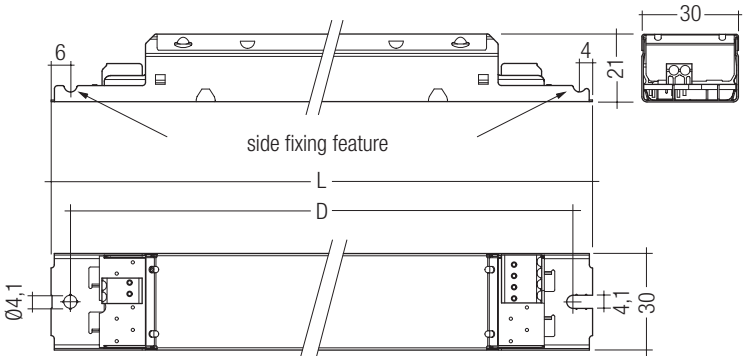
T5 TC-L

PC T5 TOP lp, 14 – 54 W

PC TOP T5

Product description

- CELMA Energy Efficiency Index A2
- Nominal life up to 50,000 hours (at ta. 50 °C with a failure rate max. 0.2 % per 1,000 hours)
- Large temperature range (for values see table)
- Fixed frequency operation for constant lamp current
- Lamp preheating for min. 30,000 starts without replacement of lamps
- Constant luminous flux irrespective of fluctuations in mains voltage
- Designed for THD < 10 %
- For luminaires of protection class I and protection class II
- Automatic start after replacement of defective lamps (detects 1 lamp)
- Safety shutdown of defective lamps and at end of lamp life
- Push terminal for rapid automatic or manual wiring
- For emergency lighting systems as per EN 50172
- 5 years guarantee



Technical data

Mains voltage range	220 – 240 V
AC voltage range	198 – 264 V
DC voltage range	176 – 280 V (lamp start ≥ 198 V DC)
Mains frequency	0 / 50 / 60 Hz
Overvoltage protection	320 V AC, 1 h
Defined warm start	≤ 1.5 s
Operating frequency	≥ 39.5 kHz
Type of protection	IP20

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Standards, page 3

Wiring diagrams and installation examples, page 7

Ordering data

Type	Article number	Packaging, carton	Packaging, low volume	Packaging, high volume	Weight per pc.
For luminaires with 1 lamp					
PC 1x14-35 T5 TOP lp	**22185157**	50 pc(s).	900 pc(s).	2,700 pc(s).	0.160 kg
PC 1x24 T5 TOP lp	**22185159**	50 pc(s).	900 pc(s).	2,700 pc(s).	0.160 kg
PC 1x39 T5 TOP lp	**22185161**	50 pc(s).	900 pc(s).	2,700 pc(s).	0.160 kg
PC 1x49 T5 TOP lp	**22185163**	50 pc(s).	900 pc(s).	2,700 pc(s).	0.160 kg
PC 1x54 T5 TOP lp	**22185165**	50 pc(s).	900 pc(s).	2,700 pc(s).	0.160 kg
For luminaires with 2 lamps					
PC 2x14-28 T5 TOP lp	**22185158**	50 pc(s).	650 pc(s).	1,950 pc(s).	0.230 kg
PC 2x35 T5 TOP lp	**87500292**	50 pc(s).	650 pc(s).	1,950 pc(s).	0.240 kg
PC 2x24 T5 TOP lp	**22185160**	50 pc(s).	650 pc(s).	1,950 pc(s).	0.198 kg
PC 2x39 T5 TOP lp	**22185162**	50 pc(s).	650 pc(s).	1,950 pc(s).	0.235 kg
PC 2x49 T5 TOP lp	**22185164**	50 pc(s).	650 pc(s).	1,950 pc(s).	0.240 kg
PC 2x54 T5 TOP lp	**22185166**	50 pc(s).	650 pc(s).	1,950 pc(s).	0.230 kg
For luminaires with 3 or 4 lamps					
PC 3/4x14 T5 TOP lp	**22185220**	10 pc(s).	760 pc(s).	–	0.238 kg
PC 3/4x24 T5 TOP lp	**22185221**	10 pc(s).	760 pc(s).	–	0.244 kg

