Electronic ballasts for high-intensity discharge lamps
Indoor HI

Product description
• For quartz and ceramic lamps
• Also for mobile luminaires with connectors
• Pulse packets for increased ignition energy (pulseCONTROL technology)
• Flicker-free light
• Colour stability thanks to constant power
• Low power loss
• Low weight
• No acoustic resonance
• Safety shutdown if a lamp is faulty or missing
• Greatly reduced reignition time
• Hardly any EMC interference in the ignition phase
• Automatic shutdown on overheating
• Casing: polycarbonate, white, non-flammable acc. to UL94-V0; steel base plate
• Push-in terminals up to 2.5 mm²

Technical data
Mains voltage range 220 – 240 V
AC voltage range 198 – 254 V
Mains frequency 50 / 60 Hz
Max. ignition voltage 5 kVp
Operating frequency 140 Hz
Type of protection IP20

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

Specific technical data
Lamp wattage Lamp type Article number Dimensions L x W x H Lamp wattage Circuit power EFF Efficiency Current at 50 Hz 230 V λ at 50 Hz 230 V Max. cable length to lamp tc point max. Ambient temperature ta tc/ta for ≥ 50,000 h

For luminaires with 1 lamp
1 x 35 W H PCI 35 TOP C011 PKL 87500252 110 x 75 x 32 mm 39 W 44.0 W A2 > 87 % 0.20 A 0.97 1.5 m / 120 pF 80 °C -20 ... +60 °C 80/60 °C
1 x 50 W H PCI 50 TOP C011 PKL 87500253 110 x 75 x 32 mm 50 W 55.0 W A2 > 89 % 0.25 A 0.96 1.5 m / 120 pF 75 °C -20 ... +55 °C 75/55 °C
1 x 70 W H PCI 70 TOP C011 PKL 87500254 110 x 75 x 32 mm 73 W 80.5 W A2 > 90 % 0.35 A 0.97 1.5 m / 120 pF 75 °C -20 ... +50 °C 75/50 °C

For luminaires with 1 lamp

Ordering data

<table>
<thead>
<tr>
<th>Type</th>
<th>Article number</th>
<th>Packaging, low volume</th>
<th>Packaging, high volume</th>
<th>Weight per pc.</th>
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</thead>
<tbody>
<tr>
<td>PCI 35 TOP C011 PKL</td>
<td>87500252</td>
<td>20 (s)</td>
<td>440 (s)</td>
<td>0.208 kg</td>
</tr>
<tr>
<td>PCI 50 TOP C011 PKL</td>
<td>87500253</td>
<td>20 (s)</td>
<td>440 (s)</td>
<td>0.209 kg</td>
</tr>
<tr>
<td>PCI 70 TOP C011 PKL</td>
<td>87500254</td>
<td>20 (s)</td>
<td>440 (s)</td>
<td>0.210 kg</td>
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www.tridonic.com
**Installation instructions**

**Wiring type and cross section**
Stranded wire with ferrule or solid wire up to 2.5 mm² may be used for wiring. Strip 10 – 11 mm of insulation from the cables to ensure perfect operation of the push-in terminals.

Use one wire for each terminal connector only.

**Note on wiring**
The length of the lamp wires is limited by the value of cable capacitance. The maximum of 120 pF would enable connection of approximately 1.5 m of lamp wire.

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.).

In class I luminaires it is necessary to earth the ballast and the luminaire via the protective earth conductor terminal.

In class II luminaires earth is only needed for special functional reasons but if earth will be connected it has to be protective earth PE.

**Mounting recommendation**
Optimum heat transport can help improving the lifetime. Whenever possible keep the ballast away from hot parts.

To ensure optimum heat removal the ECG should be mounted on a metal plate (luminaire body). No insulators between the ECG and the the cooling surface (air, adhesive tape, etc.). Finally important remains the temperature measurement.

If several ballasts are installed in masts, boxes, etc., measures must be taken to avoid overheating of individual components.

**Radio interference**
- Do not cross mains and lamp cables.
- Do not lay mains cables together with lamp cables (ideally they should be 5 – 10 cm apart).
- Do not lead mains cables too closely along the electronic ballast.
- Twist lamp cables.
- Increase the distance between lamp cables and earthed metal surfaces.
- Keep the mains cable in the luminaire short.
- Parallel runs (x) of mains and lamp cables must be kept as short as possible.

**Important advise**
When a lamp is changed (at the end of its life), if a lamp is missing or after overtemperature shutdown the mains voltage of the ECG must be disconnected.

