

#### PC CFL COMBO, 220 – 240 V 50/60 Hz

Compact fluorescent lamps

#### Product description

- Combination of electronic ballast and emergency lighting unit
- For compact fluorescent lamps
- For manual testing of the emergency lighting function
- 5-year guarantee

#### Properties

- Lightweight one-part emergency lighting unit
- Simple wiring
- No compatibility problems
- 3 h rated duration for TC-DD lamp variants
- 1 and 3 h rated duration for TC-D/T lamp variants
- Selectable operating time (jumper)
- Lamp warm start in normal operation
- Filament heating in emergency operation for TC-D/T lamps
- AC operation of all lamps
- Automatic restart after relamping in normal operation
- Green charge status display LED
- Intelligent Voltage Guard (overvoltage indication and undervoltage shutdown)
- Optional test switch
- Checking the emergency lighting function by interrupting the unswitched phase
- Small dimensions
- IDC (insulation displacement connection)
- Electronically controlled battery charging
- Deep discharge protection
- Short-circuit-proof battery connection
- Polarity reversal protection for battery



#### Batteries

- Separate battery pack
- High-temperature cells
- NiCd or NiMH batteries
- D, Cs or LA cells
- 4-year design life
- 1-year guarantee
- For battery compatibility refer to chapter „Ballast-Lumen-Factor (BLF)“



**Standards**, page 9

**For wiring diagrams and installation examples**, page 13

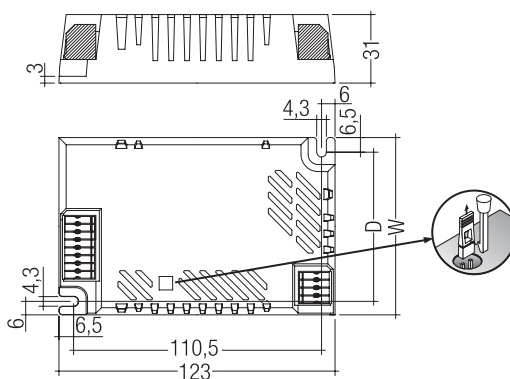


### PC CFL COMBO, 220 – 240 V 50/60 Hz

Compact fluorescent lamps

#### Technical data

|                                                                    |                            |
|--------------------------------------------------------------------|----------------------------|
| Rated supply voltage                                               | 220 – 240 V                |
| Mains frequency                                                    | 50 / 60 Hz                 |
| Mains voltage changeover threshold                                 | according to EN 60598-2-22 |
| Lamp starting time (normal operation)                              | 1.6 s                      |
| tc point max.                                                      | 75 °C                      |
| Ambient temperature ta                                             | 0 ... 55 °C                |
| Operating frequency (normal operation)                             | > 42 kHz                   |
| Operating frequency (emergency mode)                               | typ. 17 kHz                |
| Overvoltage protection                                             | 320 V (for 1 h)            |
| Battery charging time                                              | 24 h                       |
| Battery charging current 4 Ah NiCd / 4 Ah NiMH (3 h application)   | 200 mA                     |
| Battery charging current 1.6 Ah NiCd / 2 Ah NiMH (1 h application) | 100 mA                     |
| Leakage current (PE)                                               | < 0.5 mA                   |
| Min. lamp starting temperature (normal operation)                  | -15 °C                     |
| Min. lamp starting temperature (emergency mode)                    | 0 °C                       |
| Type of protection                                                 | IP20                       |



#### Ordering data

| Type                                             | Article number | Number of cells | Packaging, carton | Packaging, pallet | Weight per pc. |
|--------------------------------------------------|----------------|-----------------|-------------------|-------------------|----------------|
| <b>Rated operating time 3 / 1 h</b>              |                |                 |                   |                   |                |
| PC 1x18-3 TC COMBO                               | 89899990       | 3               | 25 pc(s).         | 700 pc(s).        | 0.159 kg       |
| PC 1x18-4 TC COMBO                               | 89899927       | 4               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 2x18-3 TC COMBO                               | 89899982       | 3               | 25 pc(s).         | 450 pc(s).        | 0.245 kg       |
| PC 2x18-4 TC COMBO                               | 89899928       | 4               | 25 pc(s).         | 450 pc(s).        | 0.208 kg       |
| PC 1x26-3 TC COMBO                               | 89899983       | 3               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 1x26-4 TC COMBO                               | 89899976       | 4               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 1x26/32-5 TC COMBO                            | 89899929       | 5               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 1x26/32/42-6 TC COMBO                         | 89899931       | 6               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 2x26-3 TC COMBO                               | 89899984       | 3               | 25 pc(s).         | 450 pc(s).        | 0.245 kg       |
| PC 2x26-4 TC COMBO                               | 89899930       | 4               | 25 pc(s).         | 450 pc(s).        | 0.245 kg       |
| PC 2x26/32-5 TC COMBO                            | 89899998       | 5               | 25 pc(s).         | 450 pc(s).        | 0.245 kg       |
| PC 2x26/32/42-6 TC COMBO                         | 89899989       | 6               | 25 pc(s).         | 450 pc(s).        | 0.245 kg       |
| <b>Rated operating time 3 h, Low Output BLF</b>  |                |                 |                   |                   |                |
| PC 1x28-33 LO DD COMBO                           | 89899943       | 3               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 1x28-34 LO DD COMBO                           | 89899955       | 4               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 1x38-34 LO DD COMBO                           | 89899981       | 4               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| <b>Rated operating time 3 h, High Output BLF</b> |                |                 |                   |                   |                |
| PC 1x16-33 HO DD COMBO                           | 89899926       | 3               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 1x28-33 HO DD COMBO                           | 89899957       | 3               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 1x28-34 HO DD COMBO                           | 89899958       | 4               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 1x38-34 HO DD COMBO                           | 89899933       | 4               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |
| PC 1x38-35 HO DD COMBO                           | 89899975       | 5               | 25 pc(s).         | 700 pc(s).        | 0.220 kg       |

