



## EM powerLED BASIC FX SC LiFePO4 32 W

Combined emergency lighting LED Driver

### Product description

- Combined emergency LED Driver for manual testing
- For self-contained emergency lighting
- Can be either used build-in or independent with clip-on strain-relief (see accessory)
- Max. output power 32 W
- Nominal life-time up to 100,000 h
- 5-year guarantee



### Functions

- Adjustable output current between 350 and 700 mA via I-SELECT 2 plugs
- Protective features (overtemperature, short-circuit, overload, no-load, input voltage range)
- Suitable for emergency escape lighting systems acc. to EN 50172
- 1 or 3 h rated duration depending on connected battery
- Constant power output in emergency mode



### Battery management

- Intelligent charge system
- Deep discharge protection
- Temperature protection
- Polarity reversal protection for battery provided by 3-pole connector

### Batteries

- LiFePO<sub>4</sub> batteries with Tridonic LiFeGuard
- Temperature protection
- Overcharge-/Overdischarge protection
- Ensures safety in use
- Up to 8 year design life
- 3 year guarantee
- For battery compatibility refer to chapter „Battery selection“



**Standards**, page 6

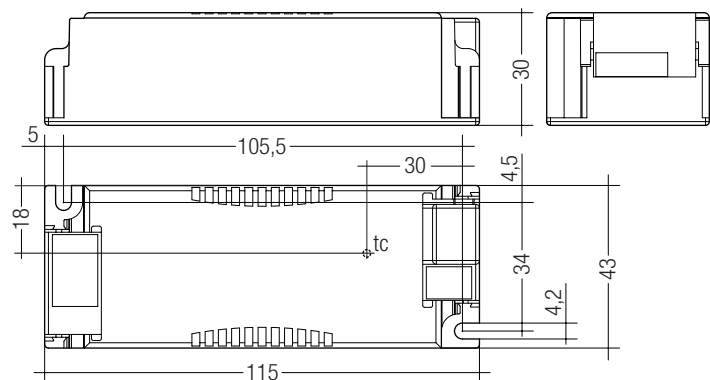
IP20 SELV      RoHS

## EM powerLED BASIC FX SC LiFePO4 32 W

Combined emergency lighting LED Driver

### Technical data

|   |                            |
|---|----------------------------|
| Rated supply voltage  | 220 - 240 V                |
| AC voltage range  | 198 - 264 V                |
| Mains frequency   | 50 / 60 Hz                 |
| Overvoltage protection  | 320 V (for 48 h)           |
| Typ. current (at 230 V, 50 Hz, full load, charging) <sup>®</sup>    | 185 mA                     |
| Max. input power  | 41 W                       |
| Typ. efficiency (at 230 V, 50 Hz, full load, charging) <sup>®</sup> | 84 %                       |
| λ (at 230 V, 50 Hz, full load, charging)                            | 0.95                       |
| Typ. Input current in no-load operation (not charging)              | 20 mA                      |
| Typ. input power in no-load operation (not charging)                | 11 W                       |
| In-rush current (peak / duration)                                   | 4 A, 260 μs                |
| THD (at 230 V, 50 Hz, full load)                                    | 14 %                       |
| Starting time (at 230 V, 50 Hz, full load)                          | < 500 ms                   |
| Turn off time (at 230 V, 50 Hz, full load)                          | < 50 ms                    |
| Switchover time (AC / EM)   | < 500 ms                   |
| Output current tolerance  | < 5 %                      |
| Max. output current peak (non-repetitive)                           | < 35 %                     |
| Output LF current ripple (<120 Hz)                                  | 5 %                        |
| U-OUT (including open- / short-circuit and double load)             | 60 V                       |
| Max. open circuit voltage   | 60 V                       |
| Mains voltage changeover threshold                                  | according to EN 60598-2-22 |
| Max. casing temperature tc  | 80 °C                      |
| Ambient temperature ta (≤ 25 W) <sup>®</sup>                        | -25 ... +50 °C             |
| Ambient temperature ta (> 25 W) <sup>®</sup>                        | -25 ... +45 °C             |
| Mains surge capability (between L - N)                              | 1.2 kV                     |
| Mains surge capability (between L/N - PE)                           | 2.4 kV                     |
| Surge voltage at output side (against PE)                           | 2.4 kV                     |
| Life-time   | up to 100,000 h            |
| Dimensions L x W x H  | 115 x 43 x 30 mm           |



### Ordering data

| Type <sup>®</sup>                   | Article number | Packaging carton | Packaging pallet | Weight per pc. |
|-------------------------------------|----------------|------------------|------------------|----------------|
| EM pLED BASIC FX 102 SC LiFePO4 32W | 89800687       | 10 pc(s).        | 1,000 pc(s).     | 0.115 kg       |

