

### PC T8 PRO Ip, PC T8 PRO sl, 18 – 58 W PC PRO T8

#### Product description

- Highest possible CELMA Energy Efficiency Index EEI = A2 BAT
- Nominal life up to 100,000 h (at ta. 50 °C with a failure rate max. 0.1 % per 1,000 h)
- Large temperature range (for values see table)
- Intelligent Voltage Guard (overvoltage indication and undervoltage shutdown)
- Precise lamp operation using adjustment of lamp parameters
- Advanced SMART-Heating for min. 50,000 starts without replacement of lamps
- Constant luminous flux irrespective of fluctuations in mains voltage
- 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 (EOL 2)
- Insulation Displacement Connection (IDC) terminal for rapid automatic or manual wiring
- For emergency lighting systems as per EN 50172



Fig. 1

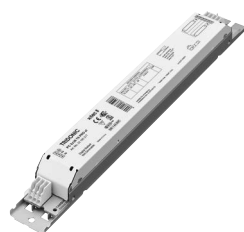
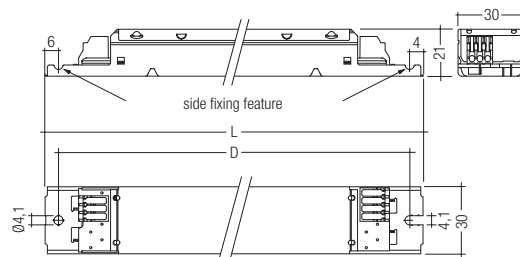
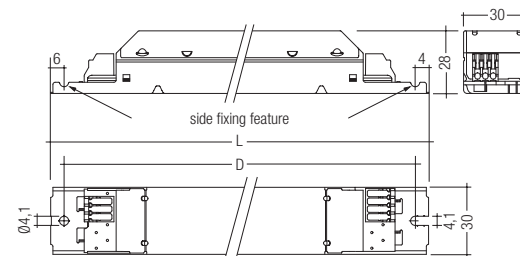


Fig. 2



#### Technical data

Voltage range	220 – 240 V
AC voltage range	198 – 264 V
DC voltage range	176 – 280 V (lamp start $\geq$ 198 V DC)
Mains frequency	0 / 50 / 60 Hz
Overvoltage protection	320 V AC, 1 h
Defined warm start	$\leq$ 1.5 s
Operating frequency	$\geq$ 39,5 kHz
Type of protection	IP20



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Wiring diagrams and installation examples, page 5

