### LED - Lighting and connection technology

#### Linear Flat System GR6d-3

**Linear Flat**
Flat and exchangeable LED lamp - No additional tools required
Length: 1,168 mm
Small overall height: approx. 13 mm
Quick and easy installation even in very narrow luminaires [slot light channels]
Audible and tactile feedback during mounting process „Click-Fit”
Straight and pure design, genuine high grade materials

- Tight colour tolerance: McAdams 3.5 SDCM
- Beam angle: approx. 120°
- Life span L70 > 50.000 h*
- Ambient temperature: -30 °C up to +45 °C
- TC: max. 65 °C
- Risk group: 0
- Protection class: IP20
- Warranty*: 5 Years
- CE RoHS
- SELV converter required, Uout max. 60 V DC

* Warranty conditions of BJB GmbH & Co KG as stated on page 100 of the LED Applications catalogue (Issue No.1 - 2014) and as available via the Internet under www.bjb.com/warranty-conditions.html are valid.

<table>
<thead>
<tr>
<th>Specific technical data</th>
<th>Min.</th>
<th>Typical</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational current [mA]</td>
<td>700 mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colour rendering index CRI</td>
<td>&gt;80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colour temperature at Tc 25 °C</td>
<td>4,000 K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luminous flux at Tc 25 °C</td>
<td>2,070 lm</td>
<td>2,300 lm</td>
<td>2,530 lm</td>
</tr>
<tr>
<td>Module efficiency at Tc 25 °C</td>
<td>113 lm/W</td>
<td>126 lm/W</td>
<td>139 lm/W</td>
</tr>
<tr>
<td>Operational voltage U [V] at Tc 25 °C</td>
<td>25,3 V</td>
<td>26,2 V</td>
<td>27,1 V</td>
</tr>
<tr>
<td>Power consumption [W] at Tc 25 °C</td>
<td>18,3 W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colour temperature at Tc 50 °C</td>
<td>4,000 K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luminous flux at Tc 50 °C</td>
<td>1,940 lm</td>
<td>2,150 lm</td>
<td>2,370 lm</td>
</tr>
<tr>
<td>Module efficiency at Tc 50 °C</td>
<td>189 lm/W</td>
<td>211 lm/W</td>
<td>233 lm/W</td>
</tr>
<tr>
<td>Operational voltage U [V] at Tc 50 °C</td>
<td>24,5 V</td>
<td>25,4 V</td>
<td>26,2 V</td>
</tr>
<tr>
<td>Power consumption [W] at Tc 50 °C</td>
<td>17,8 W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy efficiency at Tc 50 °C</td>
<td>A+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Tolerances of optical and electrical data: ± 10%

**Applicable with:**

- for panel thickness: 0.4 - 1.0 mm
- for panel thickness: 1.0 - 2.0 mm

**Lampholder for Linear Flat LED lamp**
Socket: GR6d-3
Push in fixing
Holder body: PC
Also suitable for automatic wiring
Spring connection “Click-Fit”
VDE-REG.-Nr. E612

---

**Technical specifications:**

- Part no. 32.130.0097.00
- Weight 528 g
- Package 12

- Part no. 28.701.1002.51
- Weight 10 g
- Package 480

**Applications:**

- For panel thickness: 0.4 - 1.0 mm
- For panel thickness: 1.0 - 2.0 mm

**Energy efficiency:** A+
LED - Lighting and connection technology

Linear Flat System GR6d-3

Applicable with:

For panel thickness:
- 0.4 - 1.0 mm
- 1.0 - 2.0 mm

Lamp support for Linear Flat LED lamp
Push in fixing
Holder body: PC

- Thermal extension: Axial movement will be compensated
- Release function with spring

pkg | wt. | part no.
---|-----|--------
480 | 8 g | 28.701.U01.51
for panel thickness: 0.4 - 1.0 mm
480 | 8 g | 28.701.U02.51
for panel thickness: 1.0 - 2.0 mm

Relative luminous flux based on Tc

Efficiency / temperature
LED - Lighting and connection technology

Linear Flat System GR6d-3

Voltage / temperature

Only schematically, since the voltage is subject to a tolerance

Temperature Tc [°C]

Voltage [V]
EOS/ESD safety guidelines
Some components of the BJB/OEM – Line Modular System might be harmed by electrostatic discharge (ESD) and electrical overstress (EOS) and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. Modules like the Linear Flat System with enclosed housing, where no contact to the LED module is possible do not need special measures for protection of electrostatic discharge (ESD).

Assembly instructions
Applicable with lampholder and fixing element 28.701
The LED lamp is inserted into the lamp support and then being swivelled into the lampholder. Afterwards the lamp snaps with the "PUSH" marked side into the click-fit mechanism of the lampholder. Another press on this "PUSH" releases the lamp again. A safety mechanism remains the lamp hanging in the lampholder so that it does not fall out.

Advice: Before pressing again, the LED lamp must be removed completely from the lampholder.
Before an installation or removal of the LED lamp the power supply has to be switched off. A replacement with power supply might harm the LED lamp and/or the control gear.

Attention should be paid to:
- Do not cover the lamp with paper, fabric or other easily inflammable material.
- Keep the lamp apart from water and intense humidity.
- Avoid additional mechanical stress.
- Do not touch the lamp during or shortly after use – Risk of burns!
- Do not look directly into the lamp.
- Before working on the lamp or luminaire always disconnect from the mains!

Note to chemical reactions
Chemical substances may harm the LED module. This could lead to reduced luminous flux, colour shift or total failure of the module caused by corrosion of electrical connections. Avoid corrosive atmosphere during usage and storage.

Life span and lumen maintenance
The light output of an LED module decreases over the life-time, this is characterized with the L value. L70 means that the LED module will give 70 % of its initial luminous flux. This value is always related to the number of operation hours and therefore defines the lifetime of an LED module. As the L value is a statistical value and the lumen maintenance may vary over the delivered LED modules.

Thermal design, tc point, ambient temperature and life-time
The rated life of a LED module depends to a large extent on the temperature. If the permissible temperature limits are exceeded, the life of the LED module will be greatly reduced or the module may be destroyed.

The temperature at tc reference point is crucial for the light output and life-time of a LED module.

Electrical supply
LED modules from BJB are not protected against overvoltages, overcurrents, overloads or short-circuit currents. Safe and reliable operation can only be guaranteed in conjunction with a LED control gear which complies with the relevant standards. The BJB LED modules shall be operated with SELV converters (U out max. 60 V DC) which provide a constant current. Operation with a constant voltage LED control gear will lead to an irreversible damage of the module. Wrong polarity can damage the LED module. If LED modules are wired in parallel connection and a wire breaks or a complete module fails then the current passing through the other module increases. This may reduce its life considerably. In addition there can be slight differences in light output caused by tolerances.

Wiring and cross section for lampholder 28.701
For solid conductors or conductors with tinned wire ends with a cross section of 0.5 to 0.75 mm²