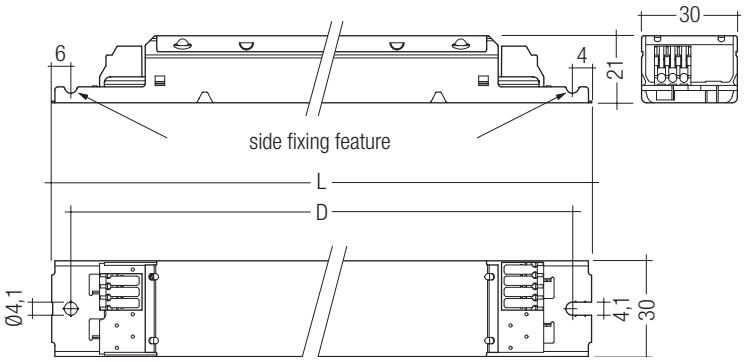
T5 TC-L

## PC T5 PRO lp, PC TCL PRO lp, 14 – 80 W

PC PRO T5

### Product description

- Highest CELMA Energy Efficiency Index A2 BAT
- Nominal life-time up to 100,000 h (at ta 50 °C with a failure rate max. 0.1 % per 1,000 h)
- Large temperature range (for values see table)
- Intelligent Voltage Guard (overvoltage indication and undervoltage shutdown)
- Precise lamp operation using adjustment of lamp parameters
- Advanced SMART-Heating for min. 50,000 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
- Safety shutdown of defective lamps and at end of lamp life (EOL 2)
- Insulation Displacement Connection (IDC) terminal for rapid automatic or manual wiring
- For emergency lighting systems as per EN 50172




