Product description

• Emergency lighting LED driver with DALI interface and selftest function
• For self-contained emergency lighting
• SELV for output voltage < 60 V DC
• Low profile casing (21 x 30 mm cross-section)
• 5 years guarantee (conditions at www.tridonic.com)

Properties

• Mains and emergency operation.
• DALI switchable in mains operation (on/off); the switched phase must be switched on
• DALI interface for controlled testing and monitoring
• Constant current mode
• With either screw or clip fastening (clip-fix)
• 1, 2 or 3 h rated duration
• Selectable operating time (jumper)
• Two-colour status display LED
• SELV (outputs powerLED, battery, status LED, test switch)
• Very low energy consumption from the battery after activation of the deep discharge protection

Battery management

• Intelligent charge system
• Deep discharge protection
• Temperature protection
• Polarity reversal protection

Batteries

• LiFePO4 batteries with Tridonic LiFeGuard
• Overcharge-/Overdischarge protection
• Ensures safety in use
• Up to 8 year design life
• 4 year guarantee

Standards, page 5
Wiring diagrams and installation examples, page 6
Emergency lighting units
EM powerLED

EM powerLED PRO FX LiFePO4 1 – 2 W
Combined emergency lighting LED driver 1 – 4 W

Test switch EM2

DIMENSIONS

Ordering data

Type | Article number | Packaging, | Packaging, | Weight
| | | bag | carton | per pc.
Test switch EM 2 | 89805277 | 25 pc(s). | 600 pc(s). | 0.011 kg

Status indication bi-colour LED

Ordering data

Type | Article number | Packaging, | Packaging, | Weight
| | | bag | carton | 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). | 800 pc(s). | 0.013 kg

Data sheet 06/22-EM134-0
Subject to change without notice. Information provided without guarantee.

www.tridonic.com
Test switch EM2

**Product description**
- For connection to the emergency lighting unit
- For checking the device function

**Ordering data**

<table>
<thead>
<tr>
<th>Type</th>
<th>Article number</th>
<th>Packaging, bag</th>
<th>Packaging, carton</th>
<th>Weight per pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test switch EM 2</td>
<td>89805277</td>
<td>25 pc(s)</td>
<td>600 pc(s)</td>
<td>0.011 kg</td>
</tr>
</tbody>
</table>

Status indication bi-colour LED

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

**Ordering data**

<table>
<thead>
<tr>
<th>Type</th>
<th>Article number</th>
<th>Packaging, bag</th>
<th>Packaging, carton</th>
<th>Weight per pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED EM bi-colour</td>
<td>89899720</td>
<td>25 pc(s)</td>
<td>200 pc(s)</td>
<td>0.017 kg</td>
</tr>
<tr>
<td>LED EM bi-colour, high brightness</td>
<td>89899753</td>
<td>25 pc(s)</td>
<td>800 pc(s)</td>
<td>0.013 kg</td>
</tr>
</tbody>
</table>
Emergency lighting units
EM powerLED

ACCESSORIES

Extension Cable LiFePO4

Product description
- Extension cable for LiFePO₄ batteries
- Cable length 500 mm
- 3-pole plug connection

Ordering data

<table>
<thead>
<tr>
<th>Type</th>
<th>Article number</th>
<th>Packaging bag</th>
<th>Packaging carton</th>
<th>Weight per pc</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXTENSION CABLE LiFePO4 500mm</td>
<td>28002461</td>
<td>10 pc(s)</td>
<td>200 pc(s)</td>
<td>0.01 kg</td>
</tr>
</tbody>
</table>
1. Standards

- EN 61347-2-7
- EN 61347-2-13
- EN 62384
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61000-4-11
- EN 61547
- EN 60068-2-29
- EN 60068-2-30
- EN 60068-2-64
- EN 62386 (according to DALI standard V2)
- according to EN 50172
- according to EN 60598-2-22
- according to EN 62034

Meaning of marking 📚
Double or reinforced insulation for built-in electronic LED drivers.

1.1 Glow-wire test

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

1.2 Insulation and electric strength testing of luminaires

Electronic LED drivers 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 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 (or 1414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

2. Thermal details and lifetime

2.1 Lifetime

Average lifetime 100,000 hours under rated conditions with a failure rate of less than 10%. Average failure rate of 0.2% per 1000 operating hours.

