

PC BASIC sl, 4 – 28 W

PC BASIC



Product description

- _ CELMA Energy Efficiency Index A2
- _ Nominal lifetime up to 50,000 h (at t_a 50 °C with a failure rate \leq 0.2 % per 1,000 h)
- _ Large temperature range (for values see table)
- _ Automatic start after replacement of defective lamps
- _ Safety shutdown of defective lamps and at end of lamp life
- _ Temperature protection as per EN 61347-2-3 C5e
- _ 5 years guarantee

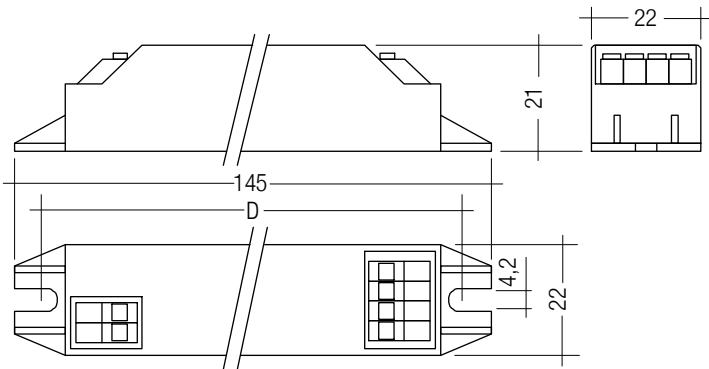
Website

<http://www.tridonic.com/24138834>



PC BASIC sl, 4 – 28 W

PC BASIC



Ordering data

Type	Article number	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
For luminaires with 1 lamp					
PC 1x4-13 W BASIC sl	24138834	56 pc(s).	1,736 pc(s).	8,680 pc(s).	0.041 kg
PC 1x5-16 W BASIC sl	24138833	56 pc(s).	1,736 pc(s).	8,680 pc(s).	0.040 kg
PC 1x18-24 W BASIC sl	22176000	56 pc(s).	1,736 pc(s).	8,680 pc(s).	0.052 kg
PC 1x14-21 W BASIC sl	22176001	56 pc(s).	1,736 pc(s).	8,680 pc(s).	0.050 kg
PC 1x26 W BASIC sl	22176002	56 pc(s).	1,736 pc(s).	8,680 pc(s).	0.054 kg

Technical data

AC voltage range	198 – 264 V
DC voltage range	176 – 264 V (lamp start \geq 198 V DC)
Overvoltage protection	270 V AC, 360 h
Defined warm start	\leq 2 s
Operating frequency	\geq 40 kHz
Type of protection	IP20

