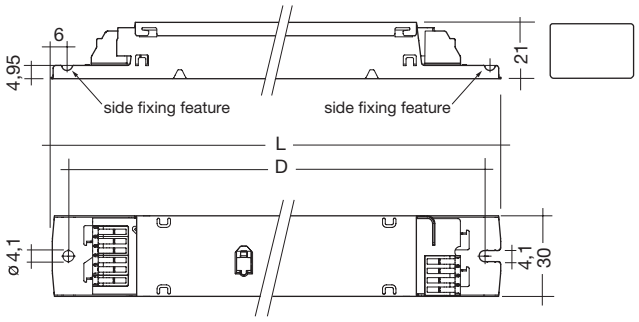
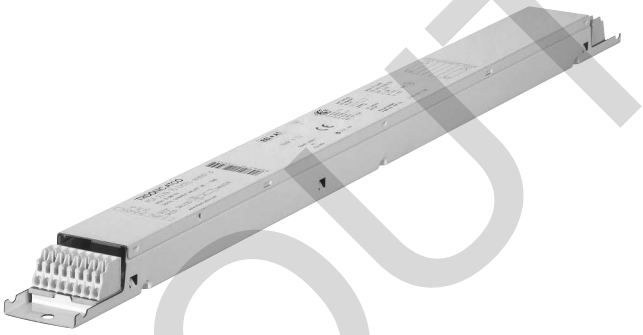
**Electronic ballasts for dimming to 1 %**
**Linear lamps T5, 16 mm high efficiency, high output**

## PCA T5 EXCITE lp x!tec 14–80 W 220–240 V 50/60/0 Hz

RoHS

- world first: first processor-controlled ballast with x!tec inside
- operation of T5 lamps of the same length (e.g. FH 28 W / FQ 54 W)
- automatic lamp detection and operation with correct lamp parameters
- average service life = 50,000 h (at ta max. with a failure rate ≤ 0.2 % per 1,000 operating hours)
- dimming range from 1–100 %
- lamp friendly warm start within 0.5 s with AC and 0.2 s with DC
- power input on standby < 0.5 W
- disturbance free precise control with a digital signal DALI (Digital Addressable Lighting Interface) or switch**DIM**
- fully digital lamp management for flash-free starting from any dimmer setting
- operating frequency ~40-100 kHz
- Intelligent Voltage Guard (over voltage indication and under voltage shutdown)
- Intelligent Temperature Guard (overtemperature protection)
- automatically triggered adjustable emergency light value for DC and rectified AC voltage
- SMART Heating Concept for optimum filament heating at any dimming level and cut off the electrodes at approx. 90 % dimmlevel for maximum energy efficiency

**Extensive feedback functions and adjustable parameters:**

- OEM-specific reserved memory for storing customer data in the ballast
- extensive diagnostic options
- the emergency light value can be set between 1 % and 100 %
- DALI-MEMORY

**Packaging:**
**360 mm housing**
box of 10
76 boxes/pallet
760 pieces/pallet

**425 mm housing**
box of 25
33 boxes/pallet
825 pieces/pallet

**Certified:**
EN 55015
EN 55022
EN 60929
EN 61000-3-2
EN 61347-2-3
EN 61547
Suitable for emergency installations according to EN 50172