### Specific technical data

| Type                                   | Number of battery cells | Output current <sup>®</sup> ④ | Min. forward voltage | Max. forward voltage | Max. output power | Typ. power consumption (at 230 V, 50 Hz) |                        | Typ. current consumption (at 230 V, 50 Hz) |                        | I-SELECT 2 resistor value <sup>®</sup> |
|--|-------------------------|-------------------------------|----------------------|----------------------|-------------------|--|------------------------|--|------------------------|--|
|  |                         |                               |                      |                      |                   | Min. load <sup>®</sup>                   | Max. load <sup>®</sup> | Min. load <sup>®</sup>                     | Max. load <sup>®</sup> |  |
| Normal operation                       |                         |                               |                      |                      |                   |  |                        |  |                        |  |
| EM pLED BASIC FX 102 SC<br>LiFePO4 32W | –                       | 350 mA                        | 15 V                 | 50 V                 | 17.5 W            | 10.0 / 9.0 W                             | 23.0 / 22.0 W          | 55 / 50 mA                                 | 110 / 105 mA           | open circuit                           |
|  | –                       | 400 mA                        | 15 V                 | 50 V                 | 20.0 W            | 11.0 / 10.0 W                            | 26.0 / 25.0 W          | 60 / 55 mA                                 | 120 / 115 mA           | 12.40 kΩ                               |
|  | –                       | 450 mA                        | 15 V                 | 50 V                 | 22.5 W            | 12.0 / 11.0 W                            | 28.5 / 27.5 W          | 65 / 60 mA                                 | 130 / 125 mA           | 11.00 kΩ                               |
|  | –                       | 500 mA                        | 15 V                 | 50 V                 | 25.0 W            | 12.7 / 11.7 W                            | 31.0 / 30.0 W          | 67 / 60 mA                                 | 135 / 130 mA           | 10.00 kΩ                               |
|  | –                       | 550 mA                        | 15 V                 | 50 V                 | 27.5 W            | 13.7 / 12.7 W                            | 34.0 / 33.0 W          | 70 / 65 mA                                 | 155 / 150 mA           | 9.09 kΩ                                |
|  | –                       | 600 mA                        | 15 V                 | 50 V                 | 30.0 W            | 14.7 / 13.7 W                            | 37.0 / 36.0 W          | 75 / 70 mA                                 | 165 / 160 mA           | 8.25 kΩ                                |
|  | –                       | 650 mA                        | 15 V                 | 50 V                 | 32.5 W            | 15.7 / 14.7 W                            | 39.5 / 38.5 W          | 80 / 75 mA                                 | 180 / 165 mA           | 7.68 kΩ                                |
|  | –                       | 700 mA                        | 15 V                 | 46 V                 | 32.5 W            | 16.0 / 15.0 W                            | 39.2 / 38.2 W          | 80 / 75 mA                                 | 175 / 170 mA           | short circuit (0 Ω)                    |
| Emergency operation                    |                         |                               |                      |                      |                   |  |                        |  |                        |  |
| EM pLED BASIC FX 102 SC<br>LiFePO4 32W | 1                       |                               | 15 V                 | 50 V                 | 2.3 W             |  |                        |  |                        |  |
|  | 3                       |                               | 15 V                 | 50 V                 | 2.3 W             |  |                        |  |                        |  |

<sup>®</sup> EM = Emergency

<sup>®</sup> Depending on the selected output current

<sup>®</sup> Output current is mean value.

<sup>®</sup> The table only lists a number of possible operating points but does not cover each single point. The output current can be set within the total value range in 1-mA-steps.

<sup>®</sup> Not compatible with I-SELECT (generation 1). Calculated resistor value.

<sup>®</sup> Ambient temperature with strain relief: ta max. (≤ 25 W) = 40 °C, ta max (> 25 W) = 35 °C

<sup>®</sup> Charging / Not charging


**ACCES-  
ORIES**
**Strain-relief set 43x30mm**
**Product description**

- Optional strain-relief set for independent applications
- Transforms the LED Driver into a fully class II compatible LED Driver (e.g. ceiling installation)
- Easy and tool-free mounting to the LED Driver, screwless cable-clamp channels for long strain-relief (30 x 43 x 30 mm)
- With screws for short strain-relief (15 x 34 x 30 mm)
- Overall length = length L (LED Driver) + 2 x 30 mm (long strain-relief set), 2 x 15 mm (short strain-relief) or long and short strain-relief any combination
- Standard SC (L = 30 mm) available as non-pre-assembled and pre-assembled
- Short SC (L = 15 mm) only pre-assembled available

