T8

PC T8 TOP lp, PC T8 TOP sl, 18 – 58 W

PC TOP T8

Product description

- CELMA Energy Efficiency Index EEI = A2
- Nominal life 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)
- Constant luminous flux irrespective of fluctuations in mains voltage
- Lamp preheating for min. 30,000 starts without replacement of lamps
- Designed for THD < 10 %
- 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
- Plug terminal for rapid automatic or manual wiring
- For emergency lighting systems as per EN 50172

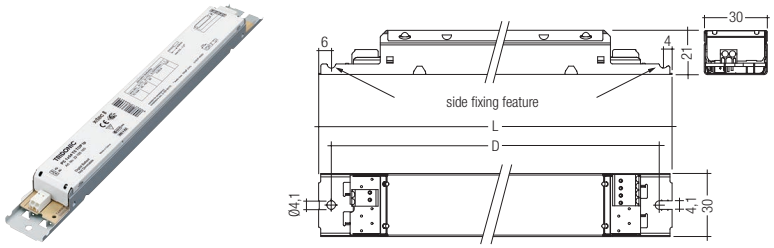


Fig. 1

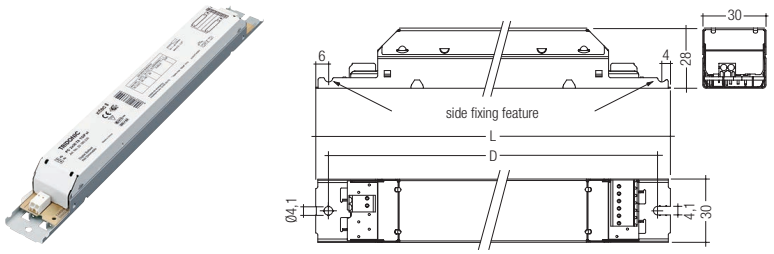


Fig. 2

Technical data

Mains voltage range	220 – 240 V
AC voltage range	198 – 264 V
DC voltage range	176 – 280 V (lamp start ≥ 198 V DC)
Mains frequency	0 / 50 / 60 Hz
Overvoltage protection	320 V AC, 1 h
Defined warm start	≤ 1.5 s
Operating frequency	≥ 39.5 kHz
Type of protection	IP20

→

Standards, page 2

Wiring diagrams and installation examples, page 5

Ordering data

Type	Article number	Figure	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
For luminaires with 1 lamp						
PC 1x18 T8 TOP sl	**22185222**	2	50 pc(s).	1,050 pc(s).	3,150 pc(s).	0.148 kg
PC 1x36 T8 TOP sl	**22185223**	2	50 pc(s).	1,050 pc(s).	3,150 pc(s).	0.148 kg
PC 1x58 T8 TOP sl	**22185224**	2	50 pc(s).	1,050 pc(s).	3,150 pc(s).	0.149 kg
For luminaires with 2 lamps						
PC 2x18 T8 TOP sl	**22185225**	2	50 pc(s).	900 pc(s).	2,700 pc(s).	0.174 kg
PC 2x36 T8 TOP sl	**22185226**	2	50 pc(s).	900 pc(s).	2,700 pc(s).	0.209 kg
PC 2x58 T8 TOP sl	**22185227**	2	50 pc(s).	900 pc(s).	2,700 pc(s).	0.212 kg
For luminaires with 3 or 4 lamps						
PC 3/4x18 T8 TOP lp	**22185228**	1	10 pc(s).	960 pc(s).	–	0.189 kg

