

### PC BASIC sl, 4 – 28 W

Electronic ballast for system output < 25 W

#### Product description

- CELMA Energy Efficiency Index A2 / A3
- Nominal life time up to 50,000 h (at ta 50 °C with a failure rate max. 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 life
- Temperature protection as per EN 61347-2-3 C5e

#### Technical data

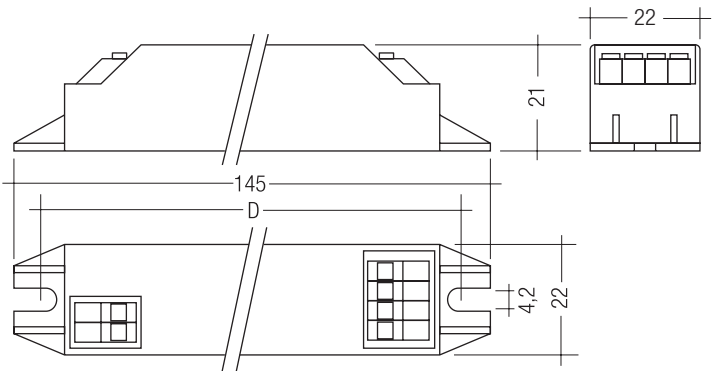
AC voltage range	198 – 264 V
DC voltage range	176 – 264 V (Lamp start $\geq$ 198 V DC)
Overvoltage protection	270 V AC, 360 h
Defined warm start	$\leq$ 2 s
Operating frequency	$\geq$ 40 kHz
Type of protection	IP20



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#### Ordering data

Type	Article number	Packaging carton	Packaging pallet	Weight
<b>For luminaires with 1 lamp</b>				
PC 1x4-13 W BASIC sl	24138834	25 pieces	1,150 pieces	0.044 kg
PC 1x5-16 W BASIC sl	24138833	25 pieces	1,150 pieces	0.044 kg
PC 1x18 W BASIC sl	24138832	25 pieces	1,150 pieces	0.044 kg
PC 1x18-24 W BASIC sl	22176000	25 pieces	1,150 pieces	0.055 kg
PC 1x14-21 W BASIC sl	22176001	25 pieces	1,150 pieces	0.055 kg
PC 1x26 W BASIC sl	22176002	25 pieces	1,150 pieces	0.055 kg