## Specific technical data

| Lamp type <sup>①</sup>                           | Lamp wattage | Type                     | Article number | Dimensions L x W x H | Hole spacing D | Lamp power | Circuit power | Mains current <sup>②</sup> | $\lambda$ <sup>③</sup> | Normal operation BLF | Emergency operation BLF | Emergency operation EBLF <sup>③</sup> | Rated duration |
|--------------------------------------------------|--------------|--------------------------|----------------|----------------------|----------------|------------|---------------|----------------------------|------------------------|----------------------|-------------------------|---------------------------------------|----------------|
| <b>Rated operating time 3 / 1 h</b>              |              |                          |                |                      |                |            |               |                            |                        |                      |                         |                                       |                |
| TC-DEL                                           | 1 x 18 W     | PC 1x18-3 TC COMBO       | 89899990       | 123 x 79 x 31 mm     | 66.5 mm        | 16.5 W     | 22 W          | 0.100 A                    | 0.96                   | 1.00                 | 0.110                   | 0.090                                 | 3 / 1 h        |
| TC-TEL                                           | 1 x 18 W     | PC 1x18-3 TC COMBO       | 89899990       | 123 x 79 x 31 mm     | 66.5 mm        | 16.5 W     | 22 W          | 0.100 A                    | 0.96                   | 1.00                 | 0.090                   | 0.080                                 | 3 / 1 h        |
| TC-DEL                                           | 1 x 18 W     | PC 1x18-4 TC COMBO       | 89899927       | 123 x 79 x 31 mm     | 66.5 mm        | 16.5 W     | 24 W          | 0.110 A                    | 0.96                   | 1.00                 | 0.190                   | 0.175                                 | 3 / 1 h        |
| TC-TEL                                           | 1 x 18 W     | PC 1x18-4 TC COMBO       | 89899927       | 123 x 79 x 31 mm     | 66.5 mm        | 16.5 W     | 24 W          | 0.110 A                    | 0.96                   | 1.00                 | 0.150                   | 0.150                                 | 3 / 1 h        |
| TC-DEL                                           | 2 x 18 W     | PC 2x18-3 TC COMBO       | 89899982       | 123 x 102 x 31 mm    | 89.5 mm        | 34.0 W     | 40 W          | 0.180 A                    | 0.97                   | 1.00                 | 0.110                   | 0.090                                 | 3 / 1 h        |
| TC-TEL                                           | 2 x 18 W     | PC 2x18-3 TC COMBO       | 89899982       | 123 x 102 x 31 mm    | 89.5 mm        | 34.0 W     | 40 W          | 0.180 A                    | 0.97                   | 1.00                 | 0.090                   | 0.080                                 | 3 / 1 h        |
| TC-DEL                                           | 2 x 18 W     | PC 2x18-4 TC COMBO       | 89899928       | 123 x 102 x 31 mm    | 89.5 mm        | 33.0 W     | 43 W          | 0.190 A                    | 0.97                   | 1.00                 | 0.190                   | 0.175                                 | 3 / 1 h        |
| TC-TEL                                           | 2 x 18 W     | PC 2x18-4 TC COMBO       | 89899928       | 123 x 102 x 31 mm    | 89.5 mm        | 33.0 W     | 43 W          | 0.190 A                    | 0.97                   | 1.00                 | 0.150                   | 0.150                                 | 3 / 1 h        |
| TC-DEL                                           | 1 x 26 W     | PC 1x26-3 TC COMBO       | 89899983       | 123 x 79 x 31 mm     | 66.5 mm        | 24.0 W     | 28 W          | 0.130 A                    | 0.95                   | 1.00                 | 0.095                   | 0.080                                 | 3 / 1 h        |
| TC-TEL                                           | 1 x 26 W     | PC 1x26-3 TC COMBO       | 89899983       | 123 x 79 x 31 mm     | 66.5 mm        | 24.0 W     | 28 W          | 0.130 A                    | 0.95                   | 1.00                 | 0.065                   | 0.055                                 | 3 / 1 h        |
| TC-DEL                                           | 1 x 26 W     | PC 1x26-4 TC COMBO       | 89899976       | 123 x 79 x 31 mm     | 66.5 mm        | 24.0 W     | 30 W          | 0.140 A                    | 0.95                   | 1.00                 | 0.085                   | 0.095                                 | 3 / 1 h        |
| TC-TEL                                           | 1 x 26 W     | PC 1x26-4 TC COMBO       | 89899976       | 123 x 79 x 31 mm     | 66.5 mm        | 24.0 W     | 30 W          | 0.140 A                    | 0.95                   | 1.00                 | 0.085                   | 0.085                                 | 3 / 1 h        |
| TC-DEL                                           | 1 x 26 W     | PC 1x26/32-5 TC COMBO    | 89899929       | 123 x 79 x 31 mm     | 66.5 mm        | 24.0 W     | 30 W          | 0.140 A                    | 0.95                   | 1.00                 | 0.140                   | 0.105                                 | 3 / 1 h        |
| TC-TEL                                           | 1 x 26 W     | PC 1x26/32-5 TC COMBO    | 89899929       | 123 x 79 x 31 mm     | 66.5 mm        | 24.0 W     | 30 W          | 0.140 A                    | 0.95                   | 1.00                 | 0.120                   | 0.075                                 | 3 / 1 h        |
| TC-TEL                                           | 1 x 32 W     | PC 1x26/32-5 TC COMBO    | 89899929       | 123 x 79 x 31 mm     | 66.5 mm        | 32.0 W     | 38 W          | 0.170 A                    | 0.97                   | 1.00                 | 0.070                   | 0.035                                 | 3 / 1 h        |
| TC-DEL                                           | 1 x 26 W     | PC 1x26/32/42-6 TC COMBO | 89899931       | 123 x 79 x 31 mm     | 66.5 mm        | 24.0 W     | 30 W          | 0.140 A                    | 0.95                   | 1.00                 | 0.110                   | 0.095                                 | 3 / 1 h        |
| TC-TEL                                           | 1 x 26 W     | PC 1x26/32/42-6 TC COMBO | 89899931       | 123 x 79 x 31 mm     | 66.5 mm        | 24.0 W     | 30 W          | 0.140 A                    | 0.95                   | 1.00                 | 0.080                   | 0.080                                 | 3 / 1 h        |
| TC-TEL                                           | 1 x 32 W     | PC 1x26/32/42-6 TC COMBO | 89899931       | 123 x 79 x 31 mm     | 66.5 mm        | 32.0 W     | 40 W          | 0.180 A                    | 0.95                   | 1.00                 | 0.090                   | 0.085                                 | 3 / 1 h        |
| TC-TEL                                           | 1 x 42 W     | PC 1x26/32/42-6 TC COMBO | 89899931       | 123 x 79 x 31 mm     | 66.5 mm        | 42.0 W     | 52 W          | 0.230 A                    | 0.95                   | 1.00                 | 0.065                   | 0.060                                 | 3 / 1 h        |
| TC-DEL                                           | 2 x 26 W     | PC 2x26-3 TC COMBO       | 89899984       | 123 x 102 x 31 mm    | 89.5 mm        | 48.0 W     | 52 W          | 0.230 A                    | 0.95                   | 1.00                 | 0.095                   | 0.080                                 | 3 / 1 h        |
| TC-TEL                                           | 2 x 26 W     | PC 2x26-3 TC COMBO       | 89899984       | 123 x 102 x 31 mm    | 89.5 mm        | 48.0 W     | 52 W          | 0.230 A                    | 0.95                   | 1.00                 | 0.065                   | 0.055                                 | 3 / 1 h        |
| TC-DEL                                           | 2 x 26 W     | PC 2x26-4 TC COMBO       | 89899930       | 123 x 102 x 31 mm    | 89.5 mm        | 48.0 W     | 56 W          | 0.250 A                    | 0.95                   | 1.00                 | 0.085                   | 0.095                                 | 3 / 1 h        |
| TC-TEL                                           | 2 x 26 W     | PC 2x26-4 TC COMBO       | 89899930       | 123 x 102 x 31 mm    | 89.5 mm        | 48.0 W     | 56 W          | 0.250 A                    | 0.95                   | 1.00                 | 0.085                   | 0.085                                 | 3 / 1 h        |
| TC-DEL                                           | 2 x 26 W     | PC 2x26/32-5 TC COMBO    | 89899998       | 123 x 102 x 31 mm    | 89.5 mm        | 48.0 W     | 56 W          | 0.260 A                    | 0.97                   | 1.00                 | 0.140                   | 0.105                                 | 3 / 1 h        |
| TC-TEL                                           | 2 x 26 W     | PC 2x26/32-5 TC COMBO    | 89899998       | 123 x 102 x 31 mm    | 89.5 mm        | 50.0 W     | 57 W          | 0.260 A                    | 0.97                   | 1.00                 | 0.120                   | 0.100                                 | 3 / 1 h        |
| TC-TEL                                           | 2 x 32 W     | PC 2x26/32-5 TC COMBO    | 89899998       | 123 x 102 x 31 mm    | 89.5 mm        | 62.0 W     | 71 W          | 0.330 A                    | 0.98                   | 1.00                 | 0.100                   | 0.085                                 | 3 / 1 h        |
| TC-DEL                                           | 2 x 26 W     | PC 2x26/32/42-6 TC COMBO | 89899989       | 123 x 102 x 31 mm    | 89.5 mm        | 49.0 W     | 58 W          | 0.260 A                    | 0.98                   | 1.00                 | 0.110                   | 0.095                                 | 3 / 1 h        |
| TC-TEL                                           | 2 x 26 W     | PC 2x26/32/42-6 TC COMBO | 89899989       | 123 x 102 x 31 mm    | 89.5 mm        | 49.0 W     | 58 W          | 0.260 A                    | 0.98                   | 1.00                 | 0.080                   | 0.080                                 | 3 / 1 h        |
| TC-TEL                                           | 2 x 32 W     | PC 2x26/32/42-6 TC COMBO | 89899989       | 123 x 102 x 31 mm    | 89.5 mm        | 62.0 W     | 75 W          | 0.330 A                    | 0.98                   | 1.00                 | 0.090                   | 0.085                                 | 3 / 1 h        |
| TC-TEL                                           | 2 x 42 W     | PC 2x26/32/42-6 TC COMBO | 89899989       | 123 x 102 x 31 mm    | 89.5 mm        | 82.0 W     | 98 W          | 0.440 A                    | 0.98                   | 1.00                 | 0.065                   | 0.060                                 | 3 / 1 h        |
| <b>Rated operating time 3 h, Low Output BLF</b>  |              |                          |                |                      |                |            |               |                            |                        |                      |                         |                                       |                |
| TC-DD                                            | 1 x 28 W     | PC 1x28-33 LO DD COMBO   | 89899943       | 123 x 79 x 31 mm     | 66.5 mm        | 17.0 W     | 24 W          | 0.110 A                    | 0.96                   | 0.75                 | 0.110                   | 0.100                                 | 3 h            |
| TC-DD                                            | 1 x 28 W     | PC 1x28-34 LO DD COMBO   | 89899955       | 123 x 79 x 31 mm     | 66.5 mm        | 17.0 W     | 24 W          | 0.110 A                    | 0.96                   | 0.75                 | 0.150                   | 0.115                                 | 3 h            |
| TC-DD                                            | 1 x 38 W     | PC 1x38-34 LO DD COMBO   | 89899981       | 123 x 79 x 31 mm     | 66.5 mm        | 26.0 W     | 35 W          | 0.160 A                    | 0.96                   | 0.85                 | 0.060                   | 0.055                                 | 3 h            |
| <b>Rated operating time 3 h, High Output BLF</b> |              |                          |                |                      |                |            |               |                            |                        |                      |                         |                                       |                |
| TC-DD                                            | 1 x 16 W     | PC 1x16-33 HO DD COMBO   | 89899926       | 123 x 79 x 31 mm     | 66.5 mm        | 13.0 W     | 18 W          | 0.084 A                    | 0.95                   | 1.00                 | 0.090                   | 0.085                                 | 3 h            |
| TC-DD                                            | 1 x 28 W     | PC 1x28-33 HO DD COMBO   | 89899957       | 123 x 79 x 31 mm     | 66.5 mm        | 25.0 W     | 31 W          | 0.140 A                    | 0.96                   | 1.00                 | 0.110                   | 0.100                                 | 3 h            |
| TC-DD                                            | 1 x 28 W     | PC 1x28-34 HO DD COMBO   | 89899958       | 123 x 79 x 31 mm     | 66.5 mm        | 25.0 W     | 31 W          | 0.140 A                    | 0.96                   | 1.00                 | 0.150                   | 0.115                                 | 3 h            |
| TC-DD                                            | 1 x 38 W     | PC 1x38-34 HO DD COMBO   | 89899933       | 123 x 79 x 31 mm     | 66.5 mm        | 34.0 W     | 41 W          | 0.180 A                    | 0.96                   | 1.00                 | 0.060                   | 0.055                                 | 3 h            |
| TC-DD                                            | 1 x 38 W     | PC 1x38-35 HO DD COMBO   | 89899975       | 123 x 79 x 31 mm     | 66.5 mm        | 34.0 W     | 41 W          | 0.180 A                    | 0.96                   | 1.00                 | 0.100                   | 0.085                                 | 3 h            |

