

Non-maintained emergency lighting anti panick lighthouse kit for automatic testing for diverse applications.
3 h rated duration.

EM pLED PRO LiFePO4 180lm Kit Installation and wiring instructions



EM AP Lighthouse 18 mm



EM AP Lighthouse 36 mm

Description

The EM AP Lighthouse Kit is a self-contained solution designed specifically for antipanic lighting, providing a reliable and efficient way to ensure safety in emergency situations. With a powerful output of 180 lumens, this kit is perfect for creating dedicated emergency luminaires that meet various application needs. The complete set includes an EM powerLED 1 W, the antipanic lighthouse with integrated indication LED and a LiFePO4 battery for an operating time of 3 hours. The antipanic lighthouses offers versatility with two different housing lengths of 18 mm and 36 mm allowing for adaptability to diverse applications. IP65 protection rating in installed state. The kit operates as non-maintained, meaning the light activates only during emergency situations, thereby conserving energy during normal conditions.

Technical data EM pLED PRO

Rated supply voltage	220 – 240 V
AC voltage range	198 – 264 V
Mains frequency	50 / 60 Hz
Output current	350 mA
Starting time	< 0.5 s from detection of emergency event
Overvoltage protection	320 V (for 48 h)
U-OVT (including open- / short-circuit and double load)	15 V
Battery charging time	24 h
Ambient temperature range t_a	-25 ... + 55 °C
Ambient temperature range t_a lighthouse	-25 ... + 45 °C
Max. casing temperature t_c	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
Risk group (IEC 62471)	RG2 (Eth r = 658 lx, RG1 > 51 cm)
Type of protection	IP20
Lifetime	up to 100,000 h
Guarantee (conditions at www.tridonic.com)	5 years
Dimensions LxWxH	139 x 30 x 21 mm

Ordering data

Type	Article number	Packaging carton	Packaging Pallet	Weight per pc.
EM pLED PRO LiFePO4 180lm KIT 18mm	89801290	5 pc(s).	360 pc(s).	0.233 kg
EM pLED PRO LiFePO4 180lm KIT 36mm	89801292	5 pc(s).	360 pc(s).	0.233 kg

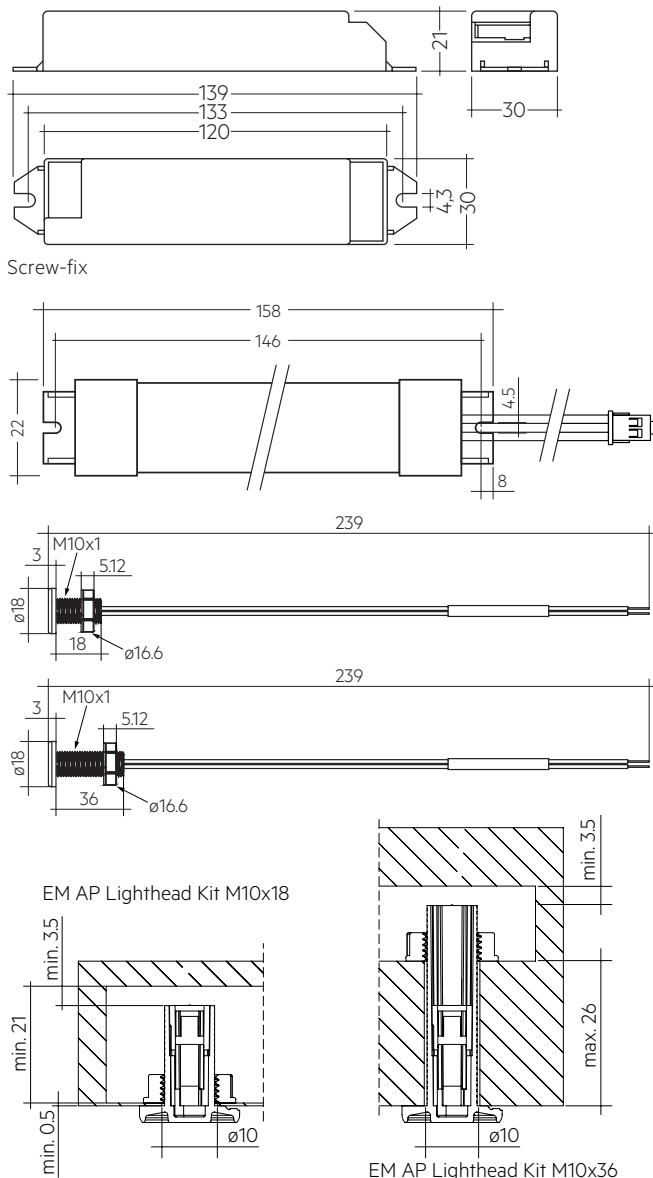
Ordering note

The packaging of one carton includes 5 emergency lighting LED drivers, 5 batteries, 5 EM AP LIGHTHEAD and 5 NUT PLAST for 3 h duration.

Battery (included)

Type	Article number	Number of cells	Type	Capacity	Case temperature range
LiFePO4 cells – stick					
ACCU-LiFePO4 3.0Ah 2A CON	28002318	1 x 2	stick	3.0 Ah	+5 °C to +60 °C

For detail information see driver data sheet on our WEB page.
www.tridonic.com



Technical data Accu-LiFePO4 3.0 Ah

International designation	IFpR 19/66
Battery voltage/cell	3.2V
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

Important

These instructions contain important safety information, read and follow them carefully. Tridonic will not accept any responsibility for injury, damage or loss, which may arise as a result of incorrect installation, operation, maintenance or disposal.

Isolate switched and unswitched mains and battery supply before installing or maintaining – high voltage will be present at LED terminals if the battery is not isolated.

