Specific information for LED applications

BjB///OEM-Line
The smartest route to your LED application
BjB///OEM-Line
The smartest route to your LED application
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BJB///OEM-Line.
The smartest route to your LED application.

Nowadays everything to do with light is dictated by LED. Long operating life, high efficiency, a variety of options and completely new design opportunities are indisputable advantages. However, the use of LEDs also involves new technologies and processes in luminaire production. Anyone working with limited resources and not wanting to run the risk of failure will definitely not want to carry out a migration to LED technology on a trial-error basis. As marketable products alone are the critical success factor for all innovations, however, investments and resources for new technologies are necessary.

We aim to meet this requirement with our BJB///OEM-Line range. With connecting and fixing components, with LED light sources for panel, linear and Spot-Downlight light, with accessories such as optical holders, optical plates and reflectors – in short: with a comprehensive range which enables LEDs to be implemented safely into all kinds of applications.

There is still more to BJB///OEM-Line, however. Good quality requires production processes which are geared to these new technologies. Here too, BJB has the appropriate solutions in the form of automation systems for assembling, wiring and testing.

The components and production systems of the BJB///OEM-Line, whether individually or as a complete package, provide a universal modular system for the realisation of LED applications.
Interconnected automation systems for assembling, wiring and testing of LED luminaires

ADS One 2.0 wiring system with comprehensive ESD protection and test bench

You provide the ideas and the design.
We provide the components and processes.

BJB///OEM-Line
The smartest route to your LED application
Connection and interconnection components

Light sources and light control

Fixing components

Left row, from top:
- Board-to-Board (B2B) and Board-to-Cable (B2C) connecting elements
- Mini SMD terminal blocks
- SMD terminal blocks with rear-entry wiring
- Spotlight Connectors

Middle row, from top:
- BJB LED boards
- Optical plates and optical holders
- Linear Flat
- GX16d-5 LED tubes
- BJB Spot-/Downlight system with reflector

Right:
- Push-to-Fix (P2F) fixing elements
BJB///OEM-Line
The smartest route to your LED application

AREA LIGHTING APPLICATIONS

LINEAR LIGHTING APPLICATIONS

BJB automation

BJB///OEM-Line

SMD Terminal Blocks

P2F – Push-to-Fix Fixing element

LED modules

BJB - Board-to-Board B2C - Board-to-Cable Connecting element

GX16t-5 LED tube

Linear Flat System

BJB automation

ADS Line 2.0

Test station
Product overview

Light sources and components

012 LED modules
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024 Optical holders and optical plates
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040 Linear Flat System
046 LED Spot-/Downlight system
050 Spotlight Connectors
060 Push-to-Fix fixing elements (P2F)
064 Board-to-Board connecting elements (B2B)
070 Board-to-Cable connecting elements (B2C)
074 SMD terminal blocks for rear-entry wiring
080 Mini SMD terminal blocks
084 Component-finder
BJB///OEM-Line
The modular system for LED luminaire production
Can be used in linear and panel lighting applications

LED modules from BJB.
Could not be easier.

The greatest challenges for the LED market are the enormous number of products and the lack of mandatory standards. With our new LED modules, we are now offering users a way out of this situation:

Ready to install components in a variety of designs.

These are tested systems, which can be used in normal applications and which are coordinated with all the mechanical and electrical peripheral components required for luminaire production. This enables LED technology to be integrated quickly and safely.

We currently supply various standard modules as well as customer specific versions. All versions are available in various colour temperatures and lumen outputs, including tuneable white. The linear modules can also be combined with accessories such as optical holders and optical plates for light control and glare reduction.

LED modules from BJB also have other impressive attributes: They are suitable for parallel and series connection as well as a combination of both, are based on the Zhaga standard and can be wired automatically.

