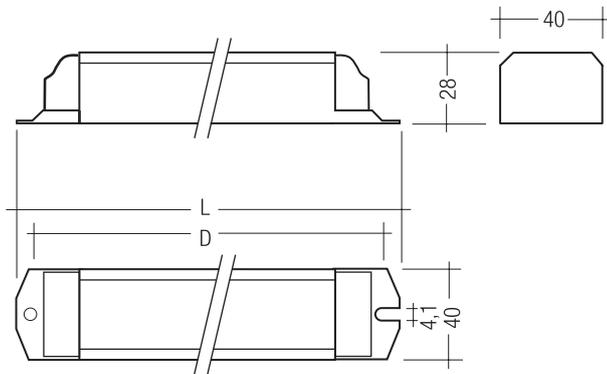




PC T8 PRO, 30 – 70 W PC PRO T8

Product description

- CELMA Energy Efficiency Index A2
- Nominal life-time up to 50,000 h (at ta 50 °C with a failure rate max. 0.2 % per 1,000 h)
- Large temperature range (for values see table)
- Intelligent Voltage Guard (overvoltage indication and undervoltage shutdown)
- Constant luminous flux irrespective of fluctuations in mains voltage
- For luminaires of protection class I and protection class II
- Automatic start after replacement of defective lamps
- Safety shutdown of defective lamps and at end of lamp life
- Insulation Displacement Connection (IDC) terminal for rapid automatic or manual wiring
- For emergency lighting systems as per EN 50172
- For luminaires with F or M and MM as per EN 60598, VDE 0710 and VDE 0711
- Temperature protection as per EN 61347-2-3 C5e



Technical data

| | |
|------------------------|--|
| AC voltage range | 198 – 264 V |
| DC voltage range | 176 – 280 V (Lamp start \geq 198 V DC) |
| Overvoltage protection | 320 V AC, 1 h |
| Defined warm start | \leq 1.5 s |
| Operating frequency | \geq 40 kHz |
| Type of protection | IP20 |



Standards, page 3

Wiring diagrams and installation examples, page 5

Ordering data

| Type | Article number | Packaging carton | Packaging pallet | Weight per pc. |
|------------------------------------|----------------|------------------|------------------|----------------|
| For luminaires with 1 lamp | | | | |
| PC 1/30 T8 PRO | 22176077 | 10 pc(s). | 630 pc(s). | 0.221 kg |
| PC 1/70 T8 PRO | 22176171 | 10 pc(s). | 630 pc(s). | 0.202 kg |
| For luminaires with 2 lamps | | | | |
| PC 2/30 T8 PRO | 22176078 | 10 pc(s). | 630 pc(s). | 0.200 kg |
| PC 2/70 T8 PRO | 22176232 | 10 pc(s). | 420 pc(s). | 0.318 kg |
| For luminaires with 3 lamps | | | | |
| PC 3/36 T8 PRO | 22176231 | 10 pc(s). | 420 pc(s). | 0.304 kg |

Specific technical data

| Lamp wattage | Lamp type | Type | Article number | Dimensions L x W x H | Hole spacing D | Lamp power | Circuit power | EEI | Current at 50 Hz | | λ at 50 Hz | | tc point max. | Ambient temperature ta |
|------------------------------------|-----------|----------------|----------------|----------------------|----------------|------------|---------------|-----|------------------|--------|--------------------|-------|---------------|------------------------|
| | | | | | | | | | 220 V | 240 V | 220 V | 240 V | | |
| For luminaires with 1 lamp | | | | | | | | | | | | | | |
| 1 x 30 W | T8 | PC 1/30 T8 PRO | 22176077 | 234 x 40 x 28 mm | 220 mm | 24 W | 28.0 W | A2 | 0.13 A | 0.12 A | 0.97 | 0.96 | 75 °C | -25 ... 60 °C |
| 1 x 70 W | T8 | PC 1/70 T8 PRO | 22176171 | 234 x 40 x 28 mm | 220 mm | 60 W | 65.6 W | A2 | 0.30 A | 0.28 A | 0.99 | 0.98 | 75 °C | -25 ... 55 °C |
| For luminaires with 2 lamps | | | | | | | | | | | | | | |
| 2 x 30 W | T8 | PC 2/30 T8 PRO | 22176078 | 234 x 40 x 28 mm | 220 mm | 50 W | 56.0 W | A2 | 0.26 A | 0.24 A | 0.97 | 0.96 | 75 °C | -25 ... 60 °C |
| 2 x 70 W | T8 | PC 2/70 T8 PRO | 22176232 | 360 x 40 x 28 mm | 350 mm | 120 W | 136.8 W | A2 | 0.62 A | 0.57 A | 0.99 | 0.99 | 70 °C | -25 ... 50 °C |
| For luminaires with 3 lamps | | | | | | | | | | | | | | |
| 3 x 36 W | T8 | PC 3/36 T8 PRO | 22176231 | 360 x 40 x 28 mm | 350 mm | 96 W | 106.5 W | A2 | 0.51 A | 0.47 A | 0.99 | 0.98 | 70 °C | -25 ... 50 °C |

