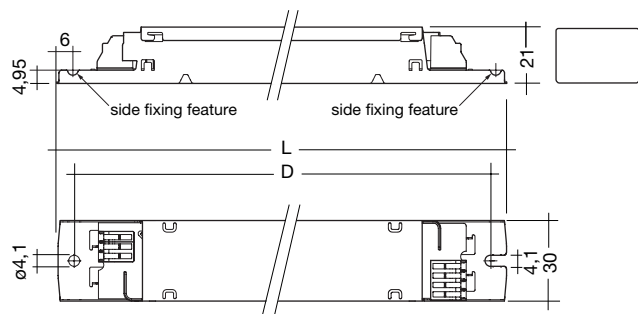


Electronic ballasts  
Linear lamps T5, T8 and compact lamps TC-L

PC T5 PRO Ip 24–80 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  $t_a$  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  $\geq 198$  V DC)
- overvoltage protection 320 VAC, 1 h
- overvoltage indication starting at input voltage  $\geq 306$  VAC
- undervoltage protection (shut down)  $< 150$  VAC / 176 VDC
- operating frequency  $\geq 42$  kHz

- suitable for automatic and manual wiring with insulation displacement connector (IDC)
- wide operating temperature range from  $-25$  °C to  $+60$  °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  $\nabla$  or  $\nabla$  and  $\nabla$  in acc. with EN 60598 / VDE 0710 and VDE 0711
- protection class SK I and SK II
- 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	240 V A	$\lambda$ at 50 Hz 220 V	240 V	tc point °C	temperature range °C
3x15	T8	PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	22176047	425	415	0.28	40.5	47.0	A2	0.22	0.21	0.96	0.94	75	-25 → +60
4x15	T8	PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	22176047	425	415	0.28	54.0	62.0	A2	0.29	0.27	0.97	0.96	75	-25 → +55
3x18	T8	PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	22176047	425	415	0.28	48.0	54.5	A2	0.26	0.24	0.97	0.96	75	-25 → +60
4x18	T8	PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	22176047	425	415	0.28	64.0	73.0	A2	0.34	0.31	0.98	0.97	75	-25 → +55
1x24	T5	PC 1/24 T5 Pro Ip 220–240 V 50/60/0 Hz	22087891	280	270	0.20	22.5	26.0	A2	0.12	0.11	0.98	0.96	70	-25 → +50
2x24	T5	PC 2/24 T5 Pro Ip 220–240 V 50/60/0 Hz	22087939	360	350	0.26	45.0	48.5	A2	0.22	0.21	0.98	0.96	70	-25 → +50
3x24	T5	PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	22176047	425	415	0.28	67.5	76.0	A2	0.35	0.33	0.98	0.97	75	-25 → +55
4x24	T5	PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	22176047	425	415	0.28	90.0	99.0	A2	0.45	0.42	0.99	0.98	75	-25 → +50
1x39	T5	PC 1/39 T5 Pro Ip 220–240 V 50/60/0 Hz	22087908	280	270	0.20	38.0	41.0	A2	0.19	0.18	0.99	0.97	70	-25 → +50
2x39	T5	PC 2/39 T5 Pro Ip 220–240 V 50/60/0 Hz	22087630	360	350	0.26	76.0	84.0	A2	0.39	0.36	0.99	0.97	75	-25 → +50
1x49	T5	PC 1/49 T5 Pro Ip 220–240 V 50/60/0 Hz ②	22087917	280	270	0.20	49.3	54.5	A2	0.25	0.23	0.99	0.97	70	-25 → +50
2x49	T5	PC 2/49 T5 Pro Ip 220–240 V 50/60/0 Hz ②	22087646	360	350	0.26	98.6	109.0	A2	0.50	0.47	0.99	0.97	80	-25 → +50
1x54	T5	PC 1/54 T5 Pro Ip 220–240 V 50/60/0 Hz ②	22087923	280	270	0.20	53.8	58.0	A2	0.27	0.25	0.99	0.97	70	-25 → +50
2x54	T5	PC 2/54 T5 / 2/55 TCL Pro Ip 220–240 V 50/60/0 Hz ②	22087541	360	350	0.26	105.3	118.0	A2	0.54	0.51	0.99	0.97	80	-25 → +50
2x55	TCL	PC 2/54 T5 / 2/55 TCL Pro Ip 220–240 V 50/60/0 Hz	22087541	360	350	0.26	105.3	118.0	A2	0.54	0.51	0.99	0.97	80	-25 → +50
1x80	T5	PC 1/80 T5 Pro Ip 220–240 V 50/60/0 Hz	22087618	360	350	0.26	80.0	86.0	A2	0.40	0.37	0.98	0.96	80	-25 → +50
2x80	T5	PC 2/80 T5 Pro Ip 220–240 V 50/60/0 Hz	22088109	425	415	0.36	160.0	175.0	A2	0.80	0.74	0.99	0.98	80	-25 → +50

