Product description
• Noise-free precise control via DSI signal, switchDIM, corridorFUNCTION or DALI
• DALI-MEMORY
• Extended DALI commands
• CELMA energy class A1

Interfaces
• DALI
• DSI
• switchDIM (with memory function)
• corridorFUNCTION (individually programmable)
• Integrated SMART-Interface

Functions
• Automatically triggered emergency lighting value in DC mode, can be set between 1 and 70 %
• For emergency lighting systems as per EN 50172 (Exclusion article number 22176467, PCA 1/55 T5c EXCEL one4all not suitable for emergency lighting units according to EN 50172 and only ÖVE, EN 61347-2-3)
• Automatic start after replacement of defective lamps

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

Standards, page 2
Wiring diagrams and installation examples, page 4

Technical data
Power input on standby < 1 W
Protective hot restart 1.5 s for AC / 0.6 s for DC
Dimming range 3 – 100 %
Lamp start possible from 3 %
Operating frequency ~40 – 100 kHz
Life 50,000 h
Weight 110.5 kg
Height 31 mm

Ordering data
Type Article number
For luminaires with 1 lamp
PCA 1/22 T5c EXCEL one4all 2206681
PCA 1/40 T5c EXCEL one4all 22185145
PCA 1/55 T5c EXCEL one4all 22176467

Packaging: 10 pieces/carton, 500 pieces/pallet

Specific technical data
<table>
<thead>
<tr>
<th>Lamp wattage</th>
<th>Lamp type</th>
<th>Dimensions LxWxH</th>
<th>Hole spacing D</th>
<th>Weight</th>
<th>Circuit power</th>
<th>Lamp wattage</th>
<th>Current at 230 V / 50 Hz</th>
<th>A at 50 Hz / 230 V</th>
<th>Tc point</th>
<th>Ambient temperature ta</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 22 W T5c</td>
<td>PCA 1/22 T5c EXCEL one4all 123 x 79 x 31 mm 66.5 mm 0.22 kg 26.1 W 22 W 0.12 A 0.96 70 °C 10 ... 60 °C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 x 40 W T5c</td>
<td>PCA 1/40 T5c EXCEL one4all 123 x 79 x 31 mm 66.5 mm 0.22 kg 45.5 W 40 W 0.20 A 0.98 65 °C 10 ... 50 °C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 x 55 W T5c</td>
<td>PCA 1/55 T5c EXCEL one4all 123 x 79 x 31 mm 66.5 mm 0.22 kg 61.0 W 55 W 0.24 A 0.98 75 °C 10 ... 50 °C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Exclusion PCA 1/55 T5c EXCEL one4all only ÖVE, EN 61347-2-3, not suitable for emergency lighting units according to EN 50172.
2) Valid at 100 % dimming level.
3) 3 % dimming from +10 °C to ta max. 

Data sheet 10/11-379-5
Subject to change without notice.

www.tridonic.com
Digital dimmable ballasts for fluorescent lamps
EXCEL one4all series

Standards
EN 55015
EN 55022
EN 60029
EN 61000-3-2
EN 61347-2-3
EN 61547
in accordance with EN 50172
Exclusion: PCA 1/55 T5c EXCEL one4all only ÖVE, EN 61347-2-3, not suitable for emergency lighting units according to EN 50172.

Lamp starting characteristics
Warm start
Starting time: 1.5 s with AC
Starting time: 0.6 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.
Exclusion: PCA 1/55 T5c EXCEL only ÖVE approved.

Temperature range
Dimming range 100% to 3% from 10 °C to maximum permissible ambient temperature ta.

Mains current in DC operation

<table>
<thead>
<tr>
<th>Type</th>
<th>Mains current at Un = 220 VDC</th>
<th>Mains current at Un = 240 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCA 1/22 T5c EXCEL</td>
<td>0.10 A</td>
<td>0.09 A</td>
</tr>
<tr>
<td>PCA 1/40 T5c EXCEL</td>
<td>0.17 A</td>
<td>0.16 A</td>
</tr>
<tr>
<td>PCA 1/55 T5c EXCEL</td>
<td>0.24 A</td>
<td>0.22 A</td>
</tr>
</tbody>
</table>

Light output level in DC operation:
Programmable from 3% to 70%
Programming by extended DSI signal (16 bit)
Default value is 70%
In DC operation dimming is not possible