In combination with our other components, they provide an all round solution for the efficient and convenient assembly of LED luminaires.
Linear modules 280 mm x 40 mm

Range of applications:
Linear- and panel lights for office, commercial and industrial applications

- Suitable for parallel connection or connection in series
- Easy and secure assembly by P2F - Push-to-Fix - fixing elements or screws
- Easy linking / connecting of modules via two SMD terminal blocks
- Optimised for manual- and ADS-wiring

- Module efficiency up to 156 Lumen/Watt (A++) at Tc = 25 °C
- Luminous flux: 1,078 - 1,491 Lumen at Tc = 25 °C
- Tight colour tolerance: McAdams 3.5 SDCM
- High colour rendering: RA > 80
- Beam angle: 120°
- Life span L70 > 50.000 h
- Ambient temperature: -30 °C bis + 45 °C
- TC: max. 70 °C
- Risk group: 0
- Guarantee*: 5 years
- Approval marks: RoHS

**Specific technical data (typical)**

<table>
<thead>
<tr>
<th>part no.</th>
<th>Colour temperature</th>
<th>Luminous flux at Tc 25 °C</th>
<th>Module efficiency at Tc 25 °C</th>
<th>Luminous flux at Tc 40 °C</th>
<th>Module efficiency at Tc 40 °C</th>
<th>Operational current (I_f)</th>
<th>Operational voltage (U_f)</th>
<th>Power consumption</th>
<th>Energie efficiency</th>
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<tr>
<td>31.130.0001.00</td>
<td>3.000 K</td>
<td>1.239 Lumen</td>
<td>130 lm/W</td>
<td>1.215 Lumen</td>
<td>129 lm/W</td>
<td>350 mA</td>
<td>26.9 V DC</td>
<td>9.4 W</td>
<td>A+</td>
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<tr>
<td>31.130.0002.00</td>
<td>4.000 K</td>
<td>1.308 Lumen</td>
<td>138 lm/W</td>
<td>1.282 Lumen</td>
<td>136 lm/W</td>
<td>350 mA</td>
<td>26.9 V DC</td>
<td>9.4 W</td>
<td>A++</td>
</tr>
</tbody>
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Tolerances of optical and electrical data: ± 10%

* 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.

For use with

- **P2F - Push-to-Fix**
- **B2B - Board-to-Board connecting elements**
- **Optic holder**
- **Optical profiles and plates**
- **B2C - Board-to-Cable Feeder for PCBs - alternative for SMD terminal blocks.**
Please contact us.

see page 62     see page 66     see page 26     see page 27     see page 72
Linear modules 280 mm x 40 mm

**Range of applications:**
- Linear- and panel lights for office, commercial and industrial applications
- Suitable for parallel connection or connection in series
- Easy and secure assembly by P2F - Push-to-Fix - fixing elements or screws
- Easy linking / connecting of modules via two SMD terminal blocks
- Optimised for manual- and ADS-wiring
- Module efficiency up to 150 Lumen/Watt (A++) at Tc = 25 °C
- Luminous flux: 1.723 – 2.317 Lumen
- Tight colour tolerance: McAdams 3.5 SDCM
- High colour rendering: RA > 80
- Beam angle: 120°
- Life span L70 > 50,000 h
- Ambient temperature: -30 °C bis + 45 °C
- TC: max. 70 °C
- Risk group: 0
- Guarantee*: 5 years
- Approval marks: RoHS

<table>
<thead>
<tr>
<th>part no.</th>
<th>Colour temperature</th>
<th>Luminous flux at Tc 25 °C</th>
<th>Module efficiency at Tc 25 °C</th>
<th>Luminous flux at Tc 53 °C</th>
<th>Module efficiency at Tc 53 °C</th>
<th>Operational current I</th>
<th>Operational voltage Uf</th>
<th>Power consumption</th>
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<tr>
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<td>131 lm/W</td>
<td>1.915 Lumen</td>
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<td>4.000 K</td>
<td>2.195 Lumen</td>
<td>144 lm/W</td>
<td>2.195 Lumen</td>
<td>138 lm/W</td>
<td>700 mA</td>
<td>21.7 V DC</td>
<td>15.19 W</td>
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- B2B - Board-to-Board connecting elements
- Optic holder
- Optical profiles and plates
- B2C - Board-to-Cable Feeder for PCBs - alternative for SMD terminal blocks.

Please contact us.

