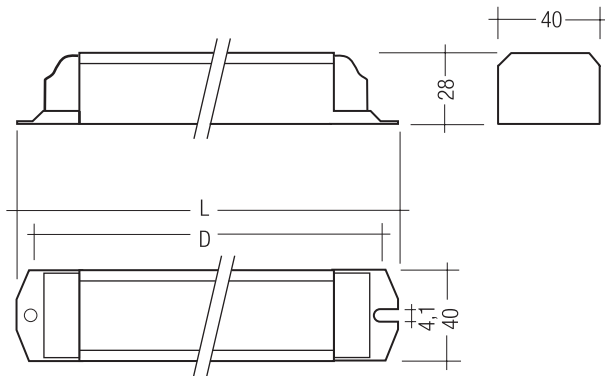




## PC T8 PRO, 18 – 70 W T8 fluorescent lamps

### Product description

- Average life = 50,000 hours (at max ta. with a failure rate  $\leq 0.2$  % per 1,000 hours)
- Large temperature range (for values see table)
- Safety shutdown of defective lamps
- Automatic start after replacement of defective lamps
- For emergency lighting systems as per EN 50172
- Constant luminous flux irrespective of fluctuations in mains voltage
- For luminaires of protection class 1 and protection class 2
- For luminaires with F or M and MM as per EN 60598, VDE 0710 and VDE 0711
- Insulation Displacement Connection (IDC) terminal for rapid automatic or manual wiring
- 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)
Oversvoltage 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
<b>For luminaires with 1 lamp</b>	
PC 1/18 T8 PRO	22176093
PC 1/30 T8 PRO	22176077
PC 1/36 T8 PRO	22176217
PC 1/58 T8 PRO	22176094
PC 1/70 T8 PRO	22176171
<b>For luminaires with 2 lamps</b>	
PC 2/18 T8 PRO	22176107
PC 2/30 T8 PRO	22176078
PC 2/36 T8 PRO	22176218
PC 2/58 T8 PRO	22176215
PC 2/70 T8 PRO	22176232
<b>For luminaires with 3 lamps</b>	
PC 3/18 T8 PRO	22176187
PC 3/36 T8 PRO	22176231
<b>For luminaires with 4 lamps</b>	
PC 4/18 T8 PRO	22176163

Packaging 234 mm casing: 10 pieces/carton, 630 pieces/pallet

Packaging 360 mm casing: 10 pieces/carton, 420 pieces/pallet

Packaging PC 1/36 T8 PRO, PC 2/36 T8 PRO, PC 2/58 T8 PRO: 10 pieces/carton, 640 pieces/pallet

