data“ section and is calculated as the total apparent power of all the connected LED drivers.
Apparent power (in VA) is calculated as the quotient of the true power (in W) and the power factor (λ).
Detailed values for the individual LED drivers are given in the relevant data sheets.

$$S = \frac{P}{\lambda}$$

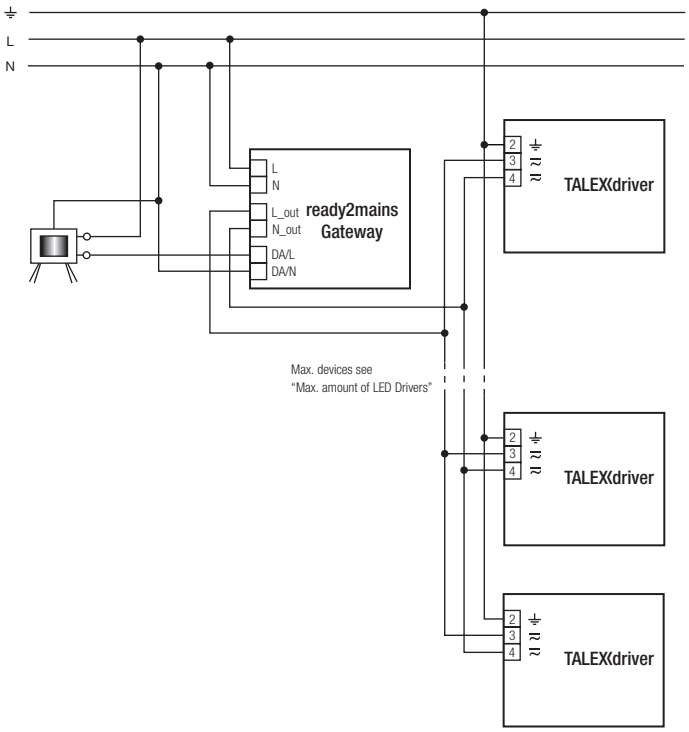
4.4 Wiring diagram for DALI / DSI



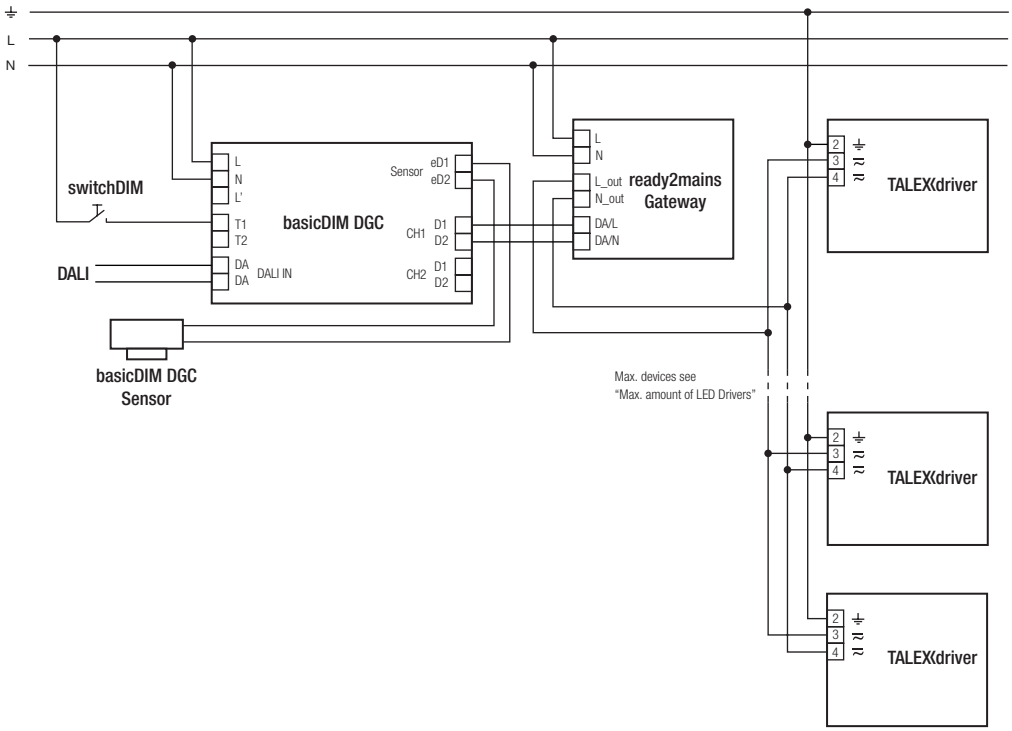
4.5 Wiring diagram for switchDIM



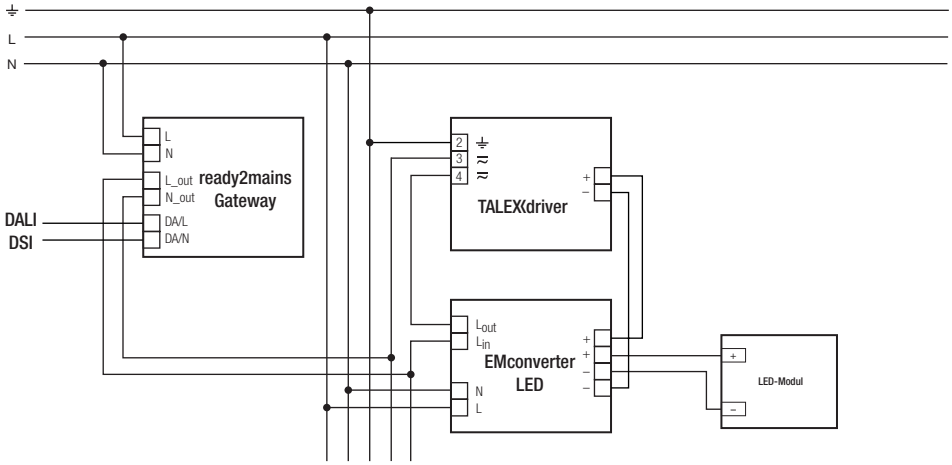
4.6 Wiring diagram for corridorFUNCTION



4.7 Wiring diagram with basicDIM DGC



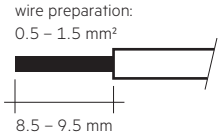
4.8 Wiring diagram for emergency



The mains detection occours on the permanent live.
The emergency unit cannot detect a failure of the gateway!

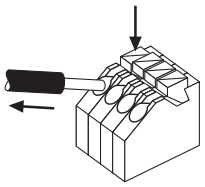
4.9 Installation instructions

For wiring use stranded wire with ferrules or solid wire from 0.5–1.5 mm².
Strip 9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.
Use one wire for each terminal connector only.



4.10 Release of the wiring

Press down the "push button" and remove the cable from front.



5. Functions

5.1 Short-circuit behaviour

If there is a short-circuit at the output the Gateway will switch off and restart after 500 ms. If another 5 short-circuits are detected the Gateway will switch off and will be reactivated only after a mains reset.

5.2 Mains overvoltage protection

The output is disconnected if the input voltage exceeds 288 V.
As soon as the voltage falls below this limit value the Gateway will automatically restart. It cannot be switched on if the voltage is more than 288 V.