#### Ordering data

Type	Article number	Figure	Packaging carton	Packaging low volume	Packaging high volume	Weight per pc.
<b>For luminaires with 1 lamp</b>						
PC 1x18 T8 PRO Ip	22185213	1	50 pc(s).	1,050 pc(s).	3,150 pc(s).	0.146 kg
PC 1x36 T8 PRO Ip	22185214	1	50 pc(s).	1,050 pc(s).	3,150 pc(s).	0.140 kg
PC 1x58 T8 PRO Ip	22185215	1	50 pc(s).	1,050 pc(s).	3,150 pc(s).	0.143 kg
<b>For luminaires with 2 lamps</b>						
PC 2x18 T8 PRO Ip	22185216	1	50 pc(s).	900 pc(s).	2,700 pc(s).	0.170 kg
PC 2x36 T8 PRO sl	22185217	2	50 pc(s).	900 pc(s).	2,700 pc(s).	0.214 kg
PC 2x58 T8 PRO sl	22185218	2	50 pc(s).	900 pc(s).	2,700 pc(s).	0.216 kg
<b>For luminaires with 3 or 4 lamps</b>						
PC 3/4x18 T8 PRO Ip	22185219	1	10 pc(s).	960 pc(s).	–	0.192 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	$\lambda$ at 50 Hz	tc point max.	Ambient temperature ta	tc/ta for $\geq$ 50,000 h	
									220 V	240 V	220 V	240 V		
<b>For luminaires with 1 lamp</b>														
1 x 18 W	T8	PC 1x18 T8 PRO Ip	22185213	230 x 30 x 21 mm	220 mm	16.0 W	18.3 W	A2 BAT	0.081 A	0.073 A	0.98	0.96	80 °C -25 ... 70 °C	75/65 °C
1 x 36 W	T8	PC 1x36 T8 PRO Ip	22185214	230 x 30 x 21 mm	220 mm	32.0 W	35.2 W	A2 BAT	0.158 A	0.142 A	0.99	0.97	75 °C -25 ... 65 °C	70/60 °C
1 x 55 W	TC-L	PC 1x58 T8 PRO Ip	22185215	230 x 30 x 21 mm	220 mm	51.5 W	56.0 W	A2 BAT	0.255 A	0.233 A	0.99	0.97	75 °C -25 ... 55 °C	70/50 °C
1 x 58 W	T8	PC 1x58 T8 PRO Ip	22185215	230 x 30 x 21 mm	220 mm	50.0 W	54.5 W	A2 BAT	0.245 A	0.220 A	0.99	0.97	75 °C -25 ... 55 °C	70/50 °C
<b>For luminaires with 2 lamps</b>														
2 x 18 W	T8	PC 2x18 T8 PRO Ip	22185216	280 x 30 x 21 mm	270 mm	32.0 W	35.3 W	A2 BAT	0.159 A	0.143 A	0.99	0.97	80 °C -25 ... 70 °C	75/65 °C
2 x 36 W	T8	PC 2x36 T8 PRO sl	22185217	280 x 30 x 28 mm	270 mm	64.0 W	70.7 W	A2 BAT	0.320 A	0.293 A	0.99	0.98	75 °C -25 ... 60 °C	75/60 °C
2 x 55 W	TC-L	PC 2x58 T8 PRO sl	22185218	280 x 30 x 28 mm	270 mm	108.3 W	112.8 W	A2 BAT	0.513 A	0.470 A	0.99	0.98	75 °C -25 ... 55 °C	70/50 °C
2 x 58 W	T8	PC 2x58 T8 PRO sl	22185218	280 x 30 x 28 mm	270 mm	100.0 W	109.0 W	A2 BAT	0.490 A	0.445 A	0.99	0.98	75 °C -25 ... 55 °C	70/50 °C
<b>For luminaires with 3 or 4 lamps</b>														
3 x 18 W	T8	PC 3/4x18 T8 PRO Ip	22185219	280 x 30 x 21 mm	270 mm	48.0 W	53.2 W	A2 BAT	0.247 A	0.226 A	0.99	0.97	80 °C -25 ... 70 °C	75/65 °C
4 x 18 W	T8	PC 3/4x18 T8 PRO Ip	22185219	280 x 30 x 21 mm	270 mm	64.0 W	69.2 W	A2 BAT	0.321 A	0.294 A	0.99	0.97	80 °C -25 ... 65 °C	75/60 °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 strongly reduced after pre-heat 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  $\geq 0.5$

## Intelligent Voltage Guard

Intelligent Voltage Guard is the name of an 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  $\geq 280$  V the lamps flash.
- This signal “demands” disconnection of the power supply to the lighting system.
- If the mains voltage falls below 130 V the control gear automatically disconnects the lamp circuit (light off) to protect the control gear from being irreparably damaged.

## Advanced SMART-Heating

PC PRO with SMART-Heating ignition technology 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.

