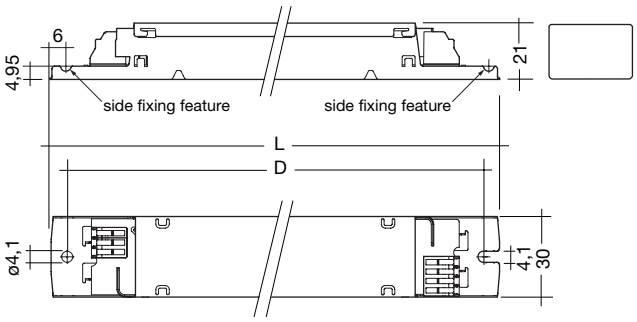
PC T5 PRO LP 14–35 W 220–240 V 50/60/0 Hz, HE



- 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. 50 °C with a failure rate ≤ 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 ≥ 42 kHz
- suitable for automatic and manual wiring with insulation displacement connector (IDC)
- wide operating temperature range from -25 °C to +50 °C
- suitable for use in emergency lighting installations in accordance with VDE 0108
- safe switch off of defective lamps
- automatischer Wiederstart bei Lampenwechsel
- for luminaires with ⓕ or ⓜ and ⓜ ⓜ in acc. with EN 60598 / VDE 0710 und VDE 0711
- suitable for luminaires with protection class SK I and SK II
- Ingress protection IP 20
- thermal protection according to EN 61347-2-3 C5e

Certified:

EN 55015
EN 55022
EN 61347-2-4
EN 61347-2-3
EN 60925
EN 60929
EN 61000-3-2
EN 61547
in accordance with VDE 0108
IEC 68-2-64 Fh
IEC 68-2-29 Eb
IEC 68-2-30

Lamp		Ballast														
watt-age W	type	type	article number	length mm	fixing centres D mm	weight kg	lamp power W	circuit power W ①	Celma class EEI	current at 50 Hz 220 V A	current at 50 Hz 240 V A	λ at 50 Hz 220 V	λ at 50 Hz 240 V	tc point °C	temperature range °C
1x14	T5	**PC 1/14-21-28-35 T5 Pro Ip** 220–240 V 50/60/0 Hz	22087725	280	270	0.20	13.7	16.5	A2	0.08	0.07	0.98	0.96	70	-25 → +50
2x14	T5	**PC 2/14-21-28-35 T5 Pro Ip** 220–240 V 50/60/0 Hz	22087731	360	350	0.26	27.4	31.5	A2	0.15	0.14	0.98	0.96	80	-25 → +50
3x14	T5	**PC 3/14 T5 Pro Ip** 220–240 V 50/60/0 Hz	22088962	360	350	0.26	39.4	49.0	A2	0.22	0.21	0.99	0.97	75	-25 → +50
4x14	T5	**PC 4/14 T5 Pro Ip** 220–240 V 50/60/0 Hz	22088978	360	350	0.26	52.4	65.0	A2	0.30	0.28	0.99	0.97	75	-25 → +50
1x21	T5	**PC 1/14-21-28-35 T5 Pro Ip** 220–240 V 50/60/0 Hz	22087725	280	270	0.20	20.7	24.0	A2	0.11	0.10	0.98	0.96	70	-25 → +50
2x21	T5	**PC 2/14-21-28-35 T5 Pro Ip** 220–240 V 50/60/0 Hz	22087731	360	350	0.26	41.4	46.0	A2	0.21	0.20	0.98	0.96	80	-25 → +50
1x28	T5	**PC 1/14-21-28-35 T5 Pro Ip** 220–240 V 50/60/0 Hz	22087725	280	270	0.20	27.8	31.5	A2	0.15	0.14	0.98	0.96	70	-25 → +50
2x28	T5	**PC 2/14-21-28-35 T5 Pro Ip** 220–240 V 50/60/0 Hz	22087731	360	350	0.26	55.6	62.0	A2	0.29	0.27	0.98	0.96	80	-25 → +50
1x35	T5	**PC 1/14-21-28-35 T5 Pro Ip** 220–240 V 50/60/0 Hz	22087725	280	270	0.20	34.7	39.0	A2	0.18	0.17	0.98	0.96	70	-25 → +50
2x35	T5	**PC 2/14-21-28-35 T5 Pro Ip** 220–240 V 50/60/0 Hz	22087731	360	350	0.26	69.4	77.0	A2	0.36	0.33	0.98	0.96	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 (±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 VDE 0108 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 has struck (resonance circuit).

