EMERGENCY LIGHTING DEVICES FOR LED APPLICATIONS

ELECTRONIC EMERGENCY LIGHTING DEVICES WITH IRON PHOSPHATE BATTERIES

For nominal operating periods of 1 hour or 3 hours

Emergency lighting systems spring to life any time normal mains lighting systems fail. Emergency lighting is designed to ensure that staff can safely leave any rooms and that there is sufficient lighting to illuminate rescue paths/routes as well as to avoid panic situations.

VS emergency lighting devices are designed for use with LED applications and can be operated as part of a combined system with electronic LED drivers.
**Emergency Basic**

**Product features**
- Designed for installation in LED luminaires for safety lighting for rescue routes and extremely hazardous workplaces
- For emergency lighting for 1 hrs. or 3 hrs. operating time
- Suitable for emergency lighting acc. to VDE 0108 or EN 50172
- Ambient temperature: 5 to 50 °C

**Electrical features**
- Mains voltage: 220–240 V ± 10%
- Mains frequency: 50–60 Hz
- Output voltage: 55 V, 105 V or 220 V
- Output power in emergency operation: 2.5–3 W

**Rechargeable batteries**
- Material: Iron phosphate (LiFePO4)
- Choice of the rechargeable battery depends on desired operating time and installation position.
- Charging time of rechargeable batteries: up to 24 hrs. depending on the capacity

**Safety features**
- For luminaires of protection class I
- Degree of protection: IP20
- SELV* (186804, 186805, 186806, 186807)
- Surge protection (186804, 186805, 186806, 186807): 3.75 kV
- Metal casing must be earthed using two fixing screws

**Status LED**
- Intermittent green: battery regeneration after commissioning as well as after each battery replacement
- Permanent green: battery correctly connected, battery charged
- Off: defective battery charge, battery not connected, battery totally flat, defective emergency lighting unit or in emergency operation

**Packaging units**

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Packaging unit</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pieces</td>
<td>Boxes</td>
</tr>
<tr>
<td>186804</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>186805</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>186806</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>186807</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>186808</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>186809</td>
<td>50</td>
<td>56</td>
</tr>
</tbody>
</table>

**Dimensions**
- Casing: M66
- Length: 150 mm
- Width: 30.2 mm
- Height: 22.1 mm

**Used standards**
- EN 60598-2-22
- EN 61347-2-7
- EN 62384

**Product guarantee**
- 5 years
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com).
- We will be happy to send you these conditions upon request.

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.
### Electrical characteristics

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M66 – Dimensions (LxWxH): 150x30.2x22.1 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 180.007</td>
<td>186805</td>
<td>3,2 V/4,5 Ah C Compact</td>
<td>2.5–3</td>
<td>250</td>
<td>12–55</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>183204</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>183205</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 180.009</td>
<td>186807</td>
<td>3,2 V/4,5 Ah C Compact</td>
<td>2.5–3</td>
<td>250</td>
<td>20–105</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>183204</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>183205</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 180.011</td>
<td>186809</td>
<td>3,2 V/4,5 Ah C Compact</td>
<td>2.5–3</td>
<td>250</td>
<td>100–220</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>183204</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>183205</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 60.006</td>
<td>186804</td>
<td>3,2 V/3 Ah C Compact</td>
<td>2.5–3</td>
<td>250</td>
<td>12–55</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>183202</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>183203</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 60.008</td>
<td>186806</td>
<td>3,2 V/3 Ah C Compact</td>
<td>2.5–3</td>
<td>250</td>
<td>20–105</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>183202</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>183203</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 60.010</td>
<td>186808</td>
<td>3,2 V/3 Ah C Compact</td>
<td>2.5–3</td>
<td>250</td>
<td>100–220</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>183202</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>183203</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* at 100 lm/W per LED unit

### Product labels

#### SELV

- **Hohe Steinert 8, D-58509 Lüdenscheid**
- **Emergency Unit**
- **EM gear**
- **Battery**
- **Output**
- **Connection**
- **Engraved**