### 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 pallet | Weight per pc. |
|---|---|---|---|---|
| **For luminaires with 1 lamp** | | | | |
| **PC 1x14-35 T5 PRO lp** | **22185147** | 10 pc(s). | 960 pc(s). | 0.169 kg |
| **PC 1x24 T5 PRO lp** | **22185149** | 10 pc(s). | 960 pc(s). | 0.165 kg |
| **PC 1x39 T5 PRO lp** | **22185151** | 10 pc(s). | 960 pc(s). | 0.165 kg |
| **PC 1x49 T5 PRO lp** | **22185153** | 10 pc(s). | 960 pc(s). | 0.170 kg |
| **PC 1x54 T5 PRO lp** | **22185155** | 10 pc(s). | 960 pc(s). | 0.170 kg |
| **PC 1x80 T5 PRO lp** | **22185209** | 10 pc(s). | 960 pc(s). | 0.198 kg |
| **For luminaires with 2 lamps** | | | | |
| **PC 2x14-35 T5 PRO lp** | **22185148** | 10 pc(s). | 760 pc(s). | 0.243 kg |
| **PC 2x24 T5 PRO lp** | **22185150** | 10 pc(s). | 760 pc(s). | 0.210 kg |
| **PC 2x39 T5 PRO lp** | **22185152** | 10 pc(s). | 760 pc(s). | 0.235 kg |
| **PC 2x49 T5 PRO lp** | **22185154** | 10 pc(s). | 760 pc(s). | 0.246 kg |
| **PC 2x54 T5 PRO lp** | **22185156** | 10 pc(s). | 760 pc(s). | 0.241 kg |
| **PC 2x80 T5 PRO lp** | **22185210** | 10 pc(s). | 640 pc(s). | 0.335 kg |
| **PC 2x55 TCL PRO lp** | **22185286** | 10 pc(s). | 760 pc(s). | 0.244 kg |
| **For luminaires with 3 or 4 lamps** | | | | |
| **PC 3/4x14 T5 PRO lp** | **22185211** | 10 pc(s). | 760 pc(s). | 0.239 kg |
| **PC 3/4x24 T5 PRO lp** | **22185212** | 10 pc(s). | 760 pc(s). | 0.249 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 | 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 PRO lp** | 22185147 | 280 x 30 x 21 mm | 270 mm | 14.7 W | 16.7 W | A2 BAT | 0.075 A | 0.069 A | 0.97 | 0.95 | 85 °C | -25 ... 80 °C | 80/75 °C |
| 1 x 21 W | T5 | **PC 1x14-35 T5 PRO lp** | 22185147 | 280 x 30 x 21 mm | 270 mm | 20.6 W | 22.4 W | A2 BAT | 0.101 A | 0.092 A | 0.97 | 0.95 | 85 °C | -25 ... 75 °C | 80/70 °C |
| 1 x 28 W | T5 | **PC 1x14-35 T5 PRO lp** | 22185147 | 280 x 30 x 21 mm | 270 mm | 27.9 W | 30.4 W | A2 BAT | 0.137 A | 0.123 A | 0.98 | 0.96 | 85 °C | -25 ... 75 °C | 80/70 °C |
| 1 x 35 W | T5 | **PC 1x14-35 T5 PRO lp** | 22185147 | 280 x 30 x 21 mm | 270 mm | 35.5 W | 37.8 W | A2 BAT | 0.170 A | 0.153 A | 0.99 | 0.97 | 80 °C | -25 ... 65 °C | 75/60 °C |
| 1 x 24 W | T5 | **PC 1x24 T5 PRO lp** | 22185149 | 280 x 30 x 21 mm | 270 mm | 22.5 W | 24.8 W | A2 BAT | 0.110 A | 0.100 A | 0.98 | 0.96 | 80 °C | -25 ... 70 °C | 75/65 °C |
| 1 x 24 W | TC-L | **PC 1x24 T5 PRO lp** | 22185149 | 280 x 30 x 21 mm | 270 mm | 22.5 W | 24.8 W | A2 BAT | 0.110 A | 0.100 A | 0.98 | 0.96 | 80 °C | -25 ... 70 °C | 75/65 °C |
| 1 x 39 W | T5 | **PC 1x39 T5 PRO lp** | 22185151 | 280 x 30 x 21 mm | 270 mm | 38.0 W | 40.2 W | A2 BAT | 0.185 A | 0.166 A | 0.98 | 0.96 | 85 °C | -25 ... 70 °C | 75/60 °C |
| 1 x 49 W | T5 | **PC 1x49 T5 PRO lp** | 22185153 | 280 x 30 x 21 mm | 270 mm | 49.2 W | 52.2 W | A2 BAT | 0.235 A | 0.211 A | 0.98 | 0.96 | 80 °C | -25 ... 60 °C | 75/55 °C |
| 1 x 54 W | T5 | **PC 1x54 T5 PRO lp** | 22185155 | 280 x 30 x 21 mm | 270 mm | 54.1 W | 57.0 W | A2 BAT | 0.254 A | 0.230 A | 0.98 | 0.96 | 80 °C | -25 ... 60 °C | 70/50 °C |
| 1 x 80 W | T5 | **PC 1x80 T5 PRO lp** | 22185209 | 280 x 30 x 21 mm | 270 mm | 79.8 W | 85.4 W | A2 BAT | 0.396 A | 0.363 A | 0.99 | 0.97 | 80 °C | -25 ... 60 °C | 75/55 °C |