High voltage insulation testing up to 500 V DC is only allowed between the line and neutral connected together and the earth.

Note to the installer:

Please ensure this leaflet is made available to the user and/or maintenance engineer together with a test record card.

Emergency Operation

After the switchover to emergency operation the EM pLED is detecting the total forward voltage of the connected LED modules and automatically adjusts the LED current.

LED forward voltage

The total forward voltage of all the LED light modules operated in emergency mode is used for the decision which type of EM pLED should be used.

EM pLED PRO LiFePO4 forward voltage range:
2.4 – 3.4 V

The total forward voltage must be within the forward voltage range of the EM pLED.

Wiring guidelines

- EM pLED PRO LiFePO4 180lm KIT:
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 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, which should be considered for good EMC compliance.
- LED leads should be separated from the mains connections and wiring for good EMC performance.
- 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.)

Components matrix

Type	Article number	Kit components
EM pLED PRO LiFePO4 180lm KIT 18mm	89801290	
EM pLED PRO 231 LiFePO4 SCREW	89800804	EM LED driver
ACCU-LiFePO4 3.0Ah 2A CON	28002318	Battery
EM AP LIGHTHEAD KIT M10x18 PRO	09815296	EM AP Lighthouse
NUT PLAST EM AP M10*1	05533322	Nut
EM pLED PRO LiFePO4 180lm KIT 36mm	89801292	
EM pLED PRO 231 LiFePO4 SCREW	89800804	EM LED driver
ACCU-LiFePO4 3.0Ah 2A CON	28002318	Battery
EM AP LIGHTHEAD KIT M10x36 PRO	09815298	EM AP Lighthouse
NUT PLAST EM AP M10*1	05533322	Nut

Further information can be found in the respective datasheets on www.tridonic.com.

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 50Hz 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.

For maintained operation in conjunction with a LED driver:

The length of LED leads must not be exceeded. Note the length of the EM pLED leads to the LED module adds to the length of the leads from the LED driver to the EM pLED module when considering the lead length of the LED driver.

General notes

Safety

This module and associated luminaire has both an unswitched mains electricity supply and a switched supply as well as an internal battery. To ensure safety disconnect all three before installation or maintenance work begins (isolate battery by disconnecting the lead).

The LiFePO4 batteries used together with this module contain an electrolyte which can be harmful to eyes and poisonous on open wounds. Care must be taken when handling the batteries, to avoid puncturing the case. If electrolyte comes into contact with skin wash immediately in water.

Batteries must not be subjected to excessive charge or discharge currents. When working with batteries take care not to short circuit them with tools or jewellery etc.

Installation

Installation must be carried out by a competent person, in accordance with the national or local wiring regulations and BS 5266 Part 1; Code of Practice for Emergency Lighting. If in any doubt consult a qualified electrician.

Ensure that voltage and frequency requirements are compatible with the available supply.

Observe the correct polarity when making electrical connections.

Maintenance

The module does not contain serviceable parts and should not be opened. Doing so will invalidate the warranty.

Disposal of Batteries

Do not incinerate batteries. Whilst disposing of small quantities is possible with little or no risk, large numbers require expert handling. Consult the relevant Local Authority Health and Safety Officers.

User Obligation

Every care is taken by Tridonic, in the design and construction of its products, to ensure that as far as is reasonably practical, the products, when properly used are safe, and without risk to health.

The health and safety at work act, however, imposes upon the users of a company's products, an obligation to ensure that all personnel involved with the installation, handling, use or disposal of the products are acquainted with the information provided by the company, and are made fully aware of any precautions that need to be taken.

Modification

Do not attempt to modify this product. Any modification will invalidate the safety/approval marks, and may render the product unsafe. Tridonic will not accept responsibility for any modified product, or any injury damage, or loss, which may arise as a result of unauthorised modification.

Change of Specification

Tridonic reserve the right to change specifications without prior notification or public announcement.

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.

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.

Optical properties

Anti panic

EM pLED PRO LiFePO4 180lm KIT – Max. spacing for >0.5 lux^①

Height	Centre to end ^②		Centre to centre ^③	
	Trans	Axial	Trans	Axial
2.5 m	2.75 m	2.75 m	8.60 m	8.55 m
3.0 m	2.95 m	2.95 m	9.15 m	9.15 m
4.0 m	3.25 m	3.20 m	10.10 m	10.05 m
5.0 m	3.40 m	3.35 m	11.00 m	10.95 m
6.0 m	3.40 m	3.40 m	11.75 m	11.70 m
8.0 m	2.80 m	2.80 m	12.85 m	12.80 m

All values for $t_a = 30\text{ }^\circ\text{C}$

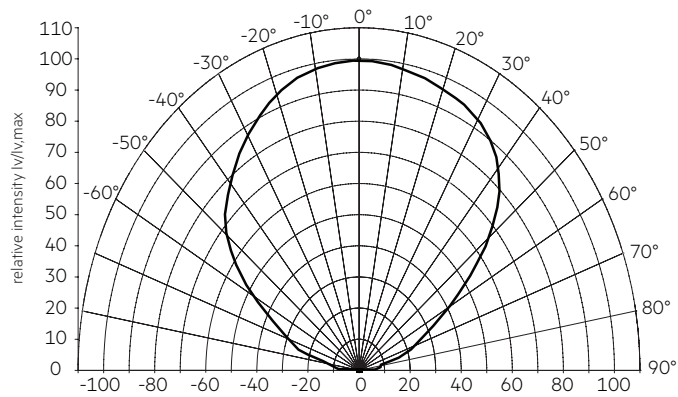
Luminous flux: 169 lm

① Maintenance factor = 0.8, photometric data available on request

② Distance between module and wall

③ Distance between two modules

Light distribution



Wiring diagram