<sup>①</sup> PC 1x28-33 HO DD COMBO, PC 1x38-34 HO DD COMBO, PC 1x28-33 LO DD COMBO and PC 1x38-34 LO DD COMBO only for Biax non-alumgam lamps.

<sup>②</sup> For 230 V, 50 Hz.

<sup>③</sup> According to EN 61347-2-7

RoHS

ACCES-  
SORIES

Test switch EM2

**Product description**

- For connection to the emergency lighting unit
- 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).        | 0.011 kg       |

RoHS

ACCES-  
SORIES

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       |

**Ballast lumen factor (BLF) in %**

PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 / 1 h

|             | Duration | 3 / 1 h                                                      |                    |                    |                    |                    |                    |                       |                          |
|-------------|----------|--------------------------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-----------------------|--------------------------|
|             |          | 3 cells                                                      | 3 cells            | 4 cells            | 4 cells            | 3 cells            | 4 cells            | 5 cells               | 6 cells                  |
| Type        |          | PC 1x18-3 TC COMBO                                           | PC 2x18-3 TC COMBO | PC 1x18-4 TC COMBO | PC 2x18-4 TC COMBO | PC 1x26-3 TC COMBO | PC 1x26-4 T5 COMBO | PC 1x26/32-5 TC COMBO | PC 1x26/32/42-6 TC COMBO |
| Article no. |          | 89899990                                                     | 89899982           | 89899927           | 89899928           | 89899983           | 89899976           | 89899929              | 89899931                 |
| Lamp type   | Wattage  | BLF in emergency lighting mode in % for rated operating time |                    |                    |                    |                    |                    |                       |                          |
| TC-DEL      | 18 W     | 11 / 9                                                       | 11 / 9             | 19 / 15            | 19 / 15            |                    |                    |                       |                          |
|             | 26 W     |                                                              |                    |                    |                    | 9.5 / 6.5          | 8.5                | 14 / 12               | 11 / 8                   |
| TC-TEL      | 18 W     | 11 / 9                                                       | 11 / 9             | 19 / 15            | 19 / 15            |                    |                    |                       |                          |
|             | 26 W     |                                                              |                    |                    |                    | 9.5 / 6.5          | 8.5                | 14 / 12               | 11 / 8                   |
|             | 32 W     |                                                              |                    |                    |                    |                    |                    | 7                     | 9                        |
|             | 42 W     |                                                              |                    |                    |                    |                    |                    |                       | 6.5                      |

| Technology and capacity | Design        | Number of cells | Type                  | Article number | Assignable batteries |   |   |   |   |  |   |   |  |  |  |   |
|-------------------------|---------------|-----------------|-----------------------|----------------|----------------------|---|---|---|---|--|---|---|--|--|--|---|
| NiCd 1.6 Ah Cs cells    | Stick         | 3               | Accu-NiCd C 3A        | 89899743       | •                    | • |   |   | • |  |   |   |  |  |  |   |
|                         | Stick         | 4               | Accu-NiCd C 4A        | 89899692       |                      |   | • | • |   |  | • |   |  |  |  |   |
|                         | Stick         | 5               | Accu-NiCd C 5A        | 89899695       |                      |   |   |   |   |  |   | • |  |  |  |   |
|                         | Stick         | 6               | Accu-NiCd C 6A        | 89899698       |                      |   |   |   |   |  |   |   |  |  |  | • |
|                         | Stick + Stick | 3+3             | Accu-NiCd C 6C        | 89899699       |                      |   |   |   |   |  |   |   |  |  |  | • |
| NiCd 4 Ah D cells       | Stick         | 3               | Accu-NiCd 3A          | 89895960       | •                    | • |   |   | • |  |   |   |  |  |  |   |
|                         | Stick         | 4               | Accu-NiCd 4A 55       | 89800089       |                      |   | • | • |   |  | • |   |  |  |  |   |
|                         | Stick         | 5               | Accu-NiCd 5A          | 89895973       |                      |   |   |   |   |  |   | • |  |  |  |   |
|                         | Stick + Stick | 3+2             | Accu-NiCd 5C 55       | 89800090       |                      |   |   |   |   |  |   | • |  |  |  |   |
|                         | Stick + Stick | 3+3             | Accu-NiCd 6C 55       | 89800388       |                      |   |   |   |   |  |   |   |  |  |  | • |
| NiMH 2 Ah Cs cells      | Stick         | 3               | Accu-NiMH C 3A        | 89899744       | •                    | • |   |   | • |  |   |   |  |  |  |   |
|                         | Stick         | 4               | Accu-NiMH C 4A        | 89899700       |                      |   | • | • |   |  | • |   |  |  |  |   |
|                         | Stick         | 5               | Accu-NiMH C 5A        | 89899703       |                      |   |   |   |   |  |   | • |  |  |  |   |
|                         | Stick         | 6               | Accu-NiMH C 6A        | 89899706       |                      |   |   |   |   |  |   |   |  |  |  | • |
|                         | Stick + Stick | 3+2             | Accu-NiMH C 4C        | 89899702       |                      |   | • | • |   |  | • |   |  |  |  |   |
|                         | Stick + Stick | 3+3             | Accu-NiMH C 6C        | 89899707       |                      |   |   |   |   |  |   |   |  |  |  | • |
| NiMH 4 Ah LA cells      | Stick         | 3               | Accu-NiMH 4Ah 3A CON  | 89800441       | •                    | • |   |   | • |  |   |   |  |  |  |   |
|                         | Stick         | 4               | Accu-NiMH 4Ah 4A CON  | 89800442       |                      |   | • | • |   |  |   |   |  |  |  |   |
|                         | Stick + Stick | 2+2             | Accu-NiMH 4Ah 4C CON  | 89800438       |                      |   | • | • |   |  | • |   |  |  |  |   |
|                         | Stick + Stick | 2+3             | Accu-NiMH 4Ah 5C CON  | 89800439       |                      |   |   |   |   |  |   | • |  |  |  |   |
|                         | Stick + Stick | 3+3             | Accu-NiMH 4Ah 6C CON  | 89800440       |                      |   |   |   |   |  |   |   |  |  |  | • |
| NiCd 1.6 Ah Accupack    |               | 3               | Pack-NiCd 3C          | 89899676       | •                    | • |   |   | • |  |   |   |  |  |  |   |
|                         |               | 4               | Pack-NiCd 4C          | 89899677       |                      |   | • | • |   |  | • |   |  |  |  |   |
|                         |               | 5               | Pack-NiCd 5C          | 89899678       |                      |   |   |   |   |  |   | • |  |  |  |   |
|                         |               | 6               | Pack-NiCd 6C          | 89899679       |                      |   |   |   |   |  |   |   |  |  |  | • |
| NiCd 4.5Ah Accupack     |               | 3               | Pack-NiCd 3D CON      | 89800389       | •                    | • |   |   | • |  |   |   |  |  |  |   |
|                         |               | 4               | Pack-NiCd 4D CON      | 89800390       |                      |   | • | • |   |  | • |   |  |  |  |   |
|                         |               | 5               | Pack-NiCd 5D CON      | 28001181       |                      |   |   |   |   |  |   | • |  |  |  |   |
|                         |               | 6               | Pack-NiCd 6D CON      | 89800391       |                      |   |   |   |   |  |   |   |  |  |  | • |
| NiMH 2.2 Ah Cs cells    | remote box    | 1 x 3           | Pack-NiMH 2.2Ah 3 CON | 28001898       | •                    | • |   |   | • |  |   |   |  |  |  |   |
|                         | remote box    | 1 x 4           | Pack-NiMH 2.2Ah 4 CON | 28001899       |                      |   | • | • |   |  | • |   |  |  |  |   |
| NiMH 4 Ah LAL cells     | remote box    | 1 x 3           | Pack-NiMH 4Ah 3 CON   | 28001896       | •                    | • |   |   | • |  |   |   |  |  |  |   |
|                         | remote box    | 1 x 4           | Pack-NiMH 4Ah 4 CON   | 28001897       |                      |   | • | • |   |  | • |   |  |  |  |   |