| Lamp | | Ballast | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wattage | type | type | article-number | length L | fixing centres | weight | circuit power | lamp power | current at 230 V / 50 Hz | λ at 230 V / 50 Hz | tc point | temperature range |
| W | | | | mm | D mm | kg | W ② | W ② | A ② | | °C | °C ① |
| 1x14 | T5 | **PCA 1x14/24 T5 EXCITE lp x!tec** | 22176257 | 360 | 350 | 0.25 | 16.0 | 1x14 | 0.08 | 0.95 | 80 | -25 → +60 |
| 2x14 | T5 | **PCA 2x14/24 T5 EXCITE lp x!tec** | 22176259 | 360 | 350 | 0.28 | 32.5 | 2x14 | 0.15 | 0.97 | 80 | -25 → +60 |
| 1x24 | T5 | **PCA 1x14/24 T5 EXCITE lp x!tec** | 22176257 | 360 | 350 | 0.25 | 25.5 | 1x24 | 0.12 | 0.97 | 80 | -25 → +60 |
| 1x24 | TC-L | **PCA 1x14/24 T5 EXCITE lp x!tec** | 22176257 | 360 | 350 | 0.25 | 25.5 | 1x24 | 0.12 | 0.97 | 80 | -25 → +60 |
| 2x24 | T5 | **PCA 2x14/24 T5 EXCITE lp x!tec** | 22176259 | 360 | 350 | 0.28 | 51.0 | 2x24 | 0.23 | 0.98 | 85 | -25 → +60 |
| 2x24 | TC-L | **PCA 2x14/24 T5 EXCITE lp x!tec** | 22176259 | 360 | 350 | 0.28 | 51.0 | 2x24 | 0.23 | 0.98 | 85 | -25 → +60 |
| 1x21 | T5 | **PCA 1x21/39 T5 EXCITE lp x!tec** | 22176258 | 360 | 350 | 0.25 | 23.5 | 1x21 | 0.11 | 0.95 | 85 | -25 → +60 |
| 2x21 | T5 | **PCA 2x21/39 T5 EXCITE lp x!tec** | 22176260 | 425 | 415 | 0.35 | 45.5 | 2x21 | 0.21 | 0.97 | 80 | -25 → +60 |
| 1x39 | T5 | **PCA 1x21/39 T5 EXCITE lp x!tec** | 22176258 | 360 | 350 | 0.25 | 42.0 | 1x39 | 0.20 | 0.97 | 85 | -25 → +60 |
| 1x40 | TC-L | **PCA 1x21/39 T5 EXCITE lp x!tec** | 22176258 | 360 | 350 | 0.25 | 42.0 | 1x39 | 0.19 | 0.97 | 80 | -25 → +60 |
| 2x39 | T5 | **PCA 2x21/39 T5 EXCITE lp x!tec** | 22176260 | 425 | 415 | 0.35 | 82.5 | 2x39 | 0.38 | 0.99 | 85 | -25 → +60 |
| 1x28 | T5 | **PCA 1x28/54 T5 EXCITE lp x!tec** | 22176205 | 360 | 350 | 0.26 | 30.5 | 1x28 | 0.15 | 0.95 | 80 | -25 → +60 |
| 2x28 | T5 | **PCA 2x28/54 T5 EXCITE lp x!tec** | 22176206 | 425 | 415 | 0.35 | 60.5 | 2x28 | 0.28 | 0.97 | 80 | -25 → +60 |
| 1x54 | T5 | **PCA 1x28/54 T5 EXCITE lp x!tec** | 22176205 | 360 | 350 | 0.26 | 59.5 | 1x54 | 0.27 | 0.98 | 85 | -25 → +60 |
| 2x54 | T5 | **PCA 2x28/54 T5 EXCITE lp x!tec** | 22176206 | 425 | 415 | 0.35 | 116.5 | 2x54 | 0.53 | 0.99 | 85 | -25 → +55 |
| 1x35 | T5 | **PCA 1x35/49/80 T5 EXCITE lp x!tec** | 22176204 | 360 | 350 | 0.27 | 38.5 | 1x35 | 0.18 | 0.97 | 80 | -25 → +60 |
| 2x35 | T5 | **PCA 2x35/49 T5 EXCITE lp x!tec** | 22176207 | 425 | 415 | 0.34 | 75.0 | 2x35 | 0.33 | 0.97 | 80 | -25 → +60 |
| 1x49 | T5 | **PCA 1x35/49/80 T5 EXCITE lp x!tec** | 22176204 | 360 | 350 | 0.27 | 53.0 | 1x49 | 0.24 | 0.97 | 80 | -25 → +60 |
| 2x49 | T5 | **PCA 2x35/49 T5 EXCITE lp x!tec** | 22176207 | 425 | 415 | 0.34 | 105.5 | 2x49 | 0.47 | 0.98 | 85 | -25 → +60 |
| 1x80 | T5 | **PCA 1x35/49/80 T5 EXCITE lp x!tec** | 22176204 | 360 | 350 | 0.37 | 86.5 | 1x80 | 0.39 | 0.98 | 85 | -25 → +60 |