#### LED Lighting Solutions

Vossloh-Schwabe Deutschland GmbH

Hohe Steinert 8, D-58509 Lüdenscheid

Emergency Unit

**EM gear**

**Battery**

**Output**

**Connection**

**Engraved**

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.
**Emergency Smart**

**With self-diagnosis function**

**Product features**
- Designed for installation in LED luminaires for safety lighting for rescue routes and extremely hazardous workplaces.
- For emergency lighting for 1 hrs. or 3 hrs. operating time.
- Suitable for emergency lighting acc. to VDE 0108 or EN 50172.
- With self-diagnosis function acc. to EN 62034.
- Ambient temperature: 5 to 50 °C.

**Electrical features**
- Mains voltage: 220–240 V ± 10%.
- Mains frequency: 50–60 Hz.
- Output voltage: 55 V, 105 V or 220 V.
- Output power in emergency operation: 2.5–3 W.

**Rechargeable batteries**
- Material: Iron phosphate (LiFePO4).
- Choice of the rechargeable battery depends on desired operating time and installation position.
- Charging time of rechargeable batteries: up to 24 hrs. depending on the capacity.

**Safety features**
- For luminaires of protection classes I and IIa.
- Degree of protection: IP20.
- SELV* (186810, 186811, 186812, 186813).
- Surge protection (186810, 186811, 186812, 186813): 3.75 kV.

**Status LED**
- Intermittent green: battery regeneration after commissioning as well as after each battery replacement.
- Permanent green: battery correctly connected, battery charged or self-test operation.
- Flashing red: defective battery charge, battery not connected or battery capacity too low.
- Flashing intermittent red: defective or unconnected LED luminaire unit.
- Off: battery totally flat, defective emergency lighting unit or in emergency operation.

**Packaging units**

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Packaging unit</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pieces per box</td>
<td>Boxes per pallet</td>
</tr>
<tr>
<td>186810</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>186811</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>186812</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>186813</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>186814</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>186815</td>
<td>50</td>
<td>56</td>
</tr>
</tbody>
</table>

**Dimensions**
- Casing: K67.
- Length: 177 mm.
- Width: 30 mm.
- Height: 21.5 mm.

**Used standards**
- EN 60598-2-22.
- EN 61347-2-7.
- EN 62034.
- EN 62384.

**Product guarantee**
- 5 years.
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com).
- We will be happy to send you these conditions upon request.

**The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.**
The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

Electrical characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Ref. No. EM gear</th>
<th>Ref. No. Battery</th>
<th>Battery Type</th>
<th>Battery Voltage (V/Ah)</th>
<th>Output power in emergency operation (W)</th>
<th>Nominal emergency operation period (h)</th>
<th>Output voltage (V)</th>
<th>V max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>K67 – Dimensions (LxWxH): 177x30x21.5 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 180.013</td>
<td>186811</td>
<td>183204</td>
<td>3,2 V/4,5 Ah C Compact 3</td>
<td>2.5–3</td>
<td>250</td>
<td>12–55</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>183205</td>
<td>3,2 V/4,5 Ah L Linear 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 180.015</td>
<td>186813</td>
<td>183204</td>
<td>3,2 V/4,5 Ah C Compact 3</td>
<td>2.5–3</td>
<td>250</td>
<td>20–105</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td></td>
<td>183205</td>
<td>3,2 V/4,5 Ah L Linear 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 180.016</td>
<td>186815</td>
<td>183204</td>
<td>3,2 V/4,5 Ah C Compact 3</td>
<td>2.5–3</td>
<td>250</td>
<td>100–220</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td></td>
<td>183205</td>
<td>3,2 V/4,5 Ah L Linear 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 60.012</td>
<td>186810</td>
<td>183202</td>
<td>3,2 V/3 Ah C Compact 1</td>
<td>2.5–3</td>
<td>250</td>
<td>12–55</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>183203</td>
<td>3,2 V/3 Ah L Linear 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 60.014</td>
<td>186812</td>
<td>183202</td>
<td>3,2 V/3 Ah C Compact 1</td>
<td>2.5–3</td>
<td>250</td>
<td>20–105</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td></td>
<td>183203</td>
<td>3,2 V/3 Ah L Linear 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCc 60.016</td>
<td>186814</td>
<td>183202</td>
<td>3,2 V/3 Ah C Compact 1</td>
<td>2.5–3</td>
<td>250</td>
<td>100–220</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td></td>
<td>183203</td>
<td>3,2 V/3 Ah L Linear 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* at 100 lm/W per LED unit