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LED - Lighting and connection technology

Linear modules

Linear modules 560 mm x 40 mm

Range of applications:
Linear- and panel lights for office, commercial and industrial applications

- Suitable for parallel connection or connection in series
- Easy and secure assembly by P2F - Push-to-Fix - fixing elements or screws
- Easy linking / connecting of modules via two SMD terminal blocks
- Optimised for manual- and ADS-wiring

- Module efficiency up to 156 Lumen/Watt (A++) at Tc = 25 °C
- Luminous flux: 2.295 - 2.983 Lumen
- Tight colour tolerance: McAdams 3.5 SDCM
- High colour rendering: RA > 80
- Beam angle: 120°
- Life span L70 > 50,000 h
- Ambient temperature: -30 °C bis + 45 °C
- TC: max. 70 °C
- Risk group: 0
- Guarantee*: 5 years
- Approval marks: RoHS

Specific technical data [typical]

<table>
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<tr>
<th>Part no.</th>
<th>Colour temperature</th>
<th>Luminous flux at Tc 25 °C</th>
<th>Luminous flux at Tc 40 °C</th>
<th>Module efficiency at Tc 25 °C</th>
<th>Operational current I,</th>
<th>Operational voltage U,</th>
<th>Power consumption</th>
<th>Energie efficiency</th>
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<tr>
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<td>4.000 K</td>
<td>2.616 Lumen</td>
<td>2.564 Lumen</td>
<td>138 lm/W</td>
<td>350 mA</td>
<td>53.7 V DC</td>
<td>18.8 W</td>
<td>A++</td>
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For use with

P2F - Push-to-Fix
B2B - Board-to-Board connecting elements
Optic holder
Optical profiles and plates
B2C - Board-to-Cable
Feeder for PCBs - alternative for SMD terminal blocks.
Please contact us.

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**LED - Lighting and connection technology**

**Linear modules**

---

**Linear modules 560 mm x 40 mm**

**Range of applications:**
- Linear- and panel lights for office, commercial and industrial applications
- Suitable for parallel connection or connection in series
- Easy and secure assembly by P2F - Push-to-Fix - fixing elements or screws
- Easy linking / connecting of modules via two SMD terminal blocks
- Optimised for manual- and ADS-wiring
- Module efficiency up to 150 Lumen/Watt (A++) at Tc = 25 °C
- Luminous flux: 3.590 - 4.827 Lumen
- Tight colour tolerance: McAdams 3.5 SDCM
- High colour rendering: RA > 80
- Beam angle: 120°
- Life span L70 > 50,000 h
- Ambient temperature: -30 °C bis + 45 °C
- Tc: max. 70 °C
- Risk group: 0
- Guarantee*: 5 years
- Approval marks: RoHS

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**Specific technical data (typical)**

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<th>Colour temperature</th>
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<th>Module efficiency at Tc 25 °C</th>
<th>Luminous flux at Tc 53 °C</th>
<th>Module efficiency at Tc 53 °C</th>
<th>Operational current I&lt;sub&gt;f&lt;/sub&gt;</th>
<th>Operational voltage U&lt;sub&gt;f&lt;/sub&gt;</th>
<th>Power consumption</th>
<th>Energie efficiency</th>
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<td>3,998 Lumen</td>
<td>131 lm/W</td>
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<td>43.4 V DC</td>
<td>30.4 W</td>
<td>A+</td>
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Tolerances of optical and electrical data: ± 10%

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**For use with**

- **P2F - Push-to-Fix**
- **B2B - Board-to-Board connecting elements**
- **B2C - Board-to-Cable Feeder for PCBs - alternative for SMD terminal blocks.**
- **Optic holder**
- **Optical profiles and plates**
- **Please contact us.**

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**see page 62**  **see page 66**  **see page 26**  **see page 27**  **see page 72**
LED - Lighting and connection technology