① 10 °C to ta max: normal diming operation
-25 °C to +10 °C: dimming operation from 100 % to 30 %.
-25 °C to +10 °C, dimming below 30 %: Ballast could shut down but will not cause failure. This applies to AC and DC operation.
② valid at 100 % light output





TRIDONIC

**Lamp starting characteristics:**
Warm start
Starting time 0.5 s with AC
Starting time 0.2 s with DC
Start at any dimming level

**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
Use in emergency lighting installations according to EN 50172 or for emergency luminaires according to EN 61347-2-3 appendix J.

**Emergency units:**
The "PCA T5 EXCITE lp xitec" ballasts are compatible with all emergency units from TridonicAtco. See the table in the data sheet. Also all "5-Pole" emergency units can be used. When used with other emergency units tests are necessary.

**Temperature range:**
Unlimited dimming range from 10 °C to ta max. -2w5 °C to +10 °C: dimming operation from 100% to 30%. If dimm level goes below 30% malfunction possible, but no electronic ballast damage. This concerns the AC and DC Operation. w

**Dimming:**
Dimming curve is adapted to the eye sensitiveness.
Dimming range 1 % to 100 %
- DALI signal: 16 bit Manchester Code
  Maximum speed 10 % to 100 % in 550 ms
  Programmable parameter:
  Minimum dimming level
  Maximum dimming level
  Default minimum = 1 %
  Default Maximum = 100 %

**Control input (DA, DA):**
Digital DALI signal or a push-to-make switch (switch**DIM**) can be wired on the same terminals (DA and DA).

**Digitales signal DALI:**
The control input is non-polar and protected against accidental connection with a mains voltage up to 264 V. The control signal is not SELV. Control cable has to be installed in accordance to the requirements of low voltage installations.

**Mains currents in DC operation (at 70% light output)**

| wattage W | lamp type | Ballast type | Mains current at $U_n$ = 220 $V_{DC}$ | Mains current at $U_n$ = 240 $V_{DC}$ |
|---|---|---|---|---|
| 1x14 | T5 | **PCA 1x14/24 T5 EXCITE lp xitec** | 0.06 A | 0.06 A |
| 2x14 | T5 | **PCA 2x14/24 T5 EXCITE lp xitec** | 0.12 A | 0.12 A |
| 1x24/1x24 | T5/TC-L | **PCA 1x14/24 T5 EXCITE lp xitec** | 0.10 A / 0.10 A | 0.09 A / 0.09 A |
| 2x24/2x24 | T5/TC-L | **PCA 2x14/24 T5 EXCITE lp xitec** | 0.20 A / 0.20 A | 0.18 A / 0.18 A |
| 1x21 | T5 | **PCA 1x21/39 T5 EXCITE lp xitec** | 0.09 A | 0.08 A |
| 2x21 | T5 | **PCA 2x21/39 T5 EXCITE lp xitec** | 0.17 A | 0.16 A |
| 1x39/1x40 | T5/TC-L | **PCA 1x21/39 T5 EXCITE lp xitec** | 0.15 A / 0.15 A | 0.14 A / 0.14 A |
| 2x39 | T5 | **PCA 2x21/39 T5 EXCITE lp xitec** | 0.30 A | 0.28 A |
| 1x28 | T5 | **PCA 1x28/54 T5 EXCITE lp xitec** | 0.11 A | 0.11 A |
| 2x28 | T5 | **PCA 2x28/54 T5 EXCITE lp xitec** | 0.21 A | 0.20 A |
| 1x54 | T5 | **PCA 1x28/54 T5 EXCITE lp xitec** | 0.21 A | 0.20 A |
| 2x54 | T5 | **PCA 2x28/54 T5 EXCITE lp xitec** | 0.42 A | 0.38 A |
| 1x35 | T5 | **PCA 1x35/49/80 T5 EXCITE lp xitec** | 0.14 A | 0.13 A |
| 2x35 | T5 | **PCA 2x35/49 T5 EXCITE lp xitec** | 0.26 A | 0.24 A |
| 1x49 | T5 | **PCA 1x35/49/80 T5 EXCITE lp xitec** | 0.18 A | 0.17 A |
| 2x49 | T5 | **PCA 2x35/49 T5 EXCITE lp xitec** | 0.36 A | 0.33 A |
| 1x80 | T5 | **PCA 1x35/49/80 T5 EXCITE lp xitec** | 0.30 A | 0.27 A |