<table>
<thead>
<tr>
<th>EM pLED PRO FX LiFePO4</th>
<th>40 °C</th>
<th>45 °C</th>
<th>50 °C</th>
<th>55 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>lifetime</td>
<td>&gt;100,000 h</td>
<td>&gt;100,000 h</td>
<td>&gt;100,000 h</td>
<td>76,000 h</td>
</tr>
</tbody>
</table>

The emergency lighting LED driver is designed for a lifetime stated above under reference conditions and with a failure probability of less than 10%.

The relation of \( T_c \) to \( T_a \) temperature depends also on the luminaire design. If the measured \( T_c \) temperature is approx. 5 K below \( T_{c max} \), \( T_a \) temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.
3. Installation / Wiring

3.1 Wiring diagram

3.1.1 Wiring with one or multiple LED modules

**Serial:**

- DALI control
- DALI control
- Line in from switch
- Neutral
- Permanent line

**Parallel:**

- DALI control
- DALI control
- Line in from switch
- Neutral
- Permanent line

Take care that the LED is connected with the right polarity. LEDs that are connected to the EM powerLED devices should have a reverse polarity protection device such as a schottky diode 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 600 mA.

3.1.2 Wireless set-up

1) Use 230 V Test switch
2) For further information see basicDIM Wireless datasheet at www.tridonic.com
3.2 Wiring type and cross section

LED module/LED driver/supply:

Use solid/stranded wire with a cross section of 0.5 – 1.5 mm² for wiring. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

Wire preparation:

<table>
<thead>
<tr>
<th>0.5 – 1.5 mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.5 – 9.5 mm</td>
</tr>
</tbody>
</table>

Status indication LED / Test switch:

Use solid wire with a cross section of 0.2 – 0.5 mm² for wiring. Strip 8.5 – 9.5 mm of insulation from the cables to ensure perfect operation of terminals.

Wire preparation:

<table>
<thead>
<tr>
<th>0.2 – 0.5 mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.5 – 9.5 mm</td>
</tr>
</tbody>
</table>

3.3 Battery connection

LiFePO₄: Direct connection

LiFePO₄: Connection with extension

3.4 Loose wiring

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

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, 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.
- Maximum lead length on the LED terminals is 3 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.

3.6 Maximum lead length

LED 3 m (6 m loop)³
Test switch 1 m
Status indication LED 1 m
Batteries 0.8 m

³ Note: Do not exceed the length of LED leads to the LED module. Leads should always be kept as short as possible.
4. Mechanical values

4.1 Housing properties

- Casing manufactured from polycarbonate.
- Type of protection: IP20

Recommended fixing details for clip fixing

Max. torque for mounting screws: 0.8 Nm

4.2 Mechanical data accessories

- LED bi-colour status indicator
  - Green / Red
  - Mounting hole 6.5 mm diameter, 1 – 1.6 mm thickness
  - Lead length 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

5. Electrical values

5.1 Maximum loading of automatic circuit breakers

<table>
<thead>
<tr>
<th>Automatic circuit breaker type</th>
<th>B10</th>
<th>B13</th>
<th>B16</th>
<th>B20</th>
<th>C10</th>
<th>C13</th>
<th>C16</th>
<th>C20</th>
<th>Irush current</th>
<th>Inrush current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation Ø</td>
<td>15 mm²</td>
<td>15 mm²</td>
<td>2.5 mm²</td>
<td>2.5 mm²</td>
<td>15 mm²</td>
<td>15 mm²</td>
<td>2.5 mm²</td>
<td>2.5 mm²</td>
<td>260</td>
<td>260</td>
</tr>
<tr>
<td>EM pLED PRO FX LiFePO4</td>
<td>90</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>180</td>
<td>260</td>
<td>260</td>
<td>260</td>
<td>260</td>
<td>6 A</td>
</tr>
</tbody>
</table>

5.2 Insulation matrix

<table>
<thead>
<tr>
<th></th>
<th>Mains</th>
<th>Switched Live</th>
<th>Battery, Test switch, Indicator LED</th>
<th>DALI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains</td>
<td>–</td>
<td>•</td>
<td>★</td>
<td>*</td>
</tr>
<tr>
<td>Switched Live</td>
<td>•</td>
<td>–</td>
<td>★</td>
<td>*</td>
</tr>
<tr>
<td>Battery, Test switch, Indicator LED</td>
<td>++</td>
<td>++</td>
<td>–</td>
<td>*</td>
</tr>
<tr>
<td>DALI</td>
<td>•</td>
<td>•</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