For 3-hour operation: 4 Ah D cells NiCd or 4 Ah LA cells NiMH.

For 1-hour operation: 1.6 Ah Cs cells NiCd or 2 Ah Cs cells NiMH.

**Ballast lumen factor (BLF) in %**

PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 / 1 h

|             | Duration | 3 / 1 h                                                             |                       |                          |                             |
|-------------|----------|---------------------------------------------------------------------|-----------------------|--------------------------|-----------------------------|
|             |          | Cells                                                               | 3 cells               | 4 cells                  | 5 cells                     |
| Type        |          | PC 2x26-3<br>TC COMBO                                               | PC 2x26-4<br>TC COMBO | PC 2x26/32-5<br>TC COMBO | PC 2x26/32/42-6<br>TC COMBO |
| Article no. |          | 89899984                                                            | 89899930              | 89899998                 | 89899989                    |
| Lamp type   | Wattage  | <b>BLF in emergency lighting mode in % for rated operating time</b> |                       |                          |                             |
| TC-DEL      | 26 W     | 9.5 / 6.5                                                           | 8.5                   | 14 / 12                  | 11 / 8                      |
| TC-TEL      | 26 W     | 9.5 / 6.5                                                           | 8.5                   | 14 / 12                  | 11 / 8                      |
|             | 32 W     |                                                                     |                       | 10                       | 9                           |
|             | 42 W     |                                                                     |                       |                          | 6.5                         |

| Technology and capacity | Design        | Number of cells | Type                  | Article number | Assignable batteries |   |   |  |   |
|-------------------------|---------------|-----------------|-----------------------|----------------|----------------------|---|---|--|---|
| NiCd 1.6 Ah<br>Cs cells | Stick         | 3               | Accu-NiCd C 3A        | 89899743       | •                    |   |   |  |   |
|                         | Stick         | 4               | Accu-NiCd C 4A        | 89899692       |                      | • |   |  |   |
|                         | Stick         | 5               | Accu-NiCd C 5A        | 89899695       |                      |   | • |  |   |
|                         | Stick         | 6               | Accu-NiCd C 6A        | 89899698       |                      |   |   |  | • |
|                         | Stick + Stick | 3 + 3           | Accu-NiCd C 6C        | 89899699       |                      |   |   |  | • |
| NiCd 4 Ah<br>D cells    | Stick         | 3               | Accu-NiCd 3A          | 89895960       | •                    |   |   |  |   |
|                         | Stick         | 4               | Accu-NiCd 4A 55       | 89800089       |                      | • |   |  |   |
|                         | Stick         | 5               | Accu-NiCd 5A          | 89895973       |                      |   | • |  |   |
|                         | Stick + Stick | 3 + 2           | Accu-NiCd 5C 55       | 89800090       |                      |   | • |  |   |
|                         | Stick + Stick | 3 + 3           | Accu-NiCd 6C 55       | 89800388       |                      |   |   |  | • |
| NiMH 2 Ah<br>Cs cells   | Stick         | 3               | Accu-NiMH C 3A        | 89899744       | •                    |   |   |  |   |
|                         | Stick         | 4               | Accu-NiMH C 4A        | 89899700       |                      | • |   |  |   |
|                         | Stick         | 5               | Accu-NiMH C 5A        | 89899703       |                      |   | • |  |   |
|                         | Stick         | 6               | Accu-NiMH C 6A        | 89899706       |                      |   |   |  | • |
|                         | Stick + Stick | 3 + 2           | Accu-NiMH C 4C        | 89899702       |                      | • |   |  |   |
|                         | Stick + Stick | 3 + 3           | Accu-NiMH C 6C        | 89899707       |                      |   |   |  | • |
| NiMH 4 Ah<br>LA cells   | Stick         | 3               | Accu-NiMH 4Ah 3A CON  | 89800441       | •                    |   |   |  |   |
|                         | Stick         | 4               | Accu-NiMH 4Ah 4A CON  | 89800442       |                      | • |   |  |   |
|                         | Stick + Stick | 2 + 2           | Accu-NiMH 4Ah 4C CON  | 89800438       |                      | • |   |  |   |
|                         | Stick + Stick | 2 + 3           | Accu-NiMH 4Ah 5C CON  | 89800439       |                      |   | • |  |   |
|                         | Stick + Stick | 3 + 3           | Accu-NiMH 4Ah 6C CON  | 89800440       |                      |   |   |  | • |
| NiCd 1.6 Ah<br>Accupack |               | 3               | Pack-NiCd 3C          | 89899676       | •                    |   |   |  |   |
|                         |               | 4               | Pack-NiCd 4C          | 89899677       |                      | • |   |  |   |
|                         |               | 5               | Pack-NiCd 5C          | 89899678       |                      |   | • |  |   |
|                         |               | 6               | Pack-NiCd 6C          | 89899679       |                      |   |   |  | • |
| NiCd 4.5 Ah<br>Accupack |               | 3               | Pack-NiCd 3D CON      | 89800389       | •                    |   |   |  |   |
|                         |               | 4               | Pack-NiCd 4D CON      | 89800390       |                      | • |   |  |   |
|                         |               | 5               | Pack-NiCd 5D CON      | 28001181       |                      |   | • |  |   |
|                         |               | 6               | Pack-NiCd 6D CON      | 89800391       |                      |   |   |  | • |
| NiMH 2.2 Ah<br>Cs cells | remote box    | 1 x 3           | Pack-NiMH 2.2Ah 3 CON | 28001898       | •                    |   |   |  |   |
|                         | remote box    | 1 x 4           | Pack-NiMH 2.2Ah 4 CON | 28001899       |                      | • |   |  |   |
| NiMH 4 Ah<br>LAL cells  | remote box    | 1 x 3           | Pack-NiMH 4Ah 3 CON   | 28001896       | •                    |   |   |  |   |
|                         | remote box    | 1 x 4           | Pack-NiMH 4Ah 4 CON   | 28001897       |                      | • |   |  |   |

For 3-hour operation: 4 Ah D cells NiCd or 4 Ah LA cells NiMH.