5.3 Overload protection

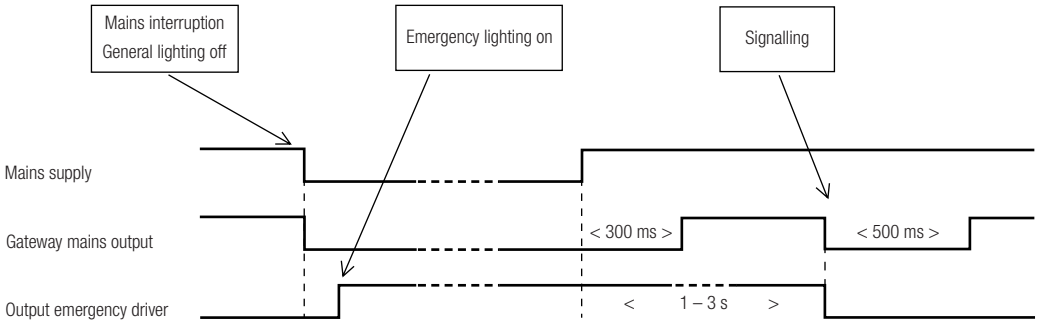
If the maximum permissible connected load is exceeded the Gateway will switch off the output and restart after 10 s. If the overload persists the Gateway will switch off and will be reactivated only after a mains reset.

5.4 Overtemperature protection

If a temperature of 65 °C in the Gateway is exceeded the data rate will be gradually linear reduced. Commands will therefore be implemented by the LED driver with a slight delay, causing visible dimming steps. If the temperature continues to rise and reaches a value of 120 °C, the Gateway will switch off and will be reactivated only after a mains reset.

5.5 Main interruptions / emergency behaviour

Interruptions of the mains supply will be detected by the ready2mains Gateway, its re-appearance will be signalled by a short flashing of the connected luminaires. This signalling will also appear in self-contained emergency installations.



6. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

6.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

ready2mains Programmer

ready2mains

Product description

_ Interface for programming of Tridonic products via ready2mains and U6Me2
_ Support of configuration scripts
_ Display and keypad for manual operation
_ Removable protective cover
_ USB interface for easy integration in automated test systems
_ Parallel programming up to 5 LED drivers (max. 400 VA)
_ Current setting in 1-mA-steps
_ USB Mini-B cable 1 m included
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

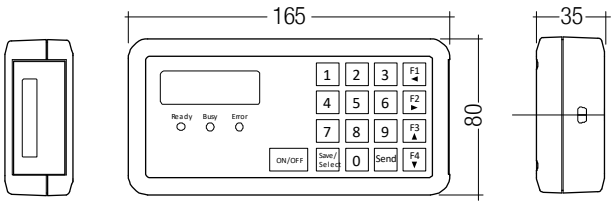
Website

http://www.tridonic.com/28001206

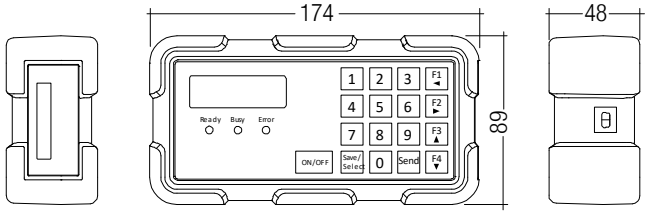
TRIDONIC

ready2mains Programmer

ready2mains



ready2mains Programmer without protective cover



ready2mains Programmer with protective cover

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ready2mains Programmer	**28001206**	24 pc(s).	0.423 kg

Technical data

AC voltage range	110 – 277 V
Mains frequency	50 / 60 Hz
Max. load	400 VA
Max. mains current	3,000 mA
Terminals	0.25 – 1.5 mm²
Cable length secondary	≤ 5 m
Ambient temperature ta	-25 … +40 °C
Type of protection	IP20
Protective cover	blue, removable
Housing	grey, ABS UL94V-0
Dimensions L x W x H	165 x 80 x 35 mm
Guarantee (conditions at www.tridonic.com)	5 Year(s)

Approval marks

r2m RoHS

Standards

EN 61347-2, EN 61347-2-11, EN 55015, EN 61000-3-2, EN 61000-3-3, EN 61547, according to DALI Standard V2, EN 62386-101, EN 62386-102, EN 60950-1

1. Standards

EN 61347-2
EN 61347-2-11
EN 55015
EN 61000-3-2
EN 61000-3-3
EN 61547
EN 60950-1 (USB)

1.1 Glow wire test

according to EN 60598-1 with increased temperature of 650 °C passed.

2. Common

2.1 Overview ready2mains Programmer

The ready2mains Programmer is a versatile tool to program various Tridonic products via ready2mains and U6Me2. It is used in luminaire productions to cover a wide range of manufacturing processes, from manual programming to fully automated production lines. In addition, the Programmer can be used in outdoor applications to configure LED driver via U6Me2.

2.2 Note

For firmware upgrade see manual.

3. Installation

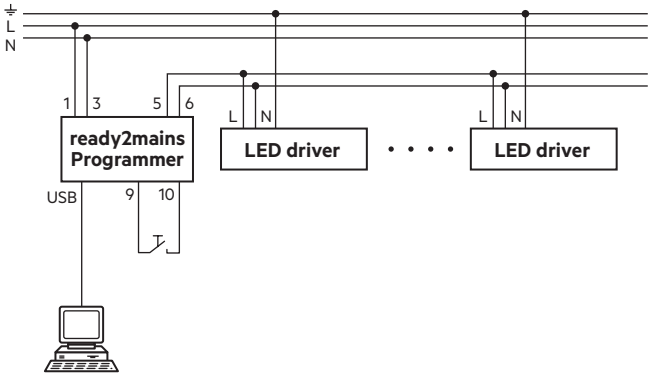
General:
- Connect max. 5 LED driver to the Programmer.
- Momentary-action switch has to be rated for mains voltage.
- At low mains voltages the max. mains current of 3 A has to be considered (max. 330 VA at 110 V).
- To guarantee a selective shut down in case of a hardware defect, we recommend to use an extra circuit breaker for the Programmer.
- To prevent destruction of the programmer at incorrect wiring of the luminaire (ground fault), it is recommended to use an isolating transformer plus an adequate fuse.
- Equipment for use in locations where children not likely to be present.

ready2mains:
- The ready2mains Programmer may only be used in conjunction with ready2mains compatible LED drivers.
- Any other LED driver or loads shall not be connected when programming via ready2mains.
- LED driver requires a load to be connected during programming.
- A load in the upper part of the load window is recommended (the highest possible load would be best).
- With small mains power at the LED driver there might be a systemic problem evaluating the optical feedback.

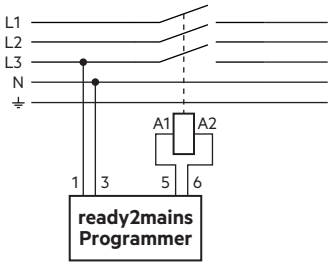
U6Me2:
- If load exceeds the stated maximum load, a contactor must be used in between the Programmer and the connected LED driver.