Specific technical data

Lamp wattage	Lamp type	Type	Article number	Dimension 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		
<b>For luminaires with 1 lamp</b>														
1 x 4 W	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	0.51	0.48	85 °C	-25 ... 60 °C
1 x 6 W	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	0.54	0.51	85 °C	-25 ... 60 °C
1 x 8 W	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	0.58	0.56	85 °C	-25 ... 60 °C
1 x 13 W	T5	PC 1x4-13 W BASIC sl	24138834	145 x 22 x 21 mm	136 mm	11.0 W	15.5 W	A3	0.114 A	0.106 A	0.62	0.61	85 °C	-25 ... 60 °C
1 x 10 W	TC-DD	PC 1x4-13 W BASIC sl	24138834	145 x 22 x 21 mm	136 mm	9.0 W	11.5 W	A3	0.087 A	0.081 A	0.60	0.59	85 °C	-25 ... 60 °C
1 x 16 W	TC-DD	PC 1x5-16 W BASIC sl	24138833	145 x 22 x 21 mm	136 mm	14.0 W	18.0 W	A3	0.130 A	0.121 A	0.63	0.62	90 °C	-25 ... 60 °C
1 x 10 W	TC-DEL	PC 1x5-16 W BASIC sl	24138833	145 x 22 x 21 mm	136 mm	8.5 W	11.5 W	A3	0.089 A	0.084 A	0.59	0.57	90 °C	-25 ... 60 °C
1 x 13 W	TC-DEL	PC 1x5-16 W BASIC sl	24138833	145 x 22 x 21 mm	136 mm	11.8 W	15.5 W	A3	0.112 A	0.106 A	0.63	0.61	90 °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	0.54	0.53	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	0.56	0.53	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	0.58	0.57	90 °C	-25 ... 60 °C
1 x 11 W	TC-SEL	PC 1x5-16 W BASIC sl	24138833	145 x 22 x 21 mm	136 mm	11.0 W	15.0 W	A3	0.110 A	0.104 A	0.62	0.60	90 °C	-25 ... 60 °C
1 x 13 W	TC-TEL	PC 1x5-16 W BASIC sl	24138833	145 x 22 x 21 mm	136 mm	12.0 W	15.5 W	A3	0.112 A	0.106 A	0.63	0.61	90 °C	-25 ... 60 °C
1 x 18 W	TC-DEL	PC 1x18 W BASIC sl	24138832	145 x 22 x 21 mm	136 mm	15.5 W	19.0 W	A3	0.135 A	0.128 A	0.64	0.62	90 °C	-25 ... 60 °C
1 x 18 W	TC-TEL	PC 1x18 W BASIC sl	24138832	145 x 22 x 21 mm	136 mm	15.0 W	19.0 W	A3	0.135 A	0.128 A	0.64	0.62	90 °C	-25 ... 60 °C
1 x 24 W	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	0.62	0.61	85 °C	-25 ... 60 °C
1 x 22 W	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	0.62	0.61	85 °C	-25 ... 60 °C
1 x 18 W	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	0.60	0.58	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	0.68	0.57	85 °C	-25 ... 60 °C
1 x 24 W	TC-F	PC 1x18-24 W BASIC sl	22176000	145 x 22 x 21 mm	136 mm	19.0 W	22.5 W	A3	0.170 A	0.150 A	0.61	0.60	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	0.59	0.58	85 °C	-25 ... 60 °C
1 x 24 W	TC-L	PC 1x18-24 W BASIC sl	22176000	145 x 22 x 21 mm	136 mm	21.5 W	24.0 W	A3	0.180 A	0.170 A	0.62	0.61	85 °C	-25 ... 60 °C
1 x 14 W	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	0.58	0.57	85 °C	-25 ... 60 °C
1 x 21 W	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	0.60	0.60	85 °C	-25 ... 60 °C
1 x 28 W	TC-DD	PC 1x26 W BASIC sl <sup>®</sup>	22176002	145 x 22 x 21 mm	136 mm	21.5 W	25.0 W	A2	0.180 A	0.170 A	0.62	0.61	90 °C	-25 ... 60 °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	0.62	0.61	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	0.62	0.61	90 °C	-25 ... 60 °C

<sup>®</sup> For enclosed luminaires to fulfill 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

**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  $-25\text{ }^{\circ}\text{C}$

**DC operation**

220 – 240 V<sub>DC</sub>  
 198 – 264 V<sub>DC</sub> certain lamp start  
 176 – 264 V<sub>DC</sub> operation possible

Min. lamp starting temperature  $-25\text{ }^{\circ}\text{C}$

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 = A2 / A3<sup>1)</sup>**

<sup>1)</sup> 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  $\leq 25\text{ W}$ .

All ballasts comply with the standard EN 61000-3-2 to operate lighting equipment with an active input power  $\leq 25\text{ W}$  where distortion limits for current drawn from the supply are 86 % for 3<sup>rd</sup> harmonic and 61 % for 5<sup>th</sup> 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 230V, 50Hz
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 1x4-13 W BASIC sl	T5	1x13 W	0.98
PC 1x4-13 W BASIC sl	TC-DD	1x10 W	0.98
PC 1x5-16 W BASIC sl	TC-DD	1x16 W	0.99
PC 1x5-16 W BASIC sl	TC-DEL	1x10 W	0.95
PC 1x5-16 W BASIC sl	TC-DEL	1x13 W	0.99
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 1x5-16 W BASIC sl	TC-SEL	1x11 W	1.03
PC 1x5-16 W BASIC sl	TC-TEL	1x13 W	1.00
PC 1x18 W BASIC sl	TC-DEL	1x18 W	0.96
PC 1x18 W BASIC sl	TC-TEL	1x18 W	0.96
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-F	1x24 W	0.88
PC 1x18-24 W BASIC sl	TC-L	1x18 W	0.92
PC 1x18-24 W BASIC sl	TC-L	1x24 W	0.94
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

