

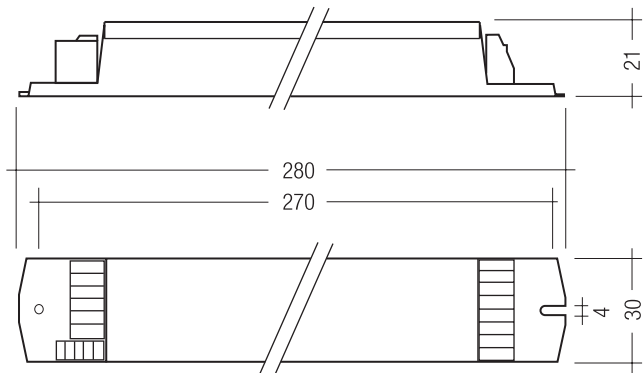
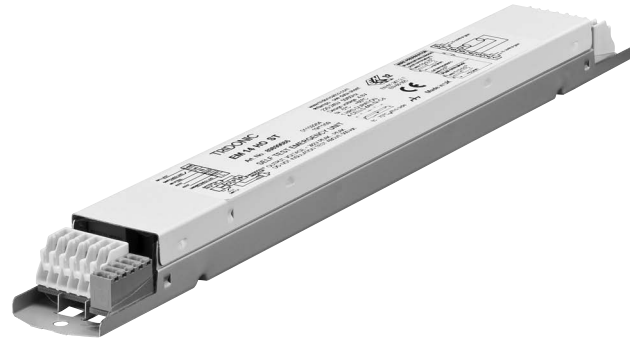
### EM SELFTEST, 220 – 240 V SELFTEST version

#### Product description

- Emergency lighting supply unit with self-test function
- For linear and compact fluorescent lamps
- Low-profile casing (21 x 30 mm cross-section)

#### Properties

- Self-test as per IEC 62034
- 1 or 3 h rated duration
- Compatible with all electronic ballasts (dimmable and non-dimmable)
- 5-pole technology: 4-pole lamp changeover and delayed power switching for the ballast
- High-frequency ac operation of the lamp
- Power control technology ensures maximum emergency ballast lumen factors for all lamps on a given module
- Hot restart in emergency mode
- Gentle on the lamp thanks to permanent cathode heating in emergency mode
- 5.5 min. boost start for rapid heating of the lamp, more light in the startup phase and optimum lamp life
- Standard and high ballast lumen factor for 1-hour types
- Electronic multi-level charge system
- Deep discharge protection
- Short-circuit-proof battery connection
- Polarity reversal protection for battery
- „Rest mode“ function
- Simple set-up
- Automatic function and service life test at a risk-free time
- Two-colour status display LED
- Self-test:
  - Status of the battery
  - Status of the lamp
  - Charge condition
  - Function test
  - Service life test



#### Technical data

|  |                            |
|--|----------------------------|
| Rated supply voltage                                 | 220 – 240 V                |
| Mains frequency                                      | 50 / 60 Hz                 |
| Mains current  | 60 mA                      |
| Rated power  | < 10 W                     |
| Overvoltage protection                               | 320 V (for 1 h)            |
| Maximum operating voltage (U-OUT of the ECG)         | 460 V                      |
| Battery charging time 3 / 1 h                        | 15 / 10 h                  |
| Discharge current, Standard BLF / High Output BLF    | 1.1 / 2.2 A                |
| Leakage current (PE)                                 | 0.5 mA                     |
| Ambient temperature $t_a$                            | -5 ... +60 °C              |
| Max. casing temperature $t_c$                        | 70 °C                      |
| Mains voltage changeover threshold                   | according to EN 60598-2-22 |
| Min. lamp starting temperature (emergency operation) | -5 °C                      |
| Type of protection                                   | IP20                       |
| Protection class                                     | I                          |
| Rest mode: Max. units                                | 100                        |
| Max. cable length                                    | 1,000 m                    |

#### Ordering data

| Number of cells                               | Type     | Article number |
|---|----------|----------------|
| <b>Rated operating time 3 h, Standard BLF</b> |          |                |
| 4   | EM 34 ST | 89899680       |
| 5   | EM 35 ST | 89899681       |
| 6   | EM 36 ST | 89899682       |
| <b>Rated operating time 1 h, Standard BLF</b> |          |                |
| 4   | EM 14 ST | 89899683       |
| 5   | EM 15 ST | 89899684       |
| 6   | EM 16 ST | 89899685       |

Packaging: 25 pieces/carton, 475 pieces/pallet



Standards, page 6

For wiring diagrams and installation examples, page 8

#### Ordering data

| Number of cells                                  | Type        | Article number |
|--|-------------|----------------|
| <b>Rated operating time 1 h, High Output BLF</b> |             |                |
| 4  | EM 14 HO ST | 89899686       |
| 5  | EM 15 HO ST | 89899687       |
| 6  | EM 16 HO ST | 89899688       |

