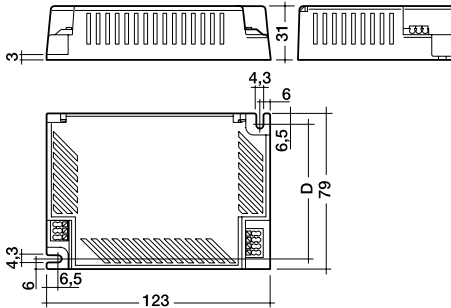




Electronic ballasts
Compact lamps

PC PRO 2/9–42 W 220–240 V 50/60/0 Hz



- defined lamp warm start in ≤ 1.5 s
- constant light output independent of fluctuations in mains voltage
- Average service life = 50,000 h (at ta max. 50 °C resp. 55 °C or 60 °C with a failure rate ≤ 0.2 % per 1000 operating hours)
- AC voltage range 198–264 V
- DC voltage range 176–280 V, for ignition input voltage ≥ 198 V
- power factor > 0.95
- overvoltage protection 320 V AC, 1 h
- overvoltage indication ≥ 306 V AC
- undervoltage protection (shut down) below 150 V AC / 176 V DC

- operating frequency ≥ 40 kHz
- wide operating temperature range from -25 °C to +50 °C resp. +50 °C or +60 °C
- suitable for use in emergency lighting installations in accordance with VDE 0108
- 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 SK I and SK II
- Ingress protection IP 20
- thermal protection according to EN 61347-2-3 C5e ∇

Packaging L=123:
10 pieces/carton
50 cartons/pallet
500 pieces/pallet

Certified:
EN 55015
EN 55022
EN 60925
EN 60929
EN 61000-3-2
EN 61347-2-3
EN 61347-2-4
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 number	article	L x W x H centres D mm	fixing kg	weight power W	lamp power W	circuit class EEI	Celma 220 V A	current at 50 Hz 240 V A	220 V	λ at 50 Hz 240 V	point °C	tc range °C	temperature
2x9	TC-SEL	PC 2/9/11 TCS PRO	22176028	123x79x31	66.5	0.17	7.2	18.3	A2	0.087	0.081	0.96	0.95	80	-25 → +60
2x11	TC-SEL	PC 2/9/11 TCS PRO	22176028	123x79x31	66.5	0.17	10.5	26.1	A2	0.121	0.113	0.97	0.97	80	-25 → +60
2x10	TC-DEL	PC 2/10/13 TCD PRO	22088921	123x79x31	66.5	0.17	19	21.5	A2	0.100	0.095	0.95	0.93	75	-25 → +50
2x13	TC-DEL	PC 2/9/11 TCS PRO	22176028	123x79x31	66.5	0.17	12.4	29.5	A2	0.135	0.125	0.98	0.97	80	-25 → +60
2x13	TC-DEL	PC 2/10/13 TCD PRO	22088921	123x79x31	66.5	0.17	25	28	A2	0.130	0.125	0.97	0.95	75	-25 → +50
2x18	TC-DEL	PC 2/18 TCD PRO	22088937	123x79x31	66.5	0.17	33	37.5	A2	0.170	0.160	0.99	0.97	70	-25 → +50
2x26	TC-DEL	PC 2/26/32 TCT PRO	22088943	123x79x31	66.5	0.17	48	51	A2	0.235	0.220	0.99	0.97	80	-25 → +60
2x13	TC-TEL	PC 2/9/11 TCS PRO	22176028	123x79x31	66.5	0.17	12.4	29.5	A2	0.135	0.125	0.98	0.97	80	-25 → +60
2x13	TC-TEL	PC 2/10/13 TCD PRO	22088921	123x79x31	66.5	0.17	25	28	A2	0.130	0.125	0.97	0.95	75	-25 → +50
2x18	TC-TEL	PC 2/18 TCD PRO	22088937	123x79x31	66.5	0.17	33	37.5	A2	0.170	0.160	0.99	0.97	70	-25 → +50
2x26	TC-TEL	PC 2/26/32 TCT PRO	22088943	123x79x31	66.5	0.17	48	51	A2	0.235	0.220	0.99	0.97	80	-25 → +60
2x32	TC-TEL	PC 2/26/32 TCT PRO	22088943	123x79x31	66.5	0.17	64	68	A2	0.310	0.290	0.99	0.97	80	-25 → +60
2x32	TC-TEL	PC 2/32/42 TCT PRO	22088959	123x79x31	66.5	0.17	64	68	A2	0.315	0.295	0.98	0.96	80	-25 → +55
2x42	TC-TEL	PC 2/32/42 TCT PRO	22088959	123x79x31	66.5	0.17	84	89	A2	0.410	0.380	0.99	0.97	80	-25 → +55
2x22	T5c	PC 2/26/32 TCT PRO	22088943	123x79x31	66.5	0.17	44.6	49.3	A2	0.242	0.224	0.98	0.98	80	-25 → +60
22+40	T5c	PC 2/32/42 TCT PRO	22088959	123x79x31	66.5	0.17	62.3	68.7	A2	0.295	0.252	0.98	0.97	80	-25 → +55
2x40	T5c	PC 2/32/42 TCT PRO	22088959	123x79x31	66.5	0.17	80.0	82.3	A2	0.379	0.351	0.99	0.98	80	-25 → +55
2x18	TC-L	PC 2/26/32 TCT PRO	22088943	123x79x31	66.5	0.17	32	34.2	A2	0.159	0.148	0.97	0.96	80	-25 → +60
2x24	TC-L	PC 2/26/32 TCT PRO	22088943	123x79x31	66.5	0.17	44	50.2	A2	0.234	0.216	0.98	0.98	80	-25 → +60
2x18	TC-F	PC 2/26/32 TCT PRO	22088943	123x79x31	66.5	0.17	32	34.2	A2	0.146	0.136	0.97	0.96	80	-25 → +60
2x24	TC-F	PC 2/26/32 TCT PRO	22088943	123x79x31	66.5	0.17	44	50.2	A2	0.211	0.195	0.98	0.98	80	-25 → +60

