Product description

- Processor-controlled ballast with xtec inside
- Highest possible energy class CELMA EEI = A1 BA
- Noise-free precise control via DALI or DSI signal, switchDIM or corridorFUNCTION
- OEM-specific reserved memory areas
- Extended DALI commands
- 5-year guarantee

Interfaces

- DALI
- DSI
- switchDIM (with memory function + selectable dimming rate)
- corridorFUNCTION (individually programmable)

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, can be set between 1 and 100 %
- For emergency lighting systems as per EN 50172
- Automatic start after replacement of defective lamps
- Automatic shutdown if the lamp is faulty
- Dimming possible in DC mode

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

For luminaires with 3 lamps
PCA 3x18 T8 EXCEL one4all lp xtec 22185247 20 pc(s). 600 pc(s). 0.303 kg

For luminaires with 4 lamps
PCA 4x18 T8 EXCEL one4all lp xtec 22185250 20 pc(s). 600 pc(s). 0.338 kg

Specific technical data

For luminaires with 3 lamps

<table>
<thead>
<tr>
<th>Lamp wattage</th>
<th>Lamp type</th>
<th>Article number</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 x 18 W T8</td>
<td>PCA 3x18 T8 EXCEL one4all lp xtec</td>
<td>22185247</td>
</tr>
<tr>
<td>Dimensions</td>
<td>L x W x H</td>
<td>Hole spacing</td>
</tr>
<tr>
<td>360 x 40 x 21 mm</td>
<td>350 mm</td>
<td>48.5 W</td>
</tr>
</tbody>
</table>

For luminaires with 4 lamps

<table>
<thead>
<tr>
<th>Lamp wattage</th>
<th>Lamp type</th>
<th>Article number</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 x 18 W T8</td>
<td>PCA 4x18 T8 EXCEL one4all lp xtec</td>
<td>22185250</td>
</tr>
<tr>
<td>Dimensions</td>
<td>L x W x H</td>
<td>Hole spacing</td>
</tr>
<tr>
<td>360 x 40 x 21 mm</td>
<td>350 mm</td>
<td>65.0 W</td>
</tr>
</tbody>
</table>

1 According to the EU directives on ecodesign requirements (EC) No. 245/2009 and (EC) No. 347/2010.
2 Valid at 100 % dimming level.
3 +10 °C to ta max: unrestricted dimming -25 °C to +10 °C: unrestricted dimming from 100 % to 30 %
-25 °C to +10 °C, dimming below 30 %: malfunction possible but no damage to ECG. This applies to AC and DC operation.
FL ballasts
Electronic dimming

Standards
EN 55015
EN 60929
EN 61000-3-2
EN 61347-2-3
EN 61547
Suitable for emergency installations according to EN 50172

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 EXCEL lp xtce” 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 dimming range from 10 °C to ta max.
-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.

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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 EXCEL one4all lp xtce</td>
<td>3x18 W</td>
<td>0.22 A</td>
<td>0.17 A</td>
</tr>
<tr>
<td>PCA 4x18 T8 EXCEL one4all lp xtce</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 Un = 230 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCA 3x18 T8 EXCEL one4all lp xtce</td>
<td>3x18 W</td>
<td>0.98</td>
</tr>
<tr>
<td>PCA 4x18 T8 EXCEL one4all lp xtce</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 V AC).

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 EXCEL one4all lp xtce</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 EXCEL one4all lp xtce</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:**
- DSI signal: 8 bit Manchester Code
  - Speed 1% to 100% in 1.4 s
- DALI signal: 16 bit Manchester Code
  - Maximum speed 1% to 100% in 550 ms (adjustable between 50 ms and 90 s)

**Programmable parameters:**
- Minimum dimming level
- Maximum dimming level

**Defaults**
- 3-lamp: minimum = 5%
  - maximum = 100%
- 4-lamp: minimum = 1%
  - 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 DA).

**Digital signal DALI/DSI**

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.**

**SMART interface**

An additional interface for the direct connection of the SMART-LS II lp1 light sensor. The sensor registers actual ambient light and maintains the individually defined lux level.

After every mains reset the SMART interface automatically checks for an installed sensor. With the sensor installed the PCA T8 EXCEL one4all lp xtec automatically runs in the constant lux level mode.

**ON/OFF switch via mains, switchDIM or DALI/DSI signal.**

DSI/DSI signal = 0 switches off,

DALI signal = 1 switches on.

**With relative DALI dimming commands (e.g. up, down etc.) or switchDIM signals it is possible to change the controlled light level temporarily.**

Temporarily means that after a switching cycle OFF/ON command the ballast will start at the pre-set value determined by the SMART-LS II lp. The installation of the two wire bus is according to the appropriate low voltage regulations.

**switchDIM**

Integrated switchDIM function allows a direct connection of a push to make switch for dimming and switching.

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**Energy saving**

PCA T8 EXCEL one4all lp xtec

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.

At every synchronization (10 s keystroke) the device will reset to 3 s (factory setting).

**Deactivation:** 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.

**switchDIM and corridorFUNCTION** are very simple tools 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.

Serious mains faults may impair the operation of switchDIM and corridorFUNCTION.

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**Loading of automatic circuit breakers**

<table>
<thead>
<tr>
<th>Automatic circuit breaker type</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>Installation B</td>
<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>
</tr>
<tr>
<td>PCA 3x18 T8 EXCEL one4all lp xtec</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 EXCEL one4all lp xtec</td>
<td>14 20 28 32</td>
<td>7 10 14 16</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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Subject to change without notice.

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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.).
Data sheet 05/18-FD015-4

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