Square modules

Square modules 260 mm x 260 mm

Range of applications:
Linear- and panel lights for office, commercial and industrial applications
- Suitable for parallel connection or connection in series
- Easy and secure assembly by P2F - Push-to-Fix - fixing elements or screws
- Easy linking / connecting of modules via two SMD terminal blocks
- Optimised for manual- and ADS-wiring
- Module efficiency up to 164 Lumen/Watt (A++) at Tc = 25 °C
- Luminous flux: 1.099 – 1.521 Lumen
- Tight colour tolerance: McAdams 3.5 SDCM
- High colour rendering: RA > 80
- Beam angle: 120°
- Life span L70 > 50.000 h
- Ambient temperature: -30 °C bis + 45 °C
- TC: max. 70 °C
- Risk group: 0
- Guarantee*: 5 years
- Approval marks: RoHS

Specific technical data (typical)

<table>
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<th>Part no.</th>
<th>Colour temperature</th>
<th>Luminous flux at Tc 25 °C</th>
<th>Luminous flux at Tc 30 °C</th>
<th>Module efficiency at Tc 25 °C</th>
<th>Module efficiency at Tc 30 °C</th>
<th>Operational current I</th>
<th>Operational voltage U</th>
<th>Power consumption</th>
<th>Energie efficiency</th>
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</thead>
<tbody>
<tr>
<td>31.110.0001.00</td>
<td>3.000 K</td>
<td>1.263 Lumen</td>
<td>136 lm/W</td>
<td>1.251 Lumen</td>
<td>136 lm/W</td>
<td>350 mA</td>
<td>26.3 V DC</td>
<td>9.2 W</td>
<td>A++</td>
</tr>
<tr>
<td>31.110.0002.00</td>
<td>4.000 K</td>
<td>1.333 Lumen</td>
<td>144 lm/W</td>
<td>1.320 Lumen</td>
<td>144 lm/W</td>
<td>350 mA</td>
<td>26.3 V DC</td>
<td>9.2 W</td>
<td>A++</td>
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</tbody>
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For use with

P2F – Push-to-Fix
B2B – Board-to-Board connecting elements

B2C – Board-to-Cable
Feeder for PCBs - alternative for SMD terminal blocks.
Please contact us.

see page 62 see page 66 see page 72
LED - Lighting and connection technology

Square modules

Square modules 260 mm x 260 mm

Range of applications:
- Linear- and panel lights for office, commercial and industrial applications
- Suitable for parallel connection or connection in series
- Easy and secure assembly by P2F - Push-to-Fix - fixing elements or screws
- Easy linking / connecting of modules via two SMD terminal blocks
- Optimised for manual- and ADS-wiring
- Module efficiency up to 164 Lumen/Watt (A++) at Tc = 25 °C
- Luminous flux: 2.199 - 3.042 Lumen
- Tight colour tolerance: McAdams 3.5 SDCM
- High colour rendering: RA > 80
- Beam angle: 120°
- Life span L70 > 50.000 h
- Ambient temperature: -30 °C bis + 45 °C
- TC: max. 70 °C
- Risk group: 0
- Guarantee*: 5 years
- Approval marks: RoHS

Specific technical data (typical)

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<th>Part no.</th>
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<th>Luminous flux at Tc 25 °C</th>
<th>Module efficiency at Tc 25 °C</th>
<th>Luminous flux at Tc 37 °C</th>
<th>Module efficiency at Tc 37 °C</th>
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<th>Operational voltage U,</th>
<th>Power consumption</th>
<th>Energie efficiency</th>
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<tbody>
<tr>
<td>31.110.0003.00</td>
<td>3.000 K</td>
<td>2.527 Lumen</td>
<td>136 lm/W</td>
<td>2.489 Lumen</td>
<td>135 lm/W</td>
<td>700 mA</td>
<td>26.3 V DC</td>
<td>18.4 W</td>
<td>A++</td>
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<td>31.110.0004.00</td>
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<td>2.628 Lumen</td>
<td>143 lm/W</td>
<td>700 mA</td>
<td>26.3 V DC</td>
<td>18.4 W</td>
<td>A++</td>
</tr>
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For use with

P2F - Push-to-Fix

B2B - Board-to-Board connecting elements

B2C - Board-to-Cable
Feeder for PCBs - alternative for SMD terminal blocks.
Please contact us.