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

PC 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.

Mains currents in DC operation

type	lamp type W	wattage Un = 220 VDC	mains current at	
			Un = 240 VDC	
PC 2/9/11 TCS PRO	TC-SEL	2x9	85 mA	79 mA
PC 2/9/11 TCS PRO	TC-SEL	2x11	120 mA	110 mA
PC 2/10/13 TCD PRO	TC-DEL	2x10	95 mA	90 mA
PC 2/9/11 TCS PRO	TC-DEL	2x13	135 mA	123 mA
PC 2/10/13 TCD PRO	TC-DEL	2x13	150 mA	140 mA
PC 2/18 TCD PRO	TC-DEL	2x18	174 mA	160 mA
PC 2/26/32 TCT PRO	TC-DEL	2x26	243 mA	224 mA
PC 2/9/11 TCS PRO	TC-TEL	2x13	135 mA	123 mA
PC 2/10/13 TCD PRO	TC-TEL	2x13	150 mA	140 mA
PC 2/18 TCD PRO	TC-TEL	2x18	174 mA	160 mA
PC 2/26/32 TCT PRO	TC-TEL	2x26	243 mA	224 mA
PC 2/26/32 TCT PRO	TC-TEL	2x32	281 mA	261 mA
PC 2/32/42 TCT PRO	TC-TEL	2x32	305 mA	280 mA
PC 2/32/42 TCT PRO	TC-TEL	2x42	400 mA	370 mA
PC 2/26/32 TCT PRO	T5c	2x22	242 mA	224 mA
PC 2/32/42 TCT PRO	T5c	22+40	295 mA	252 mA
PC 2/32/42 TCT PRO	T5c	2x40	379 mA	351 mA
PC 2/26/32 TCT PRO	TC-L	2x18	159 mA	148 mA
PC 2/26/32 TCT PRO	TC-L	2x24	234 mA	216 mA
PC 2/26/32 TCT PRO	TC-F	2x18	146 mA	136 mA
PC 2/26/32 TCT PRO	TC-F	2x24	211 mA	195 mA