## 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 PRO Ip	T8	1x18 W	81 mA	73 mA
PC 1x36 T8 PRO Ip	T8	1x36 W	158 mA	142 mA
PC 1x58 T8 PRO Ip	TC-L	1x55 W	255 mA	233 mA
	T8	1x58 W	245 mA	220 mA
PC 2x18 T8 PRO Ip	T8	2x18 W	159 mA	143 mA
PC 2x36 T8 PRO sl	T8	2x36 W	320 mA	293 mA
PC 2x58 T8 PRO sl	TC-L	2x55 W	490 mA	445 mA
	T8	2x58 W	490 mA	445 mA
PC 3/4x18 T8 PRO Ip	T8	3x18 W	247 mA	226 mA
	T8	4x18 W	321 mA	294 mA

## Harmonic distortion in the mains supply

Type	lamp type	wattage	THD at 230 V / 50 Hz
PC 1x18 T8 PRO Ip	T8	1x18 W	$< 10\%$
PC 1x36 T8 PRO Ip	T8	1x36 W	$< 10\%$
PC 1x58 T8 PRO Ip	TC-L	1x55 W	$< 10\%$
	T8	1x58 W	$< 10\%$
PC 2x18 T8 PRO Ip	T8	2x18 W	$< 10\%$
PC 2x36 T8 PRO sl	T8	2x36 W	$< 10\%$
PC 2x58 T8 PRO sl	TC-L	2x55 W	$< 10\%$
	T8	2x58 W	$< 10\%$
PC 3/4x18 T8 PRO Ip	T8	3x18 W	$< 10\%$
	T8	4x18 W	$< 10\%$

## Output voltage

Type	lamp type	wattage	$U_{out}$
PC 1x18 T8 PRO Ip	T8	1x18 W	400
PC 1x36 T8 PRO Ip	T8	1x36 W	400
PC 1x58 T8 PRO Ip	TC-L	1x55 W	400
	T8	1x58 W	400
PC 2x18 T8 PRO Ip	T8	2x18 W	400
PC 2x36 T8 PRO sl	T8	2x36 W	400
PC 2x58 T8 PRO sl	TC-L	2x55 W	400
	T8	2x58 W	400
PC 3/4x18 T8 PRO Ip	T8	3x18 W	350
	T8	4x18 W	350

## Ballast lumen factor (EN 60929 8.1)

Type	lamp type	wattage	AC/DC-BLF at $U = 198-254$ V, 25 °C
PC 1x18 T8 PRO Ip	T8	1x18 W	1.00
PC 1x36 T8 PRO Ip	T8	1x36 W	1.00
PC 1x58 T8 PRO Ip	TC-L	1x55 W	0.95
	T8	1x58 W	1.00
PC 2x18 T8 PRO Ip	T8	2x18 W	1.00
PC 2x36 T8 PRO sl	T8	2x36 W	1.00
PC 2x58 T8 PRO sl	TC-L	2x55 W	0.97
	T8	2x58 W	1.00
PC 3/4x18 T8 PRO Ip	T8	3x18 W	1.00
	T8	4x18 W	1.00

**PC PRO with xitec II processor**

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

**Energy class: CELMA EEI = A2 BAT<sup>1)</sup>**

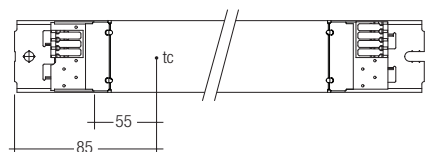
Maximum energy efficiency:

Right from the early stages in the development of xitec II technology the focus has always been on achieving maximum energy efficiency. In conjunction with SMART-Heating Technology, PC T8 PRO is rated in the best possible efficiency class of A2 BAT that CELMA provides for ballasts with a constant luminous flux.

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

**Ambient Temperature**

**PC 1x... T8 PRO lp**

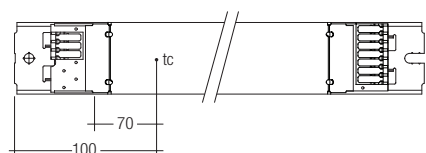


The nominal  $t_a$  and  $t_c$  point are related to the ballast life duration.