see page 62  
see page 66  
see page 72
LED - Lighting and connection technology

Square modules

Square modules 260 mm x 260 mm
Tunable white

Range of applications:
Linear- and panel lights for office, commercial and industrial applications

- Suitable for parallel connection or connection in series
- Easy and secure assembly by P2F - Push-to-Fix - fixing elements or screws
- Easy linking / connecting of modules via two SMD terminal blocks
- Optimised for manual- and ADS-wiring
- Module efficiency up to 164 Lumen/Watt (A++) at Tc = 25 °C
- Luminous flux: 1.099 - 1.521 Lumen
- Tight colour tolerance: McAdams 3.5 SDCM
- High colour rendering: RA > 80
- Beam angle: 120°
- Life span L70 > 50,000 h
- Ambient temperature: -30 °C bis + 45 °C
- TC: max. 70 °C
- Risk group: 0
- Guarantee*: 5 years
- Approval marks: RoHS

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<td>1.251 Lumen</td>
<td>136 lm/W</td>
<td>350 mA</td>
<td>26.3 V DC</td>
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<td>A++</td>
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<td>6.500 K</td>
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<td>1.320 Lumen</td>
<td>144 lm/W</td>
<td>144 lm/W</td>
<td>350 mA</td>
<td>26.3 V DC</td>
<td>9.2 W</td>
<td>A++</td>
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P2F - Push-to-Fix
B2B - Board-to-Board connecting elements

B2C - Board-to-Cable
Feeder for PCBs - alternative for SMD terminal blocks.
Please contact us.

see page 62       see page 66       see page 72
Any remaining questions regarding the use of a suitable driver?
BJB Light-Engines, such as the GX16t-5 LED tube, the Spot-/Downlight system or the Linear Flat System require drivers to operate. With the high number of different products offered by the market, in many cases a well thought through decision is necessary. If required, we are more than happy to offer advice regarding the choice of a suitable solution for your LED-application. Please just ask.
BJB///OEM-Line
The modular system for LED luminaire production

From top to bottom:
LinearPRISM, lengthwise
Satin finished
DiamondPRISM
LinearPRISM, crosswise
Transparent

Optical holder
Optical holder with optical plates for light control and glare reduction. Light at its best.

Our new light control elements provide the necessary light dispersion and glare reduction in LED luminaires. To enable these components to be attached securely, we have developed a suitable optical holder for linear modules. This has a mirror image hole pattern and is compatible with the LED modules according to Zhaga Book 7. This considerably facilitates handling during luminaire production. The holder is designed to ensure that the plates used are securely fixed, even in case of shocks, vibrations or temperature fluctuations.

The optical plates which we supply with the holder can be used in a wide range of applications. In order to meet the demanding lighting requirements in monitor and display screen workstations, we supply versions of the PRISM range. These have surface structures which provide excellent glare reduction and light dispersion. These inserts are available in convex or flat designs. Optional holder end caps reduce stray light even further.

Can be used in linear and panel lighting applications
LED - Lighting and connection technology

Holder for optical profiles and plates for glare suppression and guidance of light

Part no.
31.930.-301.85

Holder for optical profiles and plates for glare suppression and guidance of light

Material: PC

Push in fixing with P2F - Push-to-Fix - fixing element or screw fixing

Pre assembly via P2F

When using P2F overall thickness of package has to be considered

Material thickness of the holder near fixing holes: 1 mm

Hole pattern according to Zhaga Book 7

Different mounting options for optical systems, difusors and covers
- Internal: mounting option for cover plates (2mm)
- External: mounting option for profiles
- Mounting by snap in or slide in fixing

Also for Seamless applications

We recommend the use of original BJB components like modules, plastic profiles and plates and end caps for proper use.