3.1 Wiring

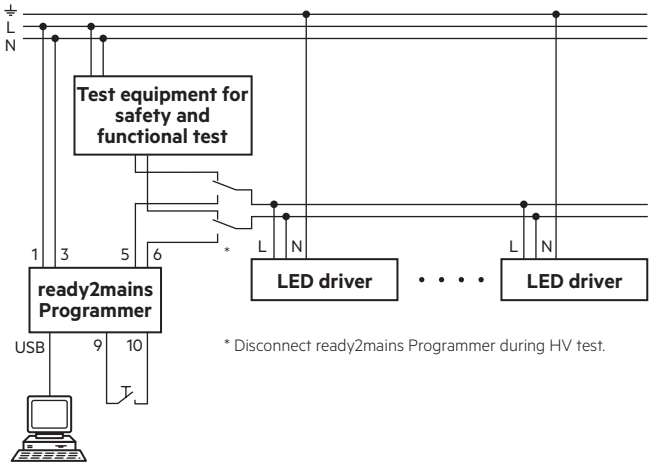
3.1.1 ready2mains



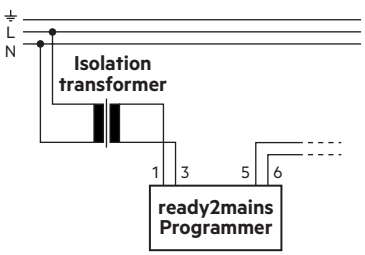
3.1.2 U6Me2 with contactor



3.1.3 Production



3.1.4 Security circuit against ground fault (incorrect wiring of the luminaire)

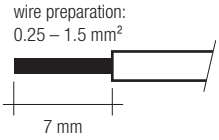


Tested transformator:
RS Pro 500VA Isolating Transformer
Reference number at RS components: 504-228

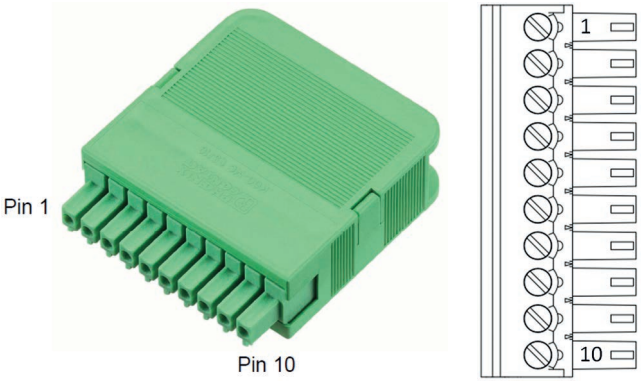
Insulation transformer should be protected against secondary short-circuit (B10 circuit breaker primary or a fuse secondary).

3.2 Installation instructions

For wiring use stranded wire with ferrules or solid wire from 0.25–1.5 mm².
Strip 7 mm of insulation from the cables to ensure perfect operation of the screw terminals.
Use one wire for each terminal connector only.



3.3 Connector pinning



Pin no.	Input / output	Description
1	Input	Mains input L
2	–	n.c.
3	Input	Mains input N
4	–	n.c.
5	Output	Mains output L´
6	Output	Mains output N´
7	Output	n.c.
8	Output	n.c.
9	Input	Momentary-action switch①
10	Input	Momentary-action switch①

① Momentary-action switch has to be rated for mains voltage. Switch impulse > 200 ms. Potential-free contact.

3.4 Connector notes

One connector with housing is included.
If additional connectors are needed, they maybe ordered from a specialized trader or the connector manufacturer itself.

Connector data:
Manufacturer: Phoenix Contact
Type: Printed-circuit board connector MC 1,5/10-ST-3,81
Article number: 1803659

Housing data:
Manufacturer: Phoenix Contact
Type: Cable housing KGG-MC 1,5/10
Article number: 1834424

4. Functions

4.1 Short-circuit behaviour

If there is a short-circuit betwenn L and N at the output, the Programmer will switch off and restart after 10 s. If another short-circuit is detected, the Programmer will switch off and will be reactivated only after a mains reset.
If a ground fault without isolating transformer happens the programmer can be destroyed.

4.2 Overload protection

If the maximum permissible connected load is exceeded, the Programmer will switch off the output and restart after 10 s. If the overload persists, the Programmer will switch off and will be reactivated only after a mains reset.

4.3 Overtemperature protection

If a temperature of 65 °C in the Programmer is exceeded, the data rate will be gradually linear reduced. Commands will therefore be implemented by the LED driver with a slight delay. If the temperature continues to rise and reaches a value of 120 °C, the Programmer will switch off and will be reactivated only after a mains reset.

5. Miscellaneous

5.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

REMOTECONTROL IR6

General

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button)
_ Dimming (Up/Down button)
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range up to 20 m

Website
http://www.tridonic.com/28000647

TRIDONIC

REMOTECONTROL IR6

General

Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6	**28000647**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.019 kg

TRIDONIC

REMOTECONTROL IR6+

Compact control module with ambient light sensor and motion sensor

Product description
_ Optional infra-red remote control
_ Switching on and off (On/Off button for group 1 and 2)
_ Dimming (Up/Down button for group 1 and 2)
_ Tunable White (warmer or colder) and Sensor pairing
_ Activation of automatic lighting control (Automatic button)
_ Setting the threshold control point (Set button)
_ IR range typical 5 m

Website
http://www.tridonic.com/28004415

REMOTECONTROL IR6+

Compact control module with ambient light sensor and motion sensor

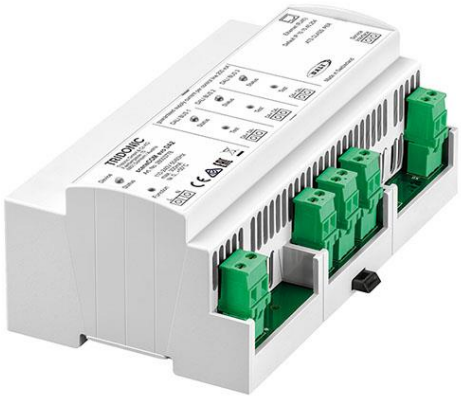
Ordering data

Type	Article number	Dimensions L x W x H	Packaging, carton	Weight per pc.
REMOTECONTROL IR6+	**28004415**	86.5 x 40.5 x 7.2 mm	500 pc(s).	0.018 kg

TRIDONIC

sceneCOM evo DA2

sceneCOM evo DA2 – multi-channel lighting controller



Product description
_ Single Master DALI-2 application controller
_ Independent lighting control for up to 192 DALI control gears on 3 DALI lines
_ Compatible with DALI MSensor G3 and XC G3 DALI-2 controlls
_ Simple setup via WEB interface
_ Cross DALI line control
_ Extension of functionalities via software licenses
_ DALI emergency lighting control gear test scheduling and monitoring (number of emergency lighting units depending on the activated software license)
_ Complying with IEC 62034
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)
_ We will provide security updates for the next five years after the date of purchase of this product

Housing properties
_ Casing: polycarbonate, white
_ Type of protection IP20
_ For installation in switching cabinets

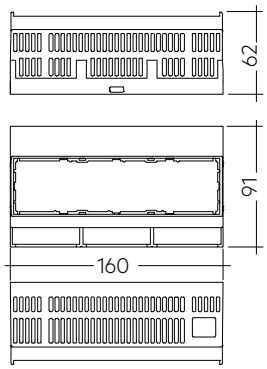
Interfaces
_ 3 DALI lines
_ BACnet interface (depending on the license model)
_ Terminal blocks: screw terminals

Functions
_ Addressing wizard
_ Presence linking
_ Local and downloadable backup
_ Freely programmable daily scheduling with calendar function
_ Self-contained emergency luminaires (depending on the license model)
_ Daylight control (depending on the license model)
_ Freely programmable shows (depending on the license model)
_ RGB and Tunable White (depending on the license model)
_ Scenes and zones

Website
http://www.tridonic.com/28003778

sceneCOM evo DA2

sceneCOM evo DA2 – multi-channel lighting controller



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
sceneCOM evo DA2	**28003778**	36 pc(s).	0.37 kg

