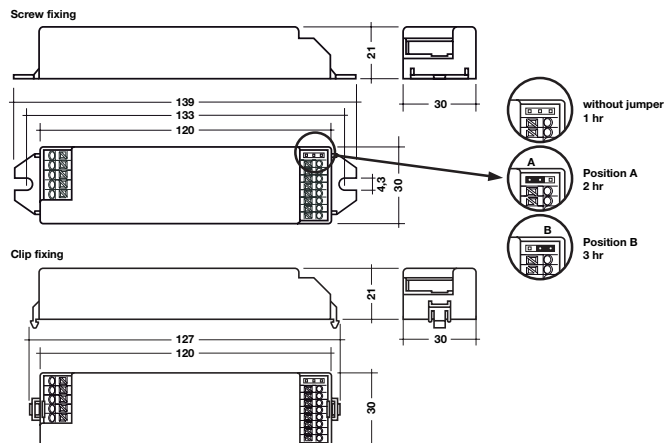


Emergency lighting modules with DALI interface LED

EM powerLED PRO 220–240 V 50/60 Hz



Description:

Low profile LED emergency lighting modules with DALI interface and automatic testing facility to cover 1 hour, 2 hours and 3 hours duration operating from NiMh Cs batteries. Duration can be selected by means of a removable 3 way link system (jumper). For normal mains and emergency operation of 1 W and 2 W Power LEDs. The 2 W module can either drive a single LED at 600 mA or two LEDs at 350 mA in series. Both modules are able to operate multiple LED (3–12) wired in parallel for example with exit signs.

Power control technology ensures maximum emergency light output for a given duration time with a minimum battery cell count in consideration of LED tolerances. The case is available for both clip and screw fixings.

DALI interface terminals are provided to allow control and monitoring via a separate controller.

Fitted with the unique EZ easy addressing feature which uses the LED to indicate the DALI address during commissioning.

Features:

Module

- LED emergency lighting module
- Normal and emergency operation
- DALI interface for controlled monitoring and reporting
- DALI switchable in mains operation (on/off; the switched line SL has to be on)
- Low-profile cross-section (21 x 30 mm)
- Constant current mode
- 1 W or 2 W version
- 3-hour, 2-hour or 1-hour operation
- Operating time selected by means of removable short circuit plugs (jumper)
- NiMh batteries
- Electronic multilevel charging system
- 12 hours accu recharge time
- Power output restriction
- Automatic restart after LED change within 2 s
- Bi-colour LED to indicate status
- powerLED output, battery, indicator LED and test switch output are SELV equivalent
- Reverse battery protection
- Deep discharge protection
- Short-circuit-proof
- Testing
 - Battery condition
 - LED condition
 - Charge condition
- EZ easy addressing feature

| wattage W | type | article number | number of LED | LED current in mA | | number of cells / jumper | | |
|--------------------------|---------------------|-------------------|------------------|------------------------|--------------------|--------------------------|---------------------|---------------------|
| | | | | emergency operation | mains operation | 1 h / removed | 2 h / position A | 3 h / position B |
| Screw fix version | | | | | | | | |
| 1.2 | EM powerLED 1 W PRO | 89899862 | 1 x LED | 350 | 350 | 2 | 3 | 3 |
| 2.0 | EM powerLED 2 W PRO | 89899863 | 1 x LED | 600 | 350 | 3 | 4 | 5 |
| 2.4 | EM powerLED 2 W PRO | 89899863 | 2 x LED | 350 | 350 | 3 | 4 | 5 |
| Clip fix version | | | | | | | | |
| 1.2 | EM powerLED 1 W PRO | 89899869 | 1 x LED | 350 | 350 | 2 | 3 | 3 |
| 2.0 | EM powerLED 2 W PRO | 89899870 | 1 x LED | 600 | 350 | 3 | 4 | 5 |
| 2.4 | EM powerLED 2 W PRO | 89899870 | 2 x LED | 350 | 350 | 3 | 4 | 5 |

| type | article number |
|-------------------------------|----------------|
| LED bi-colour | 89899720 |
| LED bi-colour high brightness | 89899753 |

Test switch

An optional test switch can be wired to the EM powerLED. This can be used to check local operation of the luminaire.

| type | article number |
|------------------|----------------|
| test switch EM 2 | 89805277 |

Emergency-LED

Available – for further information please contact TridonicAtco.

| NiMh 2.0 Ah, Cs cells | type | number of cells | article number |
|-----------------------|---------------|-----------------|----------------|
| Accu-NiMh C 2A | stick | 2 | 89899755 |
| Accu-NiMh C 3A | stick | 3 | 89899744 |
| Accu-NiMh C 4A | stick | 4 | 89899700 |
| Accu-NiMh C 4B * | side by side | 4 | 89899701 |
| Accu-NiMh C 4C * | stick + stick | 4 | 89899702 |
| Accu-NiMh C 5A | stick | 5 | 89899703 |
| Accu-NiMh C 5B * | side by side | 5 | 89899704 |
| Accu-NiMh C 5C * | stick + stick | 5 | 89899705 |

* on request

Batteries

- NiMh Cs cells
- High temperature cells
- Spade terminals for easy connection

Approvals

ENEC
CE
according to EN 60598-2-22
according to EN 50172

Mechanical details

Case manufactured from polycarbonate.