Standards

EN 55015
EN 61347-2-4
EN 61347-2-3
EN 60929
EN 61000-3-2
EN 61547
in accordance with EN 50172
IEC 68-2-64 Fh
IEC 68-2-29 Eb
IEC 68-2-30

Lamp starting characteristics

Warm start
Starting time 1.5 sec. with AC and DC operation
Cathode heating will be reduced after preheat time

AC operation

Mains voltage:
220–240 V 50/60 Hz
198–264 V 50/60 Hz including safety tolerance ($\pm 10\%$)
202–254 V 50/60 Hz including performance tolerance ($+6\% / -8\%$)

DC operation

220–240 V 0 Hz
198–280 V 0 Hz certain lamp start
176–280 V 0 Hz operating range
Light output level in DC operation: 100 %

Emergency lighting

Use in emergency lighting installations according to EN 50172 or for emergency luminaires according to EN 61347-2-3 appendix J.

Instant start after mains interruption < 0.5 s
EBLF = 1.00

Intelligent Voltage Guard

Intelligent Voltage Guard is the name of the new electronic monitor from Tridonic. This innovative feature of the PC PRO family of control gear from Tridonic immediately shows if the mains voltage rises above or falls below certain thresholds. Measures can then be taken quickly to prevent damage to the control gear.

- If the mains voltage rises above approx. 306 V (voltage depends on the ballast type), the lamp starts flashing on and off.
- This signal "demands" disconnection of the power supply to the lighting system.
- If the mains voltage falls below 150 V the control gear automatically disconnects the lamp circuit to protect the control gear from being irreparably damaged.

Smart Heating

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

Mains currents in DC operation

| Type | Lamp type | Wattage | Mains current at | |
|----------------|-----------|---------|--------------------|--------------------|
| | | | $U_n = 220 V_{DC}$ | $U_n = 240 V_{DC}$ |
| PC 1/30 T8 PRO | T8 | 1x30 W | 0.16 A | 0.15 A |
| PC 2/30 T8 PRO | T8 | 2x30 W | 0.27 A | 0.25 A |
| PC 3/36 T8 PRO | T8 | 3x36 W | 0.51 A | 0.46 A |
| PC 1/70 T8 PRO | T8 | 1x70 W | 0.30 A | 0.28 A |
| PC 2/70 T8 PRO | T8 | 2x70 W | 0.61 A | 0.57 A |

Harmonic distortion in the mains supply

| Type | Lamp type | Wattage | THD |
|----------------|-----------|---------|------------------|
| | | | at 230 V / 50 Hz |
| PC 1/30 T8 PRO | T8 | 1x30 W | $< 10\%$ |
| PC 2/30 T8 PRO | T8 | 2x30 W | $< 10\%$ |
| PC 3/36 T8 PRO | T8 | 3x36 W | $< 10\%$ |
| PC 1/70 T8 PRO | T8 | 1x70 W | $< 10\%$ |
| PC 2/70 T8 PRO | T8 | 2x70 W | $< 10\%$ |

Working voltage

| Type | Lamp type | Wattage | U_{out} |
|----------------|-----------|---------|-----------|
| PC 1/30 T8 PRO | T8 | 1x30 W | 250 V |
| PC 2/30 T8 PRO | T8 | 2x30 W | 250 V |
| PC 3/36 T8 PRO | T8 | 3x36 W | 250 V |
| PC 1/70 T8 PRO | T8 | 1x70 W | 250 V |
| PC 2/70 T8 PRO | T8 | 2x70 W | 250 V |

Ballast lumen factor (EN 60929 8.1)

| Type | Lamp type | Wattage | AC/DC-BLF |
|----------------|-----------|---------|---------------------------|
| | | | at $U = 198-254$ V, 25 °C |
| PC 1/30 T8 PRO | T8 | 1x30 W | 1.00 |
| PC 2/30 T8 PRO | T8 | 2x30 W | 1.00 |
| PC 3/36 T8 PRO | T8 | 3x36 W | 1.05 |
| PC 1/70 T8 PRO | T8 | 1x70 W | 1.00 |
| PC 2/70 T8 PRO | T8 | 2x70 W | 1.00 |

PC PRO with xitec processor

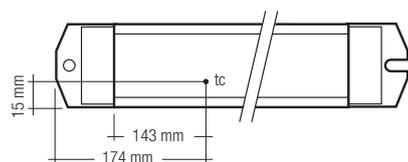
Is the very latest in lighting management design technology. The lamp friendly warm start is delivering maximum T8 lamp life and enables high switching frequency applications. Smallest power loss and new freedom in the lamp design thanks to convincing thermal management.