① measured according to EN 50294

② Types will be replaced by the new x:tec generation until May 2008.

### 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 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.

### Mains currents in DC operation

type	lamp type	wattage W	mains current at $U_n = 220$ VDC	mains current at $U_n = 240$ VDC
PC 3/4/24 T5 Pro Ip	T8	3x15	207 mA	190 mA
PC 3/4/24 T5 Pro Ip	T8	4x15	276 mA	253 mA
PC 3/4/24 T5 Pro Ip	T8	3x18	237 mA	218 mA
PC 3/4/24 T5 Pro Ip	T8	4x18	317 mA	291 mA
PC 1/24 T5 Pro Ip	T5	1x24	118 mA	109 mA
PC 2/24 T5 Pro Ip	T5	2x24	226 mA	206 mA
PC 3/4/24 T5 Pro Ip	T5	3x24	338 mA	310 mA
PC 3/4/24 T5 Pro Ip	T5	4x24	446 mA	408 mA
PC 1/39 T5 Pro Ip	T5	1x39	195 mA	178 mA
PC 2/39 T5 Pro Ip	T5	2x39	375 mA	344 mA
PC 1/49 T5 Pro Ip	T5	1x49	247 mA	226 mA
PC 2/49 T5 Pro Ip	T5	2x49	489 mA	446 mA
PC 1/54 T5 Pro Ip	T5	1x54	263 mA	242 mA
PC 2/54 T5 / 2/55 TCL Pro Ip	T5	2x54	528 mA	483 mA
PC 2/54 T5 / 2/55 TCL Pro Ip	TCL	2x55	528 mA	483 mA
PC 1/80 T5 Pro Ip	T5	1x80	400 mA	364 mA
PC 2/80 T5 Pro Ip	T5	2x80	789 mA	723 mA

### Harmonic distortion in the mains supply

type	lamp type	wattage W	THD at 230 V / 50 Hz
PC 3/4/24 T5 Pro Ip	T8	3x15	$< 12\%$
PC 3/4/24 T5 Pro Ip	T8	4x15	$< 10\%$
PC 3/4/24 T5 Pro Ip	T8	3x18	$< 12\%$
PC 3/4/24 T5 Pro Ip	T8	4x18	$< 10\%$
PC 1/24 T5 Pro Ip	T5	1x24	$< 10\%$
PC 2/24 T5 Pro Ip	T5	2x24	$< 10\%$
PC 3/4/24 T5 Pro Ip	T5	3x24	$< 10\%$
PC 3/4/24 T5 Pro Ip	T5	4x24	$< 10\%$
PC 1/39 T5 Pro Ip	T5	1x39	$< 10\%$
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 2/54 T5 / 2/55 TCL Pro Ip	T5	2x54	$< 10\%$
PC 2/54 T5 / 2/55 TCL Pro Ip	TCL	2x55	$< 10\%$
PC 1/80 T5 Pro Ip	T5	1x80	$< 10\%$
PC 2/80 T5 Pro Ip	T5	2x80	$< 5\%$