| 1 x 55 W | TC-L | **PC 1x80 T5 PRO lp** | 22185209 | 280 x 30 x 21 mm | 270 mm | 55.0 W | 58.9 W | A2 BAT | 0.273 A | 0.250 A | 0.99 | 0.97 | 80 °C | -25 ... 65 °C | 75/60 °C |
| **For luminaires with 2 lamps** | | | | | | | | | | | | | | | |
| 2 x 14 W | T5 | **PC 2x14-35 T5 PRO lp** | 22185148 | 360 x 30 x 21 mm | 350 mm | 29.4 W | 32.2 W | A2 BAT | 0.143 A | 0.130 A | 0.97 | 0.95 | 85 °C | -25 ... 75 °C | 80/70 °C |
| 2 x 21 W | T5 | **PC 2x14-35 T5 PRO lp** | 22185148 | 360 x 30 x 21 mm | 350 mm | 41.2 W | 46.2 W | A2 BAT | 0.204 A | 0.186 A | 0.97 | 0.95 | 85 °C | -25 ... 70 °C | 80/65 °C |
| 2 x 28 W | T5 | **PC 2x14-35 T5 PRO lp** | 22185148 | 360 x 30 x 21 mm | 350 mm | 55.8 W | 60.2 W | A2 BAT | 0.277 A | 0.249 A | 0.98 | 0.96 | 80 °C | -25 ... 60 °C | 75/55 °C |
| 2 x 35 W | T5 | **PC 2x14-35 T5 PRO lp** | 22185148 | 360 x 30 x 21 mm | 350 mm | 71.0 W | 76.0 W | A2 BAT | 0.342 A | 0.309 A | 0.99 | 0.97 | 80 °C | -25 ... 55 °C | 75/50 °C |
| 2 x 24 W | T5 | **PC 2x24 T5 PRO lp** | 22185150 | 360 x 30 x 21 mm | 350 mm | 45.0 W | 48.5 W | A2 BAT | 0.218 A | 0.196 A | 0.98 | 0.96 | 85 °C | -25 ... 70 °C | 75/60 °C |
| 2 x 24 W | TC-L | **PC 2x24 T5 PRO lp** | 22185150 | 360 x 30 x 21 mm | 350 mm | 45.0 W | 48.5 W | A2 BAT | 0.218 A | 0.196 A | 0.98 | 0.96 | 85 °C | -25 ... 70 °C | 75/60 °C |
| 2 x 39 W | T5 | **PC 2x39 T5 PRO lp** | 22185152 | 360 x 30 x 21 mm | 350 mm | 76.0 W | 83.2 W | A2 BAT | 0.371 A | 0.333 A | 0.98 | 0.96 | 80 °C | -25 ... 60 °C | 70/50 °C |
| 2 x 49 W | T5 | **PC 2x49 T5 PRO lp** | 22185154 | 360 x 30 x 21 mm | 350 mm | 98.4 W | 106.0 W | A2 BAT | 0.477 A | 0.428 A | 0.99 | 0.97 | 80 °C | -25 ... 55 °C | 75/50 °C |
| 2 x 54 W | T5 | **PC 2x54 T5 PRO lp** | 22185156 | 360 x 30 x 21 mm | 350 mm | 108.2 W | 113.5 W | A2 BAT | 0.518 A | 0.465 A | 0.99 | 0.97 | 80 °C | -25 ... 55 °C | 75/50 °C |
| 2 x 80 W | T5 | **PC 2x80 T5 PRO lp** | 22185210 | 425 x 30 x 21 mm | 415 mm | 159.6 W | 171.4 W | A2 BAT | 0.787 A | 0.721 A | 0.99 | 0.98 | 85 °C | -25 ... 55 °C | 80/50 °C |
| 2 x 55 W | TC-L | **PC 2x55 TCL PRO lp** | 22185286 | 360 x 30 x 21 mm | 350 mm | 110.0 W | 119.0 W | A2 BAT | 0.536 A | 0.491 A | 0.99 | 0.99 | 80 °C | -25 ... 55 °C | 75/50 °C |
| **For luminaires with 3 or 4 lamps** | | | | | | | | | | | | | | | |
| 3 x 14 W | T5 | **PC 3/4x14 T5 PRO lp** | 22185211 | 360 x 30 x 21 mm | 350 mm | 42.0 W | 47.0 W | A2 BAT | 0.218 A | 0.200 A | 0.99 | 0.97 | 75 °C | -25 ... 60 °C | 70/55 °C |
| 4 x 14 W | T5 | **PC 3/4x14 T5 PRO lp** | 22185211 | 360 x 30 x 21 mm | 350 mm | 53.2 W | 61.7 W | A2 BAT | 0.292 A | 0.268 A | 0.99 | 0.97 | 75 °C | -25 ... 55 °C | 70/50 °C |
| 3 x 24 W | T5 | **PC 3/4x24 T5 PRO lp** | 22185212 | 360 x 30 x 21 mm | 350 mm | 70.9 W | 75.0 W | A2 BAT | 0.348 A | 0.319 A | 0.99 | 0.97 | 80 °C | -25 ... 60 °C | 75/55 °C |
| 3 x 24 W | TC-L | **PC 3/4x24 T5 PRO lp** | 22185212 | 360 x 30 x 21 mm | 350 mm | 70.9 W | 75.0 W | A2 BAT | 0.348 A | 0.319 A | 0.99 | 0.97 | 80 °C | -25 ... 60 °C | 75/55 °C |
| 4 x 24 W | T5 | **PC 3/4x24 T5 PRO lp** | 22185212 | 360 x 30 x 21 mm | 350 mm | 90.0 W | 97.5 W | A2 BAT | 0.452 A | 0.415 A | 0.99 | 0.97 | 80 °C | -25 ... 55 °C | 75/50 °C |
| 4 x 24 W | TC-L | **PC 3/4x24 T5 PRO lp** | 22185212 | 360 x 30 x 21 mm | 350 mm | 90.0 W | 97.5 W | A2 BAT | 0.452 A | 0.415 A | 0.99 | 0.97 | 80 °C | -25 ... 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 strongly reduced after pre-heat time