**Ballast lumen factor AC operation (AC-BLF) EN 60929 Pkt.8.1:**

| wattage W | lamp type | Ballast type | AC-BLF at $U_n$ = 230 $V_{AC}$ |
|---|---|---|---|
| 1x14 | T5 | **PCA 1x14/24 T5 EXCITE lp xitec** | 1.00 |
| 2x14 | T5 | **PCA 2x14/24 T5 EXCITE lp xitec** | 0.99 |
| 1x24/1x24 | T5/TC-L | **PCA 1x14/24 T5 EXCITE lp xitec** | 1.01 / 1.04 |
| 2x24/2x24 | T5/TC-L | **PCA 2x14/24 T5 EXCITE lp xitec** | 1.02 / 1.02 |
| 1x21 | T5 | **PCA 1x21/39 T5 EXCITE lp xitec** | 1.03 |
| 2x21 | T5 | **PCA 2x21/39 T5 EXCITE lp xitec** | 1.02 |
| 1x39/1x40 | T5/TC-L | **PCA 1x21/39 T5 EXCITE lp xitec** | 1.02 / 0.97 |
| 2x39 | T5 | **PCA 2x21/39 T5 EXCITE lp xitec** | 1.02 |
| 1x28 | T5 | **PCA 1x28/54 T5 EXCITE lp xitec** | 1.00 |
| 2x28 | T5 | **PCA 2x28/54 T5 EXCITE lp xitec** | 1.01 |
| 1x54 | T5 | **PCA 1x28/54 T5 EXCITE lp xitec** | 1.00 |
| 2x54 | T5 | **PCA 2x28/54 T5 EXCITE lp xitec** | 1.01 |
| 1x35 | T5 | **PCA 1x35/49/80 T5 EXCITE lp xitec** | 0.99 |
| 2x35 | T5 | **PCA 2x35/49 T5 EXCITE lp xitec** | 0.98 |
| 1x49 | T5 | **PCA 1x35/49/80 T5 EXCITE lp xitec** | 1.02 |
| 2x49 | T5 | **PCA 2x35/49 T5 EXCITE lp xitec** | 1.00 |
| 1x80 | T5 | **PCA 1x35/49/80 T5 EXCITE lp xitec** | 1.02 |

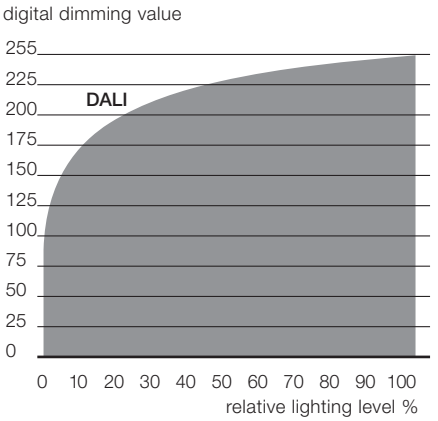
The ballast lumen factor for AC operation (AC-BLF) does not alter from $U_n$ = 198 VAC to $U_n$ = 254 VAC.
The ballast lumen factor for DC operatino (DC-BLF) on the basis of an automativ power reduction of the ballasts (default value is 70%) will be smaller than AC. It does not alter in the DC operating range (198–280 VDC).