Product labels
Linear Batteries for Emergency Basic and Smart

LifePO4 rechargeable batteries
Charging time of rechargeable batteries: up to 24 hrs. depending on the capacity
With connection leads (length: 250 mm) and plug;
max. lead length: 750 mm
Choice of the rechargeable battery depends on desired operating time and installation position.

<table>
<thead>
<tr>
<th>Type</th>
<th>Ref. No.</th>
<th>Dimensions</th>
<th>Nominal Weight</th>
<th>Packaging unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Ø x length</td>
<td>g per box</td>
<td>Boxes per pallet</td>
</tr>
<tr>
<td>Linear rechargeable batteries</td>
<td>3,2 V/4,5 Ah L</td>
<td>183205</td>
<td>19 x 196</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3,2 V/3 Ah L</td>
<td>183203</td>
<td>19 x 131</td>
<td>1</td>
</tr>
</tbody>
</table>

Storage time rechargeable batteries: max. 1 year; storage temperature: 0–50 °C

Product guarantee
- 3 years in combination with Emergency Smart
- 1 year in combination with Emergency Basic
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com).
We will be happy to send you these conditions upon request.

Compact Batteries for Emergency Basic and Smart

LifePO4 rechargeable batteries
Charging time of rechargeable batteries: up to 24 hrs. depending on the capacity
With connection leads (length: 250 mm) and plug;
max. lead length: 750 mm
Choice of the rechargeable battery depends on desired operating time and installation position.

<table>
<thead>
<tr>
<th>Type</th>
<th>Ref. No.</th>
<th>Dimensions</th>
<th>Nominal Weight</th>
<th>Packaging unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Length x Width x Height</td>
<td>g per box</td>
<td>Boxes per pallet</td>
</tr>
<tr>
<td>Compact rechargeable batteries</td>
<td>3,2 V/4,5 Ah C</td>
<td>183204</td>
<td>55 x 19 x 65</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3,2 V/3 Ah C</td>
<td>183202</td>
<td>36 x 18 x 65</td>
<td>1</td>
</tr>
</tbody>
</table>

Storage time rechargeable batteries: max. 1 year; storage temperature: 0–50 °C

Product guarantee
- 3 years in combination with Emergency Smart
- 1 year in combination with Emergency Basic
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com).
We will be happy to send you these conditions upon request.

Holders for linear rechargeable batteries for emergency LED lighting modules
Sold separately
Two holders per battery required.
Material: PBT
For linear batteries 183203, 183205
Weight: 4 g, packaging unit: 175 pcs.
Type: Batteryholder LiFePO4
Ref. No.: 183206

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.
Emergency Complete

With self-diagnosis function and integrated battery

Product features
- Designed for independent operation of LED luminaires for safety lighting for rescue routes and extremely hazardous workplaces
- For emergency lighting for 1 hr. or 3 hrs. operating time
- Suitable for emergency lighting acc. to VDE 0108 or EN 50172
- With self-diagnosis function acc. to EN 62034
- Ambient temperature: 5 to 50 °C
- Iron phosphate (LiFePO4) rechargeable battery is built-in into the casing
- Charging time of rechargeable battery: up to 24 hrs. depending on the capacity

Electrical features
- Mains voltage: 220–240 V ± 10%
- Mains frequency: 50–60 Hz
- Output voltage: 55 V
- Output power in emergency operation: 2.5–3 W

Safety features
- For luminaires of protection classes I and II
- Degree of protection: IP20
- SELV
- Surge protection: 3.75 kV
- Earthing: complete emergency module does not have to be earthed. The emergency lighting module features three earth terminals for an LED driver and LED unit, if required.

