

### PC BASIC, 4 – 28 W

PC BASIC

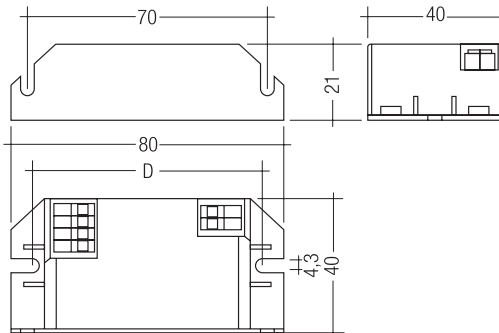
#### Product description

- CELMA Energy Efficiency Index A2 / A3
- Nominal life-time up to 50,000 h (at max.  $t_a$  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 low volume	Packaging high volume	Weight per pc.
<b>For luminaires with 1 lamp</b>					
PC 1x4-13 W BASIC	24138831	25 pc(s).	1,100 pc(s).	7,700 pc(s).	0.041 kg
PC 1x5-16 W BASIC	24138830	25 pc(s).	1,100 pc(s).	7,700 pc(s).	0.042 kg
PC 1x5-16 W BASIC PCB	24138836	25 pc(s).	1,100 pc(s).	7,700 pc(s).	0.027 kg
PC 1x18 W BASIC	24138829	25 pc(s).	1,100 pc(s).	7,700 pc(s).	0.041 kg
PC 1x26 W BASIC	22176208	25 pc(s).	1,100 pc(s).	7,700 pc(s).	0.049 kg

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		
<b>For luminaires with 1 lamp</b>														
1 x 4 W	T5	PC 1x4-13 W BASIC	24138831	80.0 x 40.0 x 21 mm	70 mm	3.5 W	5.0 W	A2	0.045 A	0.043 A	0.51	0.48	80 °C	-25 ... 50 °C
1 x 6 W	T5	PC 1x4-13 W BASIC	24138831	80.0 x 40.0 x 21 mm	70 mm	5.0 W	7.0 W	A2	0.059 A	0.057 A	0.54	0.51	80 °C	-25 ... 50 °C
1 x 8 W	T5	PC 1x4-13 W BASIC	24138831	80.0 x 40.0 x 21 mm	70 mm	6.5 W	8.5 W	A2	0.067 A	0.063 A	0.58	0.56	80 °C	-25 ... 50 °C
1 x 13 W	T5	PC 1x4-13 W BASIC	24138831	80.0 x 40.0 x 21 mm	70 mm	11.0 W	15.5 W	A3	0.114 A	0.106 A	0.62	0.61	80 °C	-25 ... 50 °C
1 x 10 W	TC-DD	PC 1x4-13 W BASIC	24138831	80.0 x 40.0 x 21 mm	70 mm	9.0 W	11.5 W	A3	0.087 A	0.081 A	0.60	0.59	80 °C	-25 ... 50 °C
1 x 16 W	TC-DD	PC 1x5-16 W BASIC	24138830	80.0 x 40.0 x 21 mm	70 mm	14.0 W	18.0 W	A3	0.130 A	0.121 A	0.63	0.62	85 °C	-25 ... 50 °C
1 x 10 W	TC-DEL	PC 1x5-16 W BASIC	24138830	80.0 x 40.0 x 21 mm	70 mm	8.5 W	11.5 W	A3	0.089 A	0.084 A	0.59	0.57	85 °C	-25 ... 50 °C
1 x 13 W	TC-DEL	PC 1x5-16 W BASIC	24138830	80.0 x 40.0 x 21 mm	70 mm	12.0 W	15.5 W	A3	0.112 A	0.106 A	0.63	0.61	85 °C	-25 ... 50 °C
1 x 5 W	TC-SEL	PC 1x5-16 W BASIC	24138830	80.0 x 40.0 x 21 mm	70 mm	4.5 W	6.5 W	A2	0.055 A	0.051 A	0.54	0.53	85 °C	-25 ... 50 °C
1 x 7 W	TC-SEL	PC 1x5-16 W BASIC	24138830	80.0 x 40.0 x 21 mm	70 mm	6.0 W	8.0 W	A2	0.065 A	0.063 A	0.56	0.53	85 °C	-25 ... 50 °C
1 x 9 W	TC-SEL	PC 1x5-16 W BASIC	24138830	80.0 x 40.0 x 21 mm	70 mm	7.5 W	10.0 W	A2	0.078 A	0.073 A	0.58	0.57	85 °C	-25 ... 50 °C
1 x 11 W	TC-SEL	PC 1x5-16 W BASIC	24138830	80.0 x 40.0 x 21 mm	70 mm	11.0 W	15.0 W	A3	0.110 A	0.104 A	0.62	0.60	85 °C	-25 ... 50 °C
1 x 13 W	TC-TEL	PC 1x5-16 W BASIC	24138830	80.0 x 40.0 x 21 mm	70 mm	11.5 W	15.5 W	A3	0.112 A	0.106 A	0.63	0.61	85 °C	-25 ... 50 °C
1 x 18 W	TC-DEL	PC 1x18 W BASIC	24138829	80.0 x 40.0 x 21 mm	70 mm	15.5 W	19.0 W	A3	0.135 A	0.128 A	0.64	0.62	85 °C	-25 ... 50 °C
1 x 18 W	TC-TEL	PC 1x18 W BASIC	24138829	80.0 x 40.0 x 21 mm	70 mm	15.0 W	19.0 W	A3	0.135 A	0.128 A	0.64	0.62	85 °C	-25 ... 50 °C
1 x 28 W	TC-DD	PC 1x26 W BASIC <sup>®</sup>	22176208	80.0 x 40.0 x 21 mm	70 mm	21.5 W	25.0 W	A2	0.180 A	0.170 A	0.62	0.61	80 °C	-25 ... 45 °C
1 x 26 W	TC-DEL	PC 1x26 W BASIC	22176208	80.0 x 40.0 x 21 mm	70 mm	20.5 W	24.0 W	A2	0.180 A	0.170 A	0.62	0.61	80 °C	-25 ... 50 °C
1 x 26 W	TC-TEL	PC 1x26 W BASIC	22176208	80.0 x 40.0 x 21 mm	70 mm	21.0 W	24.5 W	A2	0.180 A	0.170 A	0.62	0.61	80 °C	-25 ... 50 °C