Technical data

Rated supply voltage	110 – 240 V
Mains frequency	50 / 60 Hz
Power consumption	< 20 W
Ethernet interface	1 x RJ45
DALI interface	3 x
Max. current per channel	200 mA
Ethernet port	1 x 10/100 Mbit/s
Status indicators LED	Device status, DALI status
Operating Temperature at upright mounted	0 … +50 °C
Operating Temperature at flat mounted	0 … +40 °C
Storage temperature ts	-20 … +70 °C
Mounting	DIN rail mounting, 35 mm
Housing material	PC, halogen-free polycarbonate, non-flammable
Type of protection	IP20
Dimensions L x W x H	160 x 91 x 62 mm

Approval marks

DALI EAC CE UKCA RoHS

Standards

IEC 60950-1, EN 55022, EN 55024, EN 61547, EN 61000-4-3, EN 61000-6-1, EN 61000-6-3, EN 61347-2-11, EN 62386-101, EN 62386-103

1. Standards

IEC 60950-1
EN 55022
EN 55024
EN 61547
EN 61000-4-3
EN 61000-6-1
EN 61000-6-3
IEC 61347-2-11
EN 62386-101 Ed.2
EN 62386-103 Ed.1

2. Common

2.1 Description

sceneCOM evo DA2 is a DALI-2 lighting management system which is compatible with the DALI MSensors G3 and the XC G3 from the Tridonic DALI-2 portfolio.
sceneCOM evo DA2 is designed to easily control your luminaires.
The sceneCOM evo DA2 web application allows the automation of up to 192 luminaires with one sceneCOM evo DA2 control device.
The sceneCOM evo DA2 web application is therefore suitable for smaller and larger buildings or individual floors.
Besides the functional lighting in a building, self-contained emergency luminaires can also be used in a sceneCOM evo DA2 system.

3. Interfaces / communication

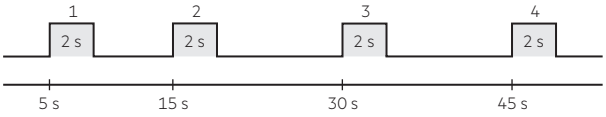
3.1 Device LED

Status-LED	Description
Green, intermittently flickering	Fault-free operation
Off	No mains voltage (L, N)
Red	Serious internal error

3.2 DALI LED

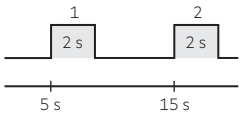
Status-LED	Description
Green, intermittently flickering	Fault-free operation
Green, flashing on/off every 0.5 s	Test mode
Orange, flashing on/off every 0.5 s	Addressing or DALI initialisation
Off	No mains voltage (L, N)
Red	More than 64 DALI-compliant devices connected
Red, intermittently flickering	DALI control line short-circuited or more than 100 DALI loads
Red–green, intermittently flickering	Lamp failure

3.3 Function key

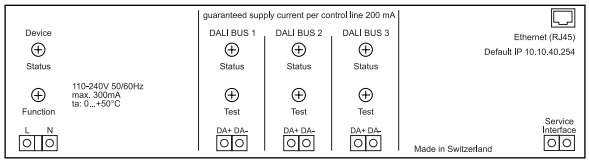


Orange phase	Function
1	Restart the sceneCOM evo DA2.
2	Delete the addresses and short addresses of all control gear and input devices connected to the 3 DALI control lines.
3	Reset the service password and IP address to the factory setting (10.10.40.254).
4	Reset the sceneCOM evo DA2 to the factory settings. The configurations will be reset. The addresses and short addresses of all control gear and input devices connected to the 3 DALI control lines will be deleted. Configurations of date, time and the IP address will be retained.

3.4 Function switch



Orange phase	Function
1	Exit test mode for all outputs.
2	Delete the addresses and short addresses of all control gear and input devices connected to the corresponding DALI control line.



4. Installation

4.1 Safety instructions

The device may only be used for the specified area of application.

Relevant health and safety regulations must be observed.

The voltage supply must be disconnected when the device is being assembled and installed.

Only qualified personnel may assemble, install and commission the device.

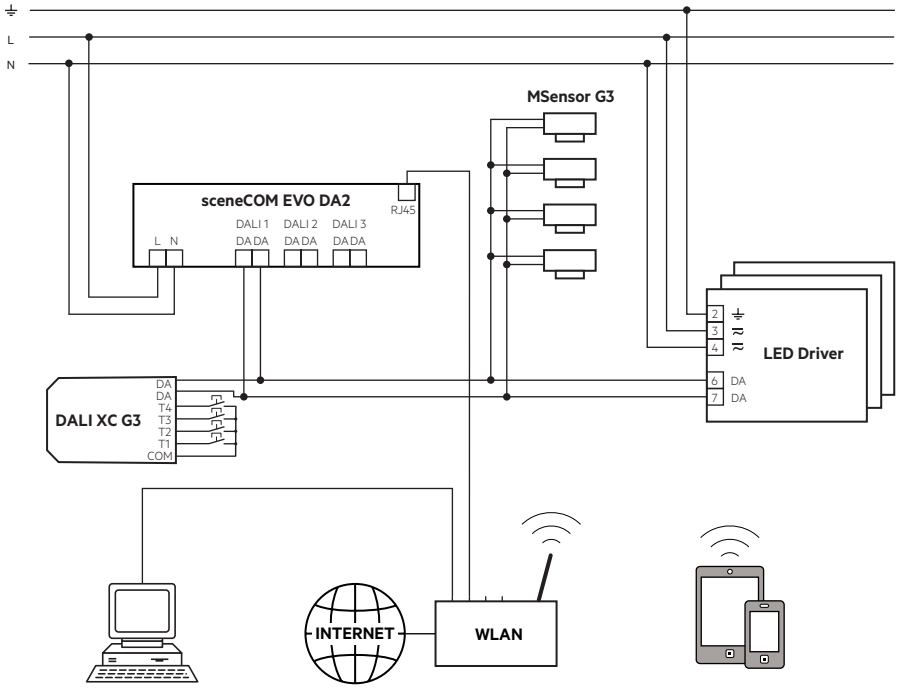
Protection class II can only be guaranteed when the terminal covering has been correctly installed.

If a fault occurs, dangerous voltage levels may be present at the LM-Bus terminals, at the DALI terminals and on the DALI control line.

The device is not suitable for use in locations where children may be present.

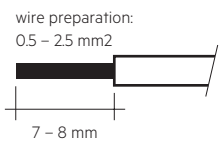
The electrical system from which the device is supplied must have a suitable disconnecting device (e.g. circuit breaker).

4.2 Wiring examples



4.3 Wiring type and cross section sceneCOM evo DA2 Controller

For wiring use stranded wire with ferrules or solid wire from 0.5 to 2.5 mm².



5. em-LINK

The em-LINK software allows you to remotely monitor the status of all connected emergency gears from up to 200 sceneCOM evo DA2 controllers. It is accessible via WEB interface.
More information on the em-LINK software can be found in it‘s manual or at www.tridonic.com/software.