Packaging: 25 pieces/carton, 475 pieces/pallet

#### Specific technical data

| Type   | Battery charge time | Charge current |             |                |
|--|---------------------|----------------|-------------|----------------|
|  |                     | Initial charge | Fast charge | Trickle charge |
| <b>Rated operating time 3 h, Standard BLF</b>    |                     |                |             |                |
| EM 34 ST   | 15 h                | 330 mA         | 330 mA      | 130 mA         |
| EM 35 ST   | 15 h                | 330 mA         | 330 mA      | 130 mA         |
| EM 36 ST   | 15 h                | 330 mA         | 330 mA      | 130 mA         |
| <b>Rated operating time 1 h, Standard BLF</b>    |                     |                |             |                |
| EM 14 ST   | 10 h                | 130 mA         | 210 mA      | 50 mA          |
| EM 15 ST   | 10 h                | 130 mA         | 210 mA      | 50 mA          |
| EM 16 ST   | 10 h                | 130 mA         | 210 mA      | 50 mA          |
| <b>Rated operating time 1 h, High Output BLF</b> |                     |                |             |                |
| EM 14 HO ST                                      | 15 h                | 330 mA         | 330 mA      | 130 mA         |
| EM 15 HO ST                                      | 15 h                | 330 mA         | 330 mA      | 130 mA         |
| EM 16 HO ST                                      | 15 h                | 330 mA         | 330 mA      | 130 mA         |

ACCES-  
SORIES

#### Test switch EM2

#### Product description

- For connection to the emergency lighting unit
- For checking the device function



#### Ordering data

| Type             | Article number |
|------------------|----------------|
| Test switch EM 2 | 89805277       |

Packaging: 25 pieces/bag, 200 pieces/carton

**Product description**

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



**Ordering data**

| Type                              | Article number |
|-----------------------------------|----------------|
| LED EM bi-colour                  | 89899720       |
| LED EM bi-colour, high brightness | 89899753       |

Packaging: 25 pieces/bag, 200 pieces/carton

## Ballast lumen factor (BLF) in %

EM SELFTEST for linear lamps, 3 or 1 h

|             | Duration | 3 h  |          |          | Standard 1 h |          |             | High Output 1 h |             |         |
|-------------|----------|--|----------|----------|--------------|----------|-------------|-----------------|-------------|---------|
|             |          | 4 cells  | 5 cells  | 6 cells  | 4 cells      | 5 cells  | 6 cells     | 4 cells         | 5 cells     | 6 cells |
| Type        | EM 34 ST | EM 35 ST   | EM 36 ST | EM 14 ST | EM 15 ST     | EM 16 ST | EM 14 HO ST | EM 15 HO ST     | EM 16 HO ST |         |
| Article no. | 89899680 | 89899681   | 89899682 | 89899683 | 89899684     | 89899685 | 89899686    | 89899687        | 89899688    |         |
| Lamp type   | Wattage  | BLF in emergency lighting mode in % for rated operating time |          |          |              |          |             |                 |             |         |
| T5          | 6W       | 39   |          |          | 39           |          |             | 70              |             |         |
|             | 8W       | 40   |          |          | 40           |          |             | 68              |             |         |
|             | 13W      | 24   |          |          | 24           |          |             | 55              |             |         |
| T5 FH       | 14W      | 24   |          |          | 24           |          |             | 47              |             |         |
|             | 21W      |  | 18       |          |              | 18       |             |                 | 43          |         |
|             | 28W      |  |          | 15       |              |          | 15          |                 |             | 39      |
|             | 35W      |  |          | 11       |              |          | 11          |                 |             | 30      |
| T5 FQ       | 24W      | 13.5   |          |          | 13.5         |          |             | 29              |             |         |
|             | 39W      |  |          | 8.2      |              |          | 8.2         |                 |             | 30      |
|             | 49W      |  |          | 6.7      |              |          | 6.7         |                 |             | 20      |
|             | 54W      |  |          | 5.3      |              |          | 5.3         |                 |             | 23      |
|             | 80W      |  |          | 4.6      |              |          | 4.6         |                 |             | 14      |
| T8          | 15W      | 18   |          |          | 18           |          |             | 36              |             |         |
|             | 18W      | 18   |          |          | 18           |          |             | 36              |             |         |
|             | 30W      | 11   |          |          | 11           |          |             | 24              |             |         |
|             | 36W      | 9.5  |          |          | 9.5          |          |             | 20              |             |         |
|             | 38W      |  | 12       |          |              | 12       |             |                 |             |         |
|             | 58W      |  | 7.5      |          |              | 7.5      |             |                 | 17          |         |
|             | 70W      |  |          | 4.5      |              |          | 4.5         |                 |             |         |