**Safety switch off**
End of life of the lamps
At the end of their useful life, lamps often cycle on/off. The PCI ballast recognizes this condition and switches off the lamp, after three complete on/off cycles and whilst the supply has been unswitched. Complete lamp switch off enables easy identification of a defective lamp in the application. After a change of the faulty lamp and an interruption of the mains supply (mains reset) the ballast will strike the lamp. When there is no lamp in circuit or a defective lamp is connected to the ballast, the ballast will switch off after apr. 25 minutes.

**Overtemperature shutdown**
The units shut down at \(T_t \approx +10 \ldots 20 \, ^\circ C\) compared with \(T_c\). A mains reset must be carried out so that the units switch on again.

**Overload strength**
320 V for 1 h, 280 V for 10 h

**Standards**
- EN 55015 (radio interference)
- IEC 61000-3-2 (mains harmonics)
- IEC 61347-2-12
- IEC 61547 (interference immunity)
- IEC 61167

**Glow wire test acc. to EN60598-1**
- 650 °C passed
- 850 °C passed
- 960 °C passed

**Harmonic distortion in the mains supply**

<table>
<thead>
<tr>
<th>Type</th>
<th>THD at 230V/50Hz</th>
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<tbody>
<tr>
<td>PCI 35 TOP C011 PKL</td>
<td>&lt; 10 %</td>
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<tr>
<td>PCI 50 TOP C011 PKL</td>
<td>&lt; 10 %</td>
</tr>
<tr>
<td>PCI 70 TOP C011 PKL</td>
<td>&lt; 10 %</td>
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**Ballast lumen factor EN 60929 8.1**

<table>
<thead>
<tr>
<th>Type</th>
<th>AC-BLF</th>
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<tr>
<td>PCI 35 TOP C011 PKL</td>
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</tr>
<tr>
<td>PCI 50 TOP C011 PKL</td>
<td>1.00</td>
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<tr>
<td>PCI 70 TOP C011 PKL</td>
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**Loading of automatic circuit breakers**

<table>
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<tr>
<th>Automatic circuit breaker type</th>
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<th>C13</th>
<th>C16</th>
<th>C20</th>
<th>B10</th>
<th>B13</th>
<th>B16</th>
<th>B20</th>
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<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>
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<td>40</td>
<td>44</td>
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<td>PCI 50 TOP C011 PKL</td>
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<td>30</td>
<td>36</td>
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<td>14</td>
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<tr>
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<td>28</td>
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<td>18</td>
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</table>

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Temperature range

The ta temperature value is the basis for specifying the rated life. The relationship between the tc temperature and the ta temperature depends on the design of the luminaire. If the measured tc temperature is approximately 5 K under the tc max. temperature the ta temperature should be checked and, if necessary, measurements should be taken on the critical components (e.g. electrolytic capacitor).

Detailed information is available upon request. PCI TOP C011 PKL is designed for an average life of 50,000 hours under rated conditions, with a failure probability of less than 10%. This corresponds to an average failure rate of 0.25 % per 1,000 hours of operation.

Expected life-time

<table>
<thead>
<tr>
<th>Type</th>
<th>Lamp type</th>
<th>Lamp power</th>
<th>ta</th>
<th>40 °C</th>
<th>45 °C</th>
<th>50 °C</th>
<th>55 °C</th>
<th>60 °C</th>
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</thead>
<tbody>
<tr>
<td>PCI 35 W</td>
<td>TOP C011</td>
<td>PKL HI</td>
<td>1x35 W</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>tc</td>
<td>60 °C</td>
<td>65 °C</td>
<td>70 °C</td>
<td>75 °C</td>
<td>80 °C</td>
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<td>Life-time</td>
<td>&gt; 50,000 h</td>
<td>&gt; 50,000 h</td>
<td>&gt; 50,000 h</td>
<td>50,000 h</td>
<td>50,000 h</td>
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<td>PCI 50 W</td>
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<td>PKL HI</td>
<td>1x50 W</td>
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<td></td>
<td>tc</td>
<td>60 °C</td>
<td>65 °C</td>
<td>70 °C</td>
<td>75 °C</td>
<td>x</td>
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<tr>
<td></td>
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<td>Life-time</td>
<td>&gt; 50,000 h</td>
<td>&gt; 50,000 h</td>
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<td>50,000 h</td>
<td>x</td>
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<td>75 °C</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Life-time</td>
<td>&gt; 50,000 h</td>
<td>50,000 h</td>
<td>50,000 h</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Storage conditions

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.

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 or EN 60335 Annex A, each luminaire should be submitted to an isolation test with 500 V AC for 1 second. This test voltage should be connected between the interconnected phase and neutral terminals and the earth terminal.

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.