SELV RoHS

EM powerLED NM BASIC 1 W

Combined emergency lighting LED Driver 1 – 4 W

Product description

- Emergency lighting LED Driver for manual testing
- SELV for output voltage < 60 V DC
- Low-profile casing (21 x 30 mm cross-section)
- 5-year guarantee

Properties

- Non maintained operation
- Constant current mode
- With either screw or clip fastening (Clip-fix)
- 3 h rated duration
- Green charge status display LED
- Electronic charge system
- SELV (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
- Optional test switch

Batteries

- High-temperature cells
- NiMH / NiCd batteries
- Cs cells
- 4-year design life
- 1-year guarantee

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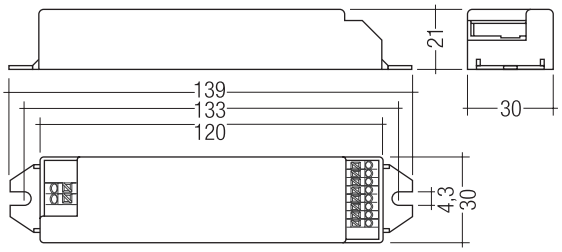
Standards, page 5

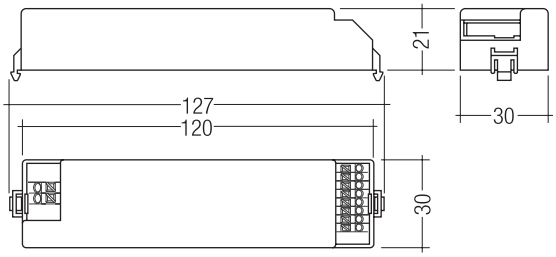
Wiring diagrams and installation examples, page 6 and 7

Screw fastening

Clip fastening



Screw fastening



Clip fastening

Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Mains current	15 mA
Mains power in charging operation	1.3 W
Forward voltage range LED module	2.8 – 3.4 V
LED current in emergency operation	320 mA
Time to light	0.43 s from detection of emergency event
Overvoltage protection	320 V (for 1 h)
Battery charging time	24 h
Charge current	120 mA
Battery discharge current	See page 4
Number of cells	3
Ambient temperature ta	0 ... +60 °C
Max. casing temperature tc	70 °C
Mains voltage changeover threshold	according to EN 60598-2-22
Type of protection	IP20

Ordering data

Type	Article number	Packaging, carton	Packaging, pallet	Weight per pc.	Max. number of LEDs	Wattage
Screw fastening version						
EM powerLED NM 1W BASIC	**89800112**	25 pc(s).	600 pc(s).	0,05 kg	1	1 W
Clip fastening version						
EM powerLED NM 1W BASIC	**89800111**	25 pc(s).	600 pc(s).	0,05 kg	1	1 W

ACCES-SORIES

Test switch EM2

Product description

- For connection to the emergency lighting unit
- For checking the device function

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
Test switch EM 2	**89805277**	25 pc(s).	600 pc(s).	0,011 kg

ACCES-SORIES

Status indication green LED

Product description

- A green LED indicates that charging current is flowing into the battery

Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM green	**89899605**	25 pc(s).	200 pc(s).	0,017 kg
LED EM green, ultra high brightness	**89899756**	25 pc(s).	200 pc(s).	0,012 kg

Battery selection

EM powerLED NM 1W BASIC, 3 h

			Type	**EM powerLED NM 1W BASIC**	
			Article no.	**89800111, 89800112**	
			Duration	**3 h**	
			Cells	**3 cells**	
Technology and capacity	Design	Number of cells	**Type**	**Article no.**	**Assignable batteries**
NiCd 1,6 Ah Cs cells[1]	stick	1 x 3	**Accu-NiCd C 3A**	**89899743**	•
	battery pack	3	**Pack-NiCd**	**89899676**	•
NiMh 2 Ah Cs cells	stick	1 x 3	**Accu-NiMh C 3A**	**89899744**	•

[1] 50°C batteries also available (see seperate datasheet at www.tridonic.com)

Battery charge / discharge data

EM powerLED NM 1W BASIC, 3 h

	Type	**EM powerLED NM 1W BASIC**
	Article no.	**89800111, 89800112**
	Duration	**3 h**
	Cells	**3 cells**
Battery charge time		24 h
Charge current		120 mA
Discharge current		350 mA at typ. LED forward voltage
		375 mA at max. 3.4 V LED forward voltage

Standards
according to EN 60598-2-22
according to EN 50172
EN 61347-2-7
EN 61347-2-13
EN 62384
EN 61547
EN 55015
EN 61000-3-2
EN 60068-2-29
EN 60068-2-30
EN 60068-2-64

Technical data batteries

Accu-NiCd

Case temperature range to ensure 4 years design life	
1.6 Ah Cs	+5 °C to +55 °C
Battery voltage/cell	1.2 V
Single cell dimensions	
1.6 Ah Cs	
Diameter	22.5 mm
Height	42.5 mm
Capacity D	1.6 Ah
Max. short term temperature (reduced life-time)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Packing quantity	5 pcs. per carton

Accu-NiMh

Case temperature range to ensure 4 years design life	
2.0 Ah Cs	+5 °C to +45 °C
Battery voltage	1.2 V
Single cell dimensions	
2.0 Ah Cs	
Diameter	22 mm
Height	42.5 mm
Capacity	2.0 Ah
Max. short term temperature (reduced life-time)	70 °C
Max. number discharge cycles	4 cycles per year plus 4 cycles during comissioning
Packing quantity	5 pcs. per carton

Storage, installation and commissioning
Relevant information about storage conditions, installation and commissioning are provided in the battery datasheets.