| Technology and capacity | Design        | Number of cells | Type                | Article number | Assignable batteries |   |   |   |   |   |   |
|-------------------------|---------------|-----------------|---------------------|----------------|----------------------|---|---|---|---|---|---|
| NiCd 1.6Ah<br>Cs-cells  | Stick         | 4               | Accu-NiCd C 4A      | 89899692       |                      |   |   | • |   |   |   |
|                         | Side by side  | 4               | Accu-NiCd C 4B      | 89899693       |                      |   |   | • |   |   |   |
|                         | Stick + Stick | 2+2             | Accu-NiCd C 4C      | 89899694       |                      |   |   | • |   |   |   |
|                         | Stick         | 5               | Accu-NiCd C 5A      | 89899695       |                      |   |   |   | • |   |   |
|                         | Side by side  | 5               | Accu-NiCd C 5B      | 89899696       |                      |   |   |   | • |   |   |
|                         | Stick + Stick | 3+2             | Accu-NiCd C 5C      | 89899697       |                      |   |   |   | • |   |   |
|                         | Stick         | 6               | Accu-NiCd C 6A      | 89899698       |                      |   |   |   |   | • |   |
| NiCd 4Ah<br>D-cells     | Stick + Stick | 3+3             | Accu-NiCd C 6C      | 89899699       |                      |   |   |   |   | • |   |
|                         | Stick         | 4               | Accu-NiCd 4A 55     | 89800089       | •                    |   |   |   |   |   | • |
|                         | Side by side  | 4               | Accu-NiCd 4B        | 89895977       | •                    |   |   |   |   |   | • |
|                         | Stick + Stick | 2+2             | Accu-NiCd 4C        | 89895978       | •                    |   |   |   |   |   | • |
|                         | Stick         | 5               | Accu-NiCd 5A        | 89895973       |                      | • |   |   |   |   | • |
|                         | Stick + Stick | 3+2             | Accu-NiCd 5C 55     | 89800090       |                      | • |   |   |   |   | • |
| NiMH 2Ah<br>Cs-cells    | Stick + Stick | 3+3             | Accu-NiCd 6C        | 89895963       |                      |   | • |   |   |   | • |
|                         | Stick         | 4               | Accu-NiMH C 4A      | 89899700       |                      |   |   | • |   |   |   |
|                         | Stick         | 5               | Accu-NiMH C 5A      | 89899703       |                      |   |   |   | • |   |   |
|                         | Stick         | 6               | Accu-NiMH C 6A      | 89899706       |                      |   |   |   |   | • |   |
| NiMH 4Ah<br>Cs-cells ①  | Stick + Stick | 3+3             | Accu-NiMH C 6C      | 89899707       |                      |   |   |   | • |   |   |
|                         | Stick         | 4               | Accu-NiMH 4 Ah C 4A | 89899850       | •                    |   |   |   |   | • |   |
|                         | Stick         | 5               | Accu-NiMH 4 Ah C 5A | 89899851       |                      | • |   |   |   |   | • |
|                         | Stick         | 6               | Accu-NiMH 4 Ah C 6A | 89899852       |                      |   | • |   |   |   | • |
|                         | Stick + Stick | 3+3             | Accu-NiMH 4 Ah C 6C | 89899853       |                      |   | • |   |   |   | • |

Note: 50°C batteries also available (see separate datasheet at [www.tridonic.com](http://www.tridonic.com))

① Maximum battery housing temperature 50 °C.