### Lamp operation
x:tec II is the new benchmark in precise lamp operation. During the manufacturing process at Tridonic the ballasts are adjusted to optimum values. This reduces tolerances to a minimum and enables a very precise fix-frequent (equivalent to current controlled) lamp operation.

### 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
Mains current for defective or missing lamps at DC operation < 5 mA

### Intelligent Voltage Guard
Intelligent Voltage Guard is the name of an electronic monitor from Tridonic. This innovative feature of the PC PRO family of control gear from Tridonic 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 ≥ 280 V the lamps flash.
- This signal “demands” disconnection of the power supply to the lighting system.
- If the mains voltage falls below 130 V the control gear automatically disconnects the lamp circuit (light off) to protect the control gear from being irreparably damaged.

**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 PRO lp** | T5 | 1x14 W | 75 mA | 69 mA |
| | T5 | 1x21 W | 101 mA | 92 mA |
| | T5 | 1x28 W | 137 mA | 123 mA |
| | T5 | 1x35 W | 170 mA | 153 mA |
| **PC 1x24 T5 PRO lp** | T5 | 1x24 W | 110 mA | 100 mA |
| | TC-L | 1x24 W | 110 mA | 100 mA |
| **PC 1x39 T5 PRO lp** | T5 | 1x39 W | 185 mA | 166 mA |
| **PC 1x49 T5 PRO lp** | T5 | 1x49 W | 235 mA | 211 mA |
| **PC 1x54 T5 PRO lp** | T5 | 1x54 W | 254 mA | 230 mA |
| **PC 1x80 T5 PRO lp** | T5 | 1x80 W | 396 mA | 363 mA |
| | TC-L | 1x55 W | 273 mA | 250 mA |
| **PC 2x14-35 T5 PRO lp** | T5 | 2x14 W | 143 mA | 130 mA |
| | T5 | 2x21 W | 204 mA | 186 mA |
| | T5 | 2x28 W | 277 mA | 249 mA |
| | T5 | 2x35 W | 342 mA | 309 mA |
| **PC 2x24 T5 PRO lp** | T5 | 2x24 W | 218 mA | 196 mA |
| | TC-L | 2x24 W | 218 mA | 196 mA |
| **PC 2x39 T5 PRO lp** | T5 | 2x39 W | 371 mA | 333 mA |
| **PC 2x49 T5 PRO lp** | T5 | 2x49 W | 477 mA | 428 mA |
| **PC 2x54 T5 PRO lp** | T5 | 2x54 W | 518 mA | 465 mA |
| **PC 2x80 T5 PRO lp** | T5 | 2x80 W | 787 mA | 721 mA |
| **PC 2x55 TCL PRO lp** | TC-L | 2x55 W | 536 mA | 491 mA |
| **PC 3/4x14 T5 PRO lp** | T5 | 3x14 W | 218 mA | 200 mA |
| | T5 | 4x14 W | 292 mA | 268 mA |
| **PC 3/4x24 T5 PRO lp** | T5 | 3x24 W | 348 mA | 319 mA |
| | TC-L | 3x24 W | 348 mA | 319 mA |
| | T5 | 4x24 W | 452 mA | 415 mA |
| | TC-L | 4x24 W | 452 mA | 415 mA |

