

RoHS

### Module EM-ES 08/10/12 Mk2 EM LED linear / area

#### Product description

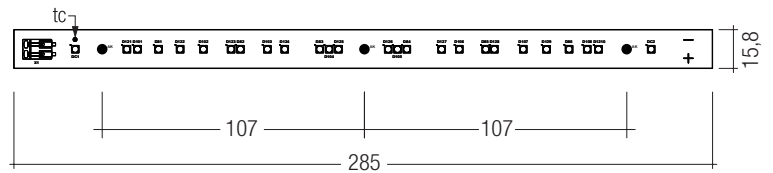
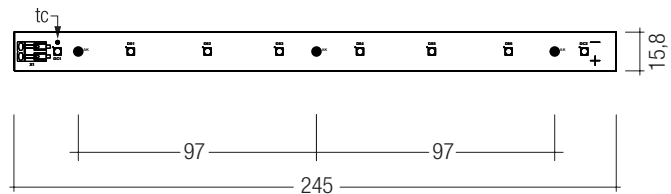
- Lighting module with 8, 10 or 12 LEDs
- For use in escape route signs
- Compatible with EM powerLED 1 W & 2 W
- Long lifetime: 50,000 hours
- 5 years guarantee

#### 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 fluorescent lamp
- Several options for uniform light distribution
- Can be interconnected to create longer strips
- Low energy consumption
- Long life 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



#### Technische Daten

Ambient temperature $t_a^{\text{®}}$	-30 ... +55 °C
Typ. tc point <sup>®</sup>	60 °C
Typ.luminous flux at 25 °C <sup>®</sup>	130 lm
Max. forward current <sup>®</sup>	600 mA
Min. forward voltage	2.7 V
Typ. forward voltage at 25 °C	3.0 V
Max. forward voltage	3.2 V
Typ. power <sup>®</sup>	1.05 W
Colour rendering index CRI	80
Beam characteristic	120°
Risk group (EN 62471:2008)	0
Type of protection	IP00
Lifetime	up to 50,000 h
Guarantee	5 years

#### Ordering data

Type <sup>®</sup>	Article number	Colour	Colour temperature	Packaging, carton	Packaging, pallet	Weight per pc.
<b>8 light points per module</b>						
ES 08 246 Mk2	89800249	Daylight white	6,500 K	25 pc(s).	600 pc(s).	0.014 kg
ES 08 285 Mk2	89800250	Daylight white	6,500 K	25 pc(s).	600 pc(s).	0.016 kg
<b>10 light points per module</b>						
ES 10 285 Mk2	89800251	Daylight white	6,500 K	25 pc(s).	600 pc(s).	0.017 kg
<b>12 light points per module</b>						
ES 12 285 Mk2	89800248	Daylight white	6,500 K	25 pc(s).	600 pc(s).	0.018 kg



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**Specific technical data**

Type <sup>Ⓢ</sup>	Article number	Total length	Hole spacing D
ES 08 246 Mk2	89800249	245 mm	97 mm
ES 08 285 Mk2	89800250	285 mm	107 mm
ES 10 285 Mk2	89800251	285 mm	107 mm
ES 12 285 Mk2	89800248	285 mm	107 mm

<sup>Ⓢ</sup> Tolerance range for optical data: ±15 %

<sup>Ⓢ</sup> 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.

<sup>Ⓢ</sup> Data for operation with 350 mA.

<sup>Ⓢ</sup> 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.

<sup>Ⓢ</sup> EM = Emergency

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**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, high brightness	89899756	25 pc(s).	200 pc(s).	0.012 kg

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### Status indication bi-colour LED

#### Product description

- Two-colour status display LED
- Green: system OK, red: fault



#### Ordering data

Type	Article number	Packaging, bag	Packaging, carton	Weight per pc.
LED EM bi-colour	89899720	25 pc(s).	200 pc(s).	0.017 kg
LED EM bi-colour, high brightness	89899753	25 pc(s).	200pc(s).	0.013 kg

**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						
tempera- ture	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**



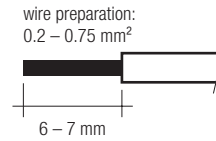
None of the components of the EM-ES (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.

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**

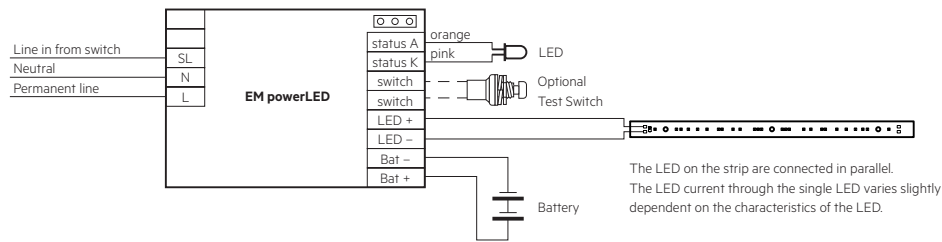
The operating unit must be SELV classified or else the circuit board must be insulated by the luminaire.

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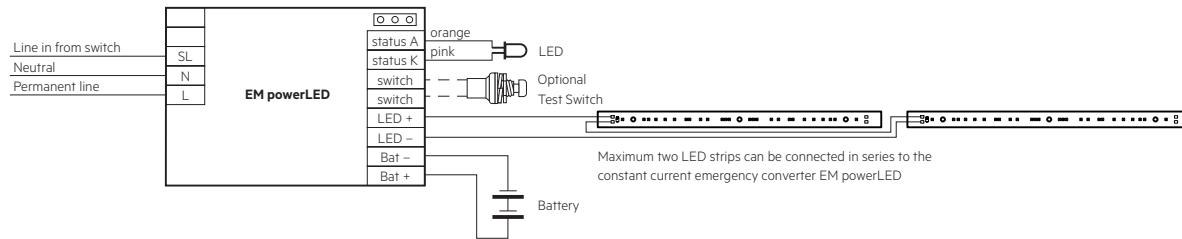
- EN 62031
- EN 62471

**ⓘ For further technical information particularly with regard to the installation of LED modules please refer to [www.tridonic.com](http://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](http://www.tridonic.com) → Technical Data

Guarantee conditions at [www.tridonic.com](http://www.tridonic.com) → Services

Lifetime declarations are informative and represent no warranty claim.