Ballast lumen factor (BLF) in %

EM SELFTEST for compact lamps, 3 or 1 h

|             | Duration | 3 h  |            |          | Standard 1 h |            |          | High Output 1 h |             |             |
|-------------|----------|--|------------|----------|--------------|------------|----------|-----------------|-------------|-------------|
|             |          | 4 cells  | 5 cells    | 6 cells  | 4 cells      | 5 cells    | 6 cells  | 4 cells         | 5 cells     | 6 cells     |
| Type        |          | EM 34 ST   | EM 35 ST   | EM 36 ST | EM 14 ST     | EM 15 ST   | EM 16 ST | EM 14 HO ST     | EM 15 HO ST | EM 16 HO ST |
| Article no. |          | 89899680   | 89899681   | 89899682 | 89899683     | 89899684   | 89899685 | 89899686        | 89899687    | 89899688    |
| Lamp type   | Wattage  | BLF in emergency lighting mode in % for rated operating time |            |          |              |            |          |                 |             |             |
| TC-DD       | 10W      | 33   |            |          | 33           |            |          |                 |             |             |
|             | 16W      | 24   |            |          | 24           |            |          |                 |             |             |
|             | 21W      | 17   |            |          | 17           |            |          |                 |             |             |
|             | 28W      | 14   |            |          | 14           |            |          |                 |             |             |
|             | 38W      |  |            | 7.5      |              |            | 7.5      |                 |             |             |
|             | 55W      |  |            | 5.2      |              |            | 5.2      |                 |             |             |
| TC-SEL      | 7W       | 24   |            |          | 24           |            |          | 54              |             |             |
|             | 9W       | 28   |            |          | 28           |            |          | 45              |             |             |
|             | 11W      | 31   |            |          | 31           |            |          | 57              |             |             |
| TC-DEL      | 10W      | 30   |            |          | 30           |            |          | 44              |             |             |
|             | 13W      | 26   |            |          | 26           |            |          | 46              |             |             |
|             | 18W      | 17   |            |          | 17           |            |          | 36              |             |             |
|             | 26W      | 14.4   |            |          | 14.4         |            |          | 28              |             |             |
| TC-TEL ②    | 13W      | 26   |            |          | 26           |            |          |                 |             |             |
|             | 18W      | 17.5/16.0  | /20.5 (GE) |          | 17.5/16.0    | /20.5 (GE) |          | 32/30           |             |             |
|             | 26W      | 11.5/10.4  | /15        | /14.0    | 11.5/10.4    | /15        | /14.0    | 23/26           |             |             |
|             | 32W      |  | 14/5.6     | /8.0     |              | 14/5.6     | /8.0     |                 | 21/21       |             |
|             | 42W      |  |            | 7.4/7.3  |              |            | 7.4/7.3  |                 | 18/19       |             |
|             | 57W      |  |            | 5.1/5.2  |              |            | 5.1/5.2  |                 |             | 17.5/16.5   |
| T5c         | 22W      | 13.5   |            |          | 13.5         |            |          | 28              |             |             |
|             | 40W      |  |            | 6.5      |              |            | 6.5      |                 |             | 26          |
|             | 55W      |  |            | 5.4      |              |            | 5.4      |                 |             | 21          |
| TC-F        | 18W      | 18   |            |          | 18           |            |          | 33              |             |             |
|             | 24W      |  | 21         |          |              | 21         |          |                 | 34          |             |
|             | 36W      |  | 13         |          |              | 13         |          |                 | 25          |             |
| TC-L        | 18W      | 18   |            |          | 18           |            |          | 30              |             |             |
|             | 24W      |  | 17         |          |              | 17         |          |                 | 34          |             |
|             | 36W      |  | 12         |          |              | 12         |          |                 | 24          |             |
|             | 40W      |  | 8.8        |          |              | 8.8        |          |                 | 23          |             |
|             | 55W      |  |            | 4.5      |              |            | 4.5      |                 |             | 19          |

| Technology and capacity | Design        | Number of cells | Type                | Article number | Assignable batteries |   |   |  |   |   |   |   |
|-------------------------|---------------|-----------------|---------------------|----------------|----------------------|---|---|--|---|---|---|---|
|                         |               |                 |                     |                |                      |   |   |  |   |   |   |   |
| NiCd 1.6Ah<br>Cs-cells  | Stick         | 4               | Accu-NiCd C 4A      | 89899692       |                      |   |   |  | • |   |   |   |
|                         | Side by side  | 4               | Accu-NiCd C 4B      | 89899693       |                      |   |   |  | • |   |   |   |
|                         | Stick + Stick | 2+2             | Accu-NiCd C 4C      | 89899694       |                      |   |   |  | • |   |   |   |
|                         | Stick         | 5               | Accu-NiCd C 5A      | 89899695       |                      |   |   |  | • |   |   |   |
|                         | Side by side  | 5               | Accu-NiCd C 5B      | 89899696       |                      |   |   |  | • |   |   |   |
|                         | Stick + Stick | 3+2             | Accu-NiCd C 5C      | 89899697       |                      |   |   |  | • |   |   |   |
|                         | Stick         | 6               | Accu-NiCd C 6A      | 89899698       |                      |   |   |  |   | • |   |   |
|                         | Stick + Stick | 3+3             | Accu-NiCd C 6C      | 89899699       |                      |   |   |  |   | • |   |   |
| NiCd 4Ah<br>D-cells     | Stick         | 4               | Accu-NiCd 4A 55     | 89800089       | •                    |   |   |  |   |   | • |   |
|                         | Side by side  | 4               | Accu-NiCd 4B        | 89895977       | •                    |   |   |  |   |   | • |   |
|                         | Stick + Stick | 2+2             | Accu-NiCd 4C        | 89895978       | •                    |   |   |  |   |   | • |   |
|                         | Stick         | 5               | Accu-NiCd 5A        | 89895973       |                      | • |   |  |   |   |   | • |
|                         | Stick + Stick | 3+2             | Accu-NiCd 5C 55     | 89800090       |                      | • |   |  |   |   |   | • |
|                         | Stick + Stick | 3+3             | Accu-NiCd 6C        | 89895963       |                      |   | • |  |   |   |   | • |
| NiMH 2Ah<br>Cs-cells    | Stick         | 4               | Accu-NiMH C 4A      | 89899700       |                      |   |   |  | • |   |   |   |
|                         | Stick         | 5               | Accu-NiMH C 5A      | 89899703       |                      |   |   |  | • |   |   |   |
|                         | Stick         | 6               | Accu-NiMH C 6A      | 89899706       |                      |   |   |  |   | • |   |   |
|                         | Stick + Stick | 3+3             | Accu-NiMH C 6C      | 89899707       |                      |   |   |  |   | • |   |   |
| NiMH 4Ah<br>Cs-cells ①  | Stick         | 4               | Accu-NiMH 4 Ah C 4A | 89899850       | •                    |   |   |  |   |   | • |   |
|                         | Stick         | 5               | Accu-NiMH 4 Ah C 5A | 89899851       |                      | • |   |  |   |   |   | • |
|                         | Stick         | 6               | Accu-NiMH 4 Ah C 6A | 89899852       |                      |   | • |  |   |   |   | • |
|                         | Stick + Stick | 3+3             | Accu-NiMH 4 Ah C 6C | 89899853       |                      |   | • |  |   |   |   | • |

Note: 50°C batteries also available (see separate datasheet at www.tridonic.com)

① Maximum battery housing temperature 50 °C.