Specific technical data

Lamp wattage	Lamp type	Type	Length L	Hole spacing D	Weight	Lamp wattage	Circuit power	EEI	Current at 50 Hz		λ at 50 Hz		tc point	Ambient temperature ta
									220 V	240 V	220 V	240 V		
<b>For luminaires with 1 lamp</b>														
1 x 18 W	T8	PC 1/18 T8 PRO	234 mm	220 mm	0.28 kg	16 W	18.2 W	A2	0.08 A	0.08 A	0.99	0.98	70 °C	-25 ... 60 °C
1 x 30 W	T8	PC 1/30 T8 PRO	234 mm	220 mm	0.28 kg	24 W	28.0 W	A2	0.13 A	0.12 A	0.97	0.96	75 °C	-25 ... 60 °C
1 x 36 W	T8	PC 1/36 T8 PRO	234 mm	220 mm	0.28 kg	32 W	35.0 W	A2	0.16 A	0.15 A	0.98	0.98	75 °C	-25 ... 60 °C
1 x 58 W	T8	PC 1/58 T8 PRO	234 mm	220 mm	0.28 kg	50 W	54.0 W	A2	0.26 A	0.24 A	0.98	0.98	75 °C	-25 ... 50 °C
1 x 70 W	T8	PC 1/70 T8 PRO	234 mm	220 mm	0.20 kg	60 W	65.6 W	A2	0.30 A	0.28 A	0.99	0.98	75 °C	-25 ... 55 °C
<b>For luminaires with 2 lamps</b>														
2 x 18 W	T8	PC 2/18 T8 PRO	234 mm	220 mm	0.28 kg	32 W	36.0 W	A2	0.17 A	0.16 A	0.98	0.97	75 °C	-25 ... 60 °C
2 x 30 W	T8	PC 2/30 T8 PRO	234 mm	220 mm	0.28 kg	50 W	56.0 W	A2	0.26 A	0.24 A	0.97	0.96	75 °C	-25 ... 60 °C
2 x 36 W	T8	PC 2/36 T8 PRO	234 mm	220 mm	0.28 kg	64 W	69.8 W	A2	0.32 A	0.29 A	0.99	0.98	75 °C	-25 ... 55 °C
2 x 58 W	T8	PC 2/58 T8 PRO	234 mm	220 mm	0.28 kg	100 W	106.8 W	A2	0.49 A	0.45 A	0.99	0.99	80 °C	-25 ... 50 °C
2 x 70 W	T8	PC 2/70 T8 PRO	360 mm	350 mm	0.32 kg	120 W	136.8 W	A2	0.62 A	0.57 A	0.99	0.99	70 °C	-25 ... 50 °C
<b>For luminaires with 3 lamps</b>														
3 x 18 W	T8	PC 3/18 T8 PRO	234 mm	220 mm	0.28 kg	48 W	52.5 W	A2	0.24 A	0.23 A	0.98	0.97	70 °C	-25 ... 60 °C
3 x 36 W	T8	PC 3/36 T8 PRO	360 mm	350 mm	0.31 kg	96 W	106.5 W	A2	0.51 A	0.47 A	0.99	0.98	70 °C	-25 ... 50 °C
<b>For luminaires with 4 lamps</b>														
4 x 18 W	T8	PC 4/18 T8 PRO	234 mm	220 mm	0.28 kg	64 W	70.1 W	A2	0.33 A	0.30 A	0.98	0.97	70 °C	-25 ... 55 °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

**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 1/18 T8 PRO	T8	1x18 W	0.08 A	0.07 A
PC 2/18 T8 PRO	T8	2x18 W	0.17 A	0.15 A
PC 3/18 T8 PRO	T8	3x18 W	0.24 A	0.22 A
PC 4/18 T8 PRO	T8	4x18 W	0.32 A	0.29 A
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 1/36 T8 PRO	T8	1x36 W	0.16 A	0.14 A
PC 2/36 T8 PRO	T8	2x36 W	0.31 A	0.29 A
PC 3/36 T8 PRO	T8	3x36 W	0.51 A	0.46 A
PC 1/58 T8 PRO	T8	1x58 W	0.26 A	0.24 A
PC 2/58 T8 PRO	T8	1x58 W	0.50 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 1/18 T8 PRO	T8	1x18 W	$< 12\%$
PC 2/18 T8 PRO	T8	2x18 W	$< 10\%$
PC 3/18 T8 PRO	T8	3x18 W	$< 10\%$
PC 4/18 T8 PRO	T8	4x18 W	$< 10\%$
PC 1/30 T8 PRO	T8	1x30 W	$< 10\%$
PC 2/30 T8 PRO	T8	2x30 W	$< 10\%$
PC 1/36 T8 PRO	T8	1x36 W	$< 10\%$
PC 2/36 T8 PRO	T8	2x36 W	$< 10\%$
PC 3/36 T8 PRO	T8	3x36 W	$< 10\%$
PC 1/58 T8 PRO	T8	1x58 W	$< 10\%$
PC 2/58 T8 PRO	T8	1x58 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 1/18 T8 PRO	T8	1x18 W	300 V
PC 2/18 T8 PRO	T8	2x18 W	300 V
PC 3/18 T8 PRO	T8	3x18 W	250 V
PC 4/18 T8 PRO	T8	4x18 W	300 V
PC 1/30 T8 PRO	T8	1x30 W	250 V
PC 2/30 T8 PRO	T8	2x30 W	250 V
PC 1/36 T8 PRO	T8	1x36 W	300 V
PC 2/36 T8 PRO	T8	2x36 W	300 V
PC 3/36 T8 PRO	T8	3x36 W	250 V
PC 1/58 T8 PRO	T8	1x58 W	300 V
PC 2/58 T8 PRO	T8	1x58 W	300 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
			bei $U = 198-254$ V, 25 °C
PC 1/18 T8 PRO	T8	1x18 W	1.00
PC 2/18 T8 PRO	T8	2x18 W	1.00
PC 3/18 T8 PRO	T8	3x18 W	1.00
PC 4/18 T8 PRO	T8	4x18 W	1.00
PC 1/30 T8 PRO	T8	1x30 W	1.00
PC 2/30 T8 PRO	T8	2x30 W	1.00
PC 1/36 T8 PRO	T8	1x36 W	1.00
PC 2/36 T8 PRO	T8	2x36 W	1.00
PC 3/36 T8 PRO	T8	3x36 W	1.05
PC 1/58 T8 PRO	T8	1x58 W	1.00
PC 2/58 T8 PRO	T8	1x58 W	1.00
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