**Harmonic distortion in the mains supply**

| Type | lamp type | wattage | THD at 230 V / 50 Hz |
|---|---|---|---|
| **PC 1x14-35 T5 PRO lp** | T5 | 1x14 W | < 10 % |
| | T5 | 1x21 W | < 10 % |
| | T5 | 1x28 W | < 10 % |
| | T5 | 1x35 W | < 10 % |
| **PC 1x24 T5 PRO lp** | T5 | 1x24 W | < 10 % |
| | TC-L | 1x24 W | < 10 % |
| **PC 1x39 T5 PRO lp** | T5 | 1x39 W | < 10 % |
| **PC 1x49 T5 PRO lp** | T5 | 1x49 W | < 10 % |
| **PC 1x54 T5 PRO lp** | T5 | 1x54 W | < 10 % |
| **PC 1x80 T5 PRO lp** | T5 | 1x80 W | < 10 % |
| | TC-L | 1x55 W | < 10 % |
| **PC 2x14-35 T5 PRO lp** | T5 | 2x14 W | < 15 % |
| | T5 | 2x21 W | < 10 % |
| | T5 | 2x28 W | < 10 % |
| | T5 | 2x35 W | < 10 % |
| **PC 2x24 T5 PRO lp** | T5 | 2x24 W | < 10 % |
| | TC-L | 2x24 W | < 10 % |
| **PC 2x39 T5 PRO lp** | T5 | 2x39 W | < 10 % |
| **PC 2x49 T5 PRO lp** | T5 | 2x49 W | < 10 % |
| **PC 2x54 T5 PRO lp** | T5 | 2x54 W | < 10 % |
| **PC 2x80 T5 PRO lp** | T5 | 2x80 W | < 10 % |
| **PC 2x55 TCL PRO lp** | TC-L | 2x55 W | < 10 % |
| **PC 3/4x14 T5 PRO lp** | T5 | 3x14 W | < 10 % |
| | T5 | 4x14 W | < 10 % |
| **PC 3/4x24 T5 PRO lp** | T5 | 3x24 W | < 10 % |
| | TC-L | 3x24 W | < 10 % |
| | T5 | 4x24 W | < 10 % |
| | TC-L | 4x24 W | < 10 % |

### Advanced SMART-Heating
PC PRO with SMART-heating ignition technology 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.

**Output voltage**

| Type | lamp type | wattage | $U_{out}$ |
|---|---|---|---|
| **PC 1x14-35 T5 PRO lp** | T5 | 1x14 W | 430 V |
| | T5 | 1x21 W | 430 V |
| | T5 | 1x28 W | 430 V |
| | T5 | 1x35 W | 430 V |
| **PC 1x24 T5 PRO lp** | T5 | 1x24 W | 430 V |
| | TC-L | 1x24 W | 430 V |
| **PC 1x39 T5 PRO lp** | T5 | 1x39 W | 430 V |
| **PC 1x49 T5 PRO lp** | T5 | 1x49 W | 430 V |
| **PC 1x54 T5 PRO lp** | T5 | 1x54 W | 430 V |
| **PC 1x80 T5 PRO lp** | T5 | 1x80 W | 430 V |
| | TC-L | 1x55 W | 430 V |
| **PC 2x14-35 T5 PRO lp** | T5 | 2x14 W | 430 V |
| | T5 | 2x21 W | 430 V |
| | T5 | 2x28 W | 430 V |
| | T5 | 2x35 W | 430 V |
| **PC 2x24 T5 PRO lp** | T5 | 2x24 W | 430 V |
| | TC-L | 2x24 W | 430 V |
| **PC 2x39 T5 PRO lp** | T5 | 2x39 W | 430 V |
| **PC 2x49 T5 PRO lp** | T5 | 2x49 W | 430 V |
| **PC 2x54 T5 PRO lp** | T5 | 2x54 W | 430 V |
| **PC 2x80 T5 PRO lp** | T5 | 2x80 W | 430 V |
| **PC 2x55 TCL PRO lp** | TC-L | 2x55 W | 400 V |
| **PC 3/4x14 T5 PRO lp** | T5 | 3x14 W | 430 V |
| | T5 | 4x14 W | 430 V |
| **PC 3/4x24 T5 PRO 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 PRO lp** | T5 | 1x14 W | 1.05 |
| | T5 | 1x21 W | 1.00 |
| | T5 | 1x28 W | 1.00 |
| | T5 | 1x35 W | 1.00 |
| **PC 1x24 T5 PRO lp** | T5 | 1x24 W | 1.00 |
| | TC-L | 1x24 W | 1.00 |
| **PC 1x39 T5 PRO lp** | T5 | 1x39 W | 1.00 |
| **PC 1x49 T5 PRO lp** | T5 | 1x49 W | 1.00 |
| **PC 1x54 T5 PRO lp** | T5 | 1x54 W | 1.00 |
| **PC 1x80 T5 PRO lp** | T5 | 1x80 W | 1.00 |
| | TC-L | 1x55 W | 1.00 |
| **PC 2x14-35 T5 PRO lp** | T5 | 2x14 W | 1.05 |
| | T5 | 2x21 W | 1.05 |
| | T5 | 2x28 W | 1.00 |
| | T5 | 2x35 W | 1.00 |
| **PC 2x24 T5 PRO lp** | T5 | 2x24 W | 1.00 |
| | TC-L | 2x24 W | 1.00 |
| **PC 2x39 T5 PRO lp** | T5 | 2x39 W | 1.00 |
| **PC 2x49 T5 PRO lp** | T5 | 2x49 W | 1.00 |
| **PC 2x54 T5 PRO lp** | T5 | 2x54 W | 1.02 |
| **PC 2x80 T5 PRO lp** | T5 | 2x80 W | 1.00 |
| **PC 2x55 TCL PRO lp** | TC-L | 2x55 W | 1.00 |
| **PC 3/4x14 T5 PRO lp** | T5 | 3x14 W | 1.05 |
| | T5 | 4x14 W | 1.00 |
| **PC 3/4x24 T5 PRO lp** | T5 | 3x24 W | 1.05 |
| | TC-L | 3x24 W | 1.05 |
| | T5 | 4x24 W | 1.00 |
| | TC-L | 4x24 W | 1.00 |