For 1-hour operation: 1.6 Ah Cs cells NiCd or 2 Ah Cs cells NiMH.

**Ballast lumen factor (BLF) in %**

PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 h

|             | Duration | 3 h                                                                      |                              |                              |                              |                              |                                                                         |                              |                              |  |
|-------------|----------|--------------------------------------------------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|-------------------------------------------------------------------------|------------------------------|------------------------------|--|
|             |          | 3 cells                                                                  | 3 cells                      | 4 cells                      | 4 cells                      | 5 cells                      | 3 cells                                                                 | 4 cells                      | 4 cells                      |  |
| Type        |          | PC 1x16-33<br>HO DD<br>COMBO                                             | PC 1x28-33<br>HO DD<br>COMBO | PC 1x28-34<br>HO DD<br>COMBO | PC 1x38-34<br>HO DD<br>COMBO | PC 1x38-35<br>HO DD<br>COMBO | PC 1x28-33<br>LO DD<br>COMBO                                            | PC 1x28-34<br>LO DD<br>COMBO | PC 1x38-34<br>LO DD<br>COMBO |  |
| Article no. |          | 89899926                                                                 | 89899957                     | 89899958                     | 89899933                     | 89899975                     | 89899943                                                                | 89899955                     | 89899981                     |  |
| Lamp type   | Wattage  | High Output BLF in emergency lighting mode in % for rated operating time |                              |                              |                              |                              | Low Output BLF in emergency lighting mode in % for rated operating time |                              |                              |  |
| TC-DD       | 16 W     | 9                                                                        |                              |                              |                              |                              |                                                                         |                              |                              |  |
|             | 28 W     |                                                                          | 11                           | 15                           |                              |                              | 11                                                                      | 15                           |                              |  |
|             | 38 W     |                                                                          |                              |                              | 6                            | 10                           |                                                                         |                              | 6                            |  |

| Technology           | Design and capacity | Number of cells | Type                  | Article number | Assignable batteries |   |   |   |   |   |   |  |   |
|----------------------|---------------------|-----------------|-----------------------|----------------|----------------------|---|---|---|---|---|---|--|---|
| NiCd 4 Ah D cells    | Stick               | 3               | Accu-NiCd 3A          | 89895960       | •                    | • |   |   |   | • |   |  |   |
|                      | Stick               | 4               | Accu-NiCd 4A 55       | 89800089       |                      |   | • | • |   |   | • |  | • |
|                      | Stick               | 5               | Accu-NiCd 5A          | 89895973       |                      |   |   |   | • |   |   |  |   |
|                      | Stick + Stick       | 3 + 2           | Accu-NiCd 5C 55       | 89800090       |                      |   |   |   | • |   |   |  |   |
|                      | Stick + Stick       | 3 + 3           | Accu-NiCd 6C 55       | 89800388       |                      |   |   |   |   |   |   |  |   |
| NiMH 4 Ah LA cells   | Stick               | 3               | Accu-NiMH 4Ah 3A CON  | 89800441       | •                    | • |   |   |   | • |   |  |   |
|                      | Stick               | 4               | Accu-NiMH 4Ah 4A CON  | 89800442       |                      |   | • | • |   |   | • |  | • |
|                      | Stick + Stick       | 2 + 2           | Accu-NiMH 4Ah 4C CON  | 89800438       |                      |   |   |   | • |   |   |  |   |
|                      | Stick + Stick       | 2 + 3           | Accu-NiMH 4Ah 5C CON  | 89800439       |                      |   |   |   |   |   |   |  |   |
|                      | Stick + Stick       | 3 + 3           | Accu-NiMH 4Ah 6C CON  | 89800440       |                      |   |   |   |   |   |   |  |   |
| NiCd 4.5 Ah Accupack |                     | 3               | Pack-NiCd 3D CON      | 89800389       | •                    | • |   |   |   | • |   |  |   |
|                      |                     | 4               | Pack-NiCd 4D CON      | 89800390       |                      |   | • | • |   |   | • |  | • |
|                      |                     | 5               | Pack-NiCd 5D CON      | 28001181       |                      |   |   |   | • |   |   |  |   |
|                      |                     | 6               | Pack-NiCd 6D CON      | 89800391       |                      |   |   |   |   |   |   |  |   |
| NiMH 2.2 Ah Cs cells | remote box          | 1 x 3           | Pack-NiMH 2.2Ah 3 CON | 28001898       | •                    | • |   |   |   | • |   |  |   |
|                      | remote box          | 1 x 4           | Pack-NiMH 2.2Ah 4 CON | 28001899       |                      |   | • | • |   |   | • |  | • |
| NiMH 4 Ah LAL cells  | remote box          | 1 x 3           | Pack-NiMH 4Ah 3 CON   | 28001896       | •                    | • |   |   |   | • |   |  |   |
|                      | remote box          | 1 x 4           | Pack-NiMH 4Ah 4 CON   | 28001897       |                      |   | • | • |   |   | • |  | • |

For 3-hour operation: 4 Ah D cells NiCd or 4 Ah LA cells NiMH.

**Emergency ballast lumen factor (EBLF) in %**

**PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 / 1 h**

| Duration    |                       | 3 / 1 h                                                       |                       |                       |                       |                       |                          |                                |         |
|-------------|-----------------------|---------------------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------------|--------------------------------|---------|
| Cells       | 3 cells               | 3 cells                                                       | 4 cells               | 4 cells               | 3 cells               | 4 cells               | 5 cells                  | 6 cells                        |         |
| Type        | PC 1x18-3<br>TC COMBO | PC 2x18-3<br>TC COMBO                                         | PC 1x18-4<br>TC COMBO | PC 2x18-4<br>TC COMBO | PC 1x26-3<br>TC COMBO | PC 1x26-4<br>T5 COMBO | PC 1x26/32-5<br>TC COMBO | PC<br>1x26/32/42-6<br>TC COMBO |         |
| Article no. | 89899990              | 89899982                                                      | 89899927              | 89899928              | 89899983              | 89899976              | 89899929                 | 89899931                       |         |
| Lamp type   | Wattage               | EBLF in emergency lighting mode in % for rated operating time |                       |                       |                       |                       |                          |                                |         |
| TC-DEL      | 18 W                  | 9 / 8                                                         | 9 / 8                 | 17.5 / 15             | 17.5 / 15             |                       |                          |                                |         |
|             | 26 W                  |                                                               |                       |                       |                       | 8 / 5.5               | 9.5 / 8.5                | 10.5 / 7.5                     | 9.5 / 8 |
| TC-TEL      | 18 W                  | 9 / 8                                                         | 9 / 8                 | 17.5 / 15             | 17.5 / 15             |                       |                          |                                |         |
|             | 26 W                  |                                                               |                       |                       |                       | 8 / 5.5               | 9.5 / 8.5                | 10.5 / 7.5                     | 9.5 / 8 |
|             | 32 W                  |                                                               |                       |                       |                       |                       |                          | 3.5                            | 8.5     |
|             | 42 W                  |                                                               |                       |                       |                       |                       |                          |                                | 6       |

**PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 / 1 h**

| Duration    |                       | 3 / 1 h                                                       |                          |                             |         |
|-------------|-----------------------|---------------------------------------------------------------|--------------------------|-----------------------------|---------|
| Cells       | 3 cells               | 4 cells                                                       | 5 cells                  | 6 cells                     |         |
| Type        | PC 2x26-3<br>TC COMBO | PC 2x26-4<br>TC COMBO                                         | PC 2x26/32-5<br>TC COMBO | PC 2x26/32/42-6<br>TC COMBO |         |
| Article no. | 89899984              | 89899930                                                      | 89899998                 | 89899989                    |         |
| Lamp type   | Wattage               | EBLF in emergency lighting mode in % for rated operating time |                          |                             |         |
| TC-DEL      | 26 W                  | 8 / 5.5                                                       | 9.5 / 8.5                | 10.5 / 10                   | 9.5 / 8 |
| TC-TEL      | 26 W                  | 8 / 5.5                                                       | 9.5 / 8.5                | 10.5 / 10                   | 9.5 / 8 |
|             | 32 W                  |                                                               |                          | 8.5                         | 8.5     |
|             | 42 W                  |                                                               |                          |                             | 6       |