**Harmonic distortion in the mains supply (at 230 V / 50 Hz):**

| wattage W | lamp type | Ballast type | THD | 3 | 5 | 7 | 9 | 11 |
|---|---|---|---|---|---|---|---|---|
| 1x14 | T5 | **PCA 1x14/24 T5 EXCITE lp xitec** | 10.2 | 5.4 | 6.1 | 3.2 | 2.2 | 1.6 |
| 2x14 | T5 | **PCA 2x14/24 T5 EXCITE lp xitec** | 7.8 | 4.3 | 2.5 | 2.5 | 2.7 | 2.2 |
| 1x24/1x24 | T5/TC-L | **PCA 1x14/24 T5 EXCITE lp xitec** | 6.1/6.9 | 4.6/5.8 | 1.1/1.1 | 1.2/1.4 | 1.2/1.2 | 1.2/1.3 |
| 2x24/2x24 | T5/TC-L | **PCA 2x14/24 T5 EXCITE lp xitec** | 4.8/8.5 | 3.2/6.2 | 1.4/1.8 | 2.0/2.7 | 1.3/1.9 | 1.2/1.7 |
| 1x21 | T5 | **PCA 1x21/39 T5 EXCITE lp xitec** | 8.1 | 5.9 | 2.4 | 2.5 | 2.5 | 1.6 |
| 2x21 | T5 | **PCA 2x21/39 T5 EXCITE lp xitec** | 7.2 | 3.6 | 4.4 | 2.5 | 1.5 | 1.5 |
| 1x39/1x40 | T5/TC-L | **PCA 1x21/39 T5 EXCITE lp xitec** | 7.0/6.2 | 5.5/4.7 | 1.1/0.7 | 2.1/1.4 | 1.5/1.0 | 1.3/0.9 |
| 2x39 | T5 | **PCA 2x21/39 T5 EXCITE lp xitec** | 5.3 | 4.0 | 2.5 | 1.8 | 0.6 | 0.9 |
| 1x28 | T5 | **PCA 1x28/54 T5 EXCITE lp xitec** | 9.74 | 3.93 | 3.39 | 2.68 | 2.52 | 2.44 |
| 2x28 | T5 | **PCA 2x28/54 T5 EXCITE lp xitec** | 10.0 | 7.3 | 1.7 | 2.1 | 2.2 | 1.9 |
| 1x54 | T5 | **PCA 1x28/54 T5 EXCITE lp xitec** | 5.6 | 3.5 | 1.5 | 1.6 | 1.1 | 1.3 |
| 2x54 | T5 | **PCA 2x28/54 T5 EXCITE lp xitec** | 8.9 | 8.5 | 1.4 | 1.5 | 0.7 | 0.7 |
| 1x35 | T5 | **PCA 1x35/49/80 T5 EXCITE lp xitec** | 9.1 | 6.0 | 4.2 | 2.2 | 1.9 | 1.8 |
| 2x35 | T5 | **PCA 2x35/49 T5 EXCITE lp xitec** | 8.7 | 7.2 | 1.4 | 1.4 | 1.4 | 0.9 |
| 1x49 | T5 | **PCA 1x35/49/80 T5 EXCITE lp xitec** | 9.6 | 7.8 | 4.3 | 1.8 | 1.0 | 1.0 |
| 2x49 | T5 | **PCA 2x35/49 T5 EXCITE lp xitec** | 7.8 | 7.5 | 0.6 | 1.1 | 0.6 | 0.7 |
| 1x80 | T5 | **PCA 1x35/49/80 T5 EXCITE lp xitec** | 8.1 | 7.8 | 1.6 | 0.6 | 0.5 | 0.6 |

switch**DIM:**
Integrated switch**DIM** function allows a direct connection of a push to make switch for dimming and switching.
Brief push (< 0.6 s) switches ballast ON and OFF. The ballasts switch-ON at light level set at switch-OFF. When the push to make switch is held, PCA ballasts are dimmed. After repush the PCA is dimmed in the opposite direction.
The switch**DIM** fade time is set to 3 s from min. to max. in the factory settings. With a 20 s push to the push to make switch this fade time can be changed to 6 s. In this instance the switch**DIM** application will be synchronized to 50 % light level after 10 s and after 20 s the light level rises to 100 % with the new fade time.
At every synchronizsation (10 s keystroke) the device will reset to 3 s (factory setting).
In installations with PCAs with different dimming levels or opposite dimming directions (e.g. after a system extension), all PCAs can be synchronized to 50 % dimming level by a 10 s push.
Use of push to make switch with indicator lamp is not permitted.
switchDIM is a very simple tool for controlling ballasts with conventional momentary-action switches or motion sensors.
To ensure correct operation a sinusoidal mains voltage with a frequency of 50 Hz or 60 Hz is required at the control input.
Special attention must be paid to achieving clear zero crossings.