### PC PRO with xitec II processor

Is the very latest in lighting management design technology. The lamp friendly warm start is delivering maximum lamp life and enables high switching frequency applications. Smallest power loss and new freedom in the lamp design thanks to convincing thermal management.

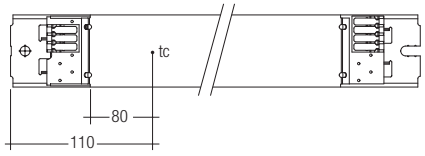
### Energy class: CELMA EEI = A2 BAT[1)]

Maximum energy efficiency:
Right from the early stages in the development of xitec II technology the focus has always been on achieving maximum energy efficiency. In conjunction with SMART-Heating Technology, PC PRO is rated in the best possible efficiency class of A2 BAT that CELMA provides for ballasts with a constant luminous flux.

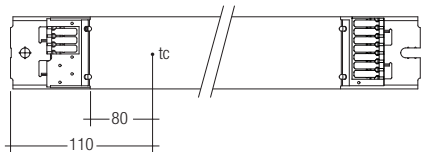
[1)] according to the EU directives on ecodesign requirements (EC) No. 245/2009 and (EC) No. 347/2010

### Ambient temperature

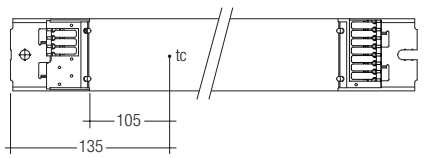
PC 1x... T5 PRO lp



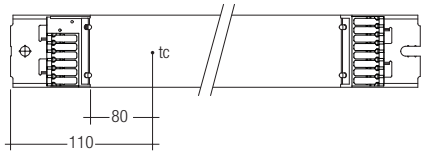

PC 2x... T5 PRO lp (except PC 2x80 T5 PRO lp)
PC 2x... TCL PRO lp




PC 2x80 T5 PRO lp




PC 3/4x... T5 PRO 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 PRO lp is designed for an average life-time of 100,000 h (at ta for ≥ 100,000 h) under reference conditions and with a failure probability of less than 10 %. This corresponds to an average failure rate of 0.1 % for every 1,000 h 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 | 65 °C | 70 °C | 75 °C | 80 °C |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PC 1x14-35 T5 PRO lp** | T5 | 1x14 W | tc | 45 °C | 55 °C | 60 °C | 65 °C | 70 °C | 75 °C | 80 °C | 85 °C |
| | | | Life-time | > 100,000 h | > 100,000 h | > 100,000 h | > 100,000 h | > 100,000 h | 85,000 h | 60,000 h | 40,000 h |
| | | 1x21 W | tc | 50 °C | 60 °C | 65 °C | 70 °C | 75 °C | 80 °C | 85 °C | x |
| | | | Life-time | > 100,000 h | > 100,000 h | > 100,000 h | > 100,000 h | 80,000 h | 55,000 h | 40,000 h | x |
| | | 1x28 W | tc | 50 °C | 60 °C | 65 °C | 70 °C | 75 °C | 80 °C | 85 °C | x |
| | | | Life-time | > 100,000 h | > 100,000 h | > 100,000 h | > 100,000 h | 75,000 h | 50,000 h | 35,000 h | x |
| | | 1x35 W | tc | 55 °C | 65 °C | 70 °C | 75 °C | 80 °C | x | x | x |
| | | | Life-time | > 100,000 h | > 100,000 h | 100,000 h | 70,000 h | 45,000 h | x | x | x |
| **PC 1x24 T5 PRO lp** | T5 | 1x24 W | tc | 50 °C | 60 °C | 65 °C | 70 °C | 75 °C | 80 °C | x | x |
| | | | Life-time | > 100,000 h | > 100,000 h | 100,000 h | 85,000 h | 60,000 h | 40,000 h | x | x |
| | TC-L | 1x24 W | tc | 50 °C | 60 °C | 65 °C | 70 °C | 75 °C | 80 °C | x | x |
| | | | Life-time | > 100,000 h | > 100,000 h | 100,000 h | 85,000 h | 60,000 h | 40,000 h | x | x |
| **PC 1x39 T5 PRO lp** | T5 | 1x39 W | tc | 55 °C | 65 °C | 70 °C | 75 °C | 80 °C | 85 °C | x | x |
| | | | Life-time | > 100,000 h | > 100,000 h | 80,000 h | 60,000 h | 40,000 h | 30,000 h | x | x |
| **PC 1x49 T5 PRO lp** | T5 | 1x49 W | tc | 60 °C | 70 °C | 75 °C | 80 °C | x | x | x | x |
| | | | Life-time | > 100,000 h | 68,000 h | 50,000 h | 35,000 h | x | x | x | x |
| **PC 1x54 T5 PRO lp** | T5 | 1x54 W | tc | 60 °C | 70 °C | 75 °C | 80 °C | x | x | x | x |
| | | | Life-time | > 100,000 h | 60,000 h | 40,000 h | 30,000 h | x | x | x | x |
| **PC 1x80 T5 PRO lp** | T5 | 1x80 W | tc | 60 °C | 70 °C | 75 °C | 80 °C | x | x | x | x |
| | | | Life-time | 100,000 h | 70,000 h | 50,000 h | 30,000 h | x | x | x | x |
| | TC-L | 1x55 W | tc | 55 °C | 65 °C | 70 °C | 75 °C | 80 °C | x | x | x |
| | | | Life-time | > 100,000 h | > 100,000 h | 80,000 h | 60,000 h | 40,000 h | x | x | x |
| **PC 2x14-35 T5 PRO lp** | T5 | 2x14 W | tc | 55 °C | 60 °C | 65 °C | 70 °C | 75 °C | 80 °C | 85 °C | x |
| | | | Life-time | > 100,000 h | > 100,000 h | > 100,000 h | > 100,000 h | 75,000 h | 50,000 h | 35,000 h | x |
| | | 2x21 W | tc | 55 °C | 65 °C | 70 °C | 75 °C | 80 °C | 85 °C | x | x |
| | | | Life-time | > 100,000 h | > 100,000 h | 95,000 h | 70,000 h | 50,000 h | 35,000 h | x | x |
| | | 2x28 W | tc | 60 °C | 70 °C | 75 °C | 80 °C | x | x | x | x |
| | | | Life-time | > 100,000 h | 90,000 h | 60,000 h | 45,000 h | x | x | x | x |
| | | 2x35 W | tc | 65 °C | 75 °C | 80 °C | x | x | x | x | x |
