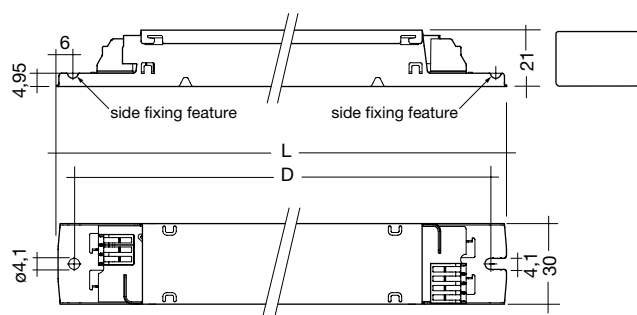


Electronic ballasts Linear lamps T5 and compact lamps TC-L

PC T5 PRO Ip 24–55 W 220–240 V 50/60/0 Hz, H0



- defined lamp warm start is 1.5 s
- constant light output independent of fluctuations in mains voltage
- average service life = 50,000 h (at ta max. with a failure rate $\leq 0.2\%$ per 1000 operating hours)
- AC voltage range 198–264 V
- DC voltage range 176–280 V, (lamp start ≥ 198 V DC)
- power factor ≥ 0.95
- overvoltage protection 320 V AC, 1 h
- overvoltage indication starting at input voltage ≥ 306 V AC
- undervoltage protection (shut down) < 150 V AC / 176 V DC
- operating frequency < 40 kHz
- suitable for automatic and manual wiring with insulation displacement connector (IDC)
- wide operating temperature range from -25 °C up to $+60$ °C (values see table)
- suitable for use in emergency lighting installations in accordance with EN 50172
- safe switch off of defective lamps
- automatic re-start after lamp change
- for luminaires with ∇ or ∇ and ∇ ∇ in acc. with EN 60598 / VDE 0710 and VDE 0711
- suitable for luminaires with protection class 1 and protection class 2
- IP 20
- thermal protection according to EN 61347-2-3 C5e

Packaging:

PC 1/24–54 T5 PRO Ip
box of 10
96 cartons/pallet
960 pieces/pallet

PC 2/24–54 T5 PRO Ip
box of 10
76 cartons/pallet
760 pieces/pallet

Certified:

EN 55015: 2006 + A1: 2007
EN 61347-2-4
EN 61347-2-3
EN 60925
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	Ballast		article-number	length mm	fixing centres D mm	weight kg	lamp power W	circuit power W ①	Celma class EEI	current at 50Hz		λ at 50Hz		tc point °C	temperature range ta °C
	wat- tage W	type								220V A	240V A	220V	240V		
1x24	T5	PC 1/24 T5 PRO Ip	22176164	280	270	0.18	22.5	25.7	A2	0.12	0.11	0.96	0.95	70	-25 → +60
1x24	TCL	PC 1/24 T5 PRO Ip	22176164	280	270	0.18	22.0	24.9	A2	0.12	0.11	0.96	0.95	70	-25 → +60
2x24	T5	PC 2/24 T5 PRO Ip	22176168	360	350	0.22	22.5	48.8	A2	0.23	0.21	0.98	0.97	70	-25 → +60
2x24	TCL	PC 2/24 T5 PRO Ip	22176168	360	350	0.22	22.0	48.8	A2	0.23	0.21	0.98	0.97	70	-25 → +60
2x39	T5	PC 2/39 T5 PRO Ip	22176166	360	350	0.25	76.0	83.4	A2	0.39	0.36	0.98	0.98	75	-25 → +55
1x49	T5	PC 1/49 T5 PRO Ip	22176139	280	270	0.20	49.2	52.5	A2	0.24	0.23	0.99	0.97	75	-25 → +55
2x49	T5	PC 2/49 T5 PRO Ip	22176099	360	350	0.26	98.4	107.0	A2	0.49	0.46	0.99	0.97	80	-25 → +50
1x54	T5	PC 1/54 T5 PRO Ip	22176140	280	270	0.20	54.1	57.5	A2	0.26	0.25	0.99	0.97	70	-25 → +50
2x54	T5	PC 2/54 T5 PRO Ip	22176100	360	350	0.26	108.2	114.5	A2	0.53	0.49	0.99	0.97	80	-25 → +50
1x55	TCL	PC 1/54 T5 PRO Ip	22176140	280	270	0.20	55.0	59.0	A2	0.26	0.24	0.98	0.97	70	-25 → +50
2x55	TCL	PC 2/54 T5 PRO Ip	22176100	360	350	0.26	108.2	114.5	A2	0.53	0.49	0.99	0.97	80	-25 → +50

① measured according to EN 50294



Lamp starting characteristics

Warm start
Starting time 1.5 secs 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 TridonicAtco. This innovative feature of the PC PRO family of control gear from TridonicAtco 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 306 V the lamps start 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 ignition.