Status LED
- Intermittent green: battery regeneration after commissioning as well as after each battery replacement
- Permanent green: battery correctly connected, battery charged or self-test operation
- Flashing red: defective battery charge, battery not connected or battery capacity too low
- Flashing intermittent red: defective or unconnected LED luminaire unit
- Off: battery totally flat, defective emergency lighting unit or in emergency operation

Packaging units

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Packaging unit per box</th>
<th>Packaging unit per pallet</th>
<th>Weight g</th>
</tr>
</thead>
<tbody>
<tr>
<td>186816</td>
<td>20</td>
<td>24</td>
<td>348</td>
</tr>
<tr>
<td>186817</td>
<td>20</td>
<td>24</td>
<td>389</td>
</tr>
</tbody>
</table>

Dimensions
- Casing: K68
- Length: 290.1 mm
- Width: 80.8 mm
- Height: 41 mm

Used standards
- EN 60598-2-22
- EN 61347-2-7
- EN 62034
- EN 62384

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

Vossloh-Schwabe Deutschland GmbH · Hohe Steinert 8 · 58509 Lüdenscheid · Germany · Phone +49 23 51/10 10 · Fax +49 23 51/10 12 17 · www.vossloh-schwabe.com
### Electrical characteristics

<table>
<thead>
<tr>
<th>Type</th>
<th>Ref. No.</th>
<th>Battery</th>
<th>Nominal emergency operation period (hrs)</th>
<th>Output power in emergency operation (W)</th>
<th>Min. lumen in emergency operation (lm)</th>
<th>Output voltage (V)</th>
<th>V max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>K68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMcc 180.019</td>
<td>186817</td>
<td>3.2 V/4.5 Ah C</td>
<td>Compact</td>
<td>3</td>
<td>2.5–3</td>
<td>250</td>
<td>12–55</td>
</tr>
<tr>
<td>EMcc 60.018</td>
<td>186816</td>
<td>3.2V/3 Ah C</td>
<td>Compact</td>
<td>1</td>
<td>2.5–3</td>
<td>250</td>
<td>12–55</td>
</tr>
</tbody>
</table>

* at 100 lm/W per LED unit

### Product labels

- **SELV**
  - $t_c = 65^\circ C$
  - $t_a = 2...+50^\circ C$

![Diagram of K68](image1)

- **SELV**
  - $t_c = 65^\circ C$
  - $t_a = 2...+50^\circ C$

![Diagram of K68](image2)

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.
Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. Installation must be carried out in a voltage-free state (i.e. disconnection from the mains). The following advices must be observed; non-observance can result in the destruction of the LED emergency lighting devices, fire and/or other hazards.

Mandatory regulations
• DIN VDE 0100
• EN 60598-1

Emergency Basic

Mechanical mounting
• Mounting position: On an earthed metal surface
  Installation in an LED luminaire of protection class I. Installation in a separate casing of protection class I or II.
• Fastening/Earthing: Fix and/or earth using two suitable metal screws
• Installation of the battery and LED driver for constant switching: Installation is possible within the same casing as the emergency lighting unit.
• Ambient temperature of the battery: max. 50 °C
• Length of the status LED lead: 400 mm

Electrical installation
• Connection terminals: Push-in terminals for leads of 0.5–1.5 mm²
• Stripped length: 8.5–10 mm
• Battery connection: Push-in connection with cables (length: 250 mm) (red = + / black = –), max. extension to 750 mm
• Battery discharge current: The deep discharge protection of all lithium ion batteries is lower than 10 µA. This makes deliveries with connected battery possible, as long as no logistics restrictions apply.
• Polarity: Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
• Secondary load (LED): The sum of forward voltages of LED loads has to be within the tolerances which are mentioned in the table “Electrical Characteristics” in this data sheet.