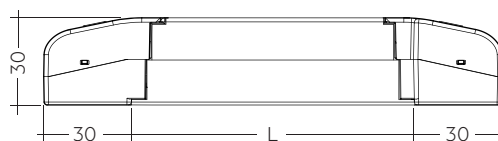


ACU SC 30x43x30mm CLIP-ON SR SET      ACU SC 30x43x30mm CLIP-ON SR SET 300  
(28001168, non-pre-assembled)      (28001351, non-pre-assembled, 300 pcs. packaging)

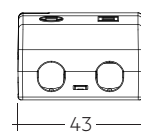


ACU SC 30x43x30mm CLIP-ON SR PA  
(28001699, pre-assembled)

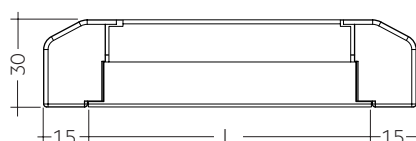
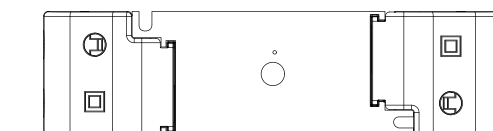
ACU SC 15x43x30mm CLIP-ON SR PA  
(28001574, pre-assembled)



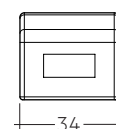
ACU SC 30x43x30mm CLIP-ON SR SET / PA



Permissible  
cable jacket  
diameter:  
2.2 – 9 mm



ACU SC 15x43x30mm CLIP-ON SR PA



Permissible  
cable jacket  
diameter:  
3 – 9 mm

**Ordering data**

| Type                              | Article number | Packaging carton <sup>①</sup> | Packaging outer box | Weight per pc. |
|-----------------------------------|----------------|-------------------------------|---------------------|----------------|
| ACU SC 43x30mm CLIP-ON SR SET     | 28001168       | 10 pc(s).                     | 500 pc(s).          | 0.038 kg       |
| ACU SC 43x30mm CLIP-ON SR SET 300 | 28001351       | 300 pc(s).                    | 300 pc(s).          | 0.038 kg       |
| ACU SC 30x43x30mm CLIP-ON SR PA   | 28001699       | 10 pc(s).                     | 500 pc(s).          | 0.021 kg       |
| ACU SC 15x43x30mm CLIP-ON SR PA   | 28001574       | 10 pc(s).                     | 1,200 pc(s).        | 0.010 kg       |

<sup>①</sup> 28001168: A carton of 10 pcs. is equal to 10 sets, each with 2 strain-reliefs parts.

28001351: A carton of 300 pcs. is equal to 300 sets, each with 2 strain-reliefs parts.

28001699 + 28001574: A carton contains exactly 10 pcs. strain-reliefs (no sets).

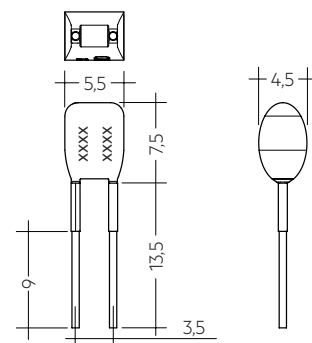
## I-SELECT 2 PLUG PRE / EXC

## Product description

- Ready-for-use resistor to set output current value
- Compatible with LED Driver featuring I-SELECT 2 interface; not compatible with I-SELECT (generation 1)
- Resistor is base insulated
- Resistor power 0.25 W
- Current tolerance  $\pm 2\%$  additional to output current tolerance
- Compatible with LED Driver series PRE and EXC

## Example of calculation

- $R [k\Omega] = 5 V / I_{out} [mA] \times 1000$
- E96 resistor value used
- Resistor value tolerance  $\leq 1\%$ ; resistor power  $\geq 0.1 W$ ; base insulation necessary
- When using a resistor value beyond the specified range, the output current will automatically be set to the minimum value (resistor value too big), respectively to the maximum value (resistor value too small)