**Dimming characteristics**
**PCA T5 EXCITE lp** x!tec

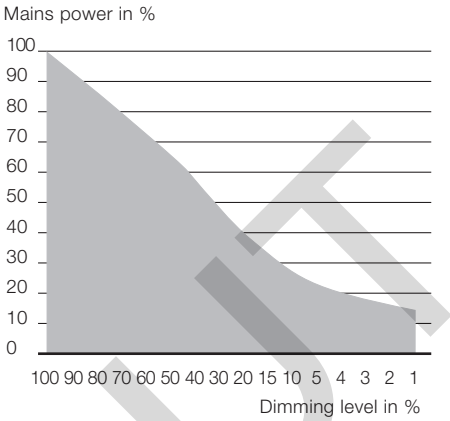



Dimming characteristics as seen by the human eye

Serious mains faults may impair the operation of switchDIM.

**Lamp type recognition:**
Each of the lamps for wich the control gear is designed will be operated correctly according the lamp specifications. The currently used lamp is recognised during the start up process.
To avoid an incorrect lamp recognition due to fast multiple ON / OFF switches, new lamp data are only restored if the lamp has operated for at least 5 seconds.

**Energy saving**
**PCA T5 EXCITE lp** x!tec




**Intelligent Voltage Guard**
Intelligent Voltage Guard is the name of the new electronic monitor from TridonicAtco. This innovative feature of the PCA family immediately shows if the mains voltage rises above or falls below certain thresholds (e.g. released by a neutral interrupt). Measures can then be taken quickly to prevent damage to the control gear.
- If the mains voltage rises above approx. 305 V (voltage depends on the ballast type), the lamp starts flashing.
- This signal "demands" disconnection of the power supply to the lighting system.• The active-current-control of these control gears is protected against failure caused by the high mains currents generated as a result of mains undervoltage. The switch off level depends on lamp wattage and is typically < 140 V.

**Intelligent Temperature Guard**
The intelligent temperature guard protects the PCA T5 EXCITE lp x!tec from thermal overheating by reducing the output power or switching off in case of operation above the thermal limits of the luminaire or ballast. Depending on the luminaire design, the ITG operates at about 5 to 10 °C above Tc temperature.

**Operating voltage:**

| Wattage W | lamp type | Ballast type | $U_{out}$ |
|---|---|---|---|
| 1x14 | T5 | **PCA 1x14/24 T5 EXCITE lp x!tec** | 400 V |
| 2x14 | T5 | **PCA 2x14/24 T5 EXCITE lp x!tec** | 400 V |
| 1x24/1x24 | T5/TC-L | **PCA 1x14/24 T5 EXCITE lp x!tec** | 400 V / 400 V |
| 2x24/2x24 | T5/TC-L | **PCA 2x14/24 T5 EXCITE lp x!tec** | 400 V / 400 V |
| 1x21 | T5 | **PCA 1x21/39 T5 EXCITE lp x!tec** | 400 V |
| 2x21 | T5 | **PCA 2x21/39 T5 EXCITE lp x!tec** | 400 V |
| 1x39/1x40 | T5/TC-L | **PCA 1x21/39 T5 EXCITE lp x!tec** | 400 V / 400 V |
| 2x39 | T5 | **PCA 2x21/39 T5 EXCITE lp x!tec** | 400 V |
| 1x28 | T5 | **PCA 1x28/54 T5 EXCITE lp x!tec** | 430 V |
| 2x28 | T5 | **PCA 2x28/54 T5 EXCITE lp x!tec** | 430 V |
| 1x54 | T5 | **PCA 1x28/54 T5 EXCITE lp x!tec** | 430 V |
| 2x54 | T5 | **PCA 2x28/54 T5 EXCITE lp x!tec** | 430 V |
| 1x35 | T5 | **PCA 1x35/49/80 T5 EXCITE lp x!tec** | 430 V |
| 2x35 | T5 | **PCA 2x35/49 T5 EXCITE lp x!tec** | 430 V |
| 1x49 | T5 | **PCA 1x35/49/80 T5 EXCITE lp x!tec** | 430 V |
| 2x49 | T5 | **PCA 2x35/49 T5 EXCITE lp x!tec** | 430 V |
| 1x80 | T5 | **PCA 1x35/49/80 T5 EXCITE lp x!tec** | 430 V |