### Output voltage

type	lamp type	wattage W	U <sub>out</sub>
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T8	3x15	350 V
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T8	4x15	350 V
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T8	3x18	350 V
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T8	4x18	350 V
PC 1/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x24	250 V
PC 2/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x24	250 V
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	3x24	350 V
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	4x24	350 V
PC 1/39 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x39	250 V
PC 2/39 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x39	250 V
PC 1/49 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x49	300 V
PC 2/49 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x49	300 V
PC 1/54 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x54	250 V
PC 2/54 T5 / 2/55 TCL Pro Ip 220–240 V 50/60/0 Hz	T5	2x54	350 V
PC 2/54 T5 / 2/55 TCL Pro Ip 220–240 V 50/60/0 Hz	TCL	2x55	350 V
PC 1/80 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x80	250 V
PC 2/80 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x80	400 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 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T8	3x15	0.95
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T8	4x15	0.96
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T8	3x18	0.99
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T8	4x18	0.99
PC 1/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x24	1.00
PC 2/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x24	1.00
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	3x24	1.03
PC 3/4/24 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	4x24	1.07
PC 1/39 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x39	1.00
PC 2/39 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x39	1.00
PC 1/49 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x49	1.00
PC 2/49 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x49	1.00
PC 1/54 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x54	1.00
PC 2/54 T5 / 2/55 TCL Pro Ip 220–240 V 50/60/0 Hz	T5	2x54	1.00
PC 2/54 T5 / 2/55 TCL Pro Ip 220–240 V 50/60/0 Hz	TCL	2x55	0.95
PC 1/80 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	1x80	1.00
PC 2/80 T5 Pro Ip 220–240 V 50/60/0 Hz	T5	2x80	1.00

### ASIC light management

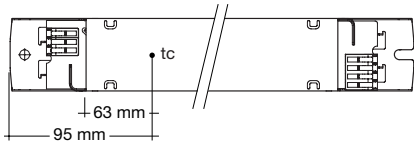
ASIC (Application specific integrated circuit) is the very latest in lighting management design technology. The lamp friendly warm start in 1.5 seconds and a whole series of energy saving measures and light management features make PC T5 Pro Ip a real champion in its class.

### 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.

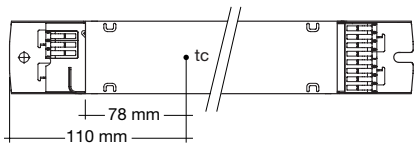
**Ambient Temperature**

PC 1x24-54 T5 Pro Ip

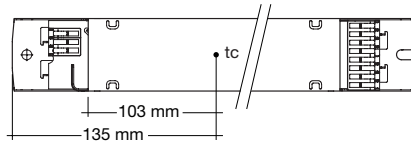


tc point is related to the ballast life duration. PC T5 PRO LP is designed for an average service life of 50,000 hours under reference conditions and with a failure probability of less than 10 %. This corresponds to an average failure rate of 0.2 % for every 1,000 hours of operation.

PC 1x80 T5 Pro Ip  
PC 2x24-54 T5 Pro Ip



PC 2x80 T5 Pro Ip  
PC 3/4/24 T5 Pro Ip



**Loading of automatic circuit breakers**

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20
Installation Ø	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	4.0 mm <sup>2</sup>	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	4.0 mm <sup>2</sup>
PC 1/24 T5 Pro Ip	28	40	44	58	14	20	22	29
PC 1/39 T5 Pro Ip	28	40	44	58	14	20	22	29
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 1/80 T5 Pro Ip	18	28	30	36	9	14	15	22
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 2/49 T5 Pro Ip	18	28	30	36	9	14	15	18
PC 2/54 T5 / 2/55 TCL Pro Ip	14	20	24	30	7	10	12	15
PC 2/80 T5 Pro Ip	8	14	16	20	4	7	8	10
PC 3/4/24 T5 Pro Ip	14	18	22	28	7	9	11	14