Energy class CELMA EEI = A2¹⁾

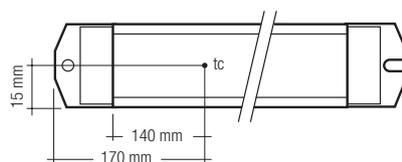
PC T8 PRO ignition technology (smart heating) optimises lamp start and ensures no energy is wasted. After the lamp has struck the filament heating is reduced automatically to a defined minimum value. This reduction in filament heating, saves energy, yet maintains the proper operating conditions for the lamp. The lamp is always operated within specification.

¹⁾ according to the EU directives on ecodesign requirements (EC) No. 245/2009 and (EC) No. 347/2010

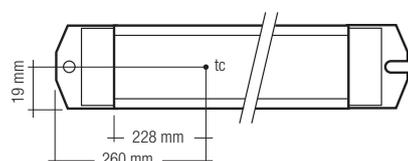
PC 1/70 T8 PRO



PC 1/30 T8 PRO, PC 2/30 T8 PRO



PC 3/36 T8 PRO, PC 2/70 T8 PRO



Ambient Temperature

-25 °C to +50 °C resp. 55 °C resp. 60 °C

The nominal ta and tc point are related to the ballast life duration.

The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured. Detailed information on request.

PC T8 PRO 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.

Humidity: 5 % up to max. 85 %, not condensed (max. 56 days/year at 85 %)

Storage temperature: -40 °C up to max. +80 °C

The devices have to be within the specified temperature range (ta) before they can be operated.

Expected life-time

| Type | Lamp type | Lamp wattage | ta | 40 °C | 50 °C | 55 °C | 60 °C |
|----------------|-----------|--------------|-----------|-------------|-----------|----------|----------|
| PC 1x30 T8 PRO | T8 | 1x30 W | tc | 55 °C | 65 °C | 70 °C | 75 °C |
| | | | Life-time | > 100,000 h | 100,000 h | 70,000 h | 50,000 h |
| PC 1x70 T8 PRO | T8 | 1x70 W | tc | 60 °C | 70 °C | 75 °C | x |
| | | | Life-time | > 100,000 h | 70,000 h | 50,000 h | x |
| PC 2x30 T8 PRO | T8 | 2x30 W | tc | 55 °C | 65 °C | 70 °C | 75 °C |
| | | | Life-time | 100,000 h | 100,000 h | 70,000 h | 50,000 h |
| PC 2x70 T8 PRO | T8 | 2x70 W | tc | 60 °C | 70 °C | x | x |
| | | | Life-time | 100,000 h | 50,000 h | x | x |
| PC 3x36 T8 PRO | T8 | 3x36 W | tc | 60 °C | 70 °C | x | x |
| | | | Life-time | 100,000 h | 50,000 h | x | x |

x = not permitted

Maximum loading of automatic circuit breakers

| Automatic circuit | C10 | C13 | C16 | C20 | B10 | B13 | B16 | B20 |
|-----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Installation Ø | 1.5 mm ² | 1.5 mm ² | 1.5 mm ² | 2.5 mm ² | 1.5 mm ² | 1.5 mm ² | 1.5 mm ² | 2.5 mm ² |
| PC 1/30 T8 PRO | 40 | 52 | 60 | 72 | 19 | 26 | 30 | 36 |
| PC 2/30 T8 PRO | 22 | 30 | 38 | 42 | 11 | 15 | 19 | 21 |
| PC 3/36 T8 PRO | 15 | 20 | 25 | 31 | 9 | 12 | 16 | 20 |
| PC 1/70 T8 PRO | 20 | 26 | 34 | 42 | 10 | 13 | 17 | 21 |
| PC 2/70 T8 PRO | 10 | 14 | 18 | 20 | 5 | 7 | 9 | 10 |

Wiring advice

The lead length is dependant on the capacitance of the cable.
For safety reasons, the PC T8 PRO must only be earthed in the case of a safety class 1 luminaire.
Earthing is not required for the device to operate. Connection to earth reduces radio interference.

| Ballast Type | Terminal | Maximum capacitance allowed | | | |
|----------------------|----------|-----------------------------|-------|--------|--------|
| | | Cold | Hot | Kalt | Heiß |
| PC 1xx T8 PRO | | 11, 12 | 9, 10 | 200 pF | 100 pF |
| PC 2xx T8 PRO | | 11, 12, 13, 14 | 9, 10 | 200 pF | 100 pF |
| PC 3xx T8 PRO | | 11, 12, 13, 14, 15, 16 | 9, 10 | 200 pF | 100 pF |

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.)