LED bi-colour status indicator

- Green / red
- 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 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.

Batteries

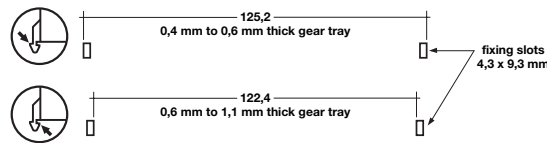
Connection method: 4.8 x 0.5 mm spade tag welded to end of cell

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



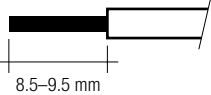
Wiring type and cross section

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)
DALI (DA)
LED (LED +, LED -)

wire preparation:
0.5–1.5 mm



Maximum lead length

| | |
|-----------------------|-----|
| LED | 3 m |
| status indication LED | 1 m |
| batteries | 1 m |

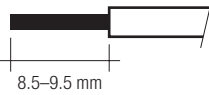
Max. lead insulation diameter

| | |
|---------------|--------|
| Battery | 2.1 mm |
| Test switch | 2.1 mm |
| Indicator LED | 2.1 mm |

Wiring

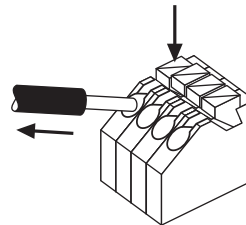
batteries (Bat +, Bat -)
test switch (switch)
status indication LED (status K, A)

wire preparation:
Ø 0.6–0.8



Release of the wiring

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



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.

Status indication

System status is indicated by a bi-colour LED and by a DALI status flag.

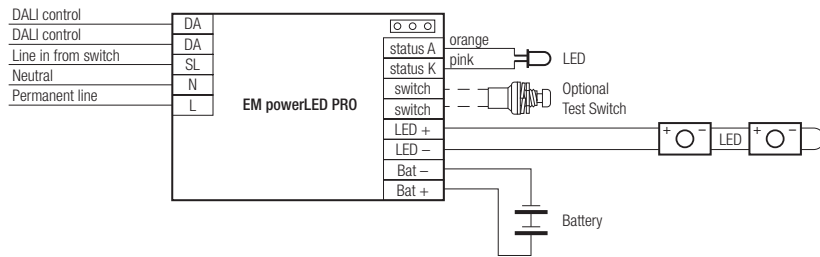
| LED Indication | Status | Commentary |
|--|------------------------|---|
| Permanent green | System OK | AC mode |
| Fast flashing green (0.1 sec. on – 0.1 sec. off) | Function test underway | |
| Slow flashing green (1 sec. on – 1 sec. off) | Duration test underway | |
| Red LED on | Load failure | 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 test / 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 | Blocking mode | Switching into blocking 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.

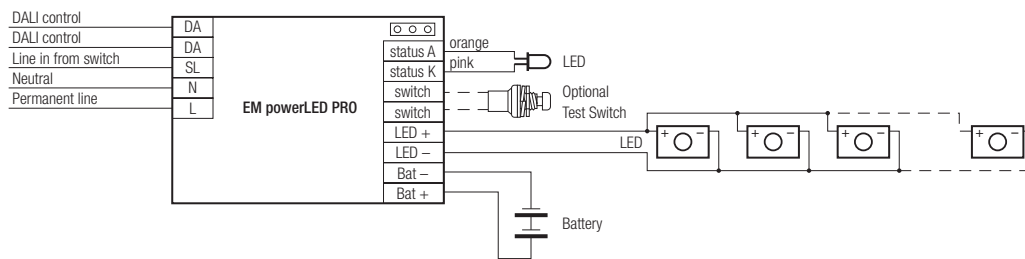
Emergency lighting modules with DALI interface LED

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 TridonicAtco 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 DALI and 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 and DALI 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
- DALI terminals are mains proof.
- Switched live and unswitched live supplies must be off the same phase.

Addressing Tool

An addressing tool is available to convert the LED binary identification signal to a DALI address of between 0 to 63. This simple tool is powered from a 9 V battery (not supplied).



EZ PRO ADDRESS: 89899836

Packaging

EM powerLED PRO
box of 25

Status LED
box of 25

Accu NiMH
25 pieces per box

① For comprehensive instructions consult the TridonicAtco website www.tridonicatco.com