Specific technical data

Lamp wattage	Lamp type	Type	Article number	Length L	Hole spacing D	Lamp wattage	Circuit power	EEI	Current at 50 Hz		λ at 50 Hz		tc point	Ambient temperature ta	tc / ta for ≥ 50,000 h
									220 V	240 V	220 V	240 V			
For luminaires with 1 lamp															
1 x 14 W	T5	**PC 1x14-35 T5 TOP lp**	22185157	280 x 30 x 21 mm	270 mm	14.7 W	17.5 W	A2	0.077 A	0.069 A	0.97	0.95	60 °C	-20 ... 55 °C	55/50 °C
1 x 21 W	T5	**PC 1x14-35 T5 TOP lp**	22185157	280 x 30 x 21 mm	270 mm	20.6 W	24.0 W	A2	0.106 A	0.095 A	0.97	0.95	65 °C	-20 ... 55 °C	60/50 °C
1 x 28 W	T5	**PC 1x14-35 T5 TOP lp**	22185157	280 x 30 x 21 mm	270 mm	27.9 W	32.0 W	A2	0.143 A	0.128 A	0.98	0.96	65 °C	-20 ... 55 °C	60/50 °C
1 x 35 W	T5	**PC 1x14-35 T5 TOP lp**	22185157	280 x 30 x 21 mm	270 mm	35.5 W	39.0 W	A2	0.176 A	0.158 A	0.99	0.97	70 °C	-20 ... 55 °C	65/50 °C
1 x 24 W	T5	**PC 1x24 T5 TOP lp**	22185159	280 x 30 x 21 mm	270 mm	22.5 W	26.5 W	A2	0.118 A	0.106 A	0.98	0.96	65 °C	-20 ... 55 °C	60/50 °C
1 x 24 W	TC-L	**PC 1x24 T5 TOP lp**	22185159	280 x 30 x 21 mm	270 mm	22.5 W	26.5 W	A2	0.118 A	0.106 A	0.98	0.96	65 °C	-20 ... 55 °C	60/50 °C
1 x 39 W	T5	**PC 1x39 T5 TOP lp**	22185161	280 x 30 x 21 mm	270 mm	38.0 W	43.0 W	A2	0.192 A	0.172 A	0.98	0.96	70 °C	-20 ... 55 °C	65/50 °C
1 x 49 W	T5	**PC 1x49 T5 TOP lp**	22185163	280 x 30 x 21 mm	270 mm	49.2 W	55.5 W	A2	0.247 A	0.222 A	0.98	0.96	75 °C	-20 ... 55 °C	70/50 °C
1 x 54 W	T5	**PC 1x54 T5 TOP lp**	22185165	280 x 30 x 21 mm	270 mm	54.1 W	60.0 W	A2	0.267 A	0.240 A	0.98	0.96	75 °C	-20 ... 55 °C	70/50 °C
For luminaires with 2 lamps															
2 x 14 W	T5	**PC 2x14-28 T5 TOP lp**	22185158	360 x 30 x 21 mm	350 mm	29.4 W	35.0 W	A2	0.154 A	0.139 A	0.97	0.95	65 °C	-20 ... 55 °C	60/50 °C
2 x 21 W	T5	**PC 2x14-28 T5 TOP lp**	22185158	360 x 30 x 21 mm	350 mm	41.2 W	49.0 W	A2	0.216 A	0.194 A	0.97	0.95	65 °C	-20 ... 55 °C	60/50 °C