## 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 W	PC Basic sl 18–24 W	PC Basic sl 26 W
TC-SEL 5 W		•				
7 W		•				
9 W		•				
11 W		•				
TC-DEL 10 W		•				
13 W		•				
18 W				•		
26 W						•
TC-TEL 13 W		•				
18 W				•		
26 W						•
T5 4 W	•					
6 W	•					
8 W	•					
13 W	•					
14 W			•			
21 W			•			
24 W					•	
T5-C 22 W					•	
T8 18 W					•	
TC-DD 10 W	•					
16 W		•				
28 W						•
TC-L 18 W					•	
24 W					•	
TC-F 18 W					•	
24 W					•	

## Maximum 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>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
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 W Basic sl	76	99	122	153	76	99	122	153
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.

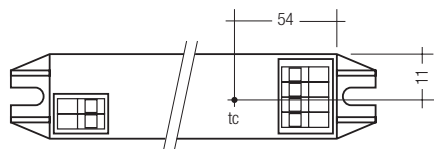
Ballast Type	Terminal	Maximum capacitance allowed			
		Cold		Hot	
PC 1x4–13 W Basic sl	1, 2	120 pF		60 pF	
PC 1x5–16 W Basic sl	1, 2	120 pF		60 pF	
PC 1x14–21 W Basic sl	1, 2	120 pF		60 pF	
PC 1x18 W Basic	1, 2	120 pF		60 pF	
PC 1x18–24 W Basic sl	1, 2	120 pF		60 pF	
PC 1x26 W Basic	1, 2	120 pF		60 pF	

With standard solid wire 0.5/0.75 mm<sup>2</sup> 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

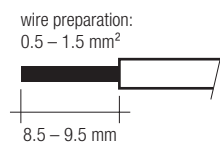
The devices have to be within the specified temperature range (ta) before they can be operated.

### Installation instructions

#### Wiring type and cross section

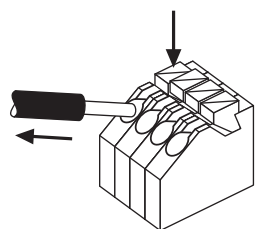
The wiring can be in flexible cable with ferules or solid with a cross section of 0.5 – 1.5 mm<sup>2</sup>.

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

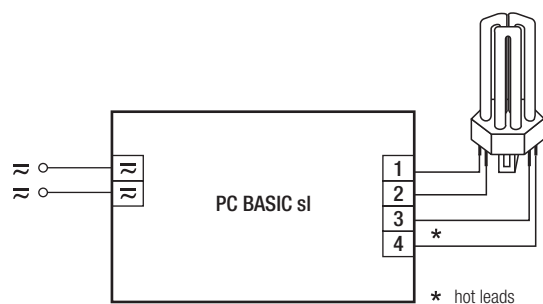


#### Release of the wiring

Press down the "push button" and remove the cable from front.



### Wiring diagram



\* 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

### Isolation 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 isolation test with 500 V<sub>DC</sub> for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.

The isolation 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<sub>AC</sub> (or 1.414 x 1500 V<sub>DC</sub>). To avoid damage to the electronic devices this test must not be conducted.

### Additional information

Additional technical information at [www.tridonic.com](http://www.tridonic.com) → Technical Data

Guarantee conditions at [www.tridonic.com](http://www.tridonic.com) → Services

No warranty if device was opened.