Approval marks



Standards

EN 55015, EN 61000-3-2, EN 61347-2-3, EN 61347-2-4, EN 61547

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		λ at 50 Hz		tc point max.	Ambient temperature ta
									220 V	240 V	220 V	240 V		
For luminaires with 1 lamp														
1 x 4 W	T16 (T5)	PC 1x4-13 W BASIC sl	24138834	145 x 22 x 21 mm	136 mm	3.5 W	5.0 W	A2	0.045 A	0.043 A	0.51C	0.48C	85 °C	-25 ... +60 °C
1 x 6 W	T16 (T5)	PC 1x4-13 W BASIC sl	24138834	145 x 22 x 21 mm	136 mm	5.0 W	7.0 W	A2	0.059 A	0.057 A	0.54C	0.51C	85 °C	-25 ... +60 °C
1 x 8 W	T16 (T5)	PC 1x4-13 W BASIC sl	24138834	145 x 22 x 21 mm	136 mm	6.5 W	8.5 W	A2	0.067 A	0.063 A	0.58C	0.56C	85 °C	-25 ... +60 °C
1 x 5 W	TC-SEL	PC 1x5-16 W BASIC sl	24138833	145 x 22 x 21 mm	136 mm	4.5 W	6.5 W	A2	0.055 A	0.051 A	0.54C	0.53C	90 °C	-25 ... +60 °C
1 x 7 W	TC-SEL	PC 1x5-16 W BASIC sl	24138833	145 x 22 x 21 mm	136 mm	6.0 W	8.0 W	A2	0.065 A	0.063 A	0.56C	0.53C	90 °C	-25 ... +60 °C
1 x 9 W	TC-SEL	PC 1x5-16 W BASIC sl	24138833	145 x 22 x 21 mm	136 mm	7.5 W	10.0 W	A2	0.078 A	0.073 A	0.58C	0.57C	90 °C	-25 ... +60 °C
1 x 14 W	T16 (T5)	PC 1x14-21 W BASIC sl	22176001	145 x 22 x 21 mm	136 mm	12.5 W	14.5 W	A2	0.117 A	0.120 A	0.58C	0.57C	85 °C	-25 ... +60 °C
1 x 21 W	T16 (T5)	PC 1x14-21 W BASIC sl	22176001	145 x 22 x 21 mm	136 mm	17.5 W	20.0 W	A2	0.147 A	0.151 A	0.60C	0.60C	85 °C	-25 ... +60 °C
1 x 24 W	T16 (T5)	PC 1x18-24 W BASIC sl	22176000	145 x 22 x 21 mm	136 mm	21.5 W	25.0 W	A2	0.180 A	0.170 A	0.62C	0.61C	85 °C	-25 ... +60 °C
1 x 22 W	T16-R (T5c)	PC 1x18-24 W BASIC sl	22176000	145 x 22 x 21 mm	136 mm	21.5 W	23.5 W	A2	0.180 A	0.170 A	0.62C	0.61C	85 °C	-25 ... +60 °C
1 x 18 W	T26 (T8)	PC 1x18-24 W BASIC sl	22176000	145 x 22 x 21 mm	136 mm	15.5 W	18.0 W	A2	0.140 A	0.130 A	0.60C	0.58C	85 °C	-25 ... +60 °C
1 x 18 W	TC-F	PC 1x18-24 W BASIC sl	22176000	145 x 22 x 21 mm	136 mm	13.0 W	16.0 W	A2	0.120 A	0.120 A	0.58C	0.57C	85 °C	-25 ... +60 °C
1 x 18 W	TC-L	PC 1x18-24 W BASIC sl	22176000	145 x 22 x 21 mm	136 mm	14.0 W	16.5 W	A2	0.130 A	0.120 A	0.59C	0.58C	85 °C	-25 ... +60 °C
1 x 28 W	TC-DD	PC 1x26 W BASIC sl	22176002	145 x 22 x 21 mm	136 mm	21.5 W	25.0 W	A2	0.180 A	0.170 A	0.62C	0.61C	90 °C	-25 ... +50 °C
1 x 26 W	TC-DEL	PC 1x26 W BASIC sl	22176002	145 x 22 x 21 mm	136 mm	20.5 W	24.0 W	A2	0.180 A	0.170 A	0.62C	0.61C	90 °C	-25 ... +60 °C
1 x 26 W	TC-TEL	PC 1x26 W BASIC sl	22176002	145 x 22 x 21 mm	136 mm	21.0 W	24.5 W	A2	0.180 A	0.170 A	0.62C	0.61C	90 °C	-25 ... +60 °C

① Art. no. 22176002, lamp type TC-DD: For enclosed luminaires to fulfil the requirement of circuit power ≤ 25 W according to EN 61000-3-2. For AC operation only.

Standards

EN 55015
 EN 61000-3-2
 EN 61347-2-3
 EN 61347-2-4
 EN 61547

Glow-wire test

according to EN 60598-1 with increased temperature of 850 °C passed.

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 ($+6\% / -8\%$)

Min. lamp starting temperature -25 °C

DC operation

220 – 240 V_{DC}
 198 – 264 V_{DC} certain lamp start
 176 – 264 V_{DC} operation possible

Min. lamp starting temperature -25 °C

With a DC supply L and N terminals are interchangeable.

Abnormal operation protection

All ballasts are equipped with a protection circuit against abnormal operation. The circuit is used to shut down the ballast if the lamp fails to strike, or if the lamp is defect.

The ballast can be restarted after shut down by turning off the supply for 10 s or by replacing the lamp.

Ingress protection

IP 20

Protection class

The ballasts are suitable for use in class I or class II luminaires.

Energy class CELMA EEI = A2¹⁾

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

Harmonic distortion in the mains supply

EMC standard EN 61000-3-2 for lighting equipment with active input power ≤ 25 W.

All ballasts comply with the standard EN 61000-3-2 to operate lighting equipment with an active input power ≤ 25 W where distortion limits for current drawn from the supply are 86 % for 3rd harmonic and 61 % for 5th harmonic only.