2 x 28 W	T5	**PC 2x14-28 T5 TOP lp**	22185158	360 x 30 x 21 mm	350 mm	55.8 W	64.0 W	A2	0.285 A	0.256 A	0.98	0.96	70 °C	-20 ... 55 °C	65/50 °C
2 x 35 W	T5	**PC 2x35 T5 TOP lp**	87500292	360 x 30 x 21 mm	350 mm	71.0 W	76.0 W	A2	0.342 A	0.309 A	0.99	0.97	80 °C	-20 ... 55 °C	75/50 °C
2 x 24 W	T5	**PC 2x24 T5 TOP lp**	22185160	360 x 30 x 21 mm	350 mm	45.0 W	52.0 W	A2	0.232 A	0.208 A	0.98	0.96	70 °C	-20 ... 55 °C	65/50 °C
2 x 24 W	TC-L	**PC 2x24 T5 TOP lp**	22185160	360 x 30 x 21 mm	350 mm	45.0 W	52.0 W	A2	0.232 A	0.208 A	0.98	0.96	70 °C	-20 ... 55 °C	65/50 °C
2 x 39 W	T5	**PC 2x39 T5 TOP lp**	22185162	360 x 30 x 21 mm	350 mm	76.0 W	86.0 W	A2	0.383 A	0.344 A	0.98	0.96	75 °C	-20 ... 55 °C	70/50 °C
2 x 49 W	T5	**PC 2x49 T5 TOP lp**	22185164	360 x 30 x 21 mm	350 mm	98.4 W	110.6 W	A2	0.498 A	0.447 A	0.99	0.97	80 °C	-20 ... 55 °C	75/50 °C
2 x 54 W	T5	**PC 2x54 T5 TOP lp**	22185166	360 x 30 x 21 mm	350 mm	108.2 W	120.0 W	A2	0.540 A	0.485 A	0.99	0.97	80 °C	-20 ... 55 °C	75/50 °C
For luminaires with 3 or 4 lamps															
3 x 14 W	T5	**PC 3/4x14 T5 TOP lp**	22185220	360 x 30 x 21 mm	350 mm	44.1 W	51.3 W	A2	0.238 A	0.218 A	0.99	0.97	70 °C	-20 ... 55 °C	65/50 °C
4 x 14 W	T5	**PC 3/4x14 T5 TOP lp**	22185220	360 x 30 x 21 mm	350 mm	53.2 W	68.4 W	A2	0.317 A	0.291 A	0.99	0.97	75 °C	-20 ... 55 °C	70/50 °C
3 x 24 W	T5	**PC 3/4x24 T5 TOP lp**	22185221	360 x 30 x 21 mm	350 mm	70.9 W	79.2 W	A2	0.367 A	0.337 A	0.99	0.97	75 °C	-20 ... 55 °C	70/50 °C
3 x 24 W	TC-L	**PC 3/4x24 T5 TOP lp**	22185221	360 x 30 x 21 mm	350 mm	70.9 W	79.2 W	A2	0.367 A	0.337 A	0.99	0.97	75 °C	-20 ... 55 °C	70/50 °C
4 x 24 W	T5	**PC 3/4x24 T5 TOP lp**	22185221	360 x 30 x 21 mm	350 mm	90.0 W	105.6 W	A2	0.490 A	0.449 A	0.99	0.97	80 °C	-20 ... 55 °C	75/50 °C
4 x 24 W	TC-L	**PC 3/4x24 T5 TOP lp**	22185221	360 x 30 x 21 mm	350 mm	90.0 W	105.6 W	A2	0.490 A	0.449 A	0.99	0.97	80 °C	-20 ... 55 °C	75/50 °C