If using NON BJB components the dimension of modules, plastic profiles and plates and end caps has to be considered

For use with
P2F
linear modules
optical profiles and plates

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see page 14
see page 27
LED - Lighting and connection technology

Holder for optical profiles and plates for glare suppression and guidance of light
End caps and optical profile

Curved end cap
Snap in fixing onto optic holder

Flat end cap
Snap in fixing onto optic holder

Optical profile for external fixing

PMMA Colour LED No. 2

Material: PMMA, diffuse transmission
Transmission: approx. 76%
Material thickness: 1.2 mm
Length: 278 mm

- Perfect as protection against contact
LED - Lighting and connection technology

Holder for optical profiles and plates for glare suppression and guidance of light

Optical plates

**Optical plate - Cover plate for internal fixing**

Material: PMMA, crystal clear
Transmission: approx. 92%
Material thickness: 2 mm - 0.15 mm
Width: 41.3 mm
Length: 278 mm

- Perfect as protection against contact

**Optical plate - Diffusor for internal fixing**

Material: PMMA, diffuse transmission
Transmission: approx. 85%
Material thickness: 2 mm - 0.15 mm
Width: 41.3 mm
Length: 278 mm

- No visible LED hot spots

**Optical plate - Diffusor for internal fixing**

Material: PMMA, diffuse transmission
Transmission: approx. 76%
Material thickness: 2 mm - 0.15 mm
Width: 41.3 mm
Length: 278 mm

- No visible LED hot spots
**LED - Lighting and connection technology**

**Holder for optical profiles and plates for glare suppression and guidance of light**

**Optical plates**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>31.930.405.85</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optical plate - Prismatic cover for internal fixing</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PMMA DiamondPRISM</strong></td>
<td></td>
</tr>
<tr>
<td>Material: PMMA, crystal clear</td>
<td></td>
</tr>
<tr>
<td>Transmission: approx. 94%</td>
<td></td>
</tr>
<tr>
<td>Material thickness: 2 mm - 0.15 mm</td>
<td></td>
</tr>
<tr>
<td>Width: 41.3 mm</td>
<td></td>
</tr>
<tr>
<td>Length: 278 mm</td>
<td></td>
</tr>
<tr>
<td>• For illumination purposes UGR &lt; 19 (glare suppression)</td>
<td></td>
</tr>
<tr>
<td>• Suitable for PC workstations</td>
<td></td>
</tr>
<tr>
<td>• Smooth glare suppression in all C-levels</td>
<td></td>
</tr>
<tr>
<td>• No direct lamp image visible</td>
<td></td>
</tr>
<tr>
<td>• Perfect to combine with clear or frosted concave covers</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part No.</th>
<th>31.930.406.85</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optical plate - Prismatic cover for internal fixing</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PMMA LinearPRISM, lengthwise</strong></td>
<td></td>
</tr>
<tr>
<td>Material: PMMA, crystal clear</td>
<td></td>
</tr>
<tr>
<td>Transmission: approx. 94%</td>
<td></td>
</tr>
<tr>
<td>Material thickness: 2 mm - 0.15 mm</td>
<td></td>
</tr>
<tr>
<td>Width: 41.3 mm</td>
<td></td>
</tr>
<tr>
<td>Length: 278 mm</td>
<td></td>
</tr>
<tr>
<td>• For illumination purposes UGR &lt; 16 (glare suppression)</td>
<td></td>
</tr>
<tr>
<td>• Suitable for PC workstations</td>
<td></td>
</tr>
<tr>
<td>• Excellent glare suppression and light distribution</td>
<td></td>
</tr>
<tr>
<td>• Perfect to combine with clear or frosted concave covers</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part No.</th>
<th>31.930.407.85</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Optical plate - Prismatic cover for internal fixing</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PMMA LinearPRISM, crosswise</strong></td>
<td></td>
</tr>
<tr>
<td>Material: PMMA, crystal clear</td>
<td></td>
</tr>
<tr>
<td>Transmission: approx. 94%</td>
<td></td>
</tr>
<tr>
<td>Material thickness: 2 mm - 0.15 mm</td>
<td></td>
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<tr>
<td>Width: 41.3 mm</td>
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</tr>
<tr>
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</tr>
<tr>
<td>• For illumination purposes UGR &lt; 16 (glare suppression)</td>
<td></td>
</tr>
<tr>
<td>• Suitable for PC workstations</td>
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<tr>
<td>• Excellent glare suppression and light distribution</td>
<td></td>
</tr>
<tr>
<td>• Perfect to combine with clear or frosted convex cover</td>
<td></td>
</tr>
</tbody>
</table>
LED - Lighting and connection technology

Holder for optical profiles and plates for glare suppression and guidance of light

Example of application with optical profiles

Example of application with optical plates
BjB///OEM-Line
The modular system for LED luminaire production

Functional earth side

Power input side
GX16t-5, the non-retrofit LED tube from BJB. Changeover made easy.