**PC CFL COMBO for TC-DEL and TC-TEL fluorescent lamps, 3 h**

| Duration    |                              | 3 h                                                                       |                              |                              |                              |                              |                                                                          |                              |  |
|-------------|------------------------------|---------------------------------------------------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------------------------------------------------------------------|------------------------------|--|
| Cells       | 3 cells                      | 3 cells                                                                   | 4 cells                      | 4 cells                      | 5 cells                      | 3 cells                      | 4 cells                                                                  | 4 cells                      |  |
| Type        | PC 1x16-33<br>HO DD<br>COMBO | PC 1x28-33<br>HO DD<br>COMBO                                              | PC 1x28-34<br>HO DD<br>COMBO | PC 1x38-34<br>HO DD<br>COMBO | PC 1x38-35<br>HO DD<br>COMBO | PC 1x28-33<br>LO DD<br>COMBO | PC 1x28-34<br>LO DD<br>COMBO                                             | PC 1x38-34<br>LO DD<br>COMBO |  |
| Article no. | 89899926                     | 89899957                                                                  | 89899958                     | 89899933                     | 89899975                     | 89899943                     | 89899955                                                                 | 89899981                     |  |
| Lamp type   | Wattage                      | High Output EBLF in emergency lighting mode in % for rated operating time |                              |                              |                              |                              | Low Output EBLF in emergency lighting mode in % for rated operating time |                              |  |
| TC-DD       | 16 W                         | 8.5                                                                       |                              |                              |                              |                              |                                                                          |                              |  |
|             | 28 W                         |                                                                           | 10                           | 11.5                         |                              |                              | 10                                                                       | 11.5                         |  |
|             | 38 W                         |                                                                           |                              |                              | 5.5                          | 8.5                          |                                                                          | 5.5                          |  |



### Standards

- according to EN 50172
- according to EN 60598-2-22
- EN 61347-2-3
- EN 61347-2-7
- EN 60929
- EN 55015
- EN 61000-3-2
- EN 61000-3-3
- EN 61547
- EN 60068-2-29
- EN 60068-2-30
- EN 60068-2-64
- Mains ballast complies with end of lamp life (EOL) test 2



### Note:

The PC CFL COMBO is not intended to be used for high risk task area lighting.

### 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 VDC 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 VAC (or 1,414 x 1,500 VDC). To avoid damage to the electronic devices this test must not be conducted.

Basic insulation between supply and battery circuit

### Restarting after lamp replacement

Note: Before servicing luminaires the mains supply should always be disconnected.

If faulty lamps are changed with the mains connected they can be made to restart automatically provided an interval of 2 seconds is left after removal.

- Single lamp combined units always restart automatically.
- Twin lamp combined units that do not restart automatically will do so if the first lamp that was inserted is removed and re-inserted.

### Technical data batteries

#### Accu-NiCd

##### 1.6 Ah

|                                                      |                                                      |
|------------------------------------------------------|------------------------------------------------------|
| Battery voltage/cell                                 | 1.2 V                                                |
| Cell type                                            | Cs                                                   |
| Case temperature range to ensure 4 years design life | +5 °C to +50 °C                                      |
| Max. short term temperature (reduced life-time)      | 70 °C                                                |
| Max. number discharge cycles                         | 4 cycles per year plus 4 cycles during commissioning |
| Max. storage time                                    | 6 months                                             |

##### 4.2 / 4.5 Ah

|                                                      |                                                      |
|------------------------------------------------------|------------------------------------------------------|
| Battery voltage/cell                                 | 1.2 V                                                |
| Cell type                                            | D                                                    |
| Case temperature range to ensure 4 years design life | +5 °C to +55 °C                                      |
| Max. short term temperature (reduced life-time)      | 70 °C                                                |
| Max. number discharge cycles                         | 4 cycles per year plus 4 cycles during commissioning |
| Max. storage time                                    | 6 months                                             |

#### Accu-NiMh

##### 2.0 Ah

|                                                      |                                                       |
|------------------------------------------------------|-------------------------------------------------------|
| Battery voltage/cell                                 | 1.2 V                                                 |
| Cell type                                            | Cs                                                    |
| Case temperature range to ensure 4 years design life | +5 °C to +55 °C                                       |
| Max. short term temperature (reduced life-time)      | 70 °C                                                 |
| Max. number discharge cycles                         | 4 cycles per year plus 30 cycles during commissioning |
| Max. storage time                                    | 6 months                                              |

##### 4.0 Ah

|                                                      |                                                       |
|------------------------------------------------------|-------------------------------------------------------|
| Battery voltage/cell                                 | 1.2 V                                                 |
| Cell type                                            | LA                                                    |
| Case temperature range to ensure 4 years design life | +5 °C to +40 °C                                       |
| Max. short term temperature (reduced life-time)      | 70 °C                                                 |
| Max. number discharge cycles                         | 4 cycles per year plus 30 cycles during commissioning |
| Max. storage time                                    | 6 months                                              |

#### Accupack-NiCd

##### 1.6 Ah

|                                                          |                                                      |
|----------------------------------------------------------|------------------------------------------------------|
| Battery voltage/cell                                     | 1.2 V                                                |
| Cell type                                                | Cs                                                   |
| Case temperature range (to ensure a 4 years design life) | +5 °C to +55 °C                                      |
| Max. short term temperature (reduced life-time)          | 70 °C                                                |
| Max. number discharge cycles                             | 4 cycles per year plus 4 cycles during commissioning |
| Max. storage time                                        | 6 months                                             |

##### 4.5 Ah

|                                                          |                                                      |
|----------------------------------------------------------|------------------------------------------------------|
| Battery voltage/cell                                     | 1.2 V                                                |
| Cell type                                                | D                                                    |
| Case temperature range (to ensure a 4 years design life) | +5 °C to +55 °C                                      |
| Max. short term temperature (reduced life-time)          | 70 °C                                                |
| Max. number discharge cycles                             | 4 cycles per year plus 4 cycles during commissioning |
| Max. storage time                                        | 6 months                                             |

#### Accupack-NiMH

##### 2.2 Ah

|                                                         |                                                      |
|---------------------------------------------------------|------------------------------------------------------|
| Battery voltage/cell                                    | 1.2 V                                                |
| Cell type                                               | Cs                                                   |
| Ambient temperature range to ensure 4 years design life | +5 °C to +35 °C                                      |
| tc point                                                | +40 °C                                               |
| Max. short term temperature (reduced life-time)         | 70 °C                                                |
| Max. number discharge cycles                            | 4 cycles per year plus 4 cycles during commissioning |
| Max. storage time                                       | 6 months                                             |

##### 4.0 Ah

|                                                         |                                                      |
|---------------------------------------------------------|------------------------------------------------------|
| Battery voltage/cell                                    | 1.2 V                                                |
| Cell type                                               | LAL                                                  |
| Ambient temperature range to ensure 4 years design life | +5 °C to +35 °C                                      |
| tc point                                                | +40 °C                                               |
| Max. short term temperature (reduced life-time)         | 70 °C                                                |
| Max. number discharge cycles                            | 4 cycles per year plus 4 cycles during commissioning |
| Max. storage time                                       | 6 months                                             |

For further information refer to corresponding battery datasheet.

**Storage, installation and commissioning**

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



Care should be taken to ensure batteries and emergency units don't exceed their maximum temperatures.