Standards
EN 55015
EN 61347-2-3
EN 60929
EN 61000-3-2
EN 61000-3-3
EN 61547
in accordance with EN 50172
IEC 60068-2-64 Fh
IEC 60068-2-29 Eb
IEC 60068-2-30

Lamp starting characteristics
Warm start
Starting time 1.5 s with AC and DC operation
Cathode heating will be reduced after preheat time

Lamp operation
Fix-frequent (equivalent to current controlled)

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 EN 50172 or for emergency luminaires according to EN 61347-2-3 appendix J.

Instant start after mains interruption < 0.5 s
EBLF ≥ 0.5
Mains current for defective or missing lamps at DC operation < 5 mA

Mains currents in DC operation

Type	lamp type	wattage	mains current at U_n = 220 V_{DC}	mains current at U_n = 240 V_{DC}
PC 1x14-35 T5 TOP lp	T5	1x14 W	77 mA	69 mA
	T5	1x21 W	106 mA	95 mA
	T5	1x28 W	143 mA	128 mA
	T5	1x35 W	176 mA	158 mA
PC 1x24 T5 TOP lp	T5	1x24 W	118 mA	106 mA
	TC-L	1x24 W	118 mA	106 mA
PC 1x39 T5 TOP lp	T5	1x39 W	192 mA	172 mA
PC 1x49 T5 TOP lp	T5	1x49 W	247 mA	222 mA
PC 1x54 T5 TOP lp	T5	1x54 W	267 mA	240 mA
PC 2x14-28 T5 TOP lp	T5	2x14 W	154 mA	139 mA
	T5	2x21 W	216 mA	194 mA
	T5	2x28 W	285 mA	256 mA
PC 2x35 T5 TOP lp	T5	2x35 W	342 mA	309 mA
PC 2x24 T5 TOP lp	T5	2x24 W	232 mA	208 mA
	TC-L	2x24 W	232 mA	208 mA
PC 2x39 T5 TOP lp	T5	2x39 W	383 mA	344 mA
PC 2x49 T5 TOP lp	T5	2x49 W	498 mA	447 mA
PC 2x54 T5 TOP lp	T5	2x54 W	540 mA	485 mA
PC 3/4x14 T5 TOP lp	T5	3x14 W	238 mA	218 mA
	T5	4x14 W	317 mA	291 mA
PC 3/4x24 T5 TOP lp	T5	3x24 W	367 mA	337 mA
	TC-L	3x24 W	367 mA	337 mA
	T5	4x24 W	490 mA	449 mA
	TC-L	4x24 W	490 mA	449 mA

Harmonic distortion in the mains supply

Type	lamp type	wattage	THD at 230 V / 50 Hz
PC 1x14-35 T5 TOP lp	T5	1x14 W	< 10 %
	T5	1x21 W	< 10 %
	T5	1x28 W	< 10 %
	T5	1x35 W	< 10 %
PC 1x24 T5 TOP lp	T5	1x24 W	< 10 %
	TC-L	1x24 W	< 10 %
PC 1x39 T5 TOP lp	T5	1x39 W	< 10 %
PC 1x49 T5 TOP lp	T5	1x49 W	< 10 %
PC 1x54 T5 TOP lp	T5	1x54 W	< 10 %
PC 2x14-28 T5 TOP lp	T5	2x14 W	< 15 %
	T5	2x21 W	< 10 %
	T5	2x28 W	< 10 %
PC 2x35 T5 TOP lp	T5	2x35 W	< 10 %
PC 2x24 T5 TOP lp	T5	2x24 W	< 10 %
	TC-L	2x24 W	< 10 %
PC 2x39 T5 TOP lp	T5	2x39 W	< 10 %
PC 2x49 T5 TOP lp	T5	2x49 W	< 10 %
PC 2x54 T5 TOP lp	T5	2x54 W	< 10 %
PC 3/4x14 T5 TOP lp	T5	3x14 W	< 10 %
	T5	4x14 W	< 10 %
PC 3/4x24 T5 TOP lp	T5	3x24 W	< 10 %
	TC-L	3x24 W	< 10 %
	T5	4x24 W	< 10 %
	TC-L	4x24 W	< 10 %