② The first figure is related to non-amalgam lamps, the second figure is related to amalgam lamps (e.g. 14/9,5).

Data sheet 12/11-954-0

Subject to change without notice.

## Emergency Ballast Lumen Factor (EBLF) in % ①

## EM SELFTTEST for compact lamps, 3 or 1 h

|             | Duration | 3 h   |          |          | Standard 1 h |          |             | High Output 1 h |             |         |
|-------------|----------|---|----------|----------|--------------|----------|-------------|-----------------|-------------|---------|
|             | Cells    | 4 cells   | 5 cells  | 6 cells  | 4 cells      | 5 cells  | 6 cells     | 4 cells         | 5 cells     | 6 cells |
| Type        | EM 34 ST | EM 35 ST  | EM 36 ST | EM 14 ST | EM 15 ST     | EM 16 ST | EM 14 HO ST | EM 15 HO ST     | EM 16 HO ST |         |
| Article no. | 89899680 | 89899681  | 89899682 | 89899683 | 89899684     | 89899685 | 89899686    | 89899687        | 89899688    |         |
| Lamp type   | Wattage  | EBLF in emergency lighting mode in % for rated operating time |          |          |              |          |             |                 |             |         |
| T5          | 6W       | 35  |          |          | 35           |          |             | 61              |             |         |
|             | 8W       | 36  |          |          | 36           |          |             | 62              |             |         |
|             | 13W      | 22  |          |          | 22           |          |             | 48.5            |             |         |
| T5 FH       | 14W      | 22  |          |          | 22           |          |             | 43              |             |         |
|             | 21W      |   | 17       |          |              | 17       |             |                 | 38          |         |
|             | 28W      |   |          | 14       |              |          | 14          |                 |             | 36      |
|             | 35W      |   |          | 10.5     |              |          | 10.5        |                 |             | 27      |
| T5 FQ       | 24W      | 12.3  |          |          | 12.3         |          |             | 26              |             |         |
|             | 39W      |   |          | 8.3      |              |          | 8.3         |                 |             | 28      |
|             | 49W      |   |          | 6.4      |              |          | 6.4         |                 |             | 18      |
|             | 54W      |   |          | 5.7      |              |          | 5.7         |                 |             | 17      |
|             | 80W      |   |          | 4.7      |              |          | 4.7         |                 |             | 13      |
| T8          | 15W      | 16.5  |          |          | 16.5         |          |             | 32              |             |         |
|             | 18W      | 16.5  |          |          | 16.5         |          |             | 32              |             |         |
|             | 30W      | 9.5   |          |          | 9.5          |          |             | 23              |             |         |
|             | 36W      | 8   |          |          | 8            |          |             | 19              |             |         |
|             | 38W      |   | 10.5     |          |              | 10.5     |             |                 |             |         |
|             | 58W      |   | 6.5      |          |              | 6.5      |             |                 | 15.5        |         |
|             | 70W      |   |          | 3.7      |              |          | 3.7         |                 |             |         |
| TC-DD       | 10W      | 29  |          |          | 29           |          |             |                 |             |         |
|             | 16W      | 22.5  |          |          | 22.5         |          |             |                 |             |         |
|             | 21W      | 15  |          |          | 15           |          |             |                 |             |         |
|             | 28W      | 12.5  |          |          | 12.5         |          |             |                 |             |         |
|             | 38W      |   |          | 6.5      |              |          | 6.5         |                 |             |         |
| TC-SEL      | 7W       | 22  |          |          | 22           |          |             | 44              |             |         |
|             | 9W       | 25.5  |          |          | 25.5         |          |             | 42              |             |         |
|             | 11W      | 28  |          |          | 28           |          |             | 54              |             |         |
| TC-DEL      | 10W      | 21.5  |          |          | 21.5         |          |             | 29              |             |         |
|             | 13W      | 23.0  |          |          | 23           |          |             | 34              |             |         |
|             | 18W      | 15.5  |          |          | 15.5         |          |             | 30              |             |         |
|             | 26W      | 13.0  |          |          | 13           |          |             | 23.5            |             |         |
| TC-TEL ②    | 13W      | 23  |          |          | 23           |          |             |                 |             |         |
|             | 18W      | 16/10.7   | /12.0    |          | 16/10.7      | /12.0    |             | 26/11           |             |         |
|             | 26W      | 10.4/8.9  | /9.2     | /11.2    | 10.4/8.9     | /9.2     | /11.2       | 21/15           |             |         |
|             | 32W      |   | 12.8/4.8 | /7.7     |              | 12.8/4.8 | /7.7        |                 | 18/11       |         |
|             | 42W      |   |          | 7.2/6.7  |              |          | 7.2/6.7     |                 | 16/9        |         |
|             | 57W      |   |          | 5.0/3.2  |              |          | 5.0/3.2     |                 |             | 16/5.7  |
| T5c         | 22W      | 11.5  |          |          | 11.5         |          |             | 26              |             |         |
|             | 40W      |   |          | 6        |              |          | 6           |                 |             | 23.5    |
|             | 55W      |   |          | 5.5      |              |          | 5.5         |                 |             | 19.5    |
| TC-F        | 18W      | 16.5  |          |          | 16.5         |          |             | 31.5            |             |         |
|             | 24W      |   | 19.5     |          |              | 19.5     |             |                 | 30.5        |         |
|             | 36W      |   | 12       |          |              | 12       |             |                 | 23.5        |         |
| TC-L        | 18W      | 16  |          |          | 16           |          |             | 27.0            |             |         |
|             | 24W      |   | 15.5     |          |              | 15.5     |             |                 | 28.5        |         |
|             | 36W      |   | 10.5     |          |              | 10.5     |             |                 | 22          |         |
|             | 40W      |   | 8.4      |          |              | 8.4      |             |                 | 21          |         |
|             | 55W      |   |          | 4.8      |              |          | 4.8         |                 |             | 17.5    |