® For enclosed luminaires to fulfill the requirement of circuit power ≤ 25 W according to EN 61000-3-2. For AC operation only.

® Temperature specification printed circuit board

**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 960 °C passed.

**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 %)

Min. lamp starting temperature -25 °C

**DC operation**

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

Min. lamp starting temperature -25 °C

With a DC supply L and N terminals are interchangeable.

**EOS/ESD safety guidelines**

The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice. Please note the requirements set out in the document EOS / ESD guidelines (Guideline\_EOS\_ESD.pdf) at: <http://www.tridonic.com/com/en/technical-docs.asp>

**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 seconds or by replacing the lamp.

**Ingress protection**

IP 20 for boxed versions

**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 ≤ 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 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	T5	1x4W	1.00
PC 1x4-13 W BASIC	T5	1x6W	1.03
PC 1x4-13 W BASIC	T5	1x8W	1.01
PC 1x4-13 W BASIC	T5	1x13W	0.93
PC 1x4-13 W BASIC	TC-DD	1x10W	0.98
PC 1x5-16 W BASIC	TC-DD	1x16W	0.99
PC 1x5-16 W BASIC	TC-DEL	1x10W	0.95
PC 1x5-16 W BASIC	TC-DEL	1x13W	1.00
PC 1x5-16 W BASIC	TC-SEL	1x5W	0.98
PC 1x5-16 W BASIC	TC-SEL	1x7W	0.96
PC 1x5-16 W BASIC	TC-SEL	1x9W	0.98
PC 1x5-16 W BASIC	TC-SEL	1x11W	1.03
PC 1x5-16 W BASIC	TC-TEL	1x13W	1.00
PC 1x18 W BASIC	TC-DEL	1x18W	0.96
PC 1x18 W BASIC	TC-TEL	1x18W	0.96
PC 1x26 W BASIC	TC-DD	1x28W	0.85
PC 1x26 W BASIC	TC-DEL	1x26W	0.91
PC 1x26 W BASIC	TC-TEL	1x26W	0.97

**Lamp matrix**

Lamp	PC Basic 4–13 W	PC Basic 5–16 W	PC Basic 18 W	PC Basic 28 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	•		
TC-DD	10 W	•		
	16 W		•	
	28 W			•

**Mains currents in DC operation**

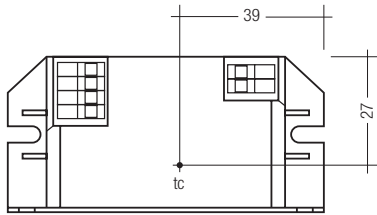
Type	Lamp type	Wattage	mains current at	
			$U_n = 220 V_{DC}$	$U_n = 240 V_{DC}$
PC 1x4-13 W BASIC	T5	1x4W	23 mA	21 mA
	T5	1x6W	32 mA	29 mA
	T5	1x8W	39 mA	35 mA
	T5	1x13W	71 mA	65 mA
PC 1x5-16 W BASIC	TC-DD	1x10W	52 mA	48 mA
	TC-DD	1x16W	82 mA	75 mA
	TC-DEL	1x10W	53 mA	48 mA
	TC-DEL	1x13W	71 mA	65 mA
	TC-SEL	1x5W	30 mA	27 mA
	TC-SEL	1x7W	36 mA	33 mA
	TC-SEL	1x9W	45 mA	42 mA
	TC-SEL	1x11W	68 mA	62 mA
PC 1x18 W BASIC	TC-TEL	1x13W	71 mA	65 mA
	TC-DEL	1x18W	86 mA	79 mA
PC 1x26 W BASIC	TC-TEL	1x18W	86 mA	79 mA
	TC-DD	1x28W	112 mA	104 mA
PC 1x26 W BASIC	TC-DEL	1x26W	112 mA	104 mA
	TC-TEL	1x26W	112 mA	104 mA