Output voltage

Type	lamp type	wattage	U_{out}
PC 1x14-35 T5 TOP lp	T5	1x14 W	430 V
	T5	1x21 W	430 V
	T5	1x28 W	430 V
	T5	1x35 W	430 V
PC 1x24 T5 TOP lp	T5	1x24 W	430 V
	TC-L	1x24 W	430 V
PC 1x39 T5 TOP lp	T5	1x39 W	430 V
PC 1x49 T5 TOP lp	T5	1x49 W	430 V
PC 1x54 T5 TOP lp	T5	1x54 W	430 V
PC 2x14-28 T5 TOP lp	T5	2x14 W	430 V
	T5	2x21 W	430 V
	T5	2x28 W	430 V
PC 2x35 T5 TOP lp	T5	2x35 W	430 V
PC 2x24 T5 TOP lp	T5	2x24 W	430 V
	TC-L	2x24 W	430 V
PC 2x39 T5 TOP lp	T5	2x39 W	430 V
PC 2x49 T5 TOP lp	T5	2x49 W	430 V
PC 2x54 T5 TOP lp	T5	2x54 W	430 V
PC 3/4x14 T5 TOP lp	T5	3x14 W	430 V
	T5	4x14 W	430 V
PC 3/4x24 T5 TOP lp	T5	3x24 W	430 V
	TC-L	3x24 W	430 V
	T5	4x24 W	430 V
	TC-L	4x24 W	430 V

Ballast lumen factor (EN 60929 8.1)

Type	lamp type	wattage	AC/DC-BLF at U = 198–254 V, 25 °C
PC 1x14-35 T5 TOP lp	T5	1x14 W	1.05 (± 5 %)
	T5	1x21 W	1.00 (± 5 %)
	T5	1x28 W	1.00 (± 5 %)
	T5	1x35 W	1.00 (± 5 %)
PC 1x24 T5 TOP lp	T5	1x24 W	1.00 (± 5 %)
	TC-L	1x24 W	1.00 (± 5 %)
PC 1x39 T5 TOP lp	T5	1x39 W	1.00 (± 5 %)
PC 1x49 T5 TOP lp	T5	1x49 W	1.00 (± 5 %)
PC 1x54 T5 TOP lp	T5	1x54 W	1.00 (± 5 %)
PC 2x14-28 T5 TOP lp	T5	2x14 W	1.05 (± 5 %)
	T5	2x21 W	1.05 (± 5 %)
	T5	2x28 W	1.00 (± 5 %)
PC 2x35 T5 TOP lp	T5	2x35 W	1,00 (± 5 %)
PC 2x24 T5 TOP lp	T5	2x24 W	1.00 (± 5 %)
	TC-L	2x24 W	1.00 (± 5 %)
PC 2x39 T5 TOP lp	T5	2x39 W	1.00 (± 5 %)
PC 2x49 T5 TOP lp	T5	2x49 W	1.00 (± 5 %)
PC 2x54 T5 TOP lp	T5	2x54 W	1.00 (± 5 %)
PC 3/4x14 T5 TOP lp	T5	3x14 W	1.05 (± 5 %)
	T5	4x14 W	1.00 (± 5 %)
PC 3/4x24 T5 TOP lp	T5	3x24 W	1.05 (± 5 %)
	TC-L	3x24 W	1.05 (± 5 %)
	T5	4x24 W	1.00 (± 5 %)
	TC-L	4x24 W	1.00 (± 5 %)

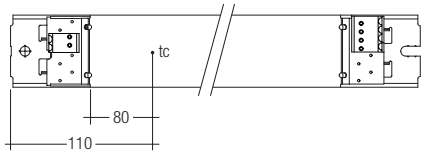
Energy class CELMA EEI = A2[1)]

PC T5 TOP lp optimises lamp start and ensures no energy is wasted. After the lamp has struck the filament heating is reduced automatically to a 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.