| | | | Life-time | > 100,000 h | 55,000 h | 40,000 h | x | x | x | x | x |
| **PC 2x24 T5 PRO lp** | T5 | 2x24 W | tc | 55 °C | 65 °C | 70 °C | 75 °C | 80 °C | 85 °C | x | x |
| | | | Life-time | > 100,000 h | > 100,000 h | 79,000 h | 55,000 h | 40,000 h | 30,000 h | x | x |
| | TC-L | 2x24 W | tc | 55 °C | 65 °C | 70 °C | 75 °C | 80 °C | 85 °C | x | x |
| | | | Life-time | > 100,000 h | > 100,000 h | 79,000 h | 55,000 h | 40,000 h | 30,000 h | x | x |
| **PC 2x39 T5 PRO lp** | T5 | 2x39 W | tc | 60 °C | 70 °C | 75 °C | 80 °C | x | x | x | x |
| | | | Life-time | > 100,000 h | 60,000 h | 45,000 h | 30,000 h | x | x | x | x |
| **PC 2x49 T5 PRO lp** | T5 | 2x49 W | tc | 65 °C | 75 °C | 80 °C | x | x | x | x | x |
| | | | Life-time | 86,000 h | 50,000 h | 30,000 h | x | x | x | x | x |
| **PC 2x54 T5 PRO lp** | T5 | 2x54 W | tc | 70 °C | 75 °C | 80 °C | x | x | x | x | x |
| | | | Life-time | 75,000 h | 50,000 h | 35,000 h | x | x | x | x | x |
| **PC 2x80 T5 PRO lp** | T5 | 2x80 W | tc | 70 °C | 80 °C | 85 °C | x | x | x | x | x |
| | | | Life-time | 80,000 h | 50,000 h | 35,000 h | x | x | x | x | x |
| **PC 2x55 TCL PRO lp** | TC-L | 2x55 W | tc | 70 °C | 75 °C | 80 °C | x | x | x | x | x |
| | | | Life-time | 75,000 h | 50,000 h | 35,000 h | x | x | x | x | x |
| **PC 3/4x14 T5 PRO lp** | T5 | 3x14 W | tc | 55 °C | 65 °C | 70 °C | 75 °C | x | x | x | x |
| | | | Life-time | 75,000 h | 75,000 h | 55,000 h | 40,000 h | x | x | x | x |
| | | 4x14 W | tc | 60 °C | 70 °C | 75 °C | x | x | x | x | x |
| | | | Life-time | 75,000 h | 55,000 h | 40,000 h | x | x | x | x | x |
| **PC 3/4x24 T5 PRO lp** | T5 | 3x24 W | tc | 60 °C | 70 °C | 75 °C | 80 °C | x | x | x | x |
| | | | Life-time | 75,000 h | 75,000 h | 50,000 h | 35,000 h | x | x | x | x |
| | TC-L | 3x24 W | tc | 60 °C | 70 °C | 75 °C | 80 °C | x | x | x | x |
| | | | Life-time | 75,000 h | 75,000 h | 50,000 h | 35,000 h | x | x | x | x |
| | T5 | 4x24 W | tc | 65 °C | 75 °C | 80 °C | x | x | x | x | x |
| | | | Life-time | 75,000 h | 50,000 h | 35,000 h | x | x | x | x | x |
| | TC-L | 4x24 W | tc | 65 °C | 75 °C | 80 °C | x | x | x | x | x |
| | | | Life-time | 75,000 h | 50,000 h | 35,000 h | x | x | x | x | 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 PRO lp** | 32 | 44 | 50 | 64 | 16 | 22 | 25 | 32 | 13.0 A | 211 µs |
| **PC 1x24 T5 PRO lp** | 28 | 40 | 44 | 58 | 14 | 20 | 22 | 29 | 13.2 A | 212 µs |
| **PC 1x39 T5 PRO lp** | 28 | 40 | 44 | 58 | 14 | 20 | 22 | 29 | 14.0 A | 213 µs |
| **PC 1x49 T5 PRO lp** | 28 | 40 | 44 | 58 | 14 | 20 | 22 | 29 | 17.3 A | 174 µs |
| **PC 1x54 T5 PRO lp** | 28 | 40 | 44 | 58 | 14 | 20 | 22 | 29 | 18.0 A | 171 µs |
| **PC 1x80 T5 PRO lp** | 18 | 27 | 30 | 36 | 9 | 14 | 15 | 18 | 20.5 A | 243 µs |
| **PC 2x14-35 T5 PRO lp** | 18 | 24 | 28 | 34 | 9 | 12 | 14 | 17 | 21.3 A | 225 µs |
| **PC 2x24 T5 PRO lp** | 28 | 40 | 44 | 58 | 14 | 20 | 22 | 29 | 17.3 A | 173 µs |
| **PC 2x39 T5 PRO lp** | 18 | 27 | 30 | 36 | 9 | 14 | 15 | 18 | 33.8 A | 165 µs |
| **PC 2x49 T5 PRO lp** | 14 | 16 | 24 | 28 | 7 | 8 | 12 | 14 | 37.4 A | 190 µs |
| **PC 2x54 T5 PRO lp** | 14 | 16 | 24 | 28 | 7 | 8 | 12 | 14 | 37.7 A | 182 µs |
| **PC 2x80 T5 PRO lp** | 10 | 13 | 16 | 20 | 5 | 7 | 8 | 10 | 34.2 A | 277 µs |
| **PC 2x55 TCL PRO lp** | 14 | 16 | 24 | 28 | 7 | 8 | 12 | 14 | 37.4 A | 190 µs |
| **PC 3/4x14 T5 PRO lp** | 30 | 39 | 49 | 61 | 16 | 22 | 27 | 33 | 21.5 A | 230 µs |
| **PC 3/4x24 T5 PRO 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 PRO 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 PRO lp** | 13, 14 | 15, 16 | 200 pF | 100 pF |
| **PC 2x14-35/49/80 T5 PRO lp** | 12, 13, 14 | 10, 11, 15, 16 | 200 pF | 100 pF |
| **PC 2x49 T5 PRO lp** | 12, 13, 14 | 10, 11, 15, 16 | 200 pF | 100 pF |
| **PC 2x24 T5 PRO lp** | 11, 12, 13, 14 | 15, 16 | 200 pF | 100 pF |
| **PC 2x39 T5 PRO lp** | 11, 12, 13, 14 | 15, 16 | 200 pF | 100 pF |
| **PC 2x54 T5 PRO lp** | 11, 12, 13, 14 | 15, 16 | 200 pF | 100 pF |
| **PC 2x80 T5 PRO lp** | 11, 12, 13, 14 | 15, 16 | 200 pF | 100 pF |
| **PC 2x55 TCL PRO lp** | 11, 12, 13, 14 | 15, 16 | 200 pF | 100 pF |
| **PC 3x... T5 PRO lp** | 9, 10, 11, 12, 13, 14 | 15, 16 | 200 pF | 100 pF |
| **PC 4x... T5 PRO lp** | 6, 7, 9, 10, 11, 12, 13, 14 | 15, 16 | 200 pF | 100 pF |