Remark

The EMC standard applies to the luminaire and reflects the specific properties of each fitting whether single or multi-lamp.

Ballast lumen factor

Type	Lamp type	Wattage	AC/DC-BLF at 230 V, 50 Hz
PC 1x4-13 W BASIC sl	T5	1x4 W	1.00
PC 1x4-13 W BASIC sl	T5	1x6 W	1.03
PC 1x4-13 W BASIC sl	T5	1x8 W	1.01
PC 1x5-16 W BASIC sl	TC-SEL	1x5 W	0.98
PC 1x5-16 W BASIC sl	TC-SEL	1x7 W	0.96
PC 1x5-16 W BASIC sl	TC-SEL	1x9 W	0.98
PC 1x18-24 W BASIC sl	T5	1x24 W	1.00
PC 1x18-24 W BASIC sl	T5c	1x22 W	0.96
PC 1x18-24 W BASIC sl	T8	1x18 W	0.96
PC 1x18-24 W BASIC sl	TC-F	1x18 W	0.88
PC 1x18-24 W BASIC sl	TC-L	1x18 W	0.92
PC 1x14-21 W BASIC sl	T5	1x14 W	0.99
PC 1x14-21 W BASIC sl	T5	1x24 W	1.00
PC 1x26 W BASIC sl	TC-DD	1x28 W	0.85
PC 1x26 W BASIC sl	TC-DEL	1x26 W	0.91
PC 1x26 W BASIC sl	TC-TEL	1x26 W	0.97

Mains currents in DC operation

Type	Lamp type	Wattage	mains current at	
			$U_n = 220 V_{bc}$	$U_n = 240 V_{bc}$
PC 1x4-13 W BASIC	T5	1x4 W	23 mA	21 mA
	T5	1x6 W	32 mA	29 mA
	T5	1x8 W	39 mA	35 mA
PC 1x5-16 W BASIC	TC-SEL	1x5 W	30 mA	27 mA
	TC-SEL	1x7 W	36 mA	33 mA
	TC-SEL	1x9 W	45 mA	42 mA
PC 1x18-24 W BASIC sl	T5	1x24 W	112 mA	104 mA
	T5c	1x22 W	112 mA	104 mA
	T8	1x18 W	84 mA	75 mA
	TC-F	1x18 W	70 mA	68 mA
PC 1x14-21 W BASIC sl	TC-L	1x18 W	77 mA	70 mA
	T5	1x14 W	56 mA	56 mA
	T5	1x24 W	72 mA	73 mA
PC 1x26 W BASIC	TC-DD	1x28 W	112 mA	104 mA
	TC-DEL	1x26 W	112 mA	104 mA
	TC-TEL	1x26 W	112 mA	104 mA

Lamp matrix

Lamp	PC Basic sl 4–13 W	PC Basic sl 5–16 W	PC Basic sl 14–21 W	PC Basic sl 18–24 W	PC Basic sl 26 W
TC-SEL 5 W		•			
TC-SEL 7 W		•			
TC-SEL 9 W		•			
TC-DEL 26 W					•
TC-TEL 26 W					•
T5 4 W	•				
T5 6 W	•				
T5 8 W	•				
T5 14 W			•		
T5 21 W			•		
T5 24 W				•	
T5-C 22 W				•	
T8 18 W				•	
TC-DD 28 W					•
TC-L 18 W				•	
TC-F 18 W				•	

Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20
Installation Ø	1.5 mm ²	1.5 mm ²	1.5 mm ²	2.5 mm ²	1.5 mm ²	1.5 mm ²	1.5 mm ²	2.5 mm ²
PC 1x4–13 W Basic sl	90	117	144	181	90	117	144	181
PC 1x5–16 W Basic sl	80	106	130	163	80	106	130	163
PC 1x14–21 W Basic sl	56	83	102	127	28	54	102	127
PC 1x18–24 W Basic sl	56	73	90	112	28	54	90	112
PC 1x26 W Basic sl	56	71	88	110	28	54	88	110