Our socket-lampholder system L16/GX16t-5 for LED tubes starts where previous solutions are already reaching their limits. Retrofits may be suitable for the rapid changeover of existing systems to LED, but not for the development of new LED luminaire series. Conversion lamps are just as unsuitable as there is no prospect at all of an appropriate standard for them. Only a certified standard can offer safety in LED tubes, and this system has such a standard (JELMA/JEL 801, also submitted to the IEC).

The major advantage: Existing luminaire designs can be largely retained. In addition, due to the ease with which the light source can be replaced, this only has to be fitted shortly before delivery (Late Stage Finishing*). Other features are: Secure fit, external ECG and one-sided power supply, no danger of mix-up with conventional fluorescent lamps, identical lamp lengths to T8 tubes.

Altogether, the GX16t-5 system offers one of the simplest possibilities of changing over existing luminaire ranges to LED. And this with the security of a recognised standard and increasing acceptance among manufacturers and users.

*Late Stage Finishing is the term used to describe the fitting of the luminaire with a light source shortly before it goes into operation.
LED - Lighting and connection technology

LED tubes with GX16t-5 lamp base

LED tube with GX16t-5 lamp base

Cover: PC
Tube: PC
Packaging: 1
Weight: 150g

* Life span L70 > 40,000 h
* Guarantee*: 3 years

Electrical specification

<table>
<thead>
<tr>
<th>part no.</th>
<th>Colour temperature*1</th>
<th>Luminous flux*2</th>
<th>Lamp length [mm]</th>
<th>Typical operational voltage*3</th>
<th>Power consumption</th>
<th>CRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.201.8101.00</td>
<td>3,000 K</td>
<td>1,450 lm</td>
<td>600 mm</td>
<td>42 V</td>
<td>14.5 W</td>
<td>&gt; 80</td>
</tr>
<tr>
<td>32.201.8102.00</td>
<td>4,000 K</td>
<td>1,600 lm</td>
<td>600 mm</td>
<td>42 V</td>
<td>14.5 W</td>
<td>&gt; 80</td>
</tr>
<tr>
<td>32.201.8103.00</td>
<td>6,500 K</td>
<td>2,900 lm</td>
<td>1200 mm</td>
<td>83 V</td>
<td>29 W</td>
<td>&gt; 80</td>
</tr>
<tr>
<td>32.201.8301.00</td>
<td>3,000 K</td>
<td>2,400 lm</td>
<td>1200 mm</td>
<td>83 V</td>
<td>29 W</td>
<td>&gt; 80</td>
</tr>
<tr>
<td>32.201.8302.00</td>
<td>4,000 K</td>
<td>3,200 lm</td>
<td>1200 mm</td>
<td>83 V</td>
<td>29 W</td>
<td>&gt; 80</td>
</tr>
<tr>
<td>32.201.8303.00</td>
<td>6,500 K</td>
<td>3,200 lm</td>
<td>1200 mm</td>
<td>83 V</td>
<td>29 W</td>
<td>&gt; 80</td>
</tr>
<tr>
<td>32.201.8401.00</td>
<td>3,000 K</td>
<td>3,800 lm</td>
<td>1500 mm</td>
<td>103 V</td>
<td>36 W</td>
<td>&gt; 80</td>
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<tr>
<td>32.201.8402.00</td>
<td>4,000 K</td>
<td>4,000 lm</td>
<td>1500 mm</td>
<td>103 V</td>
<td>36 W</td>
<td>&gt; 80</td>
</tr>
<tr>
<td>32.201.8403.00</td>
<td>6,500 K</td>
<td>4,000 lm</td>
<td>1500 mm</td>
<td>103 V</td>
<td>36 W</td>
<td>&gt; 80</td>
</tr>
</tbody>
</table>

*1 The flux is measured with input current DC 0.35 A
*2 Colour coordinate range. Min. - 8%
*3 Steady state lamp voltage at Ta=25 °C

* 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.