Harmonic distortion in the mains supply

type	lamp type W	wattage at 220–240 V / 50/60 Hz	THD
PC 2/9/11 TCS PRO	TC-SEL	2x11	15 %
PC 2/10/13 TCD PRO	TC-DEL	2x10	10 %
PC 2/9/11 TCS PRO	TC-DEL	2x13	15 %
PC 2/10/13 TCD PRO	TC-DEL	2x13	10 %
PC 2/18 TCD PRO	TC-DEL	2x18	10 %
PC 2/26/32 TCT PRO	TC-DEL	2x26	10 %
PC 2/9/11 TCS PRO	TC-TEL	2x13	15 %
PC 2/10/13 TCD PRO	TC-TEL	2x13	10 %
PC 2/18 TCD PRO	TC-TEL	2x18	10 %
PC 2/26/32 TCT PRO	TC-TEL	2x26	10 %
PC 2/26/32 TCT PRO	TC-TEL	2x32	10 %
PC 2/32/42 TCT PRO	TC-TEL	2x32	10 %
PC 2/32/42 TCT PRO	TC-TEL	2x42	10 %
PC 2/26/32 TCT PRO	T5c	2x22	10 %
PC 2/32/42 TCT PRO	T5c	22+40	10 %
PC 2/32/42 TCT PRO	T5c	2x40	10 %
PC 2/26/32 TCT PRO	TC-L	2x18	12 %
PC 2/26/32 TCT PRO	TC-L	2x24	10 %
PC 2/26/32 TCT PRO	TC-F	2x18	12 %
PC 2/26/32 TCT PRO	TC-F	2x24	10 %

Output voltage

type	lamp type W	wattage	U _{out}
PC 2/9/11 TCS PRO	TC-SEL	2x9	250
PC 2/9/11 TCS PRO	TC-SEL	2x11	250
PC 2/10/13 TCD PRO	TC-DEL	2x10	250
PC 2/9/11 TCS PRO	TC-DEL	2x13	250
PC 2/10/13 TCD PRO	TC-DEL	2x13	250
PC 2/18 TCD PRO	TC-DEL	2x18	250
PC 2/26/32 TCT PRO	TC-DEL	2x26	250
PC 2/9/11 TCS PRO	TC-TEL	2x13	250
PC 2/10/13 TCD PRO	TC-TEL	2x13	250
PC 2/18 TCD PRO	TC-TEL	2x18	250
PC 2/26/32 TCT PRO	TC-TEL	2x26	250
PC 2/26/32 TCT PRO	TC-TEL	2x32	250
PC 2/32/42 TCT PRO	TC-TEL	2x32	300
PC 2/32/42 TCT PRO	TC-TEL	2x42	300
PC 2/26/32 TCT PRO	T5c	2x22	250
PC 2/32/42 TCT PRO	T5c	22+40	250
PC 2/32/42 TCT PRO	T5c	2x40	250
PC 2/26/32 TCT PRO	TC-L	2x18	250
PC 2/26/32 TCT PRO	TC-L	2x24	250
PC 2/26/32 TCT PRO	TC-F	2x18	250
PC 2/26/32 TCT PRO	TC-F	2x24	250

**Ballast lumen factor
EN 60929 8.1**

type	lamp type	wattage	AC/DC-BLF
WU = 198–254 V, 25 °C and 35 °C			
PC 2/9/11 TCS PRO	TC-SEL	2x9	0.99
PC 2/9/11 TCS PRO	TC-SEL	2x11	1.02
PC 2/10/13 TCD PRO	TC-DEL	2x10	0.95
PC 2/9/11 TCS PRO	TC-DEL	2x13	0.98
PC 2/10/13 TCD PRO	TC-DEL	2x13	1.05
PC 2/18 TCD PRO	TC-DEL	2x18	1
PC 2/26/32 TCT PRO	TC-DEL	2x26	1
PC 2/9/11 TCS PRO	TC-TEL	2x13	0.98
PC 2/10/13 TCD PRO	TC-TEL	2x13	1.05
PC 2/18 TCD PRO	TC-TEL	2x18	1
PC 2/26/32 TCT PRO	TC-TEL	2x26	1
PC 2/26/32 TCT PRO	TC-TEL	2x32	1
PC 2/32/42 TCT PRO	TC-TEL	2x32	1
PC 2/32/42 TCT PRO	TC-TEL	2x42	1
PC 2/26/32 TCT PRO	T5c	2x22	1
PC 2/32/42 TCT PRO	T5c	22+40	1.01
PC 2/32/42 TCT PRO	T5c	2x40	0.98
PC 2/26/32 TCT PRO	TC-L	2x18	0.96
PC 2/26/32 TCT PRO	TC-L	2x24	1.02
PC 2/26/32 TCT PRO	TC-F	2x18	0.96
PC 2/26/32 TCT PRO	TC-F	2x24	1.02