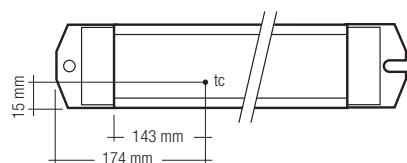
Is the very latest in lighting management design technology. The lamp friendly warm start is delivering maximum T8 lamp life and enables high switching frequency applications. Smallest power loss and new freedom in the lamp design thanks to convincing thermal management.

### Energy class CELMA EEI = A2<sup>1)</sup>

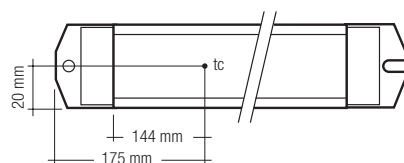
PC T8 PRO ignition technology (smart heating) optimises lamp start and ensures no energy is wasted. After the lamp has struck the filament heating is reduced automatically to a defined minimum value. This reduction in filament heating, saves energy, yet maintains the proper operating conditions for the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

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

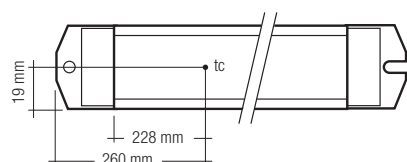
#### PC 1/xx T8 PRO, PC 2/xx T8 PRO



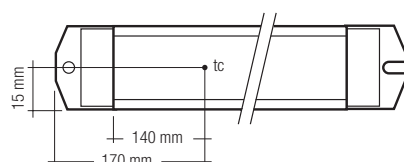
#### PC 3/18 T8 PRO, PC 4/18 T8 PRO



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



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



### Ambient Temperature

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

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.

PC T8 PRO is designed for an average service life 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 ( $t_a$ ) before they can be operated.

### Maximum loading of automatic circuit breakers

Automatic circuit	C10	C13	C16	C20	B10	B13	B16	B20
Installation Ø	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
PC 1/18 T8 PRO	44	62	74	104	22	31	37	52
PC 2/18 T8 PRO	36	50	60	72	18	25	30	36
PC 3/18 T8 PRO	40	60	80	92	20	30	40	46
PC 4/18 T8 PRO	30	40	52	64	15	20	26	32
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 1/36 T8 PRO	38	52	60	72	19	26	30	36
PC 2/36 T8 PRO	24	32	38	44	12	16	19	22
PC 3/36 T8 PRO	18	24	32	40	9	12	16	20
PC 1/58 T8 PRO	36	50	60	70	18	25	30	35
PC 2/58 T8 PRO	16	22	26	30	8	11	13	15
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.

With standard solid wire 0.5/0.75 mm<sup>2</sup> 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.

Ballast Type	Terminal	Maximum capacitance allowed			
		Cold	Hot	Kalt	Hei
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
PC 4xx T8 PRO		5, 6, 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.)

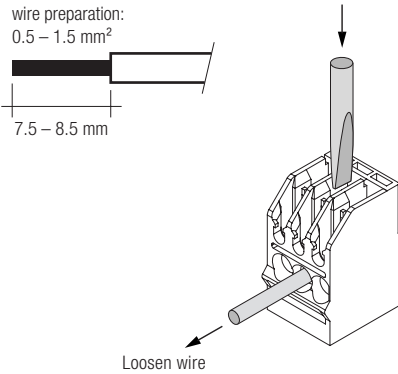
### Installation instructions

#### IDC interface

- solid wire with a cross section of 0.5 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 7.5–8.5 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<sub>DC</sub> for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.