① According to EN 61347-2-7: 2006

② The first figure is related to non-amalgam lamps, the second figure is related to amalgam lamps (e.g. 14/9,5).

**Standards**

- according to EN 50172
- according to EN 60598-2-22
- EN 61347-2-7
- EN 60929
- EN 62034
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-64
- EN 60068-2-29
- EN 60068-2-30

**Testing:****Commissioning test**

A full commissioning test is carried out automatically after permanent connection of the supply. The easy commissioning feature will set the initial test day and time to ensure random testing of units.

**Functional test**

Functional tests are carried out for 30 seconds on a weekly basis under the control of the Micro controller. Initiation and timing of these tests is set during the commissioning of the luminaire.

**Duration test**

A full duration test (3 hr. resp. 1 hr.) is carried out yearly to check the capacity of the batteries. For a full description of commissioning and test features please refer to application notes.

**Test switch**

An optional test switch can be wired to the EM SELFTTEST. This can be used to to:

- initiate a 30 seconds function test < 1 second press
- adjust local timing > 10 second press

For a full description of the test switch function refer to application notes.

**Status indication**

System status is indicated by a bi-colour LED.

| LED                  | Status                 |
|----------------------|------------------------|
| Permanent green      | System OK              |
| Fast flashing green  | Function test underway |
| Slow flashing green  | Duration test underway |
| Permanent red        | Lamp fault             |
| Fast flashing red    | Charging fault         |
| Slow flashing red    | Battery fault          |
| Double pulsing green | Rest mode              |

**Accu-NiCd**

|   |                |
|---|----------------|
| case temperature range<br>to ensure 4 years design life | 0 °C to +55 °C |
| battery voltage/cell                                    | 1.2 V          |
| capacity D  | 4.2 / 4.5 Ah   |
| capacity Cs   | 1.6 Ah         |
| max. short term temperature (reduced lifetime)          | 70 °C          |

**Accu-NiMh**

|   |                |
|---|----------------|
| case temperature range<br>(to ensure 4 years design life) | 0 °C to +55 °C |
| 2.0 Ah Cs   | 0 °C to +50 °C |
| 4.0 Ah Cs   | 0 °C to +50 °C |
| battery voltage   | 1.2 V          |
| capacity Cs   | 2.0 Ah         |
|   | 4.0 Ah         |

**Mechanical details**

Channel manufactured from galvanised steel.  
Cover manufactured from white pre-coated steel.

**LED bi-colour status indicator**

- Green / red
- Mounting hole 6.5 mm dia
- Lead length 1000 mm
- Insulation rating: 90 °C

**Test switch**

- Mounting hole 7.0 mm dia
- Lead length 550 mm

**Battery leads**

- Quantity: 1 red and 1 black
- Length: 1300 mm
- Wire type: 0.5 mm<sup>2</sup> solid conductor
- Insulation rating: 90 °C

**Battery end termination**

Push on 4.8 mm receptacle to suit battery spade fitted with insulating cover

**Module end termination**

8.0 mm stripped insulation

Two-piece batteries are supplied with a 200 mm lead with 4.8 mm receptacles at each end and insulating covers to connect the separate sticks together.

**Rest mode**

Rest mode can be initiated by applying a short pulse of between 9.5 V<sub>bc</sub> and 22.5 V<sub>dc</sub> in amplitude for a period of between 200 ms and 1.0 second. This should be applied to terminals marked Rest after the mains supply has been disconnected and whilst the module is in emergency operation. A mains reset is required to exit the rest mode. The Rest mode terminals are not sensitive to polarity.