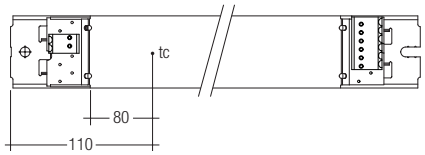
[1)] according to the EU directives on ecodesign requirements (EC) No. 245/2009 and (EC) No. 347/2010

Ambient temperature

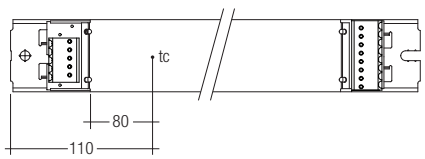
PC 1x... T5 TOP lp



PC 2x... T5 TOP lp



PC 3/4x... T5 TOP lp



The nominal ta and tc point are related to the ballast life duration.
The relation of tc to ta temperature depends also on the luminaire design. If the measured tc temperature is approx. 5 K below tc max., ta temperature should be checked and eventually critical components (e.g. ELCAP) measured.
Detailed information on request.

PC T5 TOP lp is designed for an average life-time of 50,000 hours (at ta for ≥ 50,000 h) 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.

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	50 °C	55 °C	60 °C
PC 1x14-35 T5 TOP lp	T5	1x14 W	tc	45 °C	55 °C	60 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
		1x21 W	tc	50 °C	60 °C	65 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
		1x28 W	tc	50 °C	60 °C	65 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
		1x35 W	tc	55 °C	65 °C	70 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 1x24 T5 TOP lp	T5	1x24 W	tc	50 °C	60 °C	65 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
	TC-L	1x24 W	tc	50 °C	60 °C	65 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 1x39 T5 TOP lp	T5	1x39 W	tc	55 °C	65 °C	70 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 1x49 T5 TOP lp	T5	1x49 W	tc	60 °C	70 °C	75 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 1x54 T5 TOP lp	T5	1x54 W	tc	60 °C	70 °C	75 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 2x14-28 T5 TOP lp	T5	2x14 W	tc	50 °C	60 °C	65 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
		2x21 W	tc	50 °C	60 °C	65 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
		2x28 W	tc	55 °C	65 °C	70 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 2x35 T5 TOP lp	T5	2x35 W	tc	65 °C	75 °C	80 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 2x24 T5 TOP lp	T5	2x24 W	tc	55 °C	65 °C	70 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
	TC-L	2x24 W	tc	55 °C	65 °C	70 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 2x39 T5 TOP lp	T5	2x39 W	tc	60 °C	70 °C	75 °C	x
			Life-time	100,000 h	50,000 h	30,000 h	x
PC 2x49 T5 TOP lp	T5	2x49 W	tc	65 °C	75 °C	80 °C	x
			Life-time	85,000 h	50,000 h	30,000 h	x
PC 2x54 T5 TOP lp	T5	2x54 W	tc	70 °C	75 °C	80 °C	x
			Life-time	75,000 h	50,000 h	30,000 h	x
PC 3/4x14 T5 TOP lp	T5	3x14 W	tc	55 °C	65 °C	70 °C	x
			Life-time	75,000 h	50,000 h	30,000 h	x
		4x14 W	tc	60 °C	70 °C	75 °C	x
			Life-time	75,000 h	50,000 h	30,000 h	x
PC 3/4x24 T5 TOP lp	T5	3x24 W	tc	60 °C	70 °C	75 °C	x
			Life-time	75,000 h	50,000 h	30,000 h	x
	TC-L	3x24 W	tc	60 °C	70 °C	75 °C	x
			Life-time	75,000 h	50,000 h	30,000 h	x
	T5	4x24 W	tc	65 °C	75 °C	80 °C	x
			Life-time	75,000 h	50,000 h	30,000 h	x
	TC-L	4x24 W	tc	65 °C	75 °C	80 °C	x
			Life-time	75,000 h	50,000 h	30,000 h	x