**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.

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 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

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
PC 2/55 TCL Pro Ip	11, 12, 13, 14	9, 10, 15, 16	200 pF	100 pF
PC 3/4/24 T5 Pro Ip	5, 6, 7, 8, 11, 14	9, 10, 15, 16	200 pF	100 pF

**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	1449 mm

**T8 lamp information**

wattage	length
18 W	590 mm

**Installation instructions**

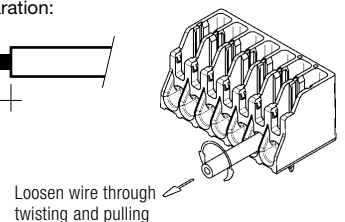
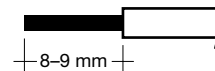
**IDC interface**

- solid wire with a cross section of 0.5 mm<sup>2</sup> according to the specification from WAGO
- alternatively a flexible lead with a cross section of 0.75 mm<sup>2</sup>

**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 screw terminals
- Loosen wire through twisting and pulling

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



**RFI**

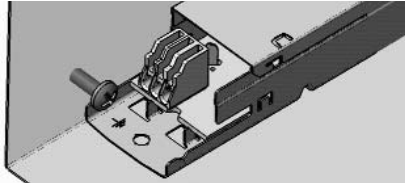
TridonicAtco ballasts are RFI protected in accordance with EN 55015 and EN 55022. To operate the luminaire correctly and to minimise RFI we recommend the following instructions:

- 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

**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 1x24–54 T5 Pro Ip \*  
10 pieces/carton  
96 cartons/pallet  
960 pieces/pallet

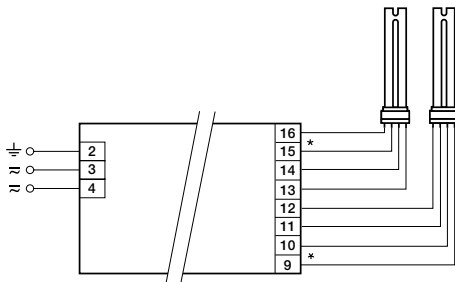
PC 1x80 T5 Pro Ip and  
PC 2x24–54 T5 Pro Ip \*  
10 pieces/carton  
76 cartons/pallet  
760 pieces/pallet

PC 2x80 T5 Pro Ip and  
PC 3/4/24 T5 Pro Ip  
25 pieces/carton  
33 cartons/pallet  
825 pieces/pallet

**\* New packaging concept**

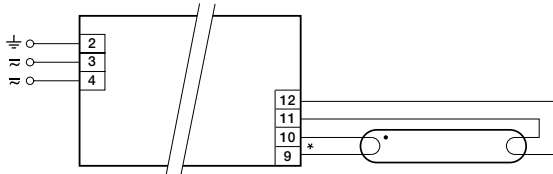


Optimised packaging concept for the transportation of ballasts, that provide a 51 % reduction in packaging per ballast. Thus minimising environmental impact and reducing recycling costs associated by separating waste.



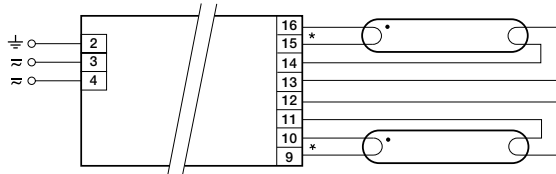
\* leads 9, 10, 15, 16 max. 1.0 m (< 100 pF)  
leads 11, 12, 13, 14 max. 2.0 m (< 200 pF)  
SK I - luminaires: earth of ballast housing required (according to IEC 598)  
SK II - luminaires: no earth required

