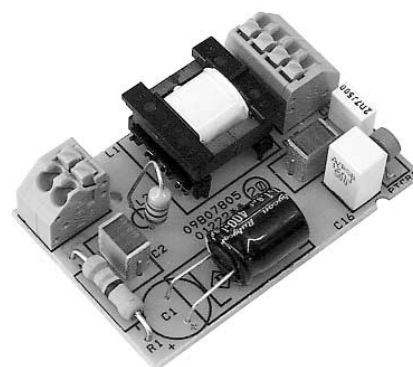
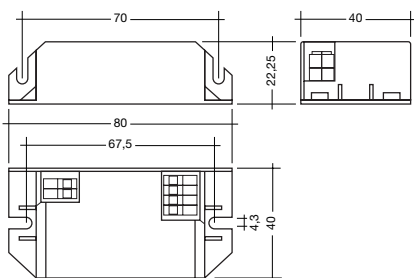




TC-SEL
TC-DEL
TC-TEL

Electronic ballast
Compact lamps TC-SEL, TC-DEL, TC-TEL

PC COMPACT BASIC 7-18 W 220-240 V 50/60/0 Hz, non dimmable



- Defined warm start < 2 s
Switching cycles > 10,000
- Average service life 50,000 h at nominal rating conditions with a maximum failure rate of 10 %
- ENEC mark indicates lamp operation within lamp specification
- AC operation 198 V – 254 V
- DC operation 154 V – 250 V DC (lamp start 200 V – 250 V DC)
- Overvoltage protection 264 V AC, 360 h

- Operating frequency ≥ 42 kHz
- Temperature range from -15 °C to +45 °C
- Energy classification EEI = A3
- CE marked
- Use in emergency lighting according to VDE 0108 possible
- Automatic restart after lamp change
- Safe switch off of defective lamps
- Automatic end of lamp life shut off
- Temperature protection ∇^{150} acc. to EN 61347-1-C.5e

Approvals:

- EN 61347-2-3 (EN 60928)
- EN 60929
- EN 61347-2-4 (EN 60924)
- EN 60925
- EN 61000-3-2
- EN 61547
- EN 55015
- acc. VDE 0108
- IEC 68-2-64 Fh
- IEC 68-2-29 Eb
- IEC 68-2-30



Square housed:

| Lamp | | Ballast | article number | LxBxH mm | fixing centres mm | weight g | circuit power W * | lamp power W * | current A * | λ * | tc point °C | temperature range °C |
|-----------|--------|---------------------------|----------------|----------|-------------------|----------|-------------------|----------------|-------------|-------------|-------------|----------------------|
| wattage W | type | type | | | | | | | | | | |
| 7 | TC-SEL | PC 1x7/9/10 COMPACT BASIC | 89895974 | 80x40x22 | 70/68 | 35 | 8.3 | 6.2 | 0.056 | 0.65 | 75 | -15 → +45 |
| 9 | TC-SEL | PC 1x7/9/10 COMPACT BASIC | 89895974 | 80x40x22 | 70/68 | 35 | 9.8 | 7.7 | 0.065 | 0.65 | 75 | -15 → +45 |
| 11 | TC-SEL | PC 1x11/13 COMPACT BASIC | 89895975 | 80x40x22 | 70/68 | 35 | 14.1 | 11.8 | 0.096 | 0.65 | 80 | -15 → +45 |
| 10 | TC-DEL | PC 1x7/9/10 COMPACT BASIC | 89895974 | 80x40x22 | 70/68 | 35 | 10.3 | 8.3 | 0.068 | 0.65 | 75 | -15 → +45 |
| 13 | TC-DEL | PC 1x11/13 COMPACT BASIC | 89895975 | 80x40x22 | 70/68 | 35 | 14.7 | 12.7 | 0.098 | 0.65 | 80 | -15 → +45 |
| 18 | TC-DEL | PC 1x18 COMPACT BASIC | 89899606 | 80x40x22 | 70/68 | 35 | 18.9 | 16.3 | 0.130 | 0.65 | 80 | -15 → +45 |
| 13 | TC-TEL | PC 1x11/13 COMPACT BASIC | 89895975 | 80x40x22 | 70/68 | 35 | 14.7 | 12.7 | 0.098 | 0.65 | 80 | -15 → +45 |
| 18 | TC-TEL | PC 1x18 COMPACT BASIC | 89899606 | 80x40x22 | 70/68 | 35 | 18.9 | 16.3 | 0.130 | 0.65 | 80 | -15 → +45 |