x = not permitted

Maximum loading of automatic circuit breakers

Automatic circuit breaker type	C10	C13	C16	C20	B10	B13	B16	B20	Inrush current	
Installation Ø	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	1.5 mm²	1.5 mm²	1.5 mm²	2.5 mm²	I_{max}	Pulse
PC 1x14-35 T5 TOP lp	32	44	50	64	16	22	25	32	13.0 A	211 µs
PC 1x24 T5 TOP lp	28	40	44	58	14	20	22	29	13.2 A	212 µs
PC 1x39 T5 TOP lp	28	40	44	58	14	20	22	29	14.0 A	213 µs
PC 1x49 T5 TOP lp	28	40	44	58	14	20	22	29	17.3 A	174 µs
PC 1x54 T5 TOP lp	28	40	44	58	14	20	22	29	18.0 A	171 µs
PC 2x14-28 T5 TOP lp	18	24	28	34	9	12	14	17	21.3 A	225 µs
PC 2x35 T5 TOP lp	18	24	28	34	9	12	14	17	21.3 A	225 µs
PC 2x24 T5 TOP lp	28	40	44	58	14	20	22	29	17.3 A	173 µs
PC 2x39 T5 TOP lp	18	28	30	36	9	14	15	18	33.8 A	165 µs
PC 2x49 T5 TOP lp	14	16	24	28	7	8	12	14	37.4 A	190 µs
PC 2x54 T5 TOP lp	14	16	24	28	7	8	12	14	37.7 A	182 µs
PC 3/4x14 T5 TOP lp	30	39	49	61	16	22	27	33	21.5 A	230 µs
PC 3/4x24 T5 TOP lp	14	18	22	28	7	9	11	14	33.9 A	207 µs

Wiring advice

The lead length is dependant on the capacitance of the cable.
For safety reasons, the PC T5 TOP lp 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.

Ballast	Terminal		Maximum capacitance allowed	
Type	Cold	Hot	Cold	Hot
PC 1x... T5 TOP lp	13, 14	15, 16	200 pF	100 pF
PC 2x14/21/28/39/54 T5 TOP lp	11, 12, 13, 14	15, 16	200 pF	100 pF
PC 2x35/49 T5 TOP lp	12, 13, 14	10, 11, 15, 16	200 pF	100 pF
PC 3x... T5 TOP lp	9, 10, 11, 12, 13, 14	15, 16	200 pF	100 pF
PC 4x... T5 TOP lp	6, 7, 9, 10, 11, 12, 13, 14	15, 16	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.

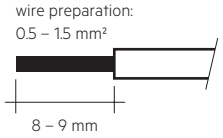
- keep lamp wires short
- lamp connection with multi-lamp ballasts should be made with symmetrical wiring
- lamp leads marked with * should be separated as much as possible from other lamp leads

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.)

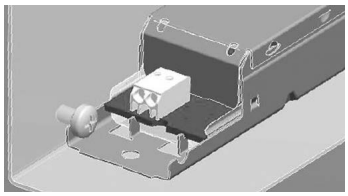
Installation instructions

Wiring type and cross section

Solid wire with a cross section of 0.5 – 1.5 mm². Strip 8 – 9 mm of insulation from the cables to ensure perfect operation of terminals.



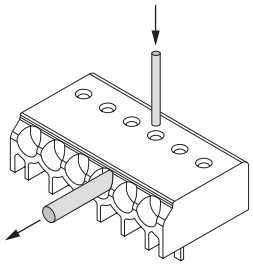
Side fixing feature



Screw M4, screw head diameter 8–10 mm

Release of the wiring

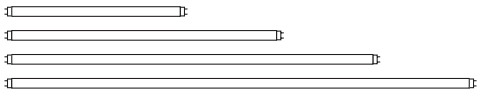
Loosen wire through twisting and pulling or using a Ø 1 mm release tool.