Specific technical data

Lamp wattage	Lamp type	Type	Aricle 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	tc/ta for ≥ 50,000 h
									220 V	240 V	220 V	240 V			
For luminaires with 1 lamp															
1 x 18 W	T8	**PC 1x18 T8 TOP sl**	22185222	230 x 30 x 28 mm	220 mm	16 W	18.3 W	A2 BAT	0.085 A	0.079 A	0.98	0.96	65 °C	-25 ... 55 °C	60/50 °C
1 x 36 W	T8	**PC 1x36 T8 TOP sl**	22185223	230 x 30 x 28 mm	220 mm	32 W	35.2 W	A2 BAT	0.162 A	0.151 A	0.99	0.97	65 °C	-25 ... 55 °C	60/50 °C
1 x 58 W	T8	**PC 1x58 T8 TOP sl**	22185224	230 x 30 x 28 mm	220 mm	50 W	56.2 W	A2	0.258 A	0.241 A	0.99	0.97	70 °C	-25 ... 55 °C	65/50 °C
For luminaires with 2 lamps															
2 x 18 W	T8	**PC 2x18 T8 TOP sl**	22185225	280 x 30 x 28 mm	270 mm	32 W	35.3 W	A2 BAT	0.162 A	0.152 A	0.99	0.97	65 °C	-25 ... 55 °C	60/50 °C
2 x 36 W	T8	**PC 2x36 T8 TOP sl**	22185226	280 x 30 x 28 mm	270 mm	64 W	73.4 W	A2	0.337 A	0.315 A	0.99	0.97	70 °C	-25 ... 55 °C	65/50 °C
2 x 58 W	T8	**PC 2x58 T8 TOP sl**	22185227	280 x 30 x 28 mm	270 mm	100 W	112.4 W	A2	0.516 A	0.483 A	0.99	0.97	75 °C	-25 ... 55 °C	70/50 °C
For luminaires with 3 or 4 lamps															
3 x 18 W	T8	**PC 3/4x18 T8 TOP lp**	22185228	280 x 30 x 21 mm	270 mm	48 W	53.2 W	A2 BAT	0.244 A	0.229 A	0.99	0.97	65 °C	-25 ... 55 °C	60/50 °C
4 x 18 W	T8	**PC 3/4x18 T8 TOP lp**	22185228	280 x 30 x 21 mm	270 mm	64 W	69.2 W	A2 BAT	0.318 A	0.297 A	0.99	0.97	70 °C	-25 ... 55 °C	65/50 °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 s 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 (±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 ≥ 0.5

Mains currents in DC operation

Type	lamp type	wattage	mains current at U_n = 220 V_{DC}	mains current at U_n = 240 V_{DC}
PC 1x18 T8 TOP sl	T8	1x18 W	85 mA	79 mA
PC 1x36 T8 TOP sl	T8	1x36 W	162 mA	151 mA
PC 1x58 T8 TOP sl	T8	1x58 W	258 mA	241 mA
PC 2x18 T8 TOP sl	T8	2x18 W	162 mA	152 mA
PC 2x36 T8 TOP sl	T8	2x36 W	337 mA	315 mA
PC 2x58 T8 TOP sl	T8	2x58 W	516 mA	483 mA
PC 3/4x18 T8 TOP lp	T8	3x18 W	244 mA	229 mA
	T8	4x18 W	318 mA	297 mA

Harmonic distortion in the mains supply

Type	lamp type	wattage	THD at 230 V / 50 Hz
PC 1x18 T8 TOP sl	T8	1x18 W	< 10 %
PC 1x36 T8 TOP sl	T8	1x36 W	< 10 %
PC 1x58 T8 TOP sl	T8	1x58 W	< 10 %
PC 2x18 T8 TOP sl	T8	2x18 W	< 10 %
PC 2x36 T8 TOP sl	T8	2x36 W	< 10 %
PC 2x58 T8 TOP sl	T8	2x58 W	< 10 %
PC 3/4x18 T8 TOP lp	T8	3x18 W	< 10 %
	T8	4x18 W	< 10 %

Output voltage

Type	lamp type	wattage	U_{out}
PC 1x18 T8 TOP sl	T8	1x18 W	400 V
PC 1x36 T8 TOP sl	T8	1x36 W	400 V
PC 1x58 T8 TOP sl	T8	1x58 W	400 V
PC 2x18 T8 TOP sl	T8	2x18 W	400 V
PC 2x36 T8 TOP sl	T8	2x36 W	400 V
PC 2x58 T8 TOP sl	T8	2x58 W	400 V
PC 3/4x18 T8 TOP lp	T8	3x18 W	350 V
	T8	4x18 W	350 V

Ballast lumen factor (EN 60929 8.1)