Mains currents in DC operation

type	lamp type	wattage W	mains current at Un = 220 VDC	mains current at Un = 240 VDC
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x14	77 mA	72 mA
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x14	148 mA	136 mA
PC 3/14 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	3x14	236 mA	216 mA
PC 4/14 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	4x14	324 mA	297 mA
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x21	110 mA	100 mA
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x21	215 mA	198 mA
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x28	144 mA	132 mA
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x28	289 mA	263 mA
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x35	175 mA	161 mA
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x35	351 mA	322 mA

Harmonic distortion in the mains supply

type	lamp type	wattage W	THD at 230 V / 50 Hz
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x14	< 12 %
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x14	< 12 %
PC 3/14 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	3x14	< 10 %
PC 4/14 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	4x14	< 10 %
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x21	< 10 %
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x21	< 10 %
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x28	< 10 %
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x28	< 10 %
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x35	< 10 %
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x35	< 10 %

Output voltage

type	lamp type	wattage W	U_{out}
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x14	250 V
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x14	300 V
PC 3/14 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	3x14	400 V
PC 4/14 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	4x14	450 V
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x21	250 V
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x21	300 V
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x28	250 V
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x28	300 V
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x35	300 V
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x35	300 V

Ballast lumen factor
EN 60929 8.1

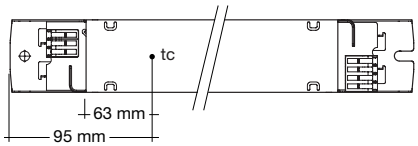
type	lamp type	wattage W	AC/DC-BLF at U = 198–254 V, 25 °C and 35 °C
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x14	1.00
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x14	1.00
PC 3/14 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	3x14	1.00
PC 4/14 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	4x14	1.00
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x21	1.00
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x21	1.00
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x28	1.00
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x28	1.00
PC 1/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x35	1.00
PC 2/14-21-28-35 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x35	1.00

ASIC light management
ASIC (Application specific integrated circuit) is the very latest in lighting management design technology. The lamp friendly warm start in 1.5 seconds and a whole series of energy saving measures and light management feature make PC T5 Pro lp a real champion in its class.

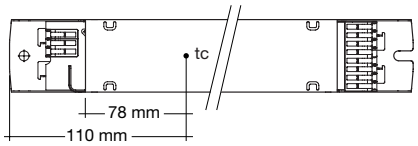
Energy class CELMA EEI = A2
PC T5 Pro lp ignition technology (smart heating) optimises lamp start and ensures no energy is wasted. After the lamp has struck the filament heating is reduced automatically to a defined minimum value. This reduction in filament heating, saves energy, yet maintains the proper operating conditions for the lamp. The lamp is always operated within specification.

Ambient Temperature
tc point is related to the ballast life duration. PC T5 Pro lp 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.

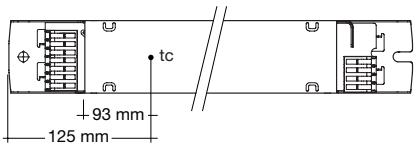
PC 1/14-21-28-35 T5 Pro lp



PC 2/14-21-28-35 T5 Pro lp



PC 3/14 T5 Pro lp
PC 4/14 T5 Pro lp



Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20
Installation ∅	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²
PC 1/14-21-28-35 T5 Pro lp	28	40	44	58	14	20	22	29
PC 2/14-21-28-35 T5 Pro lp	18	24	28	34	9	12	14	17
PC 3/14 T5 Pro lp	26	38	44	64	13	19	22	32
PC 4/14 T5 Pro lp	26	38	44	64	13	19	22	32

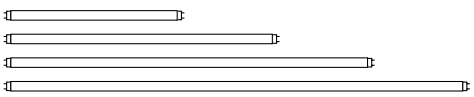
Wiring advice
The lead length is dependant on the capacitance of the cable.
For safety reasons, the PC T5 Pro lp must only be earthed in the case of a safety class 1 luminaire. Earthing is not required for the device to operate. Connection to earth reduces radio interference.

Ballast Type	Terminal		Maximum capacitance allowed	
	Cold	Hot	Cold	Hot
PC 1/14-21-28-35 T5 Pro lp	11, 12	9, 10	200 pF	100 pF
PC 2/14-21-28-35 T5 Pro lp	11, 12, 13, 14	9, 10, 15, 16	200 pF	100 pF
PC 3/14 T5 Pro lp	5, 6, 11, 12	7, 8, 9, 10	200 pF	100 pF
PC 4/14 T5 Pro lp	5, 6, 11, 12, 13, 14, 15, 16	7, 8, 9, 10	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 with multi-lamp ballasts should be made with symmetrical wiring
- for 1 and 2 lamp ballasts: hot leads 9, 10, 15, 16 and cold leads 11, 12, 13, 14 should be separated as much as possible
- for 3 and 4 lamp ballasts: hot leads 7, 8, 9, 10 and cold leads 5, 6, 11, 12, 13, 14, 15, 16 should be separated as much as possible