Mains currents in DC operation

type	lamp type	wattage W	mains current at $U_n = 220 V_{DC}$	mains current at $U_n = 240 V_{DC}$
PC 1/24 T5 PRO Ip	T5	1x24	118 mA	108 mA
PC 1/24 T5 PRO Ip	TCL	1x24	114 mA	104 mA
PC 2/24 T5 PRO Ip	T5	2x24	224 mA	204 mA
PC 2/24 T5 PRO Ip	TCL	2x24	224 mA	205 mA
PC 2/39 T5 PRO Ip	T5	2x39	382 mA	349 mA
PC 1/49 T5 PRO Ip	T5	1x49	239 mA	219 mA
PC 2/49 T5 PRO Ip	T5	2x49	486 mA	446 mA
PC 1/54 T5 PRO Ip	T5	1x54	261 mA	240 mA
PC 1/54 T5 PRO Ip	TCL	1x55	263 mA	241 mA
PC 2/54 T5 PRO Ip	T5	2x54	520 mA	477 mA
PC 2/54 T5 PRO Ip	TCL	2x55	520 mA	477 mA

Harmonic distortion in the mains supply

type	lamp type	wattage W	THD bei 230 V / 50 Hz
PC 1/24 T5 PRO Ip	T5	1x24	< 10 %
PC 1/24 T5 PRO Ip	TCL	1x24	< 10 %
PC 2/24 T5 PRO Ip	T5	2x24	< 10 %
PC 2/24 T5 PRO Ip	TCL	2x24	< 10 %
PC 2/39 T5 PRO Ip	T5	2x39	< 10 %
PC 1/49 T5 PRO Ip	T5	1x49	< 10 %
PC 2/49 T5 PRO Ip	T5	2x49	< 10 %
PC 1/54 T5 PRO Ip	T5	1x54	< 10 %
PC 1/54 T5 PRO Ip	TCL	1x55	< 10 %
PC 2/54 T5 PRO Ip	T5	2x54	< 10 %
PC 2/54 T5 PRO Ip	TCL	2x55	< 10 %

Output voltage

type	lampen-type	wattage W	U_{out}
PC 1/24 T5 PRO Ip	T5	1x24	250 V
PC 1/24 T5 PRO Ip	TCL	1x24	250 V
PC 2/24 T5 PRO Ip	T5	2x24	250 V
PC 2/24 T5 PRO Ip	TCL	2x24	250 V
PC 2/39 T5 PRO Ip	T5	1x39	250 V
PC 1/49 T5 PRO Ip	T5	1x49	300 V
PC 2/49 T5 PRO Ip	T5	2x49	300 V
PC 1/54 T5 PRO Ip	T5	1x54	250 V
PC 1/54 T5 PRO Ip	TCL	1x55	250 V
PC 2/54 T5 PRO Ip	T5	2x54	350 V
PC 2/54 T5 PRO Ip	TCL	2x55	350 V

Ballast lumen factor

EN 60929 8.1

type	lampen-type	wattage W	AC/DC-BLF at $U = 198-254 V, 25^\circ C$
PC 1/24 T5 PRO Ip	T5	1x24	1,00
PC 1/24 T5 PRO Ip	TCL	1x24	1,00
PC 2/24 T5 PRO Ip	T5	2x24	1,00
PC 2/24 T5 PRO Ip	TCL	2x24	1,00
PC 2/39 T5 PRO Ip	T5	1x39	1,00
PC 1/49 T5 PRO Ip	T5	1x49	1,00
PC 2/49 T5 PRO Ip	T5	2x49	1,00
PC 1/54 T5 PRO Ip	T5	1x54	1,00
PC 1/54 T5 PRO Ip	TCL	1x55	1,00
PC 2/54 T5 PRO Ip	T5	2x54	1,00
PC 2/54 T5 PRO Ip	TCL	2x55	0,95



PC PRO with xitec processor

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

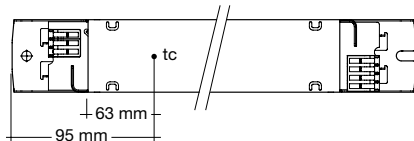


Energy class CELMA EEI = A2

PC T5 PRO Ip 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.