Type	lamp type	wattage	AC/DC-BLF at U = 198–254 V, 25 °C
PC 1x18 T8 TOP sl	T8	1x18 W	1.00
PC 1x36 T8 TOP sl	T8	1x36 W	1.00
PC 1x58 T8 TOP sl	T8	1x58 W	1.00
PC 2x18 T8 TOP sl	T8	2x18 W	1.00
PC 2x36 T8 TOP sl	T8	2x36 W	1.00
PC 2x58 T8 TOP sl	T8	2x58 W	1.00
PC 3/4x18 T8 TOP lp	T8	3x18 W	1.05
	T8	4x18 W	1.00

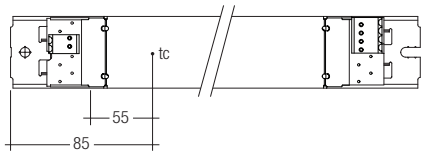
Energy class CELMA EEI = A2 BAT / A2[1)]

PC T8 TOP 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.

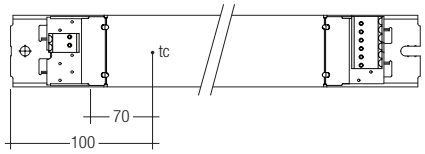
[1)] according to the EU directives on ecodesign requirements (EC) No. 245/2009 and (EC) No. 347/2010

Ambient Temperature

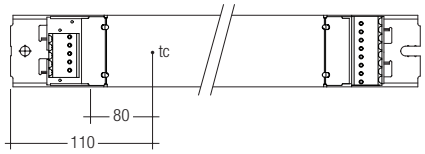
PC 1x... T8 TOP sl



PC 2x... T8 TOP sl



PC 3x/4x... T8 TOP lp



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 TOP is designed for an average life-time of 75,000 hours (at ta for ≥ 75,000 h) under reference conditions and with a failure probability of less than 10 %. This corresponds to an average failure rate of 0.15 % 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 1x18 T8 TOP sl	T8	1x18 W	tc	50 °C	60 °C	65 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 1x36 T8 TOP sl	T8	1x36 W	tc	50 °C	60 °C	65 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 1x58 T8 TOP sl	T8	1x58 W	tc	55 °C	65 °C	70 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 2x18 T8 TOP sl	T8	2x18 W	tc	50 °C	60 °C	65 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 2x36 T8 TOP sl	T8	2x36 W	tc	55 °C	65 °C	70 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 2x58 T8 TOP sl	T8	2x58 W	tc	65 °C	70 °C	75 °C	x
			Life-time	70,000 h	50,000 h	30,000 h	x
PC 3/4x18 T8 TOP lp	T8	3x18 W	tc	50 °C	60 °C	65 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
		4x18 W	tc	55 °C	65 °C	70 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x

x = not permitted

Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	Pulse
PC 1x18 T8 TOP sl	44	64	74	104	22	32	37	52	12.9 A	208 µs
PC 1x36 T8 TOP sl	38	52	60	72	19	26	30	36	17.4 A	203 µs
PC 1x58 T8 TOP sl	29	38	47	59	19	28	40	46	17.9 A	169 µs
PC 2x18 T8 TOP sl	36	50	60	72	18	25	30	36	18.3 A	184 µs
PC 2x36 T8 TOP sl	23	31	38	44	12	16	19	22	43.2 A	150 µs
PC 2x58 T8 TOP sl	14	19	23	29	11	17	23	29	50.2 A	175 µs
PC 3/4x18 T8 TOP lp	23	31	38	47	15	20	26	32	22.7 A	219 µs

Wiring advice

The lead length is dependant on the capacitance of the cable.
For safety reasons, the PC T8 TOP 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	Terminal		Maximum capacitance allowed	
Type	Cold	Hot	Cold	Hot
PC 1x... T8 TOP sl	13, 14	15, 16	200 pF	100 pF
PC 2x... T8 TOP sl	11, 12, 13, 14	15, 16	200 pF	100 pF
PC 3x18 T8 TOP lp	9, 10, 11, 12, 13, 14	15, 16	200 pF	100 pF
PC 4x18 T8 TOP lp	6, 7, 9, 10, 11, 12, 13, 14	15, 16	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.)