Defective lamp

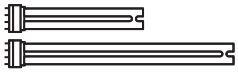
If a lamp is defective, the ballast switches off and goes into standby. There is an automatic restart once the lamp has been changed.

T5 lamp information



wattage	length
14/24 W	549 mm
21/39 W	849 mm
28/54 W	1149 mm
35/49/80 W	1449 mm

TC-L lamp information



wattage	length
24 W	309 mm
55 W	535 mm

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 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
- Connect functional earth to the ballast, 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

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.

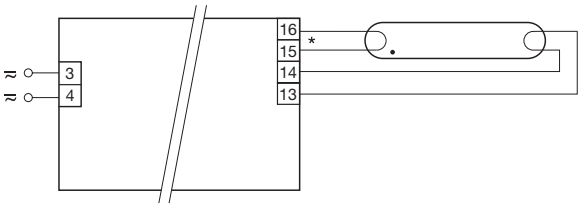
Additional information

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

Guarantee conditions at www.tridonic.com → Services

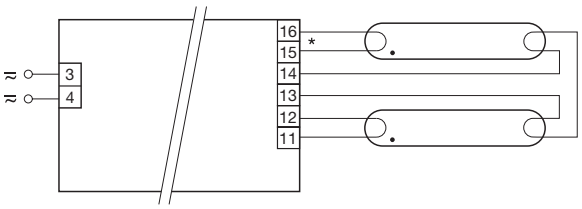
Life-time declarations are informative and represent no warranty claim.
No warranty if device was opened.

Wiring diagrams



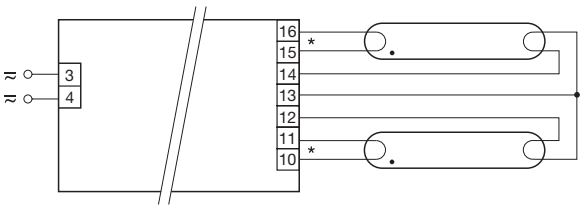
* leads 15, 16 max. 1.0 m (< 100 pF)
leads 13, 14 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 1x... T5 TOP lp



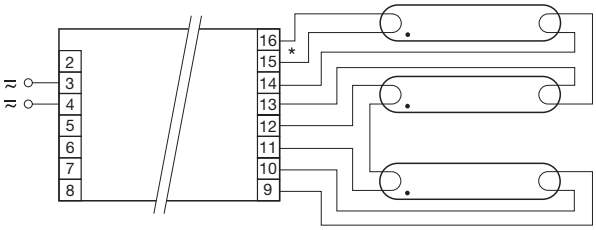
* leads 15, 16 max. 1.0 m (< 100 pF)
leads 11, 12, 13, 14 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 2x14-28 T5 TOP lp
PC 2x24 T5 TOP lp
PC 2x39 T5 TOP lp
PC 2x54 T5 TOP lp



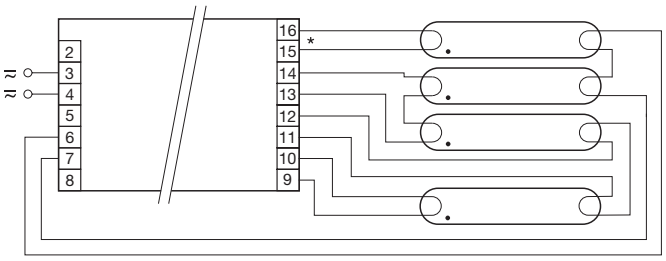
* leads 15, 16 max. 1.0 m (< 100 pF)
leads 10, 11, 12, 13, 14 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 2x35 T5 TOP lp
PC 2x49 T5 TOP lp



* leads 15, 16 max. 1.0 m (< 100 pF)
leads 9, 10, 11, 12, 13, 14 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 3x... T5 TOP lp



* leads 15, 16 max. 1.0 m (< 100 pF)
leads 6, 7, 9, 10, 11, 12, 13, 14 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 4x... T5 TOP lp