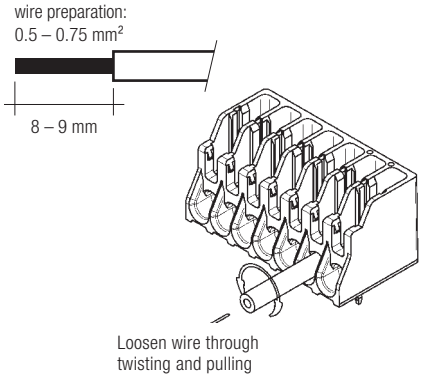
**Loading of automatic circuit breakers:**

| Automatic circuit breaker type | C10 | C13 | C16 | C20 | B10 | B13 | B16 | B20 |
|---|---|---|---|---|---|---|---|---|
| Installation ∅ | 1.5 mm² | 1.5 mm² | 1.5 mm² | 2.5 mm² | 1.5 mm² | 1.5 mm² | 1.5 mm² | 2.5 mm² |
| **PCA 1x14/24 T5 EXCITE lp x!tec** | 50 | 80 | 110 | 135 | 25 | 40 | 75 | 90 |
| **PCA 2x14/24 T5 EXCITE lp x!tec** | 24 | 34 | 48 | 52 | 12 | 17 | 24 | 26 |
| **PCA 1x21/39 T5 EXCITE lp x!tec** | 34 | 50 | 76 | 86 | 17 | 25 | 38 | 43 |
| **PCA 2x21/39 T5 EXCITE lp x!tec** | 16 | 22 | 32 | 36 | 8 | 11 | 16 | 18 |
| **PCA 1x28/54 T5 EXCITE lp x!tec** | 24 | 34 | 48 | 52 | 12 | 17 | 24 | 26 |
| **PCA 2x28/54 T5 EXCITE lp x!tec** | 16 | 22 | 32 | 34 | 8 | 11 | 16 | 17 |
| **PCA 1x35/49/80 T5 EXCITE lp x!tec** | 16 | 24 | 32 | 38 | 8 | 12 | 16 | 19 |
| **PCA 2x35/49 T5 EXCITE lp x!tec** | 16 | 22 | 32 | 34 | 8 | 11 | 16 | 17 |

Continuous operation: to calculate the protective saftey switch see main current, page 1

## Installationguide:

### Wiring type and cross section:
The wiring can be solid cable with a cross section of 0.5 to 0.75 mm² for push terminal and 0.5 mm² for IDC terminal. For the push-wire connection you have to strip the insulation (8–9 mm).

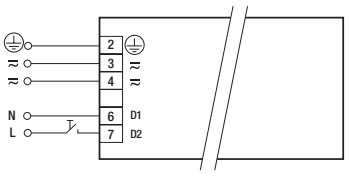



### Wiring advice:
The lead length is dependent on the capacitance of the cable.

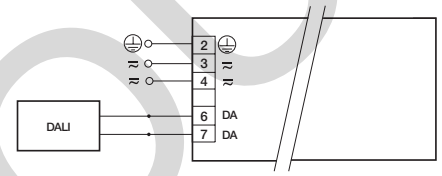
| Ballast | Terminal | | Maximum capacitance allowed | |
|---|---|---|---|---|
| Type | Cold | Hot | Cold | Hot |
| **PCA 1/xx T5 EXCITE lp** x!tec | 11, 12 | 9, 10 | 200 pF | 100 pF |
| **PCA 2/xx T5 EXCITE lp** x!tec | 11, 12, 13, 14 | 9, 10, 15, 16 | 200 pF | 100 pF |

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.
Lamp connection should be made with symmetrical wiring.
Hot leads (9, 10, 15, 16) and cold leads (11, 12, 13, 14) should be separated as much as possible.
When using two or more dimmable ballasts in one luminaire with separate dimming controls, the lamp leads must be kept separate.