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 2x... T8 PRO lp/sl**

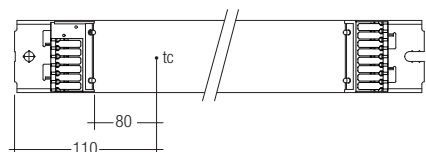


PC T8 PRO is designed for an average life-time of 100,000 h (at  $t_a$  for  $\geq 100,000$  h) under reference conditions and with a failure probability of less than 10 %. This corresponds to an average failure rate of 0.1 % for every 1,000 hours of operation.

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

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

**PC 3/4x... T8 PRO lp**



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

**Expected life-time**

Type	Lamp type	Lamp wattage	$t_a$	40 °C	50 °C	55 °C	60 °C	65 °C	70 °C
PC 1x18 T8 PRO lp	T8	1x18 W	$t_c$	50 °C	60 °C	65 °C	70 °C	75 °C	80 °C
			Life-time	> 100,000h	> 100,000h	> 100,000h	75,000h	55,000h	40,000h
PC 1x36 T8 PRO lp	T8	1x36 W	$t_c$	50 °C	60 °C	65 °C	70 °C	75 °C	x
			Life-time	> 100,000h	> 100,000h	80,000h	60,000h	40,000h	x
PC 1x58 T8 PRO lp	TC-L T8	1x55W 1x58W	$t_c$	60 °C	70 °C	75 °C	x	x	x
			Life-time	100,000h	50,000h	40,000h	x	x	x
PC 2x18 T8 PRO lp	T8	2x18W	$t_c$	50 °C	60 °C	65 °C	70 °C	75 °C	80 °C
			Life-time	> 100,000h	> 100,000h	> 100,000h	70,000h	50,000h	35,000h
PC 2x36 T8 PRO sl	T8	2x36W	$t_c$	55 °C	65 °C	70 °C	75 °C	x	x
			Life-time	> 100,000h	100,000h	80,000h	50,000h	x	x
PC 2x58 T8 PRO sl	TC-L T8	2x55W 2x58W	$t_c$	65 °C	70 °C	75 °C	x	x	x
			Life-time	70,000h	50,000h	35,000h	x	x	x
PC 3/4x18 T8 PRO lp	T8	3x18W	$t_c$	50 °C	60 °C	65 °C	70 °C	75 °C	80 °C
			Life-time	> 100,000 h	> 100,000 h	> 100,000 h	80,000 h	60,000 h	40,000 h
	T8	4x18W	$t_c$	55 °C	65 °C	70 °C	75 °C	80 °C	x
			Life-time	> 100,000 h	100,000 h	70,000 h	50,000 h	35,000 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 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>	$I_{max}$	Pulse
PC 1x18 T8 PRO lp	44	64	74	104	22	32	37	52	12.9 A	208 µs
PC 1x36 T8 PRO lp	38	52	60	72	19	26	30	36	17.4 A	203 µs
PC 1x58 T8 PRO lp	29	38	47	59	19	28	40	46	17.9 A	169 µs
PC 2x18 T8 PRO lp	36	50	60	72	18	25	30	36	18.3 A	184 µs
PC 2x36 T8 PRO sl	23	31	38	44	12	16	19	22	43.2 A	150 µs
PC 2x58 T8 PRO sl	14	19	23	29	11	17	23	29	50.2 A	175 µs
PC 3/4x18 T8 PRO lp	23	30	37	46	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 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	
PC 1x... T8 PRO Ip		13, 14	15, 16	200 pF	100 pF
PC 2x... T8 PRO Ip/sl		11, 12, 13, 14	15, 16	200 pF	100 pF
PC 3/4x18 T8 PRO Ip (3x18W)	9, 10, 11, 12, 13, 14		15, 16	200 pF	100 pF
PC 3/4x18 T8 PRO Ip (4x18W)	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.)