* typical figures at 230V 50 Hz

Square pcb:

| Ballast type | article number | LxBxH mm | weight g |
|-------------------------------|----------------|----------|----------|
| PC 1x7/9/10 COMPACT BASIC PCB | 89899612 | 56x36x17 | 20 |
| PC 1x11/13 COMPACT BASIC PCB | 89899613 | 56x36x17 | 20 |
| PC 1x18 COMPACT BASIC PCB | 89899614 | 56x36x17 | 20 |

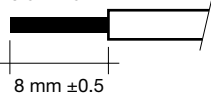
Installation instructions

Wiring type and cross section

The wiring can be in flexible cable with ferules or solid with a cross section of 0.5 – 1.5 mm².

Strip 8 mm of insulation from the cables to ensure perfect operation of push-wire terminals.

wire preparation:
0.5 – 1.5 □



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 must be kept as short as possible
- Mains leads should be kept apart from lamp leads (ideally 5 – 10 cm distance)
- Do not lead mains leads too closely along the electronic ballast
- Keep the distance of lamp leads from the metal work as large as possible
- Mains wiring to be twisted when through wiring
- Keep the mains leads inside the luminaire as short as possible

AC operation

Mains voltage:

220 – 240 V 50/60 Hz (-10% / +6%)

Min. lamp starting temperature -15 °C

DC operation

220 – 240 V DC

200 – 250 V DC certain lamp start

154 – 250 V DC operating range

Min. lamp starting temperature -15 °C

Emergency lighting

Use in emergency lighting installations according to VDE 0108.

Typical figures at 230 V DC

| Lamp type | input current A | BLF |
|-----------|-----------------|------|
| 7 W | 0.035 | 0.94 |
| 9 W | 0.035 | 0.89 |
| 10 W | 0.038 | 0.82 |
| 11 W | 0.049 | 0.82 |
| 13 W | 0.057 | 0.90 |
| 18 W | 0.061 | 0.75 |

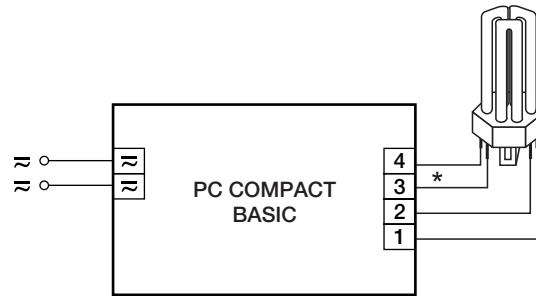
Wiring advice

The lead length is dependent on the capacitance of the cable.

| Ballast Type | Terminal | | Maximum capacitance allowed | |
|---------------------------|----------|------|-----------------------------|-------|
| | Cold | Hot | Cold | Hot |
| PC 1x7/9/10 COMPACT BASIC | 1, 2 | 3, 4 | 120 pF | 60 pF |
| PC 1x11/13 COMPACT BASIC | 1, 2 | 3, 4 | 120 pF | 60 pF |
| PC 1x18 COMPACT BASIC | 1, 2 | 3, 4 | 120 pF | 60 pF |

With standard solid wire 0.5/0.75 mm² the capacitance of the lead is 30 – 80 pF/m. This value is influenced by the way the wiring is made.

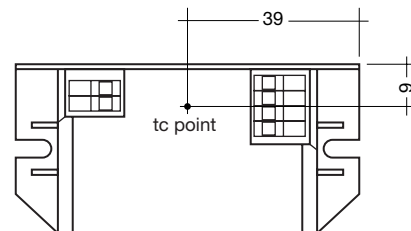
Lamp connection should be made with symmetrical wiring.