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

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1,500 V<sub>ac</sub> (or 1,414 x 1,500 V<sub>dc</sub>). To avoid damage to the electronic devices this test must not be conducted.

**Batteries**

Connection method: 4.8 x 0.5 mm spade tag welded to end of cell  
For stick packs this connection is accessible after the battery caps have been fitted.

To inhibit inverter operation disconnect the batteries by removing the connector from the battery spade tag.

For battery data see separate data sheet.

**Service life**

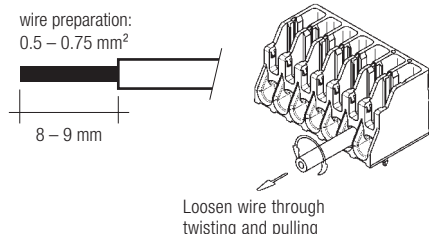
Average service life 50,000 hours under rated conditions with a failure rate of less than 10 %. Average failure rate of 0.2 % per 1000 operating hours.

### Electrical connections

An earthed starting aid is recommended. The module should be earthed by the fixings used to attach it to the luminaire.

### Wiring

#### Lamp/ballast/supply



### Note:

Basic insulation between supply and battery circuit.

### Wiring guidelines

To ensure that a luminaire containing high frequency 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 lamp leads.

This means, for example, in a linear T8 or T5 luminaire the mains wiring should be routed along one side of the luminaire body, while the wires to the emergency lamp from the emergency module are routed along the other side.

The high frequency emergency lamp wiring contains “hot” leads at pins 1 and 6, which have high voltage to earth. These should be kept as short as possible and separated from other wiring to minimize coupling. They also have a restriction on capacitance to other wiring and earth of 100 pF, which must be observed to ensure good lamp starting.

### EM FLT1 filter

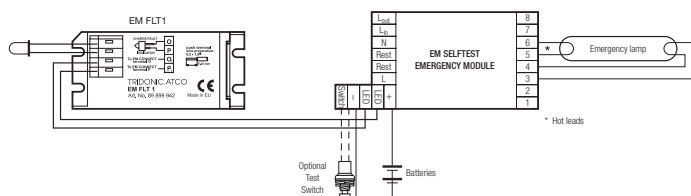
When the EM SELFTEST is used in a remote application, where the lamp leads and LED indicator leads are routed together in close proximity, it is possible to have electrical interference picked up in the indicator leads.

Under certain conditions this interference can cause a lock-up of the EM SELFTEST micro-controller.

To overcome this problem in such applications it is necessary to fit the filter EM FLT1 between the indicator LED and the EM SELFTEST unit. To be effective the filter must be connected close to the EM SELFTEST module.

For further information please contact Tridonic.

### Circuit diagram with EM FLT1 filter



### IDC interface

- solid wire with a cross section of 0.5 mm<sup>2</sup> according to the specification from WAGO
- alternatively a flexible lead with a cross section of 0.75 mm<sup>2</sup>

### Horizontal interface

- solid wire with a cross section of 0.5–0.75 mm<sup>2</sup> according to the specification from WAGO
- solid wire with a cross section of 1.0 mm<sup>2</sup> with an insulation diameter up to 2.5 mm
- strip 9 mm of insulation from the cables
- Loosen wire through twisting and pulling

### Batteries/LED/Test switch

push terminal with button release: 0.5 mm<sup>2</sup>  
6.5 mm strip

### Maximum lamp lead capacitance

terminals 5 and 6 (\* hot leads) 100 pF <sup>1)</sup>  
terminals 3 and 4 200 pF <sup>1)</sup>

<sup>1)</sup> Note: care should be taken not to exceed the total maximum lamp lead capacitance for HF ballast. Leads should always be kept as short as possible.

With an earth connection of the metal case of the emergency module the noise suppression can be further improved. The wiring of the earth should be kept as short as possible.

Through wiring may affect the emc performance of the luminaire.

With the use of the fifth pole possible compatibility problems between the products can be prevented.

Depending on the luminaire wiring the radio suppression in the emergency mode of operation can be further improved.

Capacitive loading limits of lamp leads must not be exceeded. Note the capacitance of the emergency lamp leads adds to the capacitance of the leads from the ballast to the EM SELFTEST module when considering ballast loading.

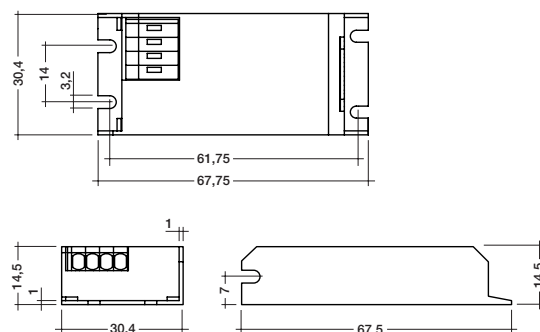
The LED and test switch wiring should be routed separately and kept as far away as possible from the high frequency lamp leads to avoid coupling.