**Working Voltage (Uout), lamp current**

| Type                            | Lamp type  | Wattage          | Uout <sup>®</sup> | Lamp current <sup>®</sup> |
|---------------------------------|------------|------------------|-------------------|---------------------------|
| <b>PC 1x18-3 TC COMBO</b>       | TC-DEL/TEL | 18 W             | 250 / 250 V       | 0.025 / 0.030 A           |
| <b>PC 1x18-4 TC COMBO</b>       | TC-DEL/TEL | 18 W             | 250 / 250 V       | 0.026 A                   |
| <b>PC 2x18-3 TC COMBO</b>       | TC-DEL/TEL | 2x18 W           | 250 / 250 V       | 0.025 / 0.030 A           |
| <b>PC 2x18-4 TC COMBO</b>       | TC-DEL/TEL | 2x18 W           | 250 / 250 V       | 0.026 A                   |
| <b>PC 1x26-3 TC COMBO</b>       | TC-DEL/TEL | 1x26 W           | 250 / 250 V       | 0.024 A                   |
| <b>PC 1x26-4 TC COMBO</b>       | TC-DEL/TEL | 26 W             | 250 / 250 V       | 0.017 / 0.019 A           |
| <b>PC 1x26/32-5 TC COMBO</b>    | TC-DEL/TEL | 26 / 32 W        | 250 / 250 V       | 0.023 A                   |
| <b>PC 1x26/32/42-6 TC COMBO</b> | TC-DEL/TEL | 26 / 32 / 42W    | 250 / 250 V       | 0.018 A                   |
| <b>PC 2x26-3 TC COMBO</b>       | TC-DEL/TEL | 2x26 W           | 250 / 250 V       | 0.024 A                   |
| <b>PC 2x26-4 TC COMBO</b>       | TC-DEL/TEL | 2x26 W           | 250 / 250 V       | 0.022 / 0.024 A           |
| <b>PC 2x26/32-5 TC COMBO</b>    | TC-DEL/TEL | 2x26 / 32 W      | 250 / 250 V       | 0.023 A                   |
| <b>PC 2x26/32/42-6 TC COMBO</b> | TC-DEL/TEL | 2x26 / 32 / 42 W | 250 / 250 V       | 0.018 A                   |
| <b>PC 1x26/32/42-6 TC COMBO</b> | TC-TEL     | 42 W             | 250 / 250 V       | 0.018 A                   |
| <b>PC 1x16-33 HO DD COMBO</b>   | TC-TEL     | 1x16 W           | 250 / 250 V       | 0.015 A                   |
| <b>PC 1x28-33 LO DD COMBO</b>   | TC-TEL     | 28 W             | 250 / 250 V       | 0.020 A                   |
| <b>PC 1x28-33 HO DD COMBO</b>   | TC-TEL     | 28 W             | 250 / 250 V       | 0.020 A                   |
| <b>PC 1x28-34 LO DD COMBO</b>   | TC-TEL     | 28 W             | 250 / 250 V       | 0.026 A                   |
| <b>PC 1x28-34 HO DD COMBO</b>   | TC-TEL     | 28 W             | 250 / 250 V       | 0.026 A                   |
| <b>PC 1x38-34 LO DD COMBO</b>   | TC-DD      | 38 W             | 250 / 250 V       | 0.013 A                   |
| <b>PC 1x38-34 HO DD COMBO</b>   | TC-DD      | 38 W             | 250 / 250 V       | 0.013 A                   |
| <b>PC 1x38-35 HO DD COMBO</b>   | TC-DD      | 38 W             | 250 / 250 V       | 0.020 A                   |

<sup>®</sup> in emergency mode

<sup>®</sup> Max. voltage between output terminals / Max. voltage between output terminal to earth

### Intelligent Voltage Guard

Intelligent Voltage Guard is the name of the new electronic monitor from Tridonic. This innovative feature of the new PC COMBO family of combined electronic ballasts and emergency lighting modules from Tridonic immediately shows if the mains voltage rises above a certain threshold.

Measures can then be taken quickly to prevent damage to the control gear. If the mains voltage rises above 306 V the lamps start flashing on and off. This signal "demands" disconnection of the power supply to the lighting system.

### New PC COMBO with xitec processor

Is the very latest in lighting management design technology. The lamp friendly warm start is delivering maximum lamp life and enables high switching frequency applications. Smallest power loss and new freedom in the lamp design thanks to convincing thermal management.

### Energy class CELMA EEI = A2

PC CFL COMBO ignition technology (smart heating) optimises lamp start and ensures no energy is wasted. After the lamp has struck the filament heating is reduced automatically to a defined minimum value. This reduction in filament heating, saves energy, yet maintains the proper operating conditions for the lamp. The lamp is always operated within specification.

### Smart Heating (normal operation)

Innovative heating circuit. Reduced filament heating after lamp has struck.

### Ambient Temperature

The nominal  $t_a$  and  $t_c$  point are related to the ballast life duration. 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.

### Life-time

PC CFL COMBO is designed for an average life-time of 50,000 hours under reference conditions and with a failure probability of less than 10 %. This corresponds to an average failure rate of 0.2 % for every 1,000 hours of operation.

### CE marking

The PC CFL COMBO units are CE marked for compliance with the low voltage directive.

Certificates of compliance are available to allow luminaires to be CE marked for compliance with the EMC directive.

### Mechanical details

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

LED charge indicator

- Green
- Mounting hole 6.5 mm dia
- Length of LED lead 750 mm (Bezel supplied fitted to LED)
- Insulation temperature rating: 90 °C

Test switch

- Mounting hole 7 mm dia
- Length of test switch lead 550 mm

Battery leads

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

Termination 1

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

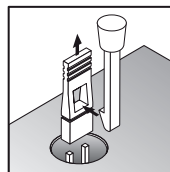
Termination 2

9 mm stripped insulation

### Jumper selection

3 hours operation as supplied for use with 4 Ah NiCd D or 4 Ah NiMH Cs cells.

Remove the jumper for 1 hour operation and use with Cs 1.5 Ah NiCd or 2.0 Ah NiMh cells.



### Electrical connections

In low temperature applications an starting aid is required for the emergency lamp which is referenced to the metal case of the unit. This starting aid does not need to be earthed.

The combined unit is intended to be earthed by the ⊕ marked terminal connection.

Two phases can be used as switched and unswitched line.

Note:

All electrical connections to the unit must be made when both permanent and switched mains supplies are disconnected.

### Miniature circuit breakers (MCBs)

The maximum number of these electronic ballasts that may be used with miniature circuit breakers (MCBs). These quantities are based on single pole MCBs.

For multi-pole MCBs derate by 20 %.

#### Number of electronic ballasts

| Type                     | Type C - MCB rating |      |      |      | Type B - MCB rating |      |      |      |
|--------------------------|---------------------|------|------|------|---------------------|------|------|------|
|                          | 10 A                | 13 A | 16 A | 20 A | 10 A                | 13 A | 16 A | 20 A |
| PC 1x18-3 TC COMBO       | 42                  | 60   | 72   | 102  | 21                  | 30   | 36   | 51   |
| PC 1x18-4 TC COMBO       | 42                  | 60   | 72   | 102  | 21                  | 30   | 36   | 51   |
| PC 2x18-3 TC COMBO       | 34                  | 48   | 58   | 70   | 17                  | 24   | 29   | 35   |
| PC 2x18-4 TC COMBO       | 34                  | 48   | 58   | 70   | 17                  | 24   | 29   | 35   |
| PC 1x26-3 TC COMBO       | 36                  | 50   | 60   | 72   | 18                  | 25   | 30   | 36   |
| PC 1x26-4 TC COMBO       | 36                  | 50   | 60   | 72   | 18                  | 25   | 30   | 36   |
| PC 1x26/32-5 TC COMBO    | 36                  | 50   | 60   | 72   | 18                  | 25   | 30   | 36   |
| PC 1x26/32/42-6 TC COMBO | 34                  | 46   | 58   | 70   | 17                  | 23   | 29   | 35   |
| PC 2x26-3 TC COMBO       | 30                  | 42   | 56   | 68   | 15                  | 21   | 28   | 34   |
| PC 2x26-4 TC COMBO       | 30                  | 42   | 56   | 68   | 15                  | 21   | 28   | 34   |
| PC 2x26/32-5 TC COMBO    | 8                   | 14   | 18   | 20   | 4                   | 7    | 9    | 10   |
| PC 2x26/32/42-6 TC COMBO | 8                   | 14   | 18   | 20   | 4                   | 7    | 9    | 10   |
| PC 1x16-33 HO DD COMBO   | 40                  | 70   | 74   | 94   | 20                  | 35   | 37   | 47   |
| PC 1x28-33 LO DD COMBO   | 42                  | 74   | 78   | 98   | 21                  | 37   | 39   | 49   |
| PC 1x28-33 HO DD COMBO   | 40                  | 70   | 74   | 94   | 20                  | 35   | 37   | 47   |
| PC 1x28-34 LO DD COMBO   | 42                  | 74   | 78   | 98   | 21                  | 37   | 39   | 49   |
| PC 1x28-34 HO DD COMBO   | 38                  | 68   | 72   | 92   | 19                  | 34   | 36   | 46   |
| PC 1x38-34 LO DD COMBO   | 34                  | 50   | 60   | 70   | 17                  | 25   | 30   | 35   |
| PC 1x38-34 HO DD COMBO   | 34                  | 50   | 60   | 70   | 17                  | 25   | 30   | 35   |
| PC 1x38-35 HO DD COMBO   | 34                  | 50   | 60   | 70   | 17                  | 25   | 30   | 35   |