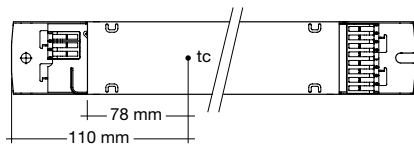
Ambient Temperature

PC 1/24–54 T5 PRO Ip



PC 2/24–54 T5 PRO Ip

PC 1/80 T5 PRO Ip



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 T5 PRO Ip 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.

Loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20
Installation \varnothing	1,5 mm ²	1,5 mm ²	2,5 mm ²	4,0 mm ²	1,5 mm ²	1,5 mm ²	2,5 mm ²	4,0 mm ²
PC 1/24 T5 PRO Ip	28	40	44	58	14	20	22	29
PC 2/24 T5 PRO Ip	28	40	44	58	14	20	22	29
PC 2/39 T5 PRO Ip	18	28	30	36	9	14	15	18
PC 1/49 T5 PRO Ip	28	40	44	58	14	20	22	29
PC 1/54 T5 PRO Ip	28	40	44	58	14	20	22	29
PC 2/49 T5 PRO Ip	18	28	30	36	9	14	15	18
PC 2/54 T5 PRO Ip	14	20	24	30	7	10	12	15

Wiring advice

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

For safety reasons, the PC T5 PRO Ip 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	Cold	Hot
PC 1/xx T5 PRO Ip	11, 12	9, 10	200 pF	100 pF
PC 2/xx T5 PRO Ip	11, 12, 13, 14	9, 10, 15, 16	200 pF	100 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.

- keep lamp wires short
- lamp connection should be made with symmetrical wiring
- hot leads 9, 10, 15, 16 and cold leads 11, 12, 13, 14 should be separated as much as possible

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



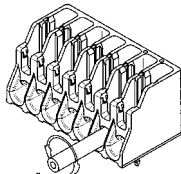
IDC interface

- solid wire with a cross section of 0.5 mm² according to the specification from WAGO
- alternatively a flexible lead with a cross section of 0.75 mm²

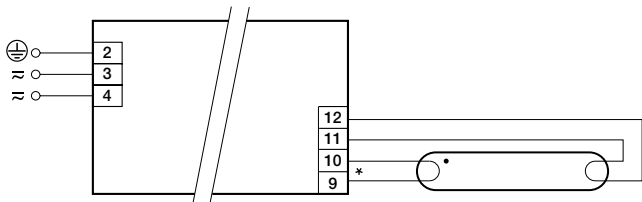
Horizontal interface

- solid wire with a cross section of 0.5–0.75 mm² according to the specification from WAGO
- solid wire with a cross section of 1.0 mm² with an insulation diameter up to 2.5 mm
- strip 9 mm of insulation from the cables to ensure perfect operation of the screw terminals
- Loosen wire through twisting and pulling

wire preparation:
0.5–0.75 □



Loosen wire through twisting and pulling



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

PC 1/24–54 T5 PRO Ip

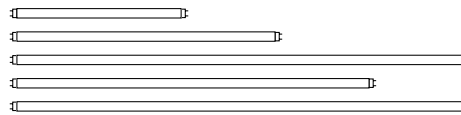
RFI

TridonicAtco ballasts are RFI protected in accordance with EN 55015: 2006 + 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
- 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

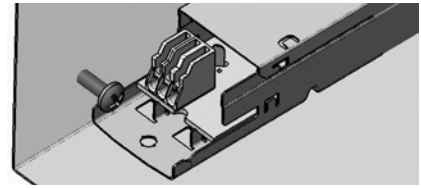
T5 lamp information

T5 High Output (FQ)



wattage	length
24 W	549 mm
39 W	849 mm
49 W	1449 mm
54 W	1149 mm
80 W	1149 mm

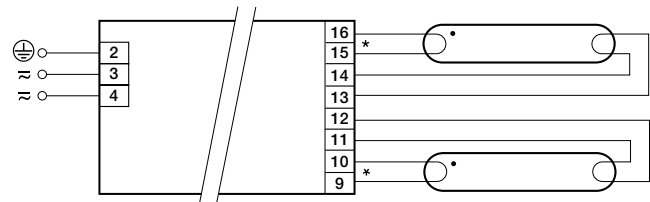
Side fixing feature



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.



* leads 9, 10, 15, 16 max. 1.0 m (< 100 pF)
leads 11, 12, 13, 14 max. 2.0 m (< 200 pF)
SK I - luminaires: earth of ballast housing required (according to IEC 598)
SK II - luminaires: no earth required

PC 2/24–54 T5 PRO Ip