6. Miscellaneous

6.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

6.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

sceneCOM evo Touchpanel

Interactive user interface

Product description

_ 7" touchpanel for intuitive operation and configuration of a sceneCOM evo system
_ Complete access to the web-based sceneCOM evo user interface
_ Pre-installed web browser for connection to a sceneCOM evo controller
_ Colour display with 1024 x 600 pixel image resolution
_ Linux operating system
_ Suitable for installation in walls (wallmount box available as an accessory)
_ Integrated LAN connection
_ Powered via PoE+ or extrernal power supply (available separately as an accessory)
_ 2 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

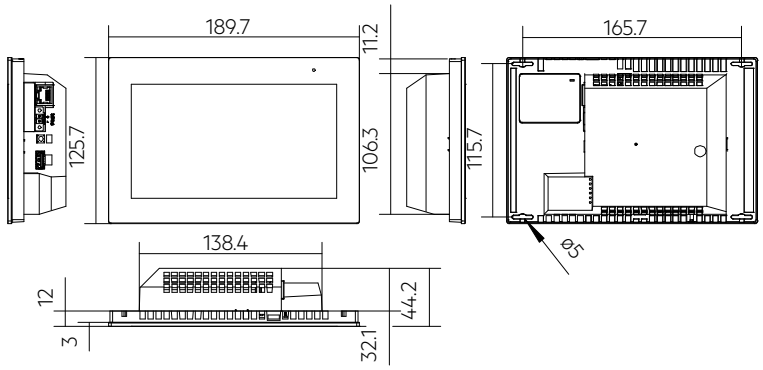
Website

http://www.tridonic.com/28005694

TRIDONIC

sceneCOM evo Touchpanel

Interactive user interface



Ordering data

Type	Article number	Dimensions L x W x H	Packaging	Weight per pc.
sceneCOM evo Touchpanel	**28005694**	190 x 126 x 45 mm	1 pc(s).	1.4 kg

Technical data

Supply via	External power supply (optional) or PoE+
Rated voltage range DC	22 – 26 V
Current draw	1,000 mA
Power consumption	< 16.3 W
Operating temperature	0 … +35 °C
Storage temperature ts	-20 … +70 °C
Humidity	10 … 80 % not condensed
Touchscreen size	7"
Touchscreen pixel	1,024 x 600
Type of protection	IP20
Housing colour	Black
Dimensions L x W x H	190 x 126 x 45 mm
Guarantee (conditions at www.tridonic.com)	2 Year(s)

Approval marks

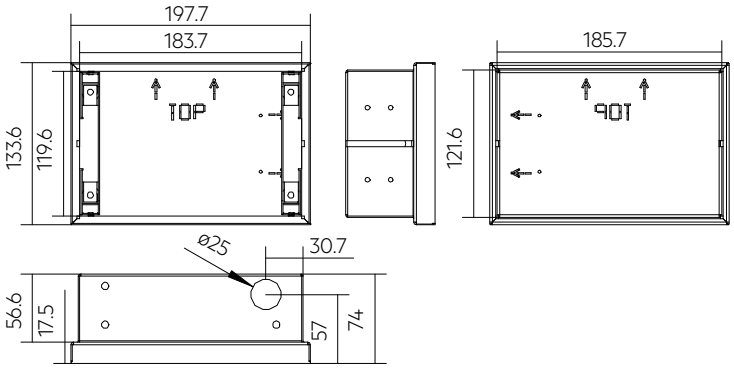
IP20 CE RoHS

Wall mounting box

Accessory

Product description
_ Wall mounting box for the sceneCOM evo Touchpanel
_ Suitable for flush-fitting, cavity and concrete installation
_ IP30

Website
http://www.tridonic.com/28005695

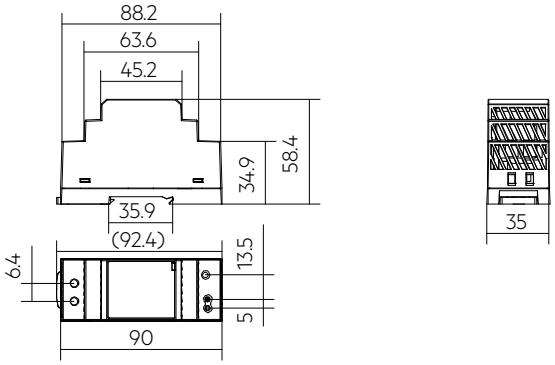


Ordering data

Type	Article number	Dimensions L x W x H	Packaging	Weight per pc.
sceneCOM evo WMB-Touchpanel	**28005695**	197.7 x 133.6 x 74 mm	1 pc(s).	0.788 kg

Power supply MW 24VDC

Accessory



Product description
_ Ultra slim design with 35 mm (2SU) width
_ Power input on stand-by < 0.3 W
_ Isolation class II
_ Pass LPS (Limited Power Source)
_ DC output voltage adjustable
_ Protective features (short circuit, overload, over voltage)
_ Cooling by free air convection (working temperature: -30 … +70 °C)
_ DIN rail TS-35/7.5 or 15 mountable
_ LED indicator for power on
_ 3 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

Typical applications
_ lichtMONITOR server x5 (28004946)
_ sceneCOM evo Touchpanel (28005694)

Website
http://www.tridonic.com/28005796

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Power supply MW 24VDC	**28005796**	96 pc(s).	0.13 kg

Approval marks

1. Common

1.1 Description

The sceneCOM evo Touchpanel is a 7 inches multitouch screen to fully master a sceneCOM evo installation by using the sceneCOM evo web application and suitable for wall mounting.

2. Installation

- Attach to Ethernet cable using the supplied split ferrite before installation.
- The touchpanel must be installed as described in the manual.
- The default IP address of the sceneCOM evo is: 10.10.40.254.
- The default IP address of the touch panel is: 10.10.40.11.
- The supply voltage on the touchpanel must be between 22 and 26 V DC. Connect the touchpanel only when the supply lines are disconnected from the power. Otherwise the touch panel may start in an impermissible operating status. If this occurs, you will hear a beep or noise on the touchpanel.

3. Commissioning

3.1 Commissioning version 1: touchpanel directly connected to sceneCOM evo via an ethernet cable

1. Connect the voltage supply to the touchpanel.
   Chromium browser starts in kiosk mode and automatically establishes a connection to the sceneCOM evo.
   The start page of the sceneCOM web application is displayed.

Requirements:
- Touchpanel is directly connected to a sceneCOM evo via an Ethernet cable.
- Touchpanel and sceneCOM evo each use their default IP address.

3.2 Commissioning version 2: touchpanel connected to sceneCOM evo within a network

1. Connect the voltage supply to the touchpanel.
   Chromium browser starts in kiosk mode.
2. Tap the four corners of the touchpanel, starting at the top left and following a U shape (top left, bottom left, bottom right, top right).
   The device settings are displayed.
3. Switch to the Network settings tab.
4. Enable Static IP address.
   You can also obtain the IP address automatically.
   Activate DHCP instead of static IP address.
5. Set the IP address, subnet mask, default gateway and DNS server of the touchpanel so that it is in the same network as the sceneCOM evo.
6. Tap Apply changes.
7. Switch to the Homepage tab.
8. Enter the IP address of the sceneCOM evo.
9. Tap the X icon at the top left.
   A connection to the sceneCOM evo is established.
   The start page of the sceneCOM web application is displayed.

