



### EM powerLED BASIC Emergency lighting supply units

#### Product description

- LED emergency lighting supply unit for manual testing

#### Properties

- Mains and emergency operation
- Low-profile casing (21 x 30 mm cross-section)
- Constant current mode
- With either screw or clip fastening (clip-fix)
- 1, 2 or 3 h rated duration
- Selectable operating time (jumper)
- 1 or 2 W version
- Green charge status display LED
- Output power limitation
- 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
- Short-circuit-proof battery connection
- Emergency lighting LEDs available

#### Batteries

- High-temperature cells
- NiMH batteries
- Cs cells
- Blade terminals for simple connection



**Standards**, page 2

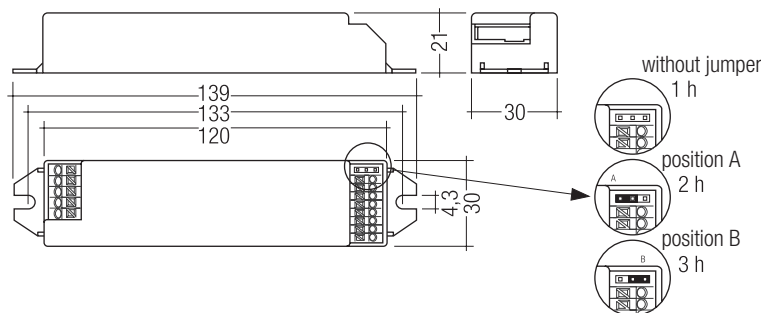
**Wiring diagrams and installation examples**, page 5



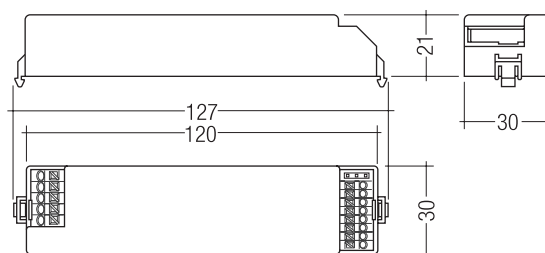
Screw-fix



Clip-fix



Screw-fix



Clip-fix

### Technical data

Rated supply voltage	220 – 240 V
Mains frequency	50 / 60 Hz
Mains current, 1 W device	30 mA
Mains current, 2 W device	42 mA
Power in mains operation, 1 W device	4 W
Power in mains operation, 2 W device	6 W
Maximum LED forward bias Vf	3.4 V
Overvoltage protection	320 V (for 1 h)
Battery charging time	12 h
Charge current, initial charge	125 mA
Charge current, power charge	210 mA
Charge current, trickle charge	50 mA
Battery discharge current	See data sheet
Leakage current (PE)	< 0.5 mA
Ambient temperature ta	-25 ... +50 °C
Max. casing temperature tc	70 °C
Mains voltage changeover threshold	according to EN 60598-2-22
Type of protection	IP20
Protection class	I
Weight	0.073 kg

### Ordering data

Max. number of LEDs	Wattage	Type	Article number
<b>Screw fastening version</b>			
1	1.2 W	EM powerLED 1 W BASIC	89899858
2	2.0 W	EM powerLED 2 W BASIC	89899859
<b>Clip fastening version</b>			
1	1.2 W	EM powerLED 1 W BASIC	89899865
2	2.0 W	EM powerLED 2 W BASIC	89899866

Packaging: 25 pieces/carton, 600 pieces/pallet

### Specific technical data

Type	LED current in emergency operation		LED current in mains operation		Number of cells / jumper		
	1 x LED	2 x LED	1 x LED	2 x LED	1 h / removed	2 h / position A	3 h / position B
EM powerLED 1 W BASIC	350 mA	–	350 mA	–	2	3	3
EM powerLED 2 W BASIC	600 mA	350 mA	350 mA	350 mA	3	4	5

### Test switch EM2

#### Product description

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



#### Ordering data

Type	Article number
Test switch EM 2	89805277

Packaging: 25 pieces/bag, 200 pieces/carton

### Status indication green LED

#### Product description

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



#### Ordering data

Type	Article number
LED EM green	89899605
LED EM green, ultra high brightness	89899756

Packaging: 25 pieces/bag, 200 pieces/carton

### Standards

ENEC  
CE  
gemäß EN 60598-2-22  
gemäß EN 50172

### Further technical data

#### Battery discharge current

	1 W		2 W	
	1 LED	1 LED	1 LED	2 LED
1 h	790 mA	850 mA	830 mA	
2 h	440 mA	610 mA	600 mA	
3 h	440 mA	480 mA	480 mA	

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 excessively high forward voltages (Vf).