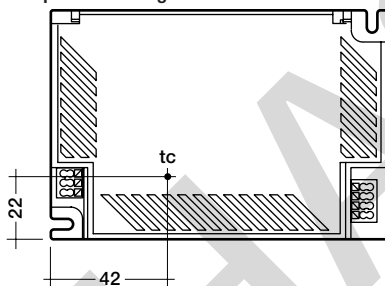
Preheat time

type	lamp type	wattage	preheat time
W			
s			
PC 2/9/11 TCS PRO	TC-SEL	2x9	1.5
PC 2/9/11 TCS PRO	TC-SEL	2x11	1.5
PC 2/10/13 TCD PRO	TC-DEL	2x10	1.5
PC 2/9/11 TCS PRO	TC-DEL	2x13	1.5
PC 2/10/13 TCD PRO	TC-DEL	2x13	1.5
PC 2/18 TCD PRO	TC-DEL	2x18	1.5
PC 2/26/32 TCT PRO	TC-DEL	2x26	1.5
PC 2/9/11 TCS PRO	TC-TEL	2x13	1.5
PC 2/10/13 TCD PRO	TC-TEL	2x13	1.5
PC 2/18 TCD PRO	TC-TEL	2x18	1.5
PC 2/26/32 TCT PRO	TC-TEL	2x26	1.5
PC 2/26/32 TCT PRO	TC-TEL	2x32	1.5
PC 2/32/42 TCT PRO	TC-TEL	2x32	1.5
PC 2/32/42 TCT PRO	TC-TEL	2x42	1.5
PC 2/26/32 TCT PRO	T5c	2x22	1.5
PC 2/32/42 TCT PRO	T5c	22+40	1.5
PC 2/32/42 TCT PRO	T5c	2x40	1.5
PC 2/26/32 TCT PRO	TC-L	2x18	1.5
PC 2/26/32 TCT PRO	TC-L	2x24	1.5
PC 2/26/32 TCT PRO	TC-F	2x18	1.5
PC 2/26/32 TCT PRO	TC-F	2x24	1.5

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 features make PC PRO a real champion in its class.

Temperature range



tc point is related to the ballast life duration. PC 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.

PC PRO L = 123 mm

Maximum 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 2/9/11 TCS PRO	32	44	54	64	16	22	27	32
PC 2/10/13 TCD PRO	32	44	52	60	16	22	26	30
PC 2/18 TCD PRO	48	72	80	100	24	36	40	50
PC 2/26/32 TCT PRO	22	32	38	44	11	16	19	22
PC 2/32/42 TCT PRO	14	18	22	30	7	9	11	15

Electronic ballasts Compact lamps

Wiring advice

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

Ballast Type	Terminal		Maximum capacitance allowed	
	Cold	Hot	Cold	Hot
PC 2/xx PRO	1, 2, 3, 4	5, 6	200 pF	100 pF

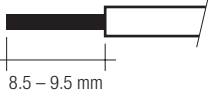
With standard solid wire 0.5/0.75 mm² the capacitance of the lead is 30–80 pF/m. This value is influenced by the way the wiring is made. Lamp connection should be made with symmetrical wiring.

Installation instructions

Wiring type and cross section

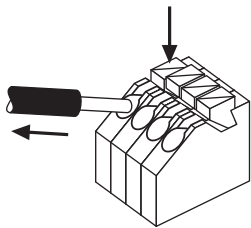
The wiring can be in flexible cable with ferules or solid with a cross section of 0.5–1.5 mm². Strip 9.5 mm of insulation from the cables to ensure perfect operation of the push-wire terminals.

wire preparation:
0.5 – 1.5 mm²



Release of the wiring

Press down the “push button” and remove the cable from front.

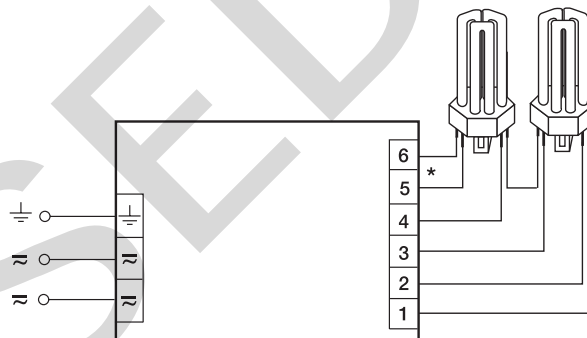


RFI

- Connection to the lamps of the “hot leads” must be kept as short as possible
- Mains leads should be kept apart from lamp leads
- 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
- 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.



* leads (5, 6) max. 1.0 m (< 100 pF)
leads (1, 2, 3, 4) max. 2.0 m (< 200 pF)

PC 2/xx PRO