3.3 Safety instructions

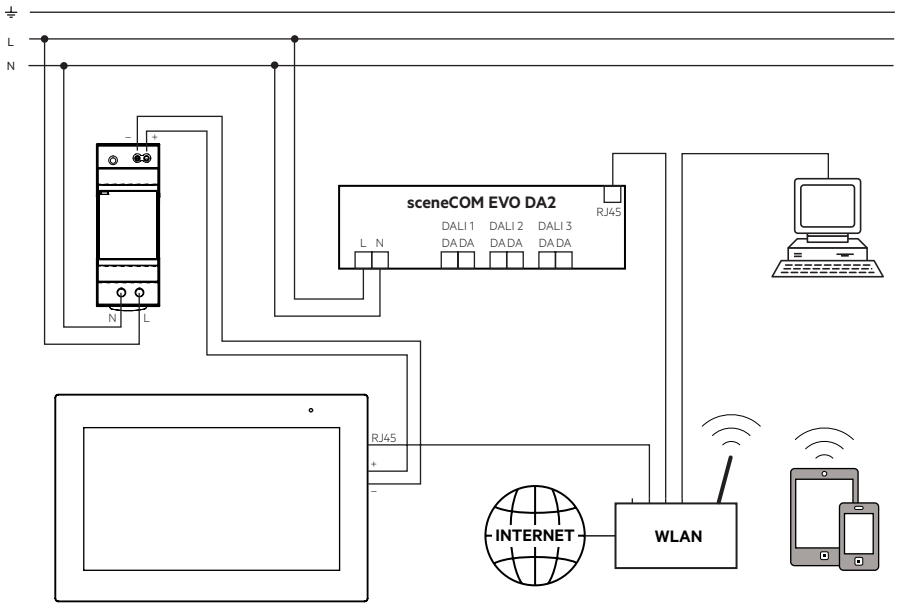
The device may only be used for the specified area of application.

Relevant health and safety regulations must be observed.

The voltage supply must be disconnected when the device is being assembled and installed.

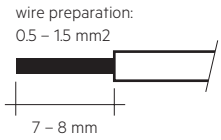
Only qualified personnel may assemble, install and commission the device.

3.4 Wiring examples



3.5 Wiring type and cross section sceneCOM evo DA2 Controller

For wiring use stranded wire with ferrules or solid wire from 0.5 to 1.5 mm².



4. Supply line

Conductor cross-section	Maximum line length
0.5 mm2	15 m
1.0 mm2	30 m
1.5 mm2	55 m

5. Miscellaneous

5.1 Disposal of equipment

Return old devices in accordance with the WEEE directive to suitable recycling facilities.

5.2 Additional information

Additional technical information at www.tridonic.com → Technical Data

Lifetime declarations are informative and represent no warranty claim.
No warranty if device was opened.

TRIDONIC

Sensor housing ACU 031 IP20 WH

Accessory for DALI MSensor

DALI MSensor G3 SSM 30 10DPI WH

Product description

_ Mounting frame for wired DALI MSensor G3 SFI 30 PIR 10DPI WH sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ DALI MSensor G3 SFI 30 PIR 10DPI WH is powered via DALI circui
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Including gasket for ideal IP protection
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ Sensor not included

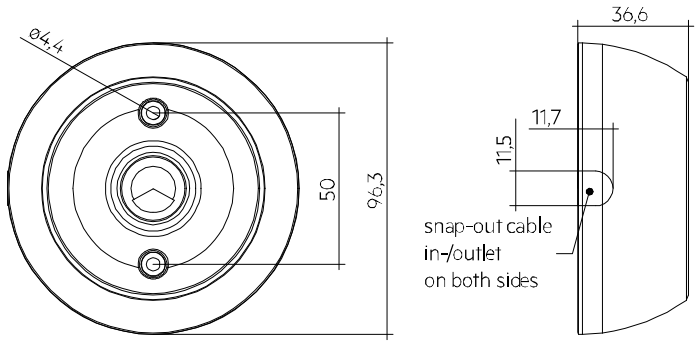
Website

http://www.tridonic.com/28001874

TRIDONIC

Sensor housing ACU 031 IP20 WH

Accessory for DALI MSensor



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 031 IP20 WH	**28001874**	81 pc(s).	0.054 kg

TRIDONIC

Sensor housing ACU 032 IP66 WH

Accessory for DALI MSensor

Product description

- Mounting frame for wired DALI MSensor G3 SFI 30 PIR 10DPI WH sensors allowing direct mounting to the ceiling
- Easy „click in“ installation of the sensor
- Housing provides IP 66, but in combination with the DALI MSensor G3 SFI 30 PIR 4DPI WDA WH a maximum of IP54 is possible
- Casing: polycarbonate, white
- UV stabilized plastic
- DALI MSensor G3 SFI 30 PIR 10DPI WH is powered via DALI circui
- Optional shutter for reduction of occupancy detection area allowing to decrease the occupancy detection area from 360° to 240°
- Mounting kit with screws and decorative plugs
- Including gasket for ideal IP protection
- Casing passed glow wire test with 850 °C according to EN 61347-1

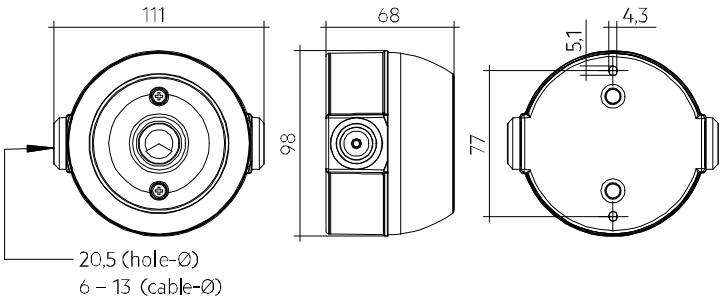
Website

http://www.tridonic.com/28001873

TRIDONIC

Sensor housing ACU 032 IP66 WH

Accessory for DALI MSensor



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 032 IP66 WH	**28001873**	45 pc(s).	0.105 kg

TRIDONIC

Sensor Housing ACU 035 5DPI IP20

Accessory for DALI MSensor

Product description

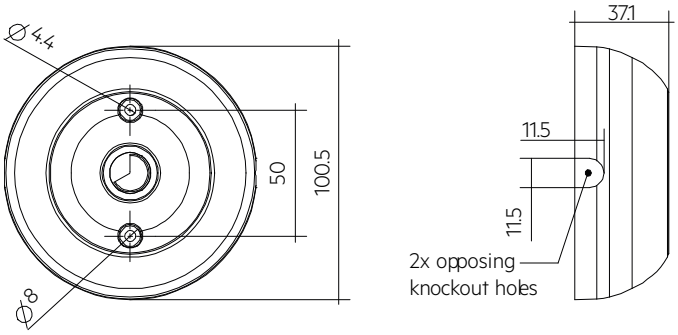
_ Mounting frame for wired 5DPI sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005943

TRIDONIC

Sensor Housing ACU 035 5DPI IP20

Accessory for DALI MSensor



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor Housing ACU 035 5DPI IP20 WH	**28005943**	57 pc(s).	0.052 kg