### Installation instructions

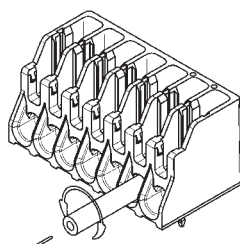
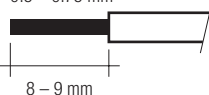
#### IDC interface

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

#### Horizontal interface

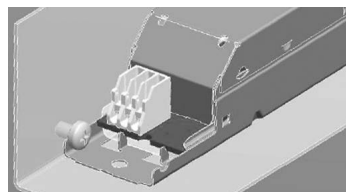
- solid wire with a cross section of 0.5–0.75 mm<sup>2</sup> according to the specification from WAGO
- solid wire with a cross section of 1.0 mm<sup>2</sup> with an insulation diameter up to 2.5 mm
- strip 9 mm of insulation from the cables to ensure perfect operation of the push terminals
- Loosen wire through twisting and pulling

wire preparation:  
0.5 – 0.75 mm<sup>2</sup>



Loosen wire through twisting and pulling

#### 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.

With standard solid wire 0.5/0.75 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
- lamp leads marked with \* should be separated as much as possible from other lamp leads

#### 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 must be earthed, 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<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.

#### 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.

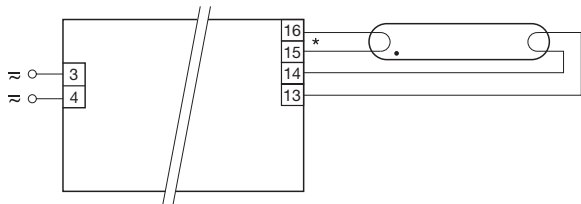
#### T8 lamp information

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

#### TC-L lamp information

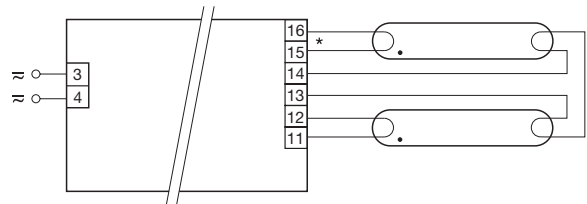
	wattage	length
	55 W	535 mm

**Wiring diagrams**



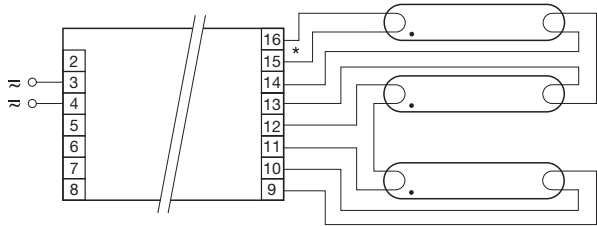
\* leads 15, 16 max. 1.0 m (< 100 pF)  
leads 13, 14 max. 2.0 m (< 200 pF)  
For luminaires of protection class I: Earthing via ECG casing (according to IEC 60598)  
For luminaires of protection class II: No earthing required

PC 1x... T8 PRO Ip



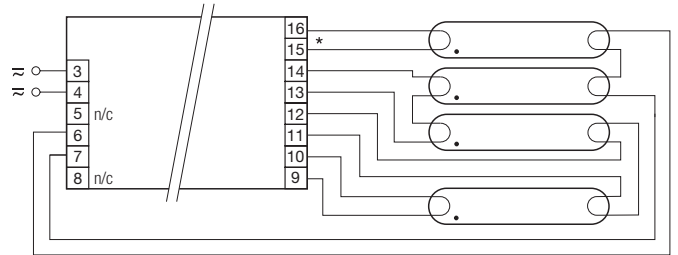
\* leads 15, 16 max. 1.0 m (< 100 pF)  
leads 11, 12, 13, 14 max. 2.0 m (< 200 pF)  
For luminaires of protection class I: Earthing via ECG casing (according to IEC 60598)  
For luminaires of protection class II: No earthing required

PC 2x... T8 PRO Ip/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 3/4x18 T8 PRO Ip (3x18W)



\* 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 3/4x18 T8 PRO Ip (4x18W)