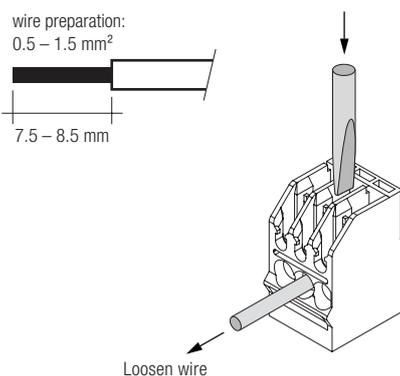
Installation instructions

IDC interface

- solid wire with a cross section of 0.5 mm² according to the specification from WAGO

Horizontal interface

- solid wire with a cross section of 0.5–1.5 mm² according to the specification from WAGO
- strip 7.5–8.5 mm of insulation from the cables to ensure perfect operation of the push terminals



Defective lamp

If a lamp is defective, the ballast switches off and goes into standby. There is an automatic restart once the lamp has been changed.

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_{DC} 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 1500 V_{AC} (or 1.414 x 1500 V_{DC}). To avoid damage to the electronic devices this test must not be conducted.

T8 lamp information

| | wattage | length |
|--|---------|---------|
| | 30 W | 900 mm |
| | 36 W | 1200 mm |
| | 70 W | 1800 mm |

With standard solid wire 0.5/0.75 mm² the capacitance of the lead is approx. 80 pF/m. This value is influenced by the way the wiring is made. In borderline cases the capacitance must be measured inside the luminaire.
Keep lamp wires short. Lamp connection with twin ballast should be made with symmetrical wiring. Hot leads and cold leads should be separated as much as possible.

RFI

Tridonic ballasts are RFI protected in accordance with EN 55015:2006 and A1:2007. To operate the luminaire correctly and and to minimise RFI we recommend the following instructions:

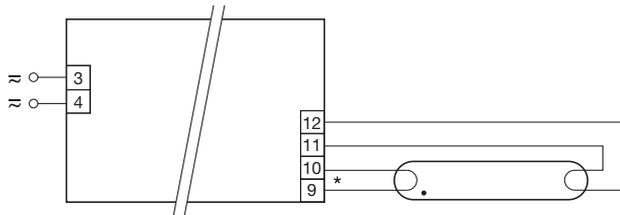
- Connection to the lamps of the "hot leads" must be kept as short as possible (marked with *)
- Mains leads should be kept apart from lamp leads (ideally 5–10 cm distance)
- Do not run mains leads adjacent to the electronic ballast
- Twist the lamp leads
- Keep the distance of lamp leads from the metal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

Additional information

Additional technical information at www.tridonic.com → Technical Data

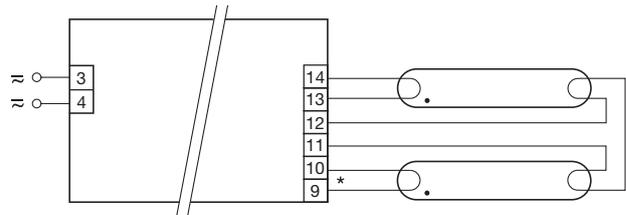
Guarantee conditions at www.tridonic.com → Services

No warranty if device was opened.



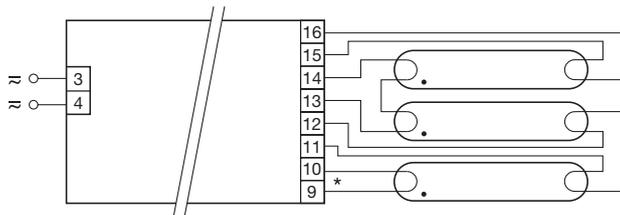
* leads 9, 10 max. 1.0 m (< 100 pF)
leads 11, 12 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 1x30-70 W T8 PRO



* leads 9, 10 max. 1.0 m (< 100 pF)
leads 11, 12, 13, 14 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 2x30-70 W T8 PRO



* leads 9, 10 max. 1.0 m (< 100 pF)
leads 11, 12, 13, 14, 15, 16 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 3x36 W T8 PRO