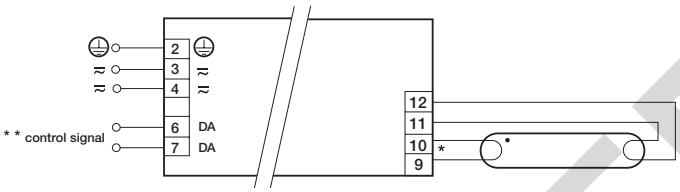
Dimmable ballasts from TridonicAtco have to be earthed.




**switchDIM PCA T5 EXCITE lp x!tec**

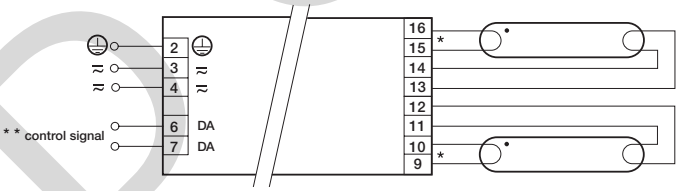



**DALI PCA T5 EXCITE lp x!tec**




* leads 9, 10: keep wires short, max. 1.0 m
leads 11, 12: max. 2.0 m; ballast must be earthed
* * digital signal DALI or switch**DIM**

**PCA T5 EXCITE lp** x!tec **1x14–80 W**



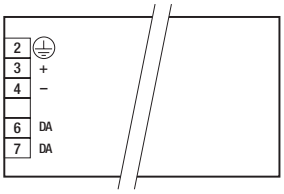

* leads 9, 10, 15, 16: keep wires short, max. 1.0 m
leads 11, 12, 13, 14: max. 2.0 m; ballast must be earthed
* * digital signal DALI or switch**DIM**

**PCA T5 EXCITE lp** x!tec **2x14–54 W**

### RFI:
- Connection to the lamps of the hot leads must be kept as short as possible
- 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
- Mains wiring to be twisted when through wiring
- Keep the mains leads inside the luminaire as short as possible

### General advise:
Electronic ballasts are virtually noise free.
Magnetic fields generated during the ignition cycle can cause some background noise but only for a few milliseconds.

### Operation on DC voltage:
Our ballasts are construed to operate DC voltage and pulsed DC voltage.
To operate ballasts with pulsed DC voltage the polarity is absolute mandatory.

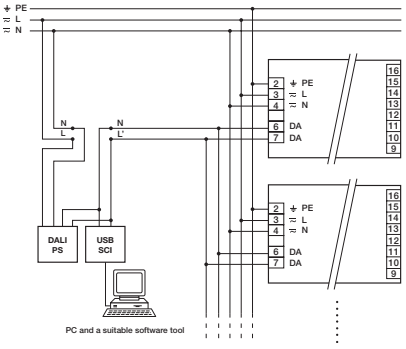



### Light output level in DC operation:
Programmable from 0 % to 100 %
Programming by extended DALI signal (16 bit)
Default value is 70 %
In DC operation dimming mode can be activated.

### Programming:
With appropriate software and a USB interface different functions can be activated and various parameters can be configured in the new PCA T5 EXCITE lp x!tec. All that is needed is a DALI-USB and the software.

### configTOOL
Full version for programming all the functions and parameters.

### pcaCONFIGURATOR
For programming the device configuration (fade time, ePowerOnLevel, etc.) DC level, compatibility settings, and startup date and for resetting.




### 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.

**ⓘ For further technical information please visit wwww.tridonicatco.com**