Further technical data

Life-time
Average life-time 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

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.

Mechanical details
Technical data case: Polycarbonat

Glow-wire test according to EN 61347-1 with increased temperature of 850 °C passed.

LED status indicator
- Green
- Mounting hole 6.5 mm dia
- Lead length 1000 mm

Test switch
- Mounting hole 7.0 mm dia
- Lead length 550 mm

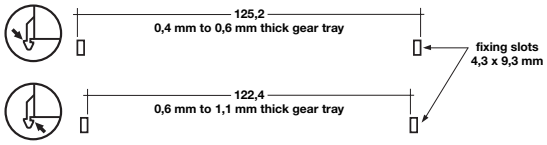
Battery leads
- Quantity: 1 red and 1 black
- Length: 1 m
- Wire type: 0.5 mm^2 solid conductor
- Insulation rating: 90 °C

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.

Recommended fixing details for clip fixing



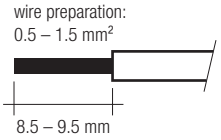
Isolation and electric strength testing of luminaires
Electronic LED Drivers can be damaged by high voltage. This has to be considered during the routine testing of the luminaires in production.

According to IEC 60598-1 Annex Q (informative only!) or ENEC 303-Annex A, each luminaire should be submitted to an isolation 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 isolation 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 LED Drivers this test must not be conducted.

Wiring type and cross section
The wiring can be in stranded wire or solid. Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.

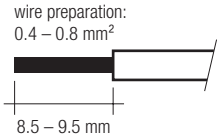
Wiring
mains (N, L)



Maximum lead length

LED	3 m
status indication LED	1 m
batteries	1 m

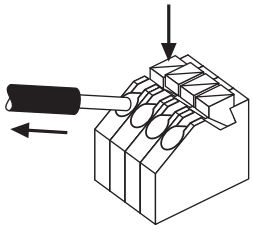
Wiring
batteries (Bat +, Bat –)
test switch (switch)
status indication LED (status K, A)
LED (LED+, LED-)



Max. lead insulation diameter

Battery	2.1 mm
Test switch	2.1 mm
Indicator LED	2.1 mm

Release of the wiring
Press down the “push button” and remove the cable from front.

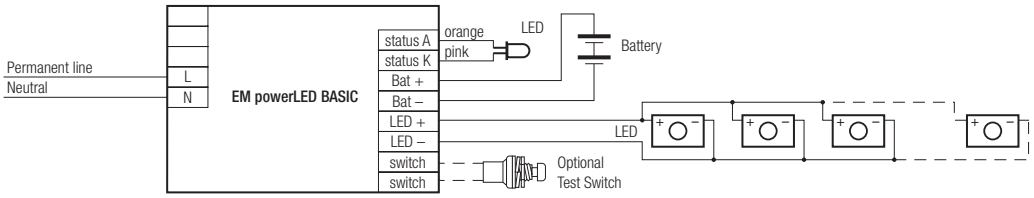


Maximum loading of automatic circuit breakers

Automatic circuit breaker type	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	time
EM powerLED NM 1W BASIC	90	130	130	130	10 A	120 µs

Wiring diagram

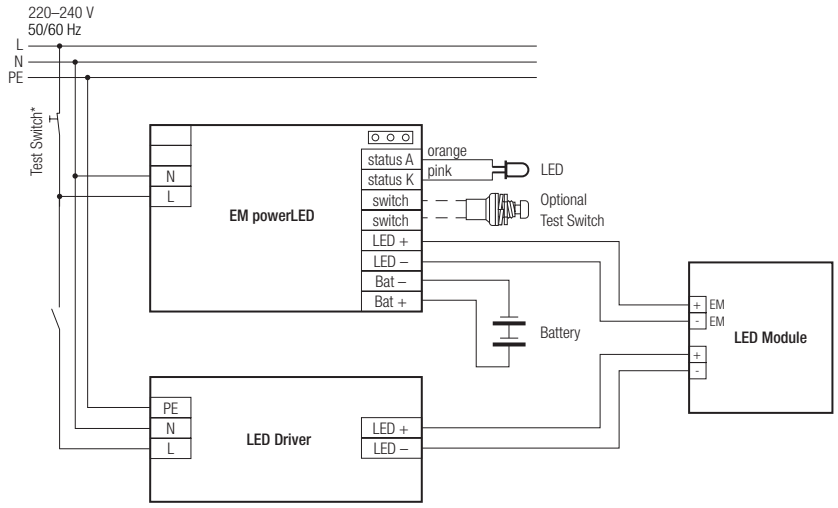
Wiring diagram for multiple LED (1–12) in parallel



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.

Note: The Tridonic Emergency-LED is therefore fitted with a protection diode across the powerLED.

Note for manually tested emergency lighting with combined LED modules:
Due to the fact that independent circuits are used for normal 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 powerLED terminals, battery, indicator LED and test switch terminals are classified as SELV. Keep the wiring of 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.
- powerLED leads should be separated from the mains connections and wiring for good EMC performance.
- Maximum lead length on the powerLED terminals is 3 m. For a good EMC performance keep the LED wiring as short as possible.
- 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 powerLED leads to prevent noise coupling.
- Battery leads are specified with 0.5 mm^2 cross section and a length of < 1.3 m

Additional information

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

Guarantee conditions at
www.tridonic.com → Services

No warranty if device was opened.