### Wiring advice

The lead length is dependant on the capacitance of the cable. Connection to earth reduces radio interference

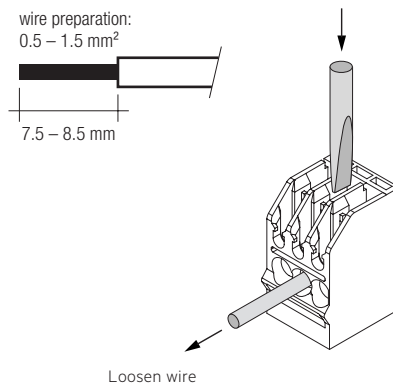
| Ballast Type     | Terminal   |      | Maximum lead capacitance allowed |       |
|------------------|------------|------|----------------------------------|-------|
|                  | Cold       | Hot  | Cold                             | Hot   |
| PC 1xx CFL COMBO | 3, 4       | 1, 2 | 50 pF                            | 50 pF |
| PC 2xx CFL COMBO | 1, 2, 5, 6 | 3, 4 | 50 pF                            | 50 pF |

### IDC interface

- Solid wire with a cross section of 0.5 mm<sup>2</sup> according to the specification from WAGO

### Horizontal interface

- Solid wire with a cross section of 0.5–1.5 mm<sup>2</sup> according to the specification from WAGO
- Strip 7.5 to 8.5 mm of insulation from the cables to ensure perfect operation of the terminals



### Batteries

Connection method: 4.8 x 0.5 mm spade welded to end of cell

For the stick batteries this connection is accessible after the battery end caps have been fitted.

To inhibit inverter operation, only disconnect the batteries by removing the connector from the battery spade tags.

Note:

The battery charger of the PC CFL Combo is short circuit protected. After a battery short circuit the protection device will be resetted after a short while.

Battery must not be connected to earth.

### Storage

It is recommended to disconnect the battery before store or delivery. A long term storage in open circuit leads to battery self discharge and deactivation of chemical components. It could be required to charge and discharge the batteries a few times to recover the initial performance.

### RFI

Tridonic ballasts are RFI protected in accordance with EN 55015.

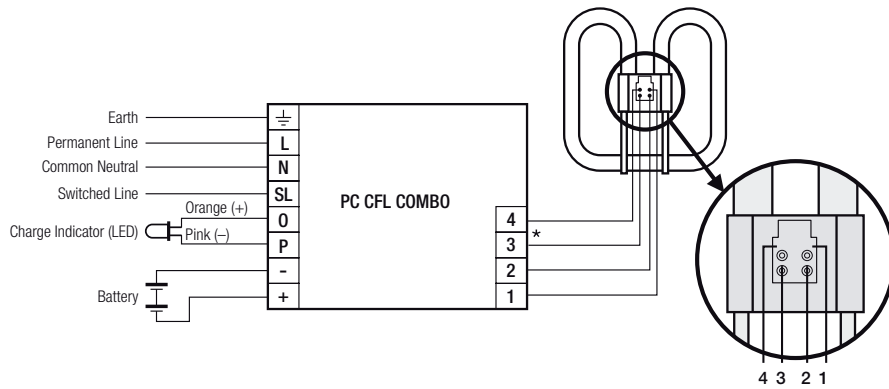
To operate the luminaire correctly and to minimise RFI we recommend the following instructions:

- Connection to the lamps of the "hot leads" must be kept as short as possible (marked with \*)
- Mains leads should be kept apart from lamp leads (ideally 5–10 cm distance)
- Do not run mains leads adjacent to the electronic ballast
- Twist the lamp leads
- Keep the distance of lamp leads from the metal work as large as possible
- Ballast should be earthed, over the terminal.
- Mains wiring to be twisted when through wiring
- Keep the mains leads inside the luminaire as short as possible

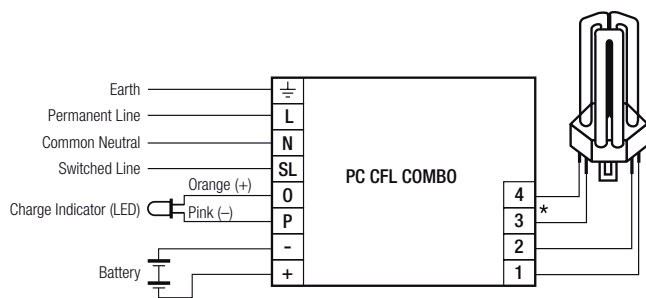
With standard solid wire 0.5/1.5 mm<sup>2</sup> the capacitance of the lead is 30–80 pF/m. This value is influenced by the way the wiring is made.

- keep lamp wires short
- lamp connection with multi-lamp ballasts should be made with symmetrical wiring
- for 1 and 2 lamp ballasts: hot leads and cold leads should be separated as much as possible
- The LED, test switch and battery wiring should be routed separately and kept as far away as possible from the high frequency lamp leads to IDC interface avoid coupling.
- 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.)

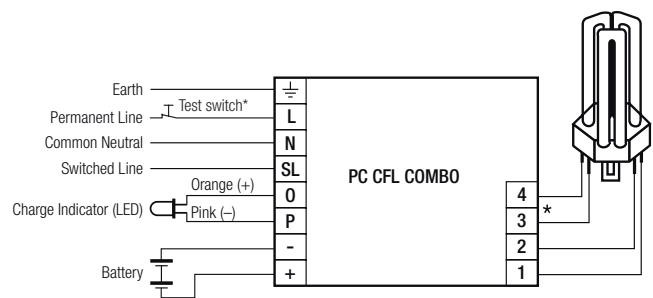
PC CFL COMBO wiring diagrams



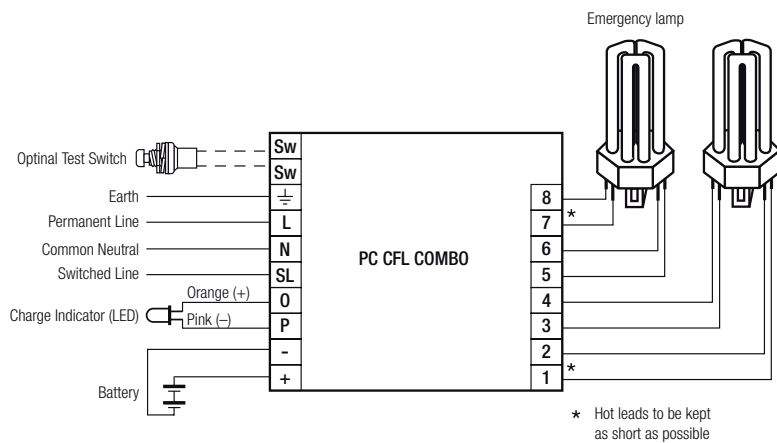
Circuit diagram PC CFL COMBO with single TC-DD lamp



Circuit diagram PC CFL COMBO with single TC-DE/TE lamp



Circuit diagram PC CFL COMBO with single TC-DE/TE lamp with Test switch  
\* Use 230 V or 240 V Test switch



Circuit diagram PC CFL COMBO with twin TC-DE/TE lamps

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.