## Ordering data

| Type                     | Article number | Colour | Marking | Current | Resistor value   | Packaging bag | Weight per pc. |
|--------------------------|----------------|--------|---------|---------|------------------|---------------|----------------|
| I-SELECT 2 PLUG 350MA BL | 28001110       | Blue   | 0350 mA | 350 mA  | 14.30 k $\Omega$ | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 375MA BL | 28001111       | Blue   | 0375 mA | 375 mA  | 13.30 k $\Omega$ | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 400MA BL | 28001112       | Blue   | 0400 mA | 400 mA  | 12.40 k $\Omega$ | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 425MA BL | 28001251       | Blue   | 0425 mA | 425 mA  | 11.80 k $\Omega$ | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 450MA BL | 28001113       | Blue   | 0450 mA | 450 mA  | 11.00 k $\Omega$ | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 475MA BL | 28001252       | Blue   | 0475 mA | 475 mA  | 10.50 k $\Omega$ | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 500MA BL | 28001114       | Blue   | 0500 mA | 500 mA  | 10.00 k $\Omega$ | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 525MA BL | 28001960       | Blue   | 0525 mA | 525 mA  | 9.53 k $\Omega$  | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 550MA BL | 28001115       | Blue   | 0550 mA | 550 mA  | 9.09 k $\Omega$  | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 600MA BL | 28001116       | Blue   | 0600 mA | 600 mA  | 8.25 k $\Omega$  | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 650MA BL | 28001117       | Blue   | 0650 mA | 650 mA  | 7.68 k $\Omega$  | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG 700MA BL | 28001118       | Blue   | 0700 mA | 700 mA  | 7.15 k $\Omega$  | 10 pc(s).     | 0.001 kg       |
| I-SELECT 2 PLUG MAX BL   | 28001099       | Blue   | MAX     | MAX     | 0.00 k $\Omega$  | 10 pc(s).     | 0.001 kg       |

RoHS

## Test switch EM2

## Product description

- For connection to the emergency lighting LED Driver
- 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).        | 0.009 kg       |

## 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).        | 0.011 kg       |
| LED EM green, ultra high brightness | 89899756       | 25 pc(s).      | 800 pc(s).        | 0.012 kg       |

## Extension Cable LiFePO4

### Product description

- Extension cable for LiFePO<sub>4</sub> batteries
- Cable length 500 mm
- 3-pole plug connection



### Ordering data

| Type                          | Article number | Packaging, bag | Packaging, carton | Weight per pc. |
|-------------------------------|----------------|----------------|-------------------|----------------|
| EXTENSION CABLE LiFePO4 500mm | 28002461       | 10 pc(s).      | 200 pc(s).        | 0.01 kg        |

## 1. Standards

EN 55015  
 EN 60068-2-29  
 EN 60068-2-30  
 EN 60068-2-64  
 EN 61000-3-2  
 EN 61000-3-3  
 EN 61347-1  
 EN 61347-2-7  
 EN 61347-2-13  
 EN 62384  
 EN 61547  
 According to EN 50172  
 According to EN 60598-2-22

Housing fulfils requirements for reinforced insulation according EN 60598-1.

### 1.1 Glow wire test

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

## 2. Thermal details and life-time

### 2.1 Expected life-time

| Expected life-time                  |                |           |             |             |             |          |
|-------------------------------------|----------------|-----------|-------------|-------------|-------------|----------|
| Type                                | Output current | ta        | 35 °C       | 40 °C       | 45 °C       | 50 °C    |
| EM pLED BASIC FX 102 SC LiFePO4 32W | 350 mA         | tc        | 60 °C       | 65 °C       | 70 °C       | 75 °C    |
|                                     |                | Life-time | > 100,000 h | > 100,000 h | > 100,000 h | 70,000 h |
|                                     | 500 mA         | tc        | 65 °C       | 70 °C       | 75 °C       | 80 °C    |
|                                     |                | Life-time | > 100,000 h | > 100,000 h | 70,000 h    | 50,000 h |
|                                     | 700 mA         | tc        | 70 °C       | 75 °C       | 80 °C       |          |
|                                     |                | Life-time | > 100,000   | 70,000 h    | 50,000 h    |          |

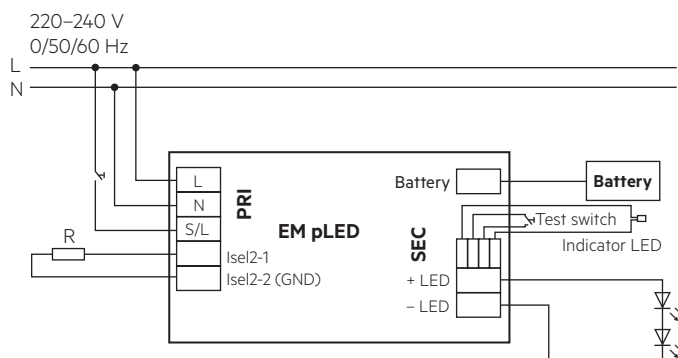
For operating points > 25 W the max. allowed ta is 45 °C. Ambient temperature with strain relief: ta max. (< 25 W) = 40 °C, ta max (> 25 W) = 35 °C

The relation of tc to ta temperature depends also on the luminaire design.