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

<table>
<thead>
<tr>
<th>Type</th>
<th>AC/DC-BLF at Un = 198–254 V, 25 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCA 1/22 T5c EXCEL</td>
<td>1.00</td>
</tr>
<tr>
<td>PCA 1/40 T5c EXCEL</td>
<td>1.01</td>
</tr>
<tr>
<td>PCA 1/55 T5c EXCEL</td>
<td>0.97</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>THD</th>
<th>3</th>
<th>5</th>
<th>7</th>
<th>9</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCA 1/22 T5c EXCEL</td>
<td>5.3</td>
<td>5.2</td>
<td>1.1</td>
<td>0.7</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>PCA 1/40 T5c EXCEL</td>
<td>8.9</td>
<td>8.3</td>
<td>3.1</td>
<td>1.2</td>
<td>1.7</td>
<td>0.4</td>
</tr>
<tr>
<td>PCA 1/55 T5c EXCEL</td>
<td>8.2</td>
<td>7.4</td>
<td>3.1</td>
<td>1.3</td>
<td>1.3</td>
<td>0.9</td>
</tr>
</tbody>
</table>
Digital dimmable ballasts for fluorescent lamps
EXCEL one4all series

Dimming
Dimming range 3% to 100%
Digital control with:
- DSI signal: 8 bit Manchester Code
- DALI signal: 16 bit Manchester Code
Maximum speed 3% to 100% in 1.4 s

Programmable parameters:
Minimum dimming level
Maximum dimming level
Default minimum = 3%
Programmable range 3% ≤ MIN ≤ 49%
Default maximum = 100%
Programmable range 100% ≥ MAX ≥ 50%

Dimming curve that is friendly to the eye.

Control input (D1, D2)
Digital DALI/DSI signal or switchDIM can be wired on the same terminals (D1 and D2).

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 should 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 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 EXCEL automatically runs in the constant lux level mode.

ON/OFF switch via mains, switchDIM or DALI/DSI signal.
DALI/DSI signal = 0 switches off.
DALI/DSI signal ≥ 1 switches on.

Dimming with DALI or a DSI signal with the SMART-LS installed is not possible.

switchDIM enables a temporary change of light level.

The installation of the two wire bus is according to the appropriate low voltage regulations.

Maximum 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 Ø</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 1/22 T5c EXCEL</td>
<td>24</td>
<td>38</td>
<td>54</td>
<td>64</td>
<td>12</td>
<td>19</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>PCA 1/40 T5c EXCEL</td>
<td>24</td>
<td>38</td>
<td>54</td>
<td>64</td>
<td>12</td>
<td>19</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>PCA 1/55 T5c EXCEL</td>
<td>16</td>
<td>24</td>
<td>34</td>
<td>40</td>
<td>8</td>
<td>12</td>
<td>17</td>
<td>20</td>
</tr>
</tbody>
</table>

Data sheet 10/11-379-5
Subject to change without notice.

www.tridonic.com
Digital dimmable ballasts for fluorescent lamps
EXCEL one4all series

The corridorFUNCTION can be programmed in two different ways.
To program the corridorFUNCTION by means of software a DALI-USB interface is needed in combination with a DALI PS. The software can be the configTOOL, the pcaCONFIGURATOR or the corridorFUNCTION CONFIGURATOR.
To activate the corridorFUNCTION without using software a voltage of 230 V simply has to be applied for five minutes at the switchDIM connection. The unit will then switch automatically to the corridorFUNCTION.

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

<table>
<thead>
<tr>
<th>Ballast</th>
<th>Terminal</th>
<th>Maximum capacitance allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cold</td>
<td>Hot</td>
</tr>
<tr>
<td>PC 1/xx T5c EXCEL</td>
<td>1, 2</td>
<td>3, 4</td>
</tr>
</tbody>
</table>

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 and cold leads should be separated as much as possible.

Output voltage

<table>
<thead>
<tr>
<th>Type</th>
<th>Wattage</th>
<th>$U_{\text{out}}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCA 1/22 T5c EXCEL</td>
<td>1x22 W</td>
<td>250 V</td>
</tr>
<tr>
<td>PCA 1/40 T5c EXCEL</td>
<td>1x40 W</td>
<td>250 V</td>
</tr>
<tr>
<td>PCA 1/55 T5c EXCEL</td>
<td>1x55 W</td>
<td>250 V</td>
</tr>
</tbody>
</table>

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.

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.