### Technical data:

Push wire terminals 0.5–1.5 mm<sup>2</sup> solid conductor

| Product | article number |
|---------|----------------|
| EM FLT1 | 89899942       |

### EM FLT1 filter

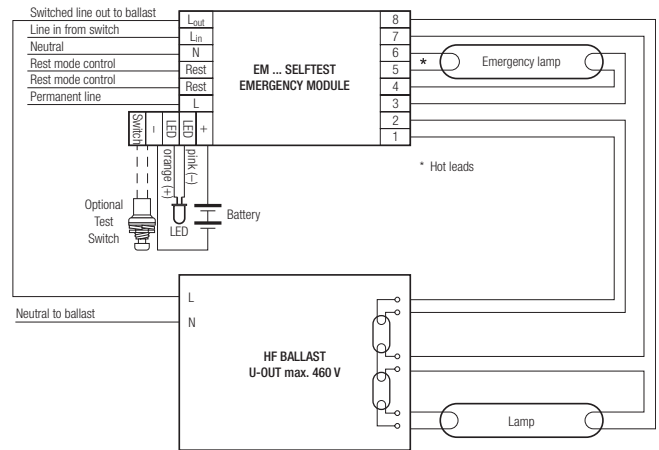


### EM ... SELFTEST emergency module wiring diagrams

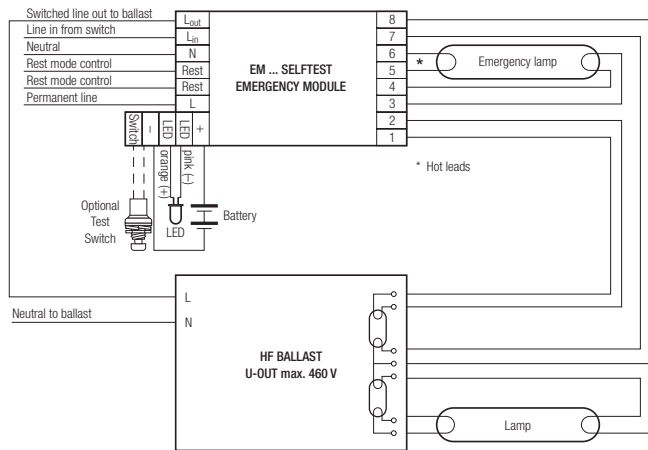
Not for use with magnetic ballasts and switch start circuits



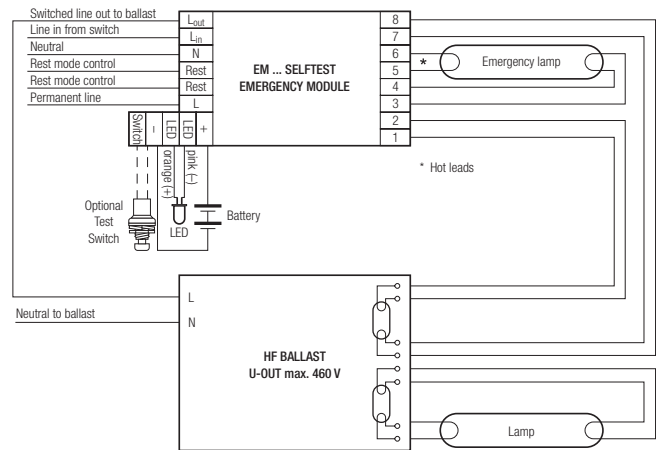
Wiring diagram for single lamp high frequency ballasts



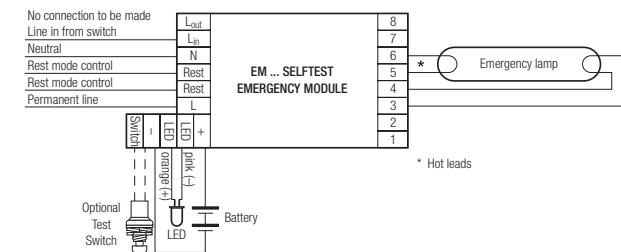
Wiring diagram for twin lamp high frequency ballasts with 6 terminals



Wiring diagram for twin lamp high frequency ballasts with 7 terminals



Wiring diagram for twin lamp high frequency ballasts with 8 terminals



Wiring diagram for non-maintained operation

**Note:** All hot leads normally marked with an \* should be kept as short as possible. For comprehensive wiring diagrams and instructions consult the Tridonic website [www.tridonic.com](http://www.tridonic.com)

### Packing quantities

|                 |                      |                         |
|-----------------|----------------------|-------------------------|
| EM SELFTEST     | 25 pieces per carton | 475 pieces per pallet   |
| LED bi-colour   | 25 pieces per bag    | 200 pieces per box      |
| Test switch EM2 | 25 pieces per bag    | 200 pieces per box      |
| NiCd batteries  | 25 pieces per box    | 450 pieces per pallet   |
| NiMh batteries  | 25 pieces per box    | 450 pieces per pallet   |
| EM FLT1 filter  | 50 pieces per box    | 1.000 pieces per pallet |