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.)

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

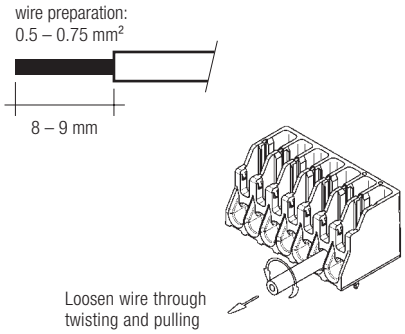
## Installation instructions

### IDC interface

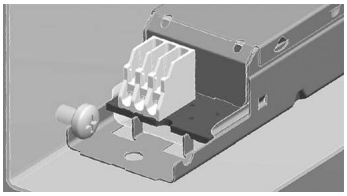
- solid wire with a cross section of 0.5 mm² according to the specification from WAGO

### Horizontal interface

- solid wire with a cross section of 0.5–0.75 mm² according to the specification from WAGO
- solid wire with a cross section of 1.0 mm² with an insulation diameter up to 2.5 mm
- strip 9 mm of insulation from the cables to ensure perfect operation of the push terminals
- Loosen wire through twisting and pulling




### Side fixing feature

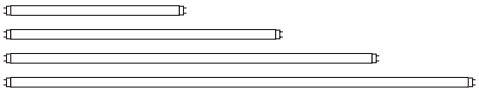


Screw M4, screw head diameter 8–10 mm

### 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
- 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

### 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 DC 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.

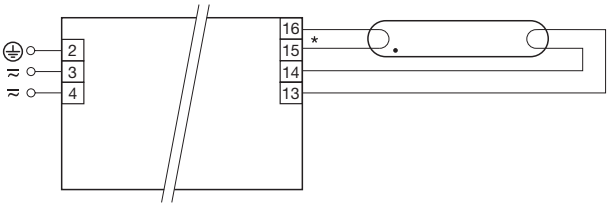
As an alternative, IEC 60598-1 Annex Q describes a test of the electrical strength with 1500 V AC (or 1.414 x 1500 V DC). To avoid damage to the electronic devices this test must not be conducted.

### Additional information

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

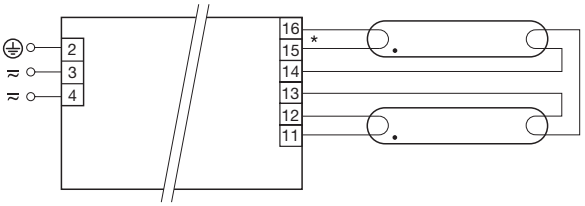
Guarantee conditions at www.tridonic.com → Services
No warranty if device was opened.

## Wiring diagrams



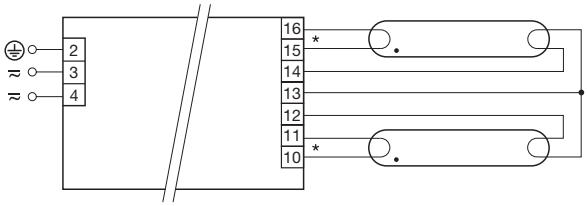

* leads 15, 16 max. 1.0 m (< 100 pF)
leads 13, 14 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing or earth terminal (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 1x... T5 PRO lp



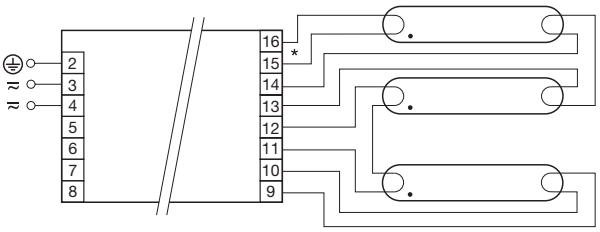

* leads 15, 16 max. 1.0 m (< 100 pF)
leads 11, 12, 13, 14 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing or earth terminal (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 2x24 T5 PRO lp
PC 2x39 T5 PRO lp
PC 2x54 T5 PRO lp
PC 2x80 T5 PRO lp
PC 2x55 TCL PRO lp



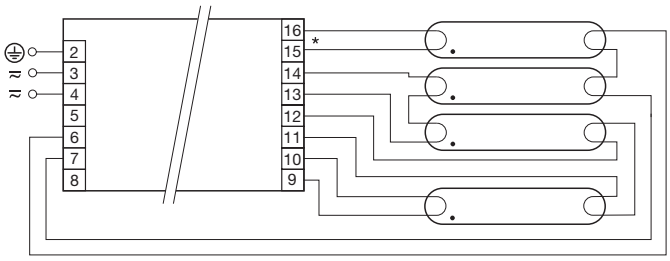

* leads 10, 11, 15, 16 max. 1.0 m (< 100 pF)
leads 12, 13, 14 max. 2.0 m (< 200 pF)
For luminaires of protection class I: Earthing via ECG casing or earth terminal (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 2x14-35 T5 PRO lp
PC 2x49 T5 PRO 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 or earth terminal (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 3x... T5 PRO 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 or earth terminal (according to IEC 60598)
For luminaires of protection class II: No earthing required

PC 4x... T5 PRO lp