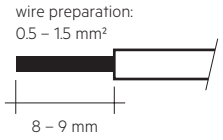
With standard solid wire 0.5/0.75 mm² the capacitance of the lead is 30–80 pF/m. This value is influenced by the way the wiring is made.

- keep lamp wires short
- lamp connection with multi-lamp ballasts should be made with symmetrical wiring
- lamp leads marked with * should be separated as much as possible from other lamp leads

Installation instructions

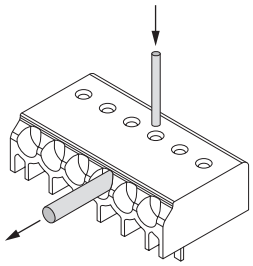
Wiring type and cross section

Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.

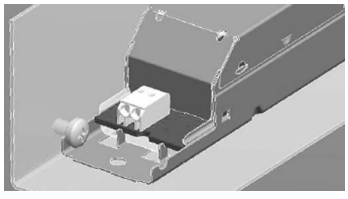


Release of the wiring

Loosen wire through twisting and pulling or using a Ø 1 mm release tool.



Side fixing feature



Screw M4, screw head diameter 8–10 mm

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.

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
- Connect functional earth to the ballast, 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

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.

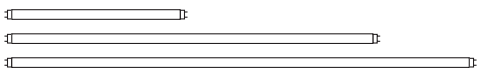
Additional information

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

Guarantee conditions at www.tridonic.com → Services

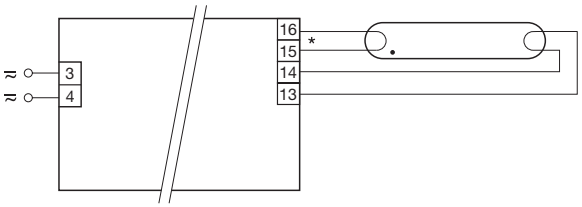
Life-time declarations are informative and represent no warranty claim.
No warranty if device was opened.

T8 lamp information



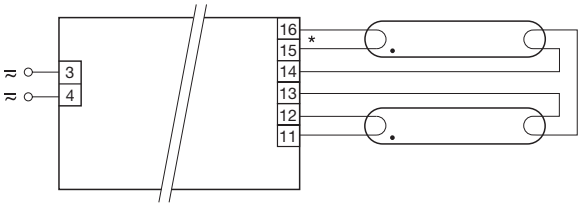
wattage	length
18 W	590 mm
36 W	1200 mm
58 W	1500 mm

Wiring diagrams



* leads 15, 16 max. 1.0 m (< 100 pF)
leads 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 1x... T8 TOP sl



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leads 11, 12, 13, 14 max. 2.0 m (< 200 pF)
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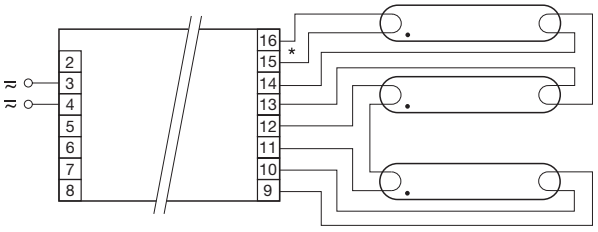
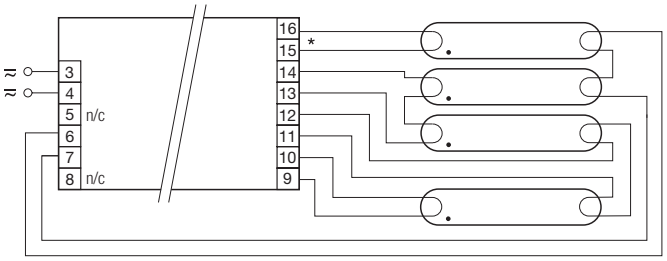
For luminaires of protection class II: No earthing required

PC 2x... T8 TOP sl



* leads 15, 16 max. 1.0 m (< 100 pF)
leads 9, 10, 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 3x... T8 TOP lp



* leads 9, 10, 15, 16 max. 1.0 m (< 100 pF)
leads 6, 7, 11, 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 4x... T8 TOP lp