If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

## 3. Installation / wiring

### 3.1 Wiring diagram

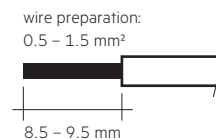


### 3.2 Wiring type and cross section

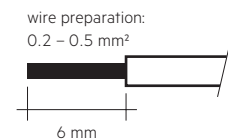
The wiring can be in stranded wires with ferrules or solid with a cross section of 0.5–1.5 mm² or 0.2–0.5 mm². Strip 8.5 – 9.5 mm or 6 mm of insulation from the cables to ensure perfect operation of the push-wire terminals (depending on connection, see graphics below).

Use one wire for each terminal connector only.

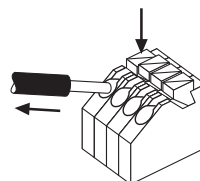
#### LED module/supply



#### Test switch/Indicator LED



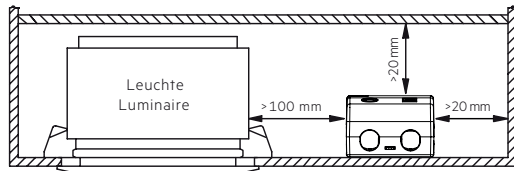
### 3.3 Loose wiring



Press down the "push button" and remove the cable from front.

### 3.4 Fixing conditions when using as independent Driver with Clip-On

Dry, acidfree, oilfree, fatfree. It is not allowed to exceed the maximum ambient temperature ( $t_a$ ) stated on the device. Minimum distances stated below are recommendations and depend on the actual luminaire. Is not suitable for fixing in corner.



### 3.5 Wiring guidelines

- The LED terminals, battery, indicator LED and test switch terminals are classified as SELV (output voltage < 60 V DC). Keep the wiring of the input terminals separated from the wiring of the SELV classified terminals or consider special wiring (double insulation, 5 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.
- Maximum lead length on the LED terminals is 2 m. For a good EMC performance keep the LED wiring as short as possible.
- The secondary wires (LED module) should be routed in parallel to ensure good EMC performance.
- 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 LED leads to prevent noise coupling.
- 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.)

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 50 Hz 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.

The length of LED leads must not be exceeded. Note that the length of the leads from the EM converterLED to the LED modules is added to the length of the leads from the LED Driver to the EM converterLED module when considering the max. permitted lead length of the LED Driver. Leads should always be kept short as possible.

### 3.6 Hot plug-in

Hot plug-in is not supported due to residual output voltage of > 0 V. If a LED load is connected the device has to be restarted before the output will be activated again. This can be done via mains reset.

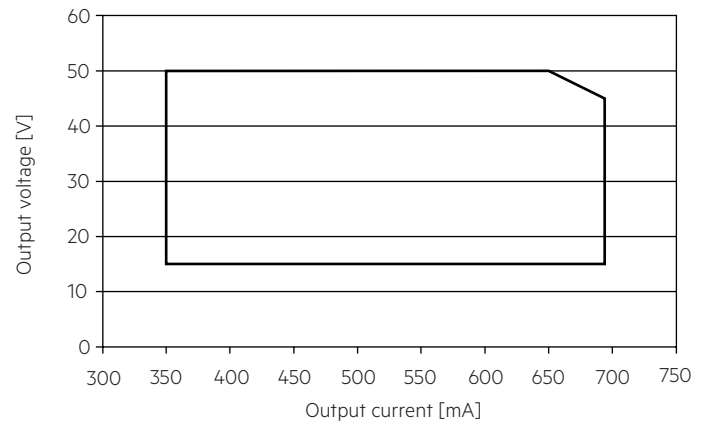
### 3.7 I-SELECT 2 resistors connected via cable

For details see:

[http://www.tridonic.com/com/en/download/technical/LCA\\_PRE\\_LC\\_EXC\\_ProductManual\\_en.pdf](http://www.tridonic.com/com/en/download/technical/LCA_PRE_LC_EXC_ProductManual_en.pdf).