Max. load per MCB at supply voltage $U_n = 230\text{ V}$

Wiring advice

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

Ballast	Terminal	Maximum capacitance allowed			
		Cold	Hot	Cold	Hot
PC 1x4–13 W Basic sl	1, 2	3, 4	120 pF	60 pF	
PC 1x5–16 W Basic sl	1, 2	3, 4	120 pF	60 pF	
PC 1x14–21 W Basic sl	1, 2	3, 4	120 pF	60 pF	
PC 1x18–24 W Basic sl	1, 2	3, 4	120 pF	60 pF	
PC 1x26 W Basic	1, 2	3, 4	120 pF	60 pF	

With standard solid wire 0.5 / 0.75 mm² the capacitance of the lead is 80 pF/m. This value is influenced by the way the wiring is made. In borderline cases the capacitance must be measured inside the luminaire. Lamp connection should be as short as possible and be made with symmetrical wiring.

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.)

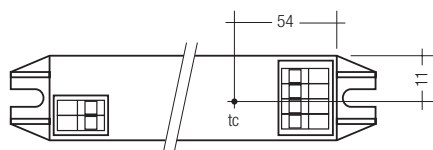
Temperature range

from -25 °C to +60 °C

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

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

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



Expected life-time

Type	Lamp type	Lamp power	t_a	40 °C	50 °C	55 °C	60 °C
PC 1x4-13 W BASIC sl	T5	1x4 W	tc	65 °C	75 °C	80 °C	85 °C
	T5	1x6 W					
	T5	1x8 W					
PC 1x5-16 W BASIC sl	TC-SEL	1x5 W	tc	70 °C	80 °C	85 °C	90 °C
	TC-SEL	1x7 W					
	TC-SEL	1x9 W					
PC 1x18-24 W BASIC sl	T5	1x24 W	tc	65 °C	75 °C	80 °C	85 °C
	T5c	1x22 W					
	T8	1x18 W					
	TC-F	1x18 W					
	TC-L	1x18 W					
PC 1x14-21 W BASIC sl	T5	1x14 W	tc	65 °C	75 °C	80 °C	85 °C
	T5	1x21 W					
PC 1x26 W BASIC sl	TC-DD	1x28 W	tc	80 °C	90 °C	x	x
PC 1x26 W BASIC sl	TC-DEL	1x26 W	tc	70 °C	80 °C	85 °C	90 °C
	TC-TEL	1x26 W					

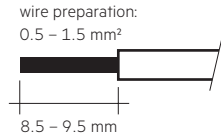
x = not permitted

Installation instructions

Wiring type and cross section

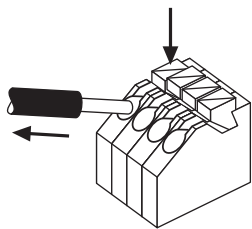
The wiring can be in stranded wires with ferrules or solid with a cross section of 0.5 – 1.5 mm².

Strip 9.5 mm of insulation from the cables to ensure perfect operation of push-wire terminals.



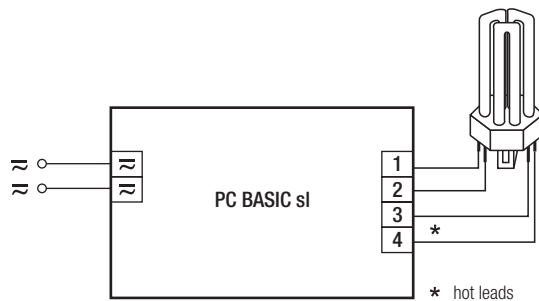
Release of the wiring

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



Ballasts are not suitable for any kind of dimming applications.

Wiring diagramm



- * leads 3, 4 max. 0.5 m (< 60 pF)
- leads 1, 2 max. 1.0 m (< 120 pF)

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 must be kept as short as possible
- Mains leads should be kept apart from lamp leads (ideally 5 – 10 cm distance)
- Do not lead mains leads too closely along the electronic ballast
- Keep the distance of lamp leads from the metal work as large as possible
- Mains wiring to be twisted when through wiring
- Keep the mains leads inside the luminaire as short as possible

Insulation 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 insulation test with 500 V_{DC} for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.

The insulation 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_{AC} (or 1.414 x 1500 V_{DC}). To avoid damage to the electronic devices this test must not be conducted.

Additional information

Additional technical information at www.tridonic.com → Technical Data

Guarantee conditions at www.tridonic.com → Services

Life-time declarations are informative and represent no warranty claim. No warranty if device was opened.