### Product description
- Processor-controlled ballast with xtec inside
- Highest possible energy class CELMA EEI = A1 BAT
- Noise-free precise control via DALI or DSI signal, switchDIM or corridorFUNCTION
- Nominal life up to 50,000 h (at ta max. with a failure rate max. 0.2 % per 1,000 h)
- OEM-specific reserved memory areas
- Extended DALI commands
- 5-year guarantee

### Interfaces
- DALI
- DSI
- switchDIM (with memory function + selectable dimming rate)
- corridorFUNCTION

### Functions
- Intelligent Temperature Guard (overtemperature protection)
- Intelligent Voltage Guard (overvoltage indication and undervoltage shutdown)
- Optimum filament heating in any dimmer setting
- Disconnection of filament heating from a dimming level of approx. 90 % for maximum energy efficiency (SMART-Heating concept)
- Fade rates between 50 ms and 90 s (min. – max.)
- Automatically triggered emergency lighting value in DC mode
- For emergency lighting systems as per EN 50172
- Automatic start after replacement of defective lamps
- Automatic shutdown if the lamp is faulty

### 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
- Typ. power input on standby: < 0.5 W
- Protective hot restart: 0.5 s for AC / 0.2 s for DC
- Dimming range, 3 lamps: 5 – 100 %
- Dimming range, 4 lamps: 1 – 100 %
- Lamp start possible from: 5 % (3 lamps), 1 % (4 lamps)
- Operating frequency: ~ 40 – 100 kHz
- Type of protection: IP20

### Ordering data
<table>
<thead>
<tr>
<th>Type</th>
<th>Article number</th>
<th>Packaging, carton</th>
<th>Packaging, pallet</th>
<th>Weight per pc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>For luminaires with 3 lamps</td>
<td>PCA 3x18 T8 EXCITE lp xttec</td>
<td>28000309</td>
<td>20 pc(s). 600 pc(s).</td>
<td>0.303 kg</td>
</tr>
<tr>
<td>For luminaires with 4 lamps</td>
<td>PCA 4x18 T8 EXCITE lp</td>
<td>28000310</td>
<td>20 pc(s). 600 pc(s).</td>
<td>0.340 kg</td>
</tr>
</tbody>
</table>

### Specific technical data

<table>
<thead>
<tr>
<th>Lamp type</th>
<th>Lamp wattage</th>
<th>Article number</th>
<th>Dimensions L x W x H</th>
<th>Hole spacing D</th>
<th>Lamp power</th>
<th>Circuit power</th>
<th>EEI</th>
<th>Current at 50 Hz 230 V</th>
<th>λ at 50 Hz 230 V</th>
<th>tc point max.</th>
<th>Ambient temperature ta</th>
</tr>
</thead>
<tbody>
<tr>
<td>T8</td>
<td>3 x 18 W</td>
<td>28000309</td>
<td>360 x 40 x 21 mm</td>
<td>350 mm</td>
<td>48.5 W</td>
<td>51 W</td>
<td>A1 BAT</td>
<td>0.23 A</td>
<td>0.97</td>
<td>75 °C</td>
<td>-25 ... 60 °C</td>
</tr>
<tr>
<td>T8</td>
<td>4 x 18 W</td>
<td>28000310</td>
<td>360 x 40 x 21 mm</td>
<td>350 mm</td>
<td>65.0 W</td>
<td>69 W</td>
<td>A1 BAT</td>
<td>0.31 A</td>
<td>0.98</td>
<td>80 °C</td>
<td>-25 ... 60 °C</td>
</tr>
</tbody>
</table>

2. Valid at 100 % dimming level.
3. Valid at 100 % dimming level.

For luminaires with 4 lamps:
- Lamp type: PCA 4x18 T8 EXCITE lp
- Article number: 28000310
- Dimensions: 360 x 40 x 21 mm
- Hole spacing: 350 mm
- Lamp power: 65.0 W
- Circuit power: 69 W
- EEI: A1 BAT
- Current at 50 Hz 230 V: 0.31 A
- λ at 50 Hz 230 V: 0.98
- tc point max.: 80 °C
- Ambient temperature ta: -25 ... 60 °C

-5 °C to ta max.: unrestricted dimming.
-25 °C to +10 °C: unrestricted dimming from 100 % to 30 %.
-+10 °C to ta max.: unrestricted dimming down to 100 %.
-25 °C to -25 °C: malfunction possible but no damage to EEC. This applies to AC and DC operation.
Standards
EN 55015
EN 60929
EN 61000-3-2
EN 61347-2-3
EN 61547

Suitable for emergency installations according to
EN 50172
CISPR 15
CISPR 22
IEC 60929
IEC 61000-3-2
IEC 61347-2-3
IEC 61547
IEC 62386 (according to DALI standard V1)

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 T8 EXCITE lp xxtec” ballasts are compatible
with all emergency units from Tridonic. 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 dimmability range from 10 °C to 40 °C
-25 °C to + 10 °C: dimming operation from 100 %
to 30%. If dimm level goes below 30% malfunction
possible, but no electronic ballast damage.
This applies to AC and DC operation.