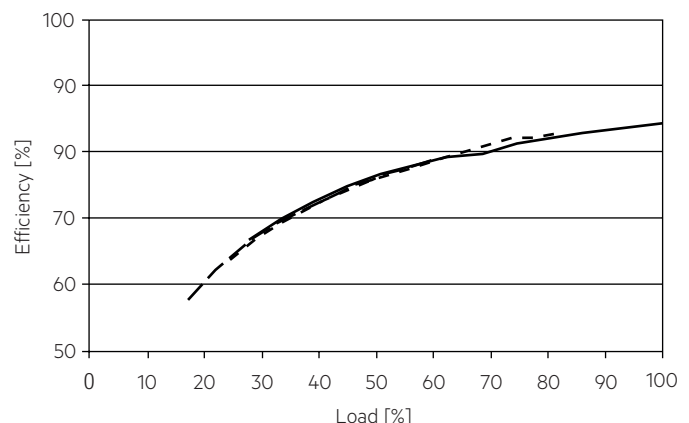
## 4. Electrical values

### 4.1 Operating window

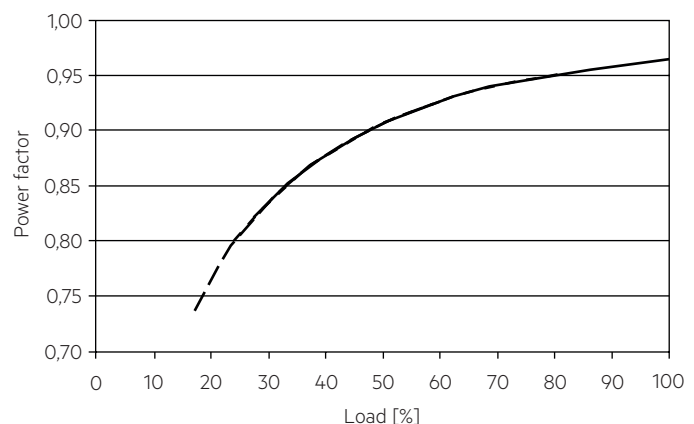


Operate the LED Driver only within the given window under all operating conditions. Special attention needs to be paid at dimming as the forward voltage of the connected LED modules varies with the dimming level, due to the implemented amplitude dimming technology. Coming below the specified minimum output voltage of the LED Driver may cause the device to shut-down.

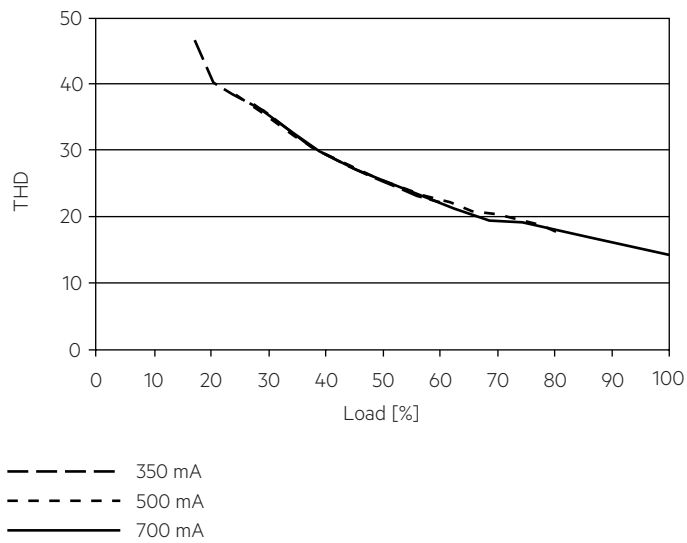
### 4.2 Efficiency vs load



### 4.3 Power factor vs load



#### 4.4 THD vs load



100 % load corresponds to the max. output power (full load) according to the table on page 2.

#### 4.5 Maximum loading of automatic circuit breakers

| Automatic circuit breaker type             | C10                 | C13                 | C16                 | C20                 | B10                 | B13                 | B16                 | B20                 | Inrush current   |        |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------------|--------|
| Installation Ø                             | 1.5 mm <sup>2</sup> | 1.5 mm <sup>2</sup> | 2.5 mm <sup>2</sup> | 2.5 mm <sup>2</sup> | 1.5 mm <sup>2</sup> | 1.5 mm <sup>2</sup> | 2.5 mm <sup>2</sup> | 2.5 mm <sup>2</sup> | I <sub>max</sub> | time   |
| <b>EM pLED BASIC FX 102 SC LiFePO4 32W</b> | 35                  | 46                  | 56                  | 73                  | 21                  | 28                  | 34                  | 44                  | 4 A              | 260 µs |

Calculation uses typical values from ABB series S200 as a reference.  
Actual values may differ due to used circuit breaker types and installation environment.