**Maximum loading of automatic circuit breakers**

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20
Installation $\emptyset$	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	90	117	144	181	90	117	144	181
PC 1x5-16 W Basic	80	106	130	163	80	106	130	163
PC 1x14-21 W Basic	56	83	102	127	28	54	102	127
PC 1x18 W Basic	76	99	122	153	76	99	122	153
PC 1x18-24 W Basic	56	73	90	112	28	54	90	112
PC 1x26 W Basic	56	71	88	110	28	54	88	110

Max. load per MCB at supply voltage  $U_n = 230 V$

**Temperature range**  
from -25 °C to +50 °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.

**Expected life-time**

Type	Lamp type	Lamp power	ta	40 °C	45 °C	50 °C	60 °C
<b>PC 1x4-13 W BASIC</b>	T5	1x4 W	tc	70 °C	75 °C	80 °C	x
	T5	1x6 W					
	T5	1x8 W	Life-time	100,000 h	70,000 h	50,000 h	x
	T5	1x13 W					
	TC-DD	1x10 W					
<b>PC 1x5-16 W BASIC</b>	TC-DD	1x16 W	tc	75 °C	80 °C	85 °C	x
	TC-DEL	1x10 W					
	TC-DEL	1x13 W	Life-time	100,000 h	70,000 h	50,000 h	x
	TC-SEL	1x5 W					
	TC-SEL	1x7 W					
	TC-SEL	1x9 W					
	TC-SEL	1x11 W					
	TC-TEL	1x13 W					
<b>PC 1x18 W BASIC</b>	TC-DEL	1x18 W	tc	75 °C	80 °C	85 °C	x
	TC-TEL	1x18 W	Life-time	100,000 h	70,000 h	50,000 h	x
<b>PC 1x26 W BASIC</b>	TC-DD	1x28 W	tc	75 °C	80 °C	x	x
			Life-time	70,000 h	50,000 h	x	x
<b>PC 1x26 W BASIC</b>	TC-DEL	1x26 W	tc	70 °C	75 °C	80 °C	x
	TC-TEL	1x26 W	Life-time	100,000 h	70,000 h	50,000 h	x

x = not permitted

**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	1, 2	3, 4	120 pF	60 pF	
PC 1x5–16 W Basic	1, 2	3, 4	120 pF	60 pF	
PC 1x18 W Basic	1, 2	3, 4	120 pF	60 pF	
PC 1x26 W Basic	1, 2	3, 4	120 pF	60 pF	

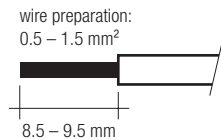
With standard solid wire 0.5 / 0.75 mm<sup>2</sup> the capacitance of the lead is 80 pF/m. This value is influenced by the way the wiring is made. In borderline cases the capacitance must be measured inside the luminaire. Lamp connection should be as short as possible and be made with symmetrical wiring.

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.)

**Installation instructions**

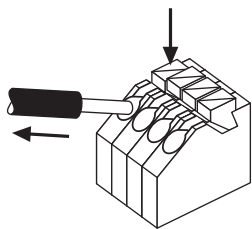
**Wiring type and cross section**

The wiring can be in stranded wires with ferrules or solid with a cross section of 0.5 – 1.5 mm<sup>2</sup>. Strip 9.5 mm of insulation from the cables to ensure perfect operation of push-wire terminals.



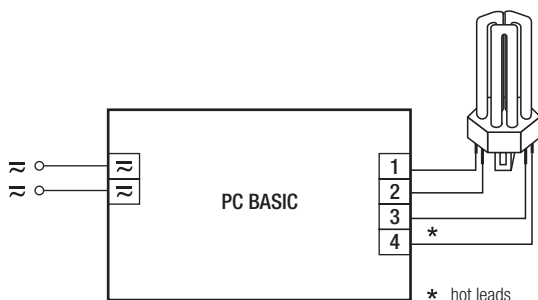
**Release of the wiring**

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



Ballasts are not suitable for any kind of dimming applications.

**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.