TRIDONIC

Sensor housing ACU 036 10DPI/WDA IP20 WH

Accessory for DALI MSensor

Product description

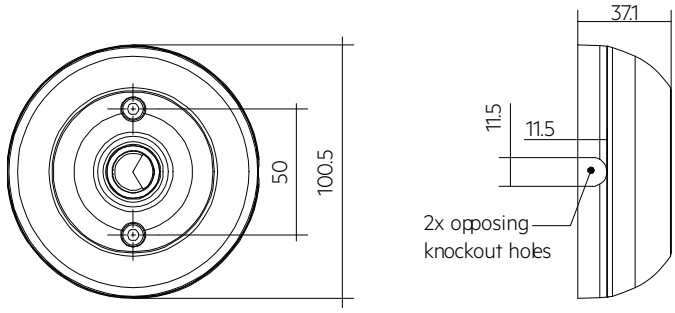
_ Mounting frame for wired 10DPI/WDA sensors allowing direct mounting to the ceiling
_ Easy „click in“ installation of the sensor
_ Additional bracket to fix sensor, to prevent its drop inside the housing
_ IP20
_ Casing: polycarbonate, white
_ UV stabilized plastic
_ Mounting kit with screws and decorative plugs
_ 0.5 mm² wiring for the sensor
_ Two 3 x 1.5 mm² clamps with cable management (2 entry points on oppsite sides)
_ Including gasket for ideal IP protection
_ Optional shutter to reduce the detection area, which makes it possible to reduce the detection area from 360° to 240° (for PIR sensors)
_ Casing passed glow wire test with 850 °C according to EN 61347-1
_ compatible with Housing base ACU 037 IP20 WH Art.-No.: 28005945
_ Sensor not included

Website
http://www.tridonic.com/28005944

TRIDONIC

Sensor housing ACU 036 10DPI/WDA IP20 WH

Accessory for DALI MSensor



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor housing ACU 036 10DPI/WDA IP20 WH	**28005944**	57 pc(s).	0.051 kg

TRIDONIC

Sensor housing bDW rs

Casambi Ready wireless sensor

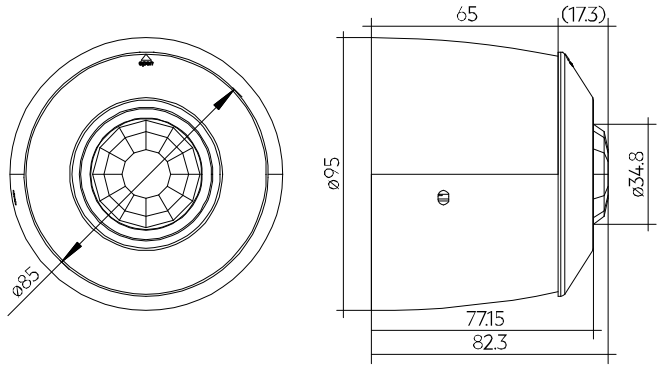
Product description

_ Housing accessory for installations with solid ceiling
_ Quick and easy installation
_ Optimized mechanical concept to fix the basicDIM Wireless sensor with the accessory housing (patent pending)
_ Release of the sensor from the housing can easily be done with a screwdriver or pen
_ For a black sensor, order the standard white version with the matching black accessories—based on RS or RC type and box inclusion. Check compatibility before ordering.

Website
http://www.tridonic.com/28002802

Sensor housing bDW rs

Casambi Ready wireless sensor



Ordering data

Type	Article number	Colour	Packaging, carton	Weight per pc.
Sensor housing bDW rs	**28002802**	White	18 pc(s).	0.083 kg
Sensor housing bDW rs BK	**28006132**	Black	18 pc(s).	0.083 kg

TRIDONIC

Sensor mounting kit ACU 033 IP66 WH

Accessory for DALI MSensor

Product description

- Easy to mount circlip lockring, compatible with industry standard circlip pliers (size 19 – 60 mm)
- Corrosion resistant circlip made from stainless steel
- Appealing plastic cover ring, allowing to mount the sensor in luminaires in an easy and visual attractive way
- Fulfills the impact energy requirements of freestanding luminaires of 0.5 J
- Includes 2 gaskets offering flexible installation in luminaries
- Plastic cover passed glow wire test with 750 °C in according to EN 61347-1
- In combination with the DALI MSensor G3 SFI 30 PIR 4DPI WDA WH, a maximum of IP54 is possible
- In combination with the basicDIM ILD G2 4DPI WDA, a maximum of IP54 is possible

Website
http://www.tridonic.com/28004207

TRIDONIC

Sensor mounting kit ACU 033 IP66 WH

Accessory for DALI MSensor

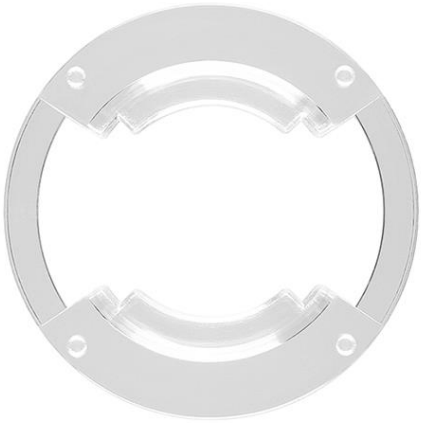
Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Sensor mounting kit ACU 033 IP66 WH	**28004207**	20 pc(s).	0.006 kg
Sensor mounting kit ACU 033 IP66 WH	**28006311**	15 pc(s).	0.007 kg

TRIDONIC

Shading Set 4DPI WDA

Accessory for DALI MSensor



Corridor

90° shutter

180° shutter

Product description

- Shading set consisting of 3 different types of lenses: Corridor, 90° and 180° shutter
- Shutters mountable directly to the front of the sensor in 4 different positions 0°, 90°, 180° and 270° angle relative to the sensor device
- No disturbance of light measurement or IR receiver signals
- Material transparent Lexan 923 with polished surface finish
- Shutters made for one time use, once installed removal may damage the shutter and sensor lens!

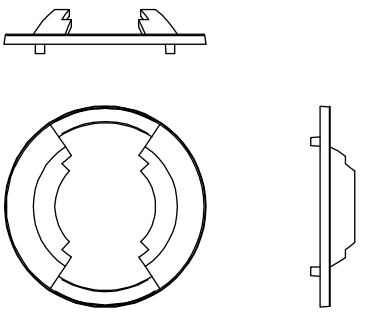
Website

http://www.tridonic.com/28003867

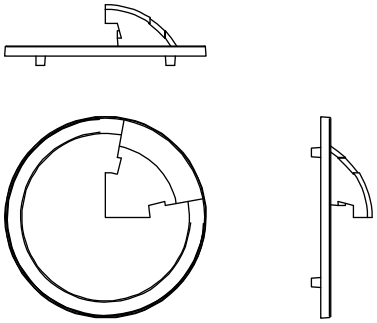
TRIDONIC

Shading Set 4DPI WDA

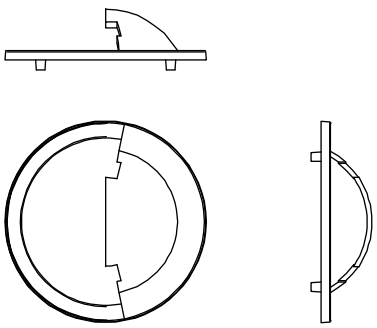
Accessory for DALI MSensor



Corridor



90° shutter



180° shutter

Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU SHADING SET 034 4DPI WDA	**28003867**	20 pc(s).	0.001 kg

TRIDONIC

Shading Set

Compact control module with ambient light sensor and motion sensor

AISLE

HALF

ENTRY

Product description

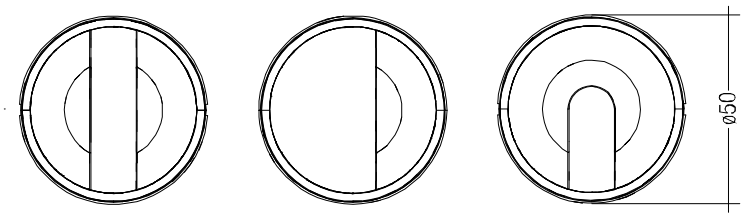
- Three different covers for the DALI MSensor G3 SFI 30 PIR 16DPI WH, basicDIM ILD G2 and basicDIM ILD give the ability to reduce the detection area in aisle applications
- These covers can be attached or removed from/to the front of the sensor at any time without the need of opening the luminaire
- To have a maximum of flexibility these covers can be attached in every direction of 0°, 90°, 180° and 270°