The isolation resistance must be at least 2 MΩ.

As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V<sub>AC</sub> (or 1.414 x 1500 V<sub>DC</sub>). To avoid damage to the electronic devices this test must not be conducted.

#### RFI

Tridonic ballasts are RFI protected in accordance with EN 55015:2006 and A1:2007. 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
- 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

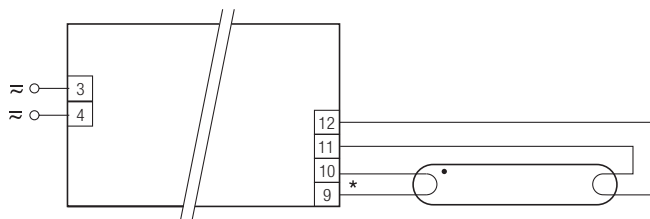
Additional technical information at [www.tridonic.com](http://www.tridonic.com) → Technical Data

Guarantee conditions at [www.tridonic.com](http://www.tridonic.com) → Services

No warranty if device was opened.

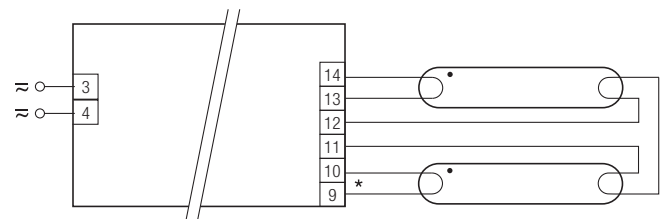
### T8 lamp information

	wattage	length
	18 W	590 mm
	30 W	900 mm
	36 W	1200 mm
	58 W	1500 mm
	70 W	1800 mm



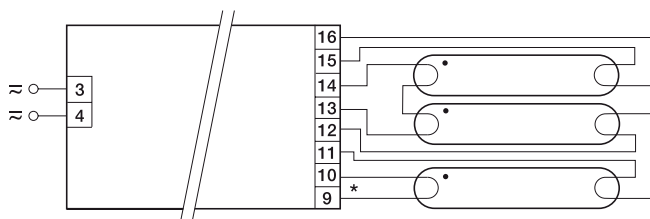
- \* leads 9, 10 max. 1.0 m (< 100 pF)
- leads 11, 12 max. 2.0 m (< 200 pF)
- Protection class I - luminaires: earth of ballast housing required (according to IEC 598)
- Protection class II - luminaires: no earth required

#### PC 1x18–70 W T8 PRO



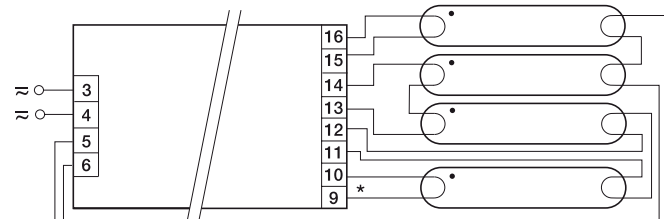
- \* leads 9, 10 max. 1.0 m (< 100 pF)
- leads 11, 12, 13, 14 max. 2.0 m (< 200 pF)
- Protection class I - luminaires: earth of ballast housing required (according to IEC 598)
- Protection class II - luminaires: no earth required

#### PC 2x18–70 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)
- Protection class I - luminaires: earth via fixing of ballast housing (according to IEC 60598)
- Protection class II - luminaires: no earth required

#### PC 3x18–36 W T8 PRO



- \* leads 9, 10 max. 1.0 m (< 100 pF)
- leads 5, 6, 11, 12, 13, 14, 15, 16 max. 2.0 m (< 200 pF)
- Protection class I - luminaires: earth via fixing of ballast housing (according to IEC 60598)
- Protection class II - luminaires: no earth required

#### PC 4x18 W T8 PRO