Circuit diagram PC COMPACT BASIC

Temperature range

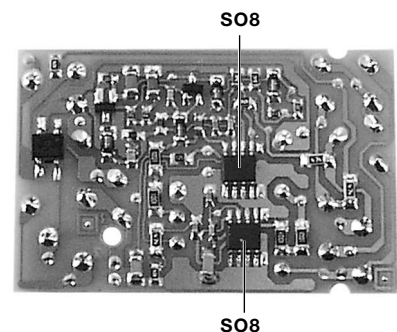
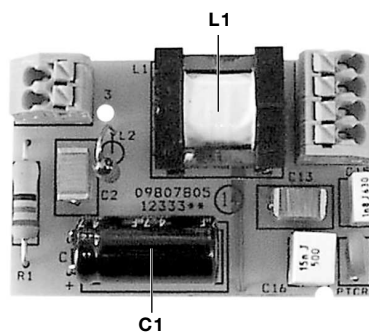
from -15 °C to +45 °C



Hottest point for the open pcb

When open PCB version are supplied it is the responsibility of the fitting/housing manufacturer to ensure the circuit board is adequately protected from dust and moisture and that no live parts are accessible to the end user during operation or when changing the lamp. The circuit board housing should be designed to

allow the components of the ballast to operate in an ambient air temperature not exceeding 45 °C. Particular attention must be taken with the two SO8 packages, the main EF16 Choke L1 winding, which must not exceed 120 °C and the electrolytic capacitor C1 which is rated at 80 °C.



Harmonic distortion in the mains supply

EMC standard EN 61000-3-2 for lighting equipment with active input power ≤ 25 W.

All ballasts comply with the standard EN 61000-3-2 to operate lighting equipment with an active input power ≤ 25 W where distortion limits for current drawn from the supply are 86 % for 3rd harmonic and 61 % for 5th harmonic only.

Remark

The EMC standard applies to the luminaire, and reflects the specific properties of each fitting whether single or multi-lamp (2x7 W, 2x9 W, 2x10 W or 2x11 W).

Loading of automatic circuit breakers

Automatic circuit

| breaker type | B/C10 | B/C13 | B/C16 | B/C20 |
|----------------------------------|---------------------|---------------------|---------------------|---------------------|
| Installation \varnothing | 1.5 mm ² | 1.5 mm ² | 1.5 mm ² | 2.5 mm ² |
| PC 1x7/9/10 COMPACT BASIC | 130 | 170 | 200 | 260 |
| PC 1x11/13 COMPACT BASIC | 90 | 110 | 140 | 180 |
| PC 1x18 COMPACT BASIC | 70 | 90 | 110 | 140 |

Max. load per MCB at supply voltage 230 V

Power factor

0.65 (± 0.05) for all ballasts at 230 V 50 Hz

Ballast lumen factor

at 230 V 50 Hz

| Lamp type | BLF |
|-----------|------|
| 7 W | 0.95 |
| 9 W | 0.90 |
| 10 W | 0.90 |
| 11 W | 0.90 |
| 13 W | 0.95 |
| 18 W | 0.90 |

Leakage current

< 0.25 mA per ballast at 230 V AC 50 Hz

Overcurrent shutdown

Each ballast variant has a latching overcurrent sensor circuit to stop the ballast running. The circuit is used to shut down the ballast if the lamp fails to strike, or if the lamp is deactivated.

The ballast can be restarted after shut down by turning off the supply for 30 seconds or by replacing the lamp.

Ingress protection

IP 20

Protection class

The ballasts are suitable for use in class I or class II luminaires.

Packing quantities

25 pieces/carton
70 cartons/pallet
1750 pieces/pallet

Inrush current at 254 V 50 Hz

Ballast
Type

| | |
|----------------------------------|-------------------|
| PC 1x7/9/10 COMPACT BASIC | 3.9 A for 0.6 ms |
| PC 1x11/13 COMPACT BASIC | 6.7 A for 0.4 ms |
| PC 1x18 COMPACT BASIC | 10.3 A for 0.4 ms |

Lamp matrix

| Lamp | PC 1x7/9/10 COMPACT BASIC | PC 1x11/13 COMPACT BASIC | PC 1x18 COMPACT BASIC |
|--------------------|------------------------------|-----------------------------|--------------------------|
| TC-SEL 7 W | ENEC | | |
| 9 W | ENEC | | |
| 11 W | | ENEC | |
| TC-DEL 10 W | ENEC | | |
| 13 W | | ENEC | |
| 18 W | | | ENEC |
| TC-TEL 13 W | | ENEC | |
| 18 W | | | ENEC |
| T5 4 W | ENEC, 50 Hz | | |
| 6 W | ENEC | | |
| 8 W | ENEC | | |
| 13 W | | ENEC | |

Precautions for use of open pcb (EN 100015)

The ballast contains static sensitive devices. The boxed version will withstand normal handling for installation, but precautions should be taken when handling the open circuit board.