Wiring:
During mains-powered operation, the current that flows into the LED luminaire is regulated by the LED driver.
During emergency lighting operation, the LED unit will be supplied by the battery. The current that is supplied by the battery during emergency lighting operation is converted into “LED current” by the Basic emergency lighting unit.
Emergency Smart

**Mechanical mounting**
- **Mounting position:** In an LED luminaire or in a separate casing
- **Fastening:** Using two suitable screws
- **Installation of the battery and LED driver for constant switching:** Installation is possible within the same casing as the emergency lighting unit.
- **Ambient temperature of the battery:** max. 50 °C
- **Length of the status LED lead:** 400 mm

**Electrical installation**
- **Connection terminals:** Push-in terminals for leads of 0.5-1.5 mm²
- **Stripped length:** 8.5–10 mm
- **Battery connection:** Push-in connection with cables (length: 250 mm) (red = + / black = –), max. extension to 750 mm
- **Battery discharge current:** The deep discharge protection of all lithium ion batteries is lower than 10 µA. This makes deliveries with connected battery possible, as long as no logistics restrictions apply.
- **Polarity:** Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- **Secondary load (LED):** The sum of forward voltages of LED loads has to be within the tolerances which are mentioned in the table "Electrical Characteristics" in this data sheet.
- **Wiring:** During mains-powered operation, the current that flows into the LED luminaire is regulated by the LED driver. During emergency lighting operation, the LED unit will be supplied by the battery. The current that is supplied by the battery during emergency lighting operation is converted into "LED current" by the Smart emergency lighting unit.

**Self-testing function**
- **Self-test:** Self-testing function in acc. with EN 62034 included. Every 8 days (random period between 8 and 8.25 days) an automatic self-test will be carried out. During this time, the LED unit will be supplied by the battery for 2 minutes via the emergency smart emergency lighting module. This ensures the LED unit and the correct functioning of the emergency lighting can be checked.
- **Fatigue test:** In addition, a quarterly fatigue test is carried out to check battery capacity. The first fatigue test is carried out 8 days after commissioning.
- **Battery recovery:** Within the space of about four days following commissioning and/or after a change of battery, three short charging and discharging cycles will be automatically carried out to regenerate the battery.
Emergency Complete

**Mechanical mounting – Emergency Complete**

- **Mounting position:** Outside of an LED luminaire, suitable for independent operation
- **Fastening:** Using two suitable screws
- **Ambient temperature of the battery:** max. 50 °C
- **Length of the status LED lead:** 400 mm

**Electrical installation**

- **Connection terminals:** Push-in terminals for leads of 0.5-1.5 mm²
- **Stripped length:** 8.5–10 mm
- **Battery connection:** Push-in connection with cables, (length: 250 mm) (red = + / black = –), max. extension to 750 mm
- **Battery discharge current:** The deep discharge protection of all lithium ion batteries is lower than 10 µA. This makes deliveries with connected battery possible, as long as no logistics restrictions apply.
- **Polarity:** Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- **Secondary load (LED):** The sum of forward voltages of LED loads has to be within the tolerances which are mentioned in the table “Electrical Characteristics” in this data sheet.
- **Wiring:** The Emergency Complete casing is fitted with a lid for a cord grip. As shown in the circuit diagram, the following three leads must be connected to the mains terminal of the Emergency Complete unit:
  - mains cable (switched phase, direct phase, neutral and earth, if required for the driver and/or the LED unit)
  - LED driver cable (switched phase, neutral and earth, if required)
  - bus line (DALI)

**Self-testing function**

- **Self-test:** Self-testing function in acc. with EN 62034 included. Every 8 days (random period between 8 and 8.25 days) an automatic self-test will be carried out. During this time, the LED unit will be supplied by the battery for 2 minutes via the emergency smart emergency lighting module. This ensures the LED unit and the correct functioning of the emergency lighting can be checked.

- **Fatigue test:** In addition, a quarterly fatigue test is carried out to check battery capacity. The first fatigue test is carried out 8 days after commissioning.

- **Battery recovery:** Within the space of about four days following commissioning and/or after a change of battery, three short charging and discharging cycles will be automatically carried out to regenerate the battery.