#### 4.6 Harmonic distortion in the mains supply (at 230 V / 50 Hz and full load) in %

|  | THD  | 3.   | 5.  | 7.  | 9.  | 11. |
|--|------|------|-----|-----|-----|-----|
| <b>EM pLED BASIC FX 102 SC LiFePO4 32W</b> | < 14 | < 10 | < 3 | < 5 | < 4 | < 1 |

#### 4.7 Insulation matrix

|   | Mains | Switched Live | Battery, LED, Test switch, Indicator LED |
|---|-------|---------------|--|
| <b>Mains</b>                                    | —     | •             | ••                                       |
| <b>Switched Live</b>                            | •     | —             | ••                                       |
| <b>Battery, LED, Test switch, Indicator LED</b> | ••    | ••            | —  |

• Represents basic insulation

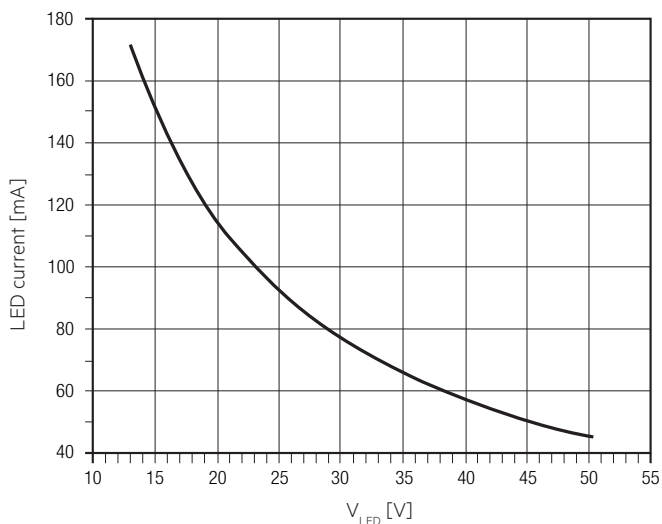
•• Represents double or reinforced insulation



#### 4.8 Typ. LED current/voltage characteristics

The LED current in emergency mode is automatically adjusted by the EM converterLED module based on the total forward voltage of the LED modules connected and the associated battery. The start of the LED in emergency mode does not result in a current peak.

EM pLED BASIC FX 102 SC LiFePO<sub>4</sub> 32W  
Article number: 89800687  
LiFePO<sub>4</sub> battery, 3.2 V battery voltage  
880 – 920 mA battery discharge current (tolerance)



#### 5. Emergency output factor EOFi

##### EM pLED BASIC

| Type           | EM pLED BASIC FX 102<br>SC LiFePO <sub>4</sub> 32W |               |
|----------------|--|---------------|
| Article no.    | 89800687   |               |
| Cells          | 1 / 3 cells  |               |
| Output current | Min. LED load                                      | Max. LED load |
| 350mA          | 31.5 %   | 9.5 %         |
| 400mA          | 26.5 %   | 8.0 %         |
| 450mA          | 23.0 %   | 7.0 %         |
| 500mA          | 21.0 %   | 6.5 %         |
| 550mA          | 19.5 %   | 6.0 %         |
| 600mA          | 18.0 %   | 5.0 %         |
| 650mA          | 16.5 %   | 5.0 %         |
| 700mA          | 15.5 %   | 4.5 %         |

#### 6. Mechanical values

##### 6.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20
- Max. torque at the mounting screws: 0.8 Nm

##### 6.2 Mechanical data accessories

LED status indicator

- Green
- Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
- Lead length 0.3 m / 1.0 m
- Insulation rating: 90 °C

Test switch

- Mounting hole 7.0 mm diameter
- Lead length 0.55 m

Battery connection

- Plug connection 0.3 m
- Extension 0.5 m

#### 7. Functions

##### 7.1 Function: adjustable current

By inserting a suitable resistor or third party resistor into the I-SELECT 2 interface, the current value can be adjusted. The relationship between output current and resistor value can be found in the chapter "Accessories I-SELECT 2 Plugs".



Please note that the resistor values for I-SELECT 2 are not compatible with I-SELECT (generation 1). Installation of an incorrect resistor may cause irreparable damage to the LED module(s).

Resistors for the main output current values can be ordered from Tridonic (see accessories).

##### 7.2 Short-circuit behaviour

In case of a short-circuit at the LED output the LED output is switched off. After restart of the LED Driver the output will be activated again. The restart can be done via mains reset.

##### 7.3 No-load operation

The LED Driver will not be damaged in no-load operation. The output will be deactivated and is therefore free of voltage. If a LED load is connected the device has to be restarted before the output will be activated again.