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

<table>
<thead>
<tr>
<th>Type</th>
<th>Wattage</th>
<th>Mains current at Un = 220 VDC</th>
<th>Mains current at Un = 275 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCA 3x18 T8 EXCITE lp xxtec</td>
<td>3x18 W</td>
<td>0.22 A</td>
<td>0.17 A</td>
</tr>
<tr>
<td>PCA 4x18 T8 EXCITE lp xxtec</td>
<td>4x18 W</td>
<td>0.28 A</td>
<td>0.22 A</td>
</tr>
</tbody>
</table>

Ballast lumen factor AC operation (AC-BLF) EN 60929 8.1

<table>
<thead>
<tr>
<th>Type</th>
<th>Wattage</th>
<th>AC-BLF at U = 230 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCA 3x18 T8 EXCITE lp xxtec</td>
<td>3x18 W</td>
<td>0.98</td>
</tr>
<tr>
<td>PCA 4x18 T8 EXCITE lp xxtec</td>
<td>4x18 W</td>
<td>0.99</td>
</tr>
</tbody>
</table>

The ballast lumen factor for AC operation (AC-BLF) does not alter from Un = 198 V AC to Un = 254 V AC.
The ballast lumen factor for DC operation (DC-BLF) on the basis of an automatic 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)

<table>
<thead>
<tr>
<th>Type</th>
<th>Wattage</th>
<th>THD</th>
<th>3</th>
<th>5</th>
<th>7</th>
<th>9</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCA 3x18 T8 EXCITE lp xxtec</td>
<td>3x18 W</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PCA 4x18 T8 EXCITE lp xxtec</td>
<td>4x18 W</td>
<td>7</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Dimming

Dimming curve is adapted to the eye sensitiveness.

Dimming range:
- 4-lamp: 1% to 100%, 3-lamp: 5% to 100%

Digital control with:
- DALI signal: 16 bit Manchester Code
- Detailed speed 1% to 100% in 550 ms (adjustable between 50 ms and 90 s)
- Programmable parameter:
  - Minimum dimming level
  - Maximum dimming level

Defaults:
- 3-lamp minimum = 5%
- 3-lamp maximum = 100%
- 4-lamp minimum = 1%
- 4-lamp maximum = 100%

Control input (DA/D1, DA/D2)

Digital DALI signal or a push-to-make switch (switchDIM) can be wired on the same terminals (DA and D1).

Digital 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.

Different functions depending on each module.

switchDIM

Integrated switchDIM 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 switchDIM 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 switchDIM 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.

Energy saving

PCA T8 EXCITE lp x tec

At every synchronization (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.

If the corridorFUNCTION is wrongly activated in a switchDIM system (for example a switch is used instead of pushbutton), there is the option of installing a pushbutton and deactivating the corridorFUNCTION mode by five short pushes of the button within three seconds.

Digital dimming value

Dimming characteristics as seen by the human eye

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

Loading of automatic circuit breakers

Automatic circuit breaker type

<table>
<thead>
<tr>
<th>Installation Ø</th>
<th>C10</th>
<th>C13</th>
<th>C16</th>
<th>C20</th>
<th>B10</th>
<th>B13</th>
<th>B16</th>
<th>B20</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 mm²</td>
<td>1.5 mm²</td>
<td>1.5 mm²</td>
<td>2.5 mm²</td>
<td>1.5 mm²</td>
<td>1.5 mm²</td>
<td>1.5 mm²</td>
<td>2.5 mm²</td>
<td></td>
</tr>
<tr>
<td>PCA 3x18 T8 EXCITE lp x tec</td>
<td>22 30 42 48</td>
<td>11 15 21 24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCA 4x18 T8 EXCITE lp x tec</td>
<td>14 20 28 32</td>
<td>7 10 14 16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

www.tridonic.com
**FL ballasts**

**Electronic dimming**

**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. 3-lamp devices: Hot and cold leads should be separated as much as possible. 4-lamp devices: Middle and hot leads should be separated as much as possible. 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.**

**Distance to plate: 5 – 10 mm**

(ideal distance for optimal symmetrical light)

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.).
FL ballasts
Electronic dimming

PCA T8 EXCITE lp xtec 3x18 W

Dimmable ballasts from Tridonic have to be earthed.

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.

Programming
With appropriate software and a USB interface different functions can be activated and various parameters can be configured in the new PCA T8 EXCITE lp xtec. All that is needed is a DALI-USB and the software.

MASTER CONFIGURATOR
Full version for programming all the functions and parameters.

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

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