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 (<1.5V at the 1 W driver and <3V 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.

### Technical data Accu-NiMH

case temperature range to ensure 4 years design life      0 °C to +45 °C  
storage life in temperate conditions                              4 years  
battery voltage    1.2V per cell  
capacity Cs    2.0Ah

### Storage

- Batteries should be stored within the specified temperature range in low humidity conditions. Optimal storage conditions are
  - temperature: +5 °C to +25 °C
  - humidity: 65 % ±20 %
- Avoid atmosphere with corrosive gas
- It is recommended to disconnect the battery before store or delivery
- Avoid to store the batteries discharged
- 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.

### Service life

Average service life 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

Case manufactured from polycarbonate.

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<sup>2</sup> solid conductor
- Insulation rating: 90 °C

Battery end termination

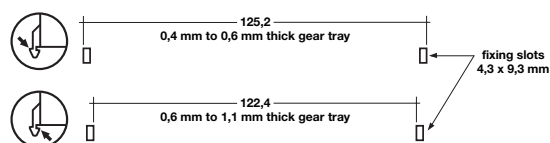
Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

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



### Link positions for duration and cell count

Duration	Link Position	1 W Power	2 W Power
1 hr	 without jumper	2 cell	3 cell
2 hr	 position A	3 cell	4 cell
3 hr	 position B	3 cell	5 cell

### Jumper selection

Module supplied with jumper in 3 hours position (position B).

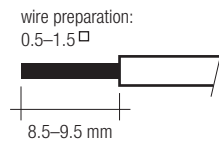
The position of the link will only be read on first power up. If it is changed afterwards both the battery and mains supply must be disconnected for 10 seconds to enable the EM powerLED to read the new link position on reconnection of the battery and mains. It will lead to a false battery failure indication if the link is changed after installation without this reset.

### Wiring type and cross section

The wiring can be in flexible cable or solid. Strip 8.5–9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.

### Wiring

mains (SL, N, L)  
LED (LED +, LED -)

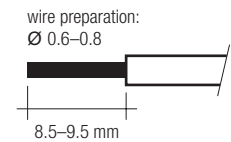


### Maximum lead length

LED	3 m
status indication LED	1 m
batteries	1 m

### Wiring

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

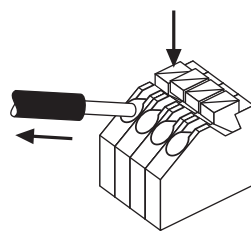


### Max. lead insulation diameter

Battery	2.1 mm
Test switch	2.1 mm
Indicator LED	2.1 mm

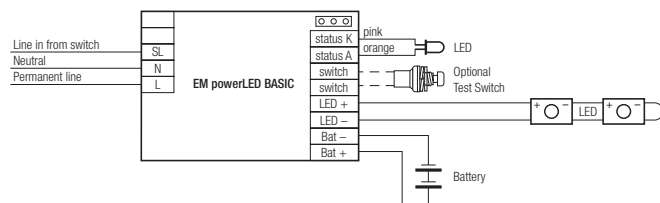
### Release of the wiring

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

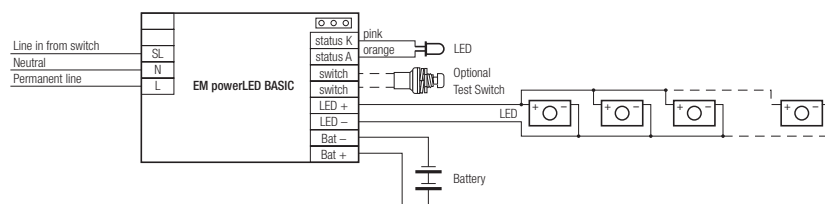


### Wiring diagram

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 devices should have a reverse polarity 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 capable of handling in excess of 700 mA.

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

### 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 equivalent 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.

- 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 0.8 mm cross section and a length of < 1 m
- Switched live and unswitched live supplies must be off the same phase.

❗ For comprehensive instructions consult the Tridonic website [www.tridonic.com](http://www.tridonic.com)