Website
http://www.tridonic.com/28001658

TRIDONIC

Shading Set

Compact control module with ambient light sensor and motion sensor



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
ACU SHADING AISLE 16DPI highbay	**28001658**	500 pc(s).	0.002 kg
ACU SHADING HALF 16DPI highbay	**28001660**	500 pc(s).	0.002 kg
ACU SHADING ENTRY 16DPI highbay	**28001659**	500 pc(s).	0.003 kg

TRIDONIC

Status indication bi-colour LED EM

General

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Status indication bi-colour LED EM

General

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

TRIDONIC

Status indication bi-colour LED EM

General

Product description
_ Two-colour status display LED
_ Green: system OK, red: fault

Website
http://www.tridonic.com/89899720

Status indication bi-colour LED EM

General

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	**89899720**	25 pc(s).	200 pc(s).	0.016 kg
LED EM bi-colour, high brightness	**89899753**	25 pc(s).	200 pc(s).	0.016 kg

Approval marks

RoHS

TRIDONIC

Connection cable NiMH

General

Product description

_ Connection cable for NiMH batteries
_ Cable length 500 mm
_ 2-pole plug connection for batteries and 3-pole plug connection for LED driver

Website

http://www.tridonic.com/28002462

Connection cable NiMH

General

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
CONNECTION CABLE NiMH 500mm	**28002462**	10 pc(s).	200 pc(s).	0.01 kg

TRIDONIC

Wall mounting box

General

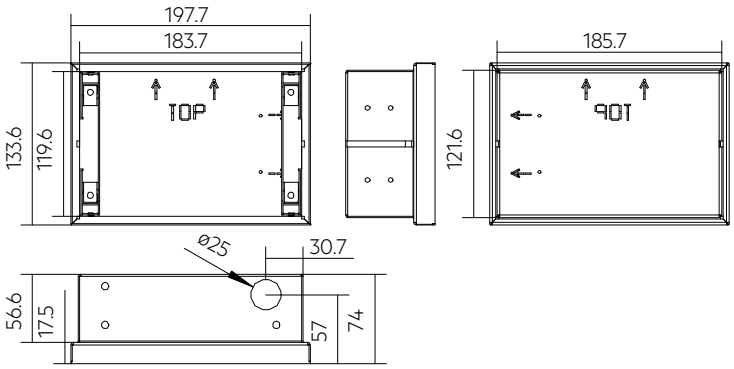
Product description
_ Wall mounting box for the sceneCOM evo Touchpanel
_ Suitable for flush-fitting, cavity and concrete installation
_ IP30

Website
http://www.tridonic.com/28005695

TRIDONIC

Wall mounting box

General



Ordering data

Type	Article number	Dimensions L x W x H	Packaging	Weight per pc.
sceneCOM evo WMB-Touchpanel	**28005695**	197.7 x 133.6 x 74 mm	1 pc(s).	0.788 kg

TRIDONIC

Strain-relief

General

Product description

_ Strain relief for up to 3 cables suitable for cable with diameter from 2.5 up to 9 mm
_ A: 2.5 – 5 mm diameter
_ B: 5 – 9 mm diameter
_ C: 5 – 9 mm diameter
_ Optional strain-relief for independent applications
_ Transforms the unit into a full Class II compatible unit (e.g. for ceiling installation)
_ Includes 1 piece strain-relief
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

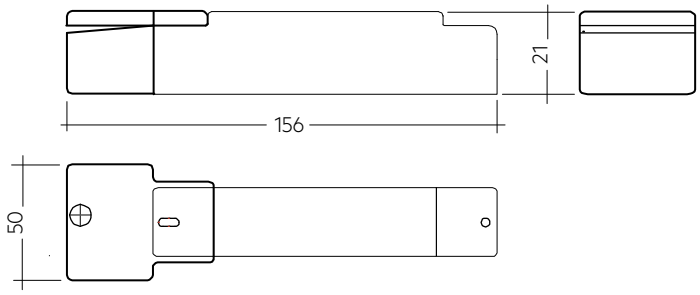
Website

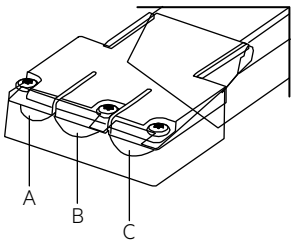
http://www.tridonic.com/28005598

TRIDONIC

Strain-relief

General





Ordering data

Type	Article number	Packaging, carton	Weight per pc.
strain-relief	**28005598**	10 pc(s).	0.03 kg

TRIDONIC

Strain-relief set

General

Product description

_ Strain relief for up to 3 cables suitable for cable with diameter from 2.5 up to 9 mm
_ A: 2.5 – 5 mm diameter
_ B: 5 – 9 mm diameter
_ C: 5 – 9 mm diameter
_ Optional strain-relief set for independent applications
_ Transforms the unit into a full Class II compatible unit (e.g. for ceiling installation)
_ One set includes 2 pieces strain-reliefs
_ 5 years guarantee (conditions at https://www.tridonic.com/en/int/services/manufacturer-guarantee-conditions)

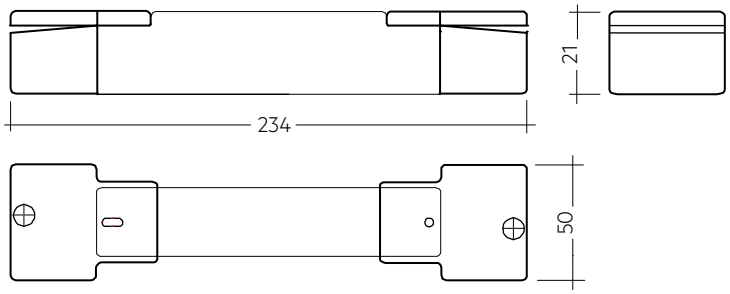
Website

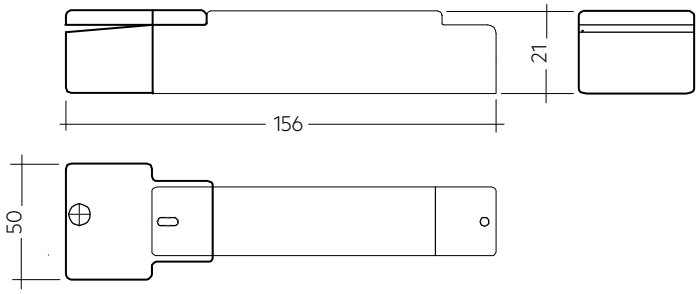
http://www.tridonic.com/28000881

TRIDONIC

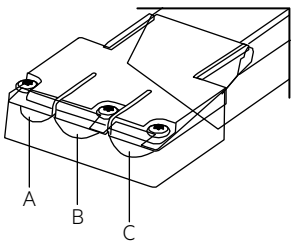
Strain-relief set

General





For basicDIM Wireless SR



Ordering data

Type	Article number	Packaging, carton	Weight per pc.
Strain-relief set	**28000881**	10 pc(s).	0.05 kg

Approval marks

RoHS