PC 2x55 TC-L Pro Ip



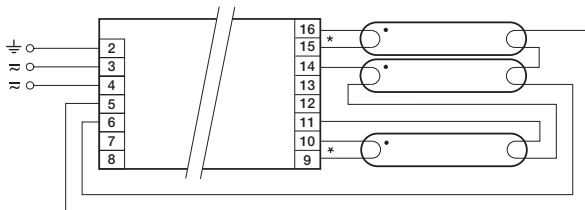
\* leads 9, 10 max. 1.0 m (< 100 pF)  
leads 11, 12 max. 2.0 m (< 200 pF)  
SK I - luminaires: earth of ballast housing required (according to IEC 598)  
SK II - luminaires: no earth required

PC 1x24–80 T5 Pro Ip



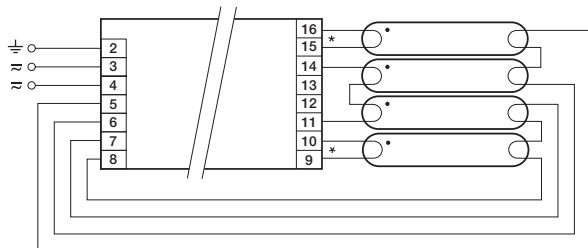
\* leads 9, 10, 15, 16 max. 1.0 m (< 100 pF)  
leads 11, 12, 13, 14 max. 2.0 m (< 200 pF)  
SK I - luminaires: earth of ballast housing required (according to IEC 598)  
SK II - luminaires: no earth required

PC 2x24–80 T5 Pro Ip



\* leads 9, 10, 15, 16 max. 1.0 m (< 100 pF)  
leads 5, 6, 7, 8, 11, 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 3x24 T5 Pro Ip



\* leads 9, 10, 15, 16 max. 1.0 m (< 100 pF)  
leads 5, 6, 7, 8, 11, 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 4x24 T5 Pro Ip


## **Příklad katalogového listu předřadníku**


Jako příklad byl vybrán elektronický předřadník, který je vhodný pro napájení svítidla uvedeného v katalogovém listu svítidla.

Na katalogový list předřadníku lze nahlížet podobně jako na katalogové listy svítidel. Základní rozdíl je v tom, že u předřadníků nelze popisovat optické vlastnosti. Tzn. že jsou zde popisovány zejména parametry elektrické a následně rozměrové a mechanické.

Z pohledu energetických auditů lze v katalogovém listu předřadníků hledat zejména následující údaje:

**Počet a příkon napájených světelných zdrojů** – je zde uváděna informace o počtu, příkonu a typu předřadníkem napájených světelných zdrojů (2x54W T5).

**Značky a certifikáty** – katalogový list by měl obsahovat informaci o certifikátech ze zkušeben (např. ) , které jsou podkladem pro značku evropské shody ( **CE** ).

**Možnost umístění** – katalogový list udává jak předřadník umísťovat a zejména na jaké povrchy je svítidlo možné montovat z pohledu požární bezpečnosti (např.  - montáž na normálně zápalné povrchy).

**Krytí** – informace o ochraně předřadníků proti vniku pevných předmětů a proti vodě.

**Energetická třída předřadníku** – parametr udávající efektivitu přeměny elektrické energie. Nestmívatelné elektronické předřadníky se již pohybují v energetické třídě A.

**Třída izolace** – informace o tom, jestli má předřadník dvojitou izolaci, či nikoliv (pro předřadníky napájené napětím 230 V přichází v úvahu pouze třída izolace I a třída izolace II).

**Příkon předřadníku** – příkon předřadníku odpovídá příkonu celého svítidla, který je ve většině případů mírně vyšší než součet udávaných příkonů světelných zdrojů (118 W je větší než 2 x 54W). Rozdíl mezi příkonem zdrojů a celého svítidla je dán ztrátami v předřadníku.

**Světelný tok** – velmi důležitá informace je, jaký světelný tok generuje světelný zdroj při napájení konkrétním předřadníkem. Tato informace je udávána jako bezrozměrná jednotka (Ballast lumen factor), přičemž hodnota 1 udává, že světelný zdroj je provozován se jmenovitým světelným tokem. Tato informace má vliv, s jakým měrným výkonem bude pracovat světelný zdroj.