• Represents basic insulation
• • Represents double or reinforced insulation

DALI terminals are not SELV. Wire the terminals in accordance with the requirements of low voltage installations.
5.3 LED current

EM pLED PRO FX LiFePO4, 1 / 2 / 3 h

<table>
<thead>
<tr>
<th>Type</th>
<th>EM pLED PRO FX LiFePO4 1W</th>
<th>EM pLED PRO FX LiFePO4 2W</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED current in emergency operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 x LED</td>
<td>350 mA</td>
<td>600 mA</td>
</tr>
<tr>
<td>2 x LED</td>
<td>–</td>
<td>350 mA</td>
</tr>
<tr>
<td>LED current in mains operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 x LED</td>
<td>350 mA</td>
<td>350 mA</td>
</tr>
<tr>
<td>2 x LED</td>
<td>–</td>
<td>350 mA</td>
</tr>
</tbody>
</table>

5.4 Emergency output factor EOFi

EM pLED PRO FX LiFePO4, 1 / 2 / 3 h

<table>
<thead>
<tr>
<th>Type</th>
<th>EM pLED PRO FX LiFePO4 1W</th>
<th>EM pLED PRO FX LiFePO4 2W</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED load</td>
<td>Output current</td>
<td>LED load</td>
</tr>
<tr>
<td>1 x LED</td>
<td>350 mA</td>
<td>97 %</td>
</tr>
<tr>
<td>1 x LED</td>
<td>600 mA</td>
<td>–</td>
</tr>
<tr>
<td>2 x LED</td>
<td>350 mA</td>
<td>–</td>
</tr>
</tbody>
</table>

6. Electrical values

6.1 Duration link selection

<table>
<thead>
<tr>
<th>Duration</th>
<th>Link Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 hr</td>
<td>without jumper</td>
</tr>
<tr>
<td>2 hr</td>
<td>position A</td>
</tr>
<tr>
<td>3 hr</td>
<td>position B</td>
</tr>
</tbody>
</table>

6.2 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.

6.3 Status indication

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

<table>
<thead>
<tr>
<th>LED indication</th>
<th>Status</th>
<th>Commentary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permanent green</td>
<td>System OK</td>
<td>AC mode</td>
</tr>
<tr>
<td>Fast flashing green (0.1 sec on – 0.1 sec off)</td>
<td>Function test underway</td>
<td></td>
</tr>
<tr>
<td>Slow flashing green (1 sec on – 1 sec off)</td>
<td>Duration test underway</td>
<td></td>
</tr>
<tr>
<td>Red LED on</td>
<td>Load failure</td>
<td>Open circuit / Short circuit / LED failure (^{2})</td>
</tr>
<tr>
<td>Slow flashing red (1 sec on – 1 sec off)</td>
<td>Battery failure</td>
<td>Battery failed the duration test or function / Battery is defect / Incorrect battery voltage</td>
</tr>
<tr>
<td>Fast flashing red (0.1 sec on – 0.1 sec off)</td>
<td>Charging failure</td>
<td>Incorrect charging current</td>
</tr>
<tr>
<td>Double pulsing green</td>
<td>Inhibit mode</td>
<td>Switching into inhibit mode via controller</td>
</tr>
<tr>
<td>Binary transmission of address via green/red LED</td>
<td>Address identification</td>
<td>During address identification mode</td>
</tr>
<tr>
<td>Green and red off</td>
<td>DC mode</td>
<td>Battery operation (emergency mode)</td>
</tr>
</tbody>
</table>

\(^{2}\) If the EM powerLED (operated in non-maintained mode) detects a fault at the LED module, the red LED indicator lights up and the output is stopped. After the correction of the fault disconnect the unswitched phase from the mains supply or carry out a function or duration test. This will detect the new LED module and reset the error display.

6.4 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 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.

**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.

In combination with a 1-cell battery the EM powerLED does not support Rest Mode / Inhibit Mode.