T5 lamp information

T5 High Efficiency (FH)



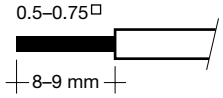
wattage	length
14 W	549 mm
21 W	849 mm
28 W	1149 mm
35 W	1449 mm

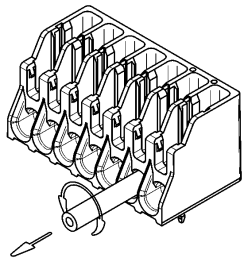
Installation instructions

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

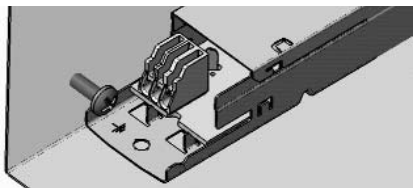
RFI

TridonicAtco ballasts are RFI protected in accordance with EN 55015 and EN 55022. 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
- 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

Defective lamp

(Broken filament, rectifying effect, gas defect)
If a lamp is defective, the ballast switches off and goes into standby. There is an automatic restart once the lamp has been changed.

Side fixing feature



Screw M4, screw head diameter 8–10 mm

Packing quantities

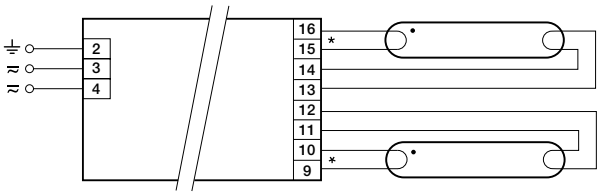
PC 1/14-21-28-35 T5 Pro lp *
10 pieces/carton
96 cartons/pallet
960 pieces/pallet

PC 2/14-21-28-35 T5 Pro lp *
10 pieces/carton
76 cartons/pallet
760 pieces/pallet

PC 3/14 T5 Pro lp and PC 4/14 T5 Pro lp *
25 pieces/carton
33 cartons/pallet
825 pieces/pallet

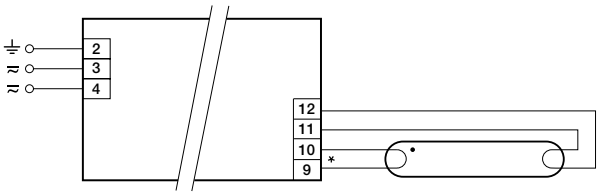
*** New packaging concept**

Optimised packaging concept for the transportation of ballasts, that provide a 51 % reduction in packaging per ballast. Thus minimising environmental impact and reducing recycling costs associated by separating waste.



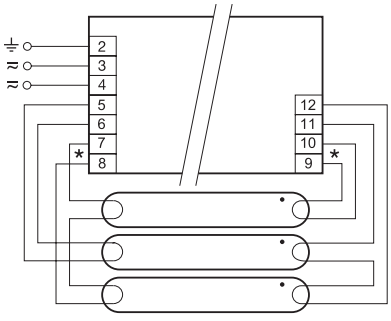
*** leads 9, 10, 15, 16 max. 1.0 m (< 100 pF)**
leads 11, 12, 13, 14 max. 2.0 m (< 200 pF)
SK I - luminaires: earth of ballast housing required (according to IEC 598)
SK II - luminaires: no earth required

PC 2/14-21-28-35 T5 Pro lp



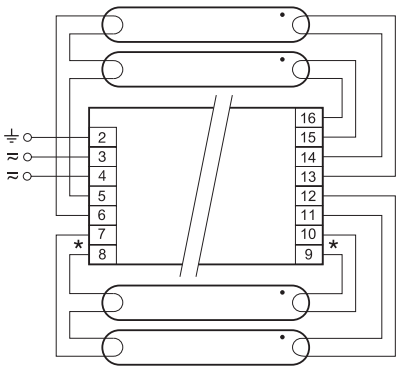
*** leads 9, 10 max. 1.0 m (< 100 pF)**
leads 11, 12 max. 2.0 m (< 200 pF)
SK I - luminaires: earth of ballast housing required (according to IEC 598)
SK II - luminaires: no earth required

PC 1/14-21-28-35 T5 Pro lp



*** leads 7, 8, 9, 10 max. 1.0 m (< 100 pF)**
leads 5, 6, 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 3/14 T5 Pro lp



*** leads 7, 8, 9, 10 max. 1.0 m (< 100 pF)**
leads 5, 6, 11, 12, 13, 14, 15, 16 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 4/14 T5 Pro lp

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