## 8. Battery data

### 8.1 Battery selection

EM pLED BASIC, 1 / 3 h

|   |              |                 | Type                            | EM pLED BASIC FX 102 SC LiFePO <sub>4</sub> 32W |                      |   |
|---|--------------|-----------------|---------------------------------|---|----------------------|---|
|   |              |                 | Article no.                     | 89800687  |                      |   |
|   |              |                 | Duration                        | 1 h   | 3 h                  |   |
| Technology and capacity                   | Design       | Number of cells | Type                            | Article no.                                     | Assignable batteries |   |
| LiFePO <sub>4</sub> 1.5 Ah<br>18650 cells | stick        | 1 x 1           | Accu-LiFePO <sub>4</sub> 1A CON | 28002317  | •                    |   |
|   | stick        | 1 x 3           | Accu-LiFePO <sub>4</sub> 3A CON | 28002320  |                      | • |
|   | side by side | 3 x 1           | Accu-LiFePO <sub>4</sub> 3B CON | 28002321  |                      | • |

### 8.2 Battery charge / discharge data

EM pLED BASIC, 1 / 3 h

| Type                              |                             | EM pLED BASIC FX 102 SC LiFePO4 32W         |                     |
|-----------------------------------|-----------------------------|---|---------------------|
| Article no.                       |                             | 89800687                                    |                     |
| Duration                          |                             | 1 h   | 3 h                 |
| Battery charge time               | Initial charge              | 24 h  |                     |
|                                   | Trickle charge              | continuously and battery voltage controlled |                     |
| Charging current                  | Initial charge              | 190 – 230 mA                                | 190 – 230 mA        |
|                                   | Trickle charge <sup>①</sup> | 190 – 230 mA / 0 mA                         | 190 – 230 mA / 0 mA |
| Discharge current                 |                             | 880 – 920 mA                                | 880 – 920 mA        |
| Charge voltage range <sup>②</sup> |                             | 2.0 – 3.65 V                                |                     |
| Discharge voltage range           |                             | 3.65 – 2.30 V                               |                     |

<sup>①</sup> Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.

Note: Battery protected against operation at excessive temperatures (charging stopped when battery cell temperature < -5 °C or > 60 °C).

The emergency lighting LED Driver will recharge the battery normally after running the test of 61347-2-7 CL 22.3 (abnormal operating conditions).

<sup>②</sup> The battery will not be charged below 2.0 V.

### 8.3 Accu-LiFePO<sub>4</sub>

#### Capacity 1.5 Ah

|   |                                 |
|---|---------------------------------|
| International designation                       | IFpR 19/66                      |
| Battery voltage/cell                            | 3.2 V                           |
| Cell type                                       | 18650                           |
| Case temperature range to ensure                |                                 |
| 4 years design life                             | +55 °C                          |
| 6 years design life                             | +45 °C                          |
| 8 years design life                             | +35 °C                          |
| Max. short term temperature (reduced life-time) | 70 °C                           |
| Max. number discharge cycles                    | 50 cycles total                 |
| Max. storage time                               | 12 months<br>at +5 °C to +25 °C |

Only use Tridonic batteries.

Comply with UN 38.3 and IEC 62133 (safety testing) protected against over charge, over discharge, charging at excessive temperatures, short-circuit and over current.

### 8.4 Safety

#### 8.4.1 Deep discharge protection

When the battery remains connected without charging for a long period of time after the battery cut off of the driver the battery voltage can still drop. To make sure the cells are not damaged by this voltage drop, the battery protection prevents the battery from further discharge below 2.0 V.

#### 8.4.2 Overcharge protection

If in case of an error or the use of a wrong driver the battery gets overcharged the battery protection will disconnect the battery from the driver at a voltage of 3.9 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

#### 8.4.3 Short-circuit protection

In case of a short circuit the battery protection opens the connection to the driver and the output is therefore free of voltage. The output will be reactivated again when the short circuit is removed.

#### 8.4.4 Overtemperature protection

The battery is protected against temporary thermal overheating. If the temperature limit is exceeded the further charging of the battery is no longer possible. The temperature protection is activated below approx. 0 °C and above approx. +60 °C. The discharging of the battery is still possible to guarantee emergency operation.

#### 8.5 Wiring batteries

To inhibit inverter operation disconnect the batteries by removing the connection at battery side.

For further informations refer to corresponding battery datasheet.

#### 8.6 Storage, installation and commissioning

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

### 9. Miscellaneous

#### 9.1 Insulation and electric strength testing of luminaires

Electronic devices 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 insulation test with 500 V<sub>DC</sub> for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal. The insulation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V<sub>AC</sub> (or 1.414 x 1500 V<sub>DC</sub>). To avoid damage to the electronic devices this test must not be conducted.

#### 9.2 Conditions of use and storage

Humidity: 5 % up to max. 85 %,  
not condensed  
(max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be acclimatised to the specified temperature range (ta) before they can be operated.

#### 9.3 Maximum number of switching cycles

All Emergency LED Driver are tested with 50,000 switching cycles in maintained mode. The actually achieved number of switching cycles is significantly higher.

#### 9.4 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

Life-time declarations are informative and represent no warranty claim. No warranty if device was opened.