**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.
### 7. Battery data

#### 7.1 Battery selection

**EM pLED PRO FX LiFePO4, 1 / 2 / 3 h**

<table>
<thead>
<tr>
<th>Technology and Design</th>
<th>Number of cells</th>
<th>Article no.</th>
<th>Assignable batteries</th>
</tr>
</thead>
<tbody>
<tr>
<td>LiFePO4, 15 Ah 18650 cells</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stick 1 x 1</td>
<td>ACCU-LiFePO4 1A CON 28002317</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>stick 1 x 2</td>
<td>ACCU-LiFePO4 2A CON 28002318</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>stick 1 x 3</td>
<td>ACCU-LiFePO4 3A CON 28002320</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>side by side 2 x 1</td>
<td>ACCU-LiFePO4 2B CON 28002319</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>side by side 3 x 1</td>
<td>ACCU-LiFePO4 3B CON 28002321</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>remote box 1 x 1</td>
<td>PACK-LiFePO4 1.5Ah 1 CON 28003804</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>remote box 1 x 2</td>
<td>PACK-LiFePO4 3.0Ah 2 CON 28003805</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>remote box 1 x 3</td>
<td>PACK-LiFePO4 4.5Ah 3 CON 28003806</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

**EM pLED PRO FX LiFePO4, 1W / 2W / 3h**

<table>
<thead>
<tr>
<th>Type</th>
<th>Article no.</th>
<th>Assignable batteries</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM pLED PRO FX LiFePO4 1W</td>
<td>89800803, 89800804</td>
<td></td>
</tr>
<tr>
<td>EM pLED PRO FX LiFePO4 2W</td>
<td>89800805, 89800806</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cells</th>
<th>1</th>
<th>1</th>
<th>2</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>1 h</td>
<td>2 h</td>
<td>3 h</td>
<td>1 h</td>
<td>2 h</td>
<td>3 h</td>
</tr>
</tbody>
</table>

### 7.2 Battery charge / discharge data

**EM pLED PRO FX LiFePO4, 1 / 2 / 3 h**

<table>
<thead>
<tr>
<th>Type</th>
<th>EM pLED PRO FX LiFePO4 1W</th>
<th>EM pLED PRO FX LiFePO4 2W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article no.</td>
<td>89800803, 89800804</td>
<td>89800805, 89800806</td>
</tr>
<tr>
<td>Duration</td>
<td>1 h</td>
<td>2 h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Battery charge time</th>
<th>Initial charge</th>
<th>24 h</th>
<th>Trickle charge</th>
<th>continuously</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charging current</td>
<td>Initial charge</td>
<td>120 – 150 mA</td>
<td>120 – 150 mA</td>
<td>240 – 300 mA</td>
</tr>
<tr>
<td>Trickle charge</td>
<td>120 – 150 mA / 0 mA</td>
<td>120 – 150 mA / 0 mA</td>
<td>240 – 300 mA / 0 mA</td>
<td>120 – 150 mA / 0 mA</td>
</tr>
<tr>
<td>Discharge current</td>
<td>430 – 530 mA</td>
<td>800 – 970 mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charge voltage range</td>
<td>20 – 36 V per cell</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discharge voltage range</td>
<td>23 – 36 V per cell</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

1. Automatic recharge when battery voltage falls below 3.4 V. Charger off (0 mA) when battery voltage exceeds 3.6 V.
2. The battery will not be charged below 2.0 V.
3. 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 0347-2-7 CL 22.3 (abnormal operating conditions).
7.3 ACCU-LiFePO4

**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 battery case temperature:
  (shorter than 1 month over the battery lifetime) 70 °C
- Max. number discharge cycles: 50 cycles total
- Max. storage time: 12 months
  - at +5 °C to +25 °C

7.4 ACCUpack-LiFePO4

**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: +5 °C to +45 °C
  - 6 years design life: +5 °C to +35 °C
  - 8 years design life: +5 °C to +25 °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: 12 months
  - at +5 °C to +25 °C

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

Only use Tridonic batteries.

7.5 Safety

7.5.1 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.

7.5.2 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 39 V. A discharge of the battery is still possible after the protection circuit was triggered to guarantee emergency operation.

7.5.3 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.

7.5.4 Temperature 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.

7.6 Wiring batteries

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

For further informations refer to corresponding battery datasheet.

7.7 Storage, installation and commissioning

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

8. Miscellaneous

8.1 Battery replacement

After a battery replacement and a subsequent full charge cycle (24 h) a duration test is mandatory to prove that with the new battery the rated duration is achieved.

8.2 Mains-connected transformers

The EM powerLED does not contain mains-connected windings of transformers.

8.3 FELV control terminals

FELV control terminals marked „Risk of electric shock” are not safe to touch. Insulate circuits connected to any FELV control terminal for the Low Voltage supply voltage of the control gear. Protect terminals connected to the FELV circuit against accidental contact.

8.4 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

Lifetime declarations are informative and represent no warranty claim. No warranty if device was opened.