Electrical characteristics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Min.</th>
<th>Typical</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated current</td>
<td>A</td>
<td>---</td>
<td>0.35</td>
<td>0.385</td>
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<tr>
<td>Ambient temp. range</td>
<td>°C</td>
<td>-30</td>
<td>---</td>
<td>40</td>
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</table>

Environmental characteristics

<table>
<thead>
<tr>
<th>Operating temperature</th>
<th>Storage temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>-30 °C – 40 °C</td>
<td>-30 °C – 85 °C</td>
</tr>
</tbody>
</table>

After lighting on 40,000 hrs, tubes keep 70% of initial luminous flux. (Ta=40 °C)
Lampholders GX16t-5 for LED tubes

**Power input side**
- Lamp centre: 24.5 mm
- Push fixing
- Housing: PBT
- For enclosed cut-outs 25.5 mm x 13.3 mm
- A pair of lampholders provides a lamp length tolerance compensation of 3 mm
- VDE-REG.-Nr. E246

**Functional earth side**
- Lamp centre: 24.5 mm
- Push fixing
- Housing: PBT
- For enclosed cut-outs 25.5 mm x 13.3 mm
- A pair of lampholders provides a lamp length tolerance compensation of 3 mm
- VDE-REG.-Nr. E246

**L1-4: Recommended dimension - The distance between the cut-outs and the tolerance should be governed by the dimensions of the respective lamps and luminaires.**

---

This page is only valid in connection with the general information and notes of the complete catalogue, issue 2014.

2014
Lampholders GX16t-5 for LED tubes

pkg. wt. part no.
500 5 g 28.220.5124.50

Functional earth side
Lamp center: 24.5 mm
Push fixing
Housing: PBT
- For cut-outs open at the rear or enclosed cut-outs with 4.5 mm dia. locating hole
- A pair of lampholders provides a lamp length tolerance compensation of 3 mm
- VDE-REG.-Nr. E246

pkg. wt. part no.
500 5 g 28.202.2030.50

Power input side
Lamp center: 30 mm
Push in fixing
Housing: PBT
- For enclosed cut-outs 25.5 mm x 13.3 mm
- A pair of lampholders provides a lamp length tolerance compensation of 3 mm
- VDE-REG.-Nr. E246

pkg. wt. part no.
500 5 g 28.201.2030.50

Functional earth side
Lamp center: 30 mm
Push in fixing
Housing: PBT
Rating: 0.5A/120V DC (PSE Jet)
- For enclosed cut-outs 25.5 mm x 13.3 mm
- A pair of lampholders provides a lamp length tolerance compensation of 3 mm
- VDE-REG.-Nr. E246

L1-4: Recommended dimension - The distance between the cut-outs and the tolerance should be governed by the dimensions of the respective lamps and luminaires.
LED - Lighting and connection technology

Lampholders GX16t-5 for LED tubes

**LampholdersGX16t-5**

Lampholder thickness: 10.5 mm
Wiring: through the body

**Part no.** 28.201

- **pkg.** 500
- **wt.** 5 g
- **part no.** 28.201, 1001.50

---

**Power input side**
Snap in pins with spring
Housing: PBT
Rotor: PBT

**Rating:** 0.5A/120V DC (PSE Jet)
Lampholder thickness: 10.5 mm
Wiring: through the body

**Part no.** 28.202

- **pkg.** 500
- **wt.** 5 g
- **part no.** 28.202, 1001.50

---

**Functional earth side**
Snap in pins with spring
Housing: PBT
Rating: 0.5A/120V DC (PSE Jet)
Lampholder thickness: 10.5 mm
Wiring: through the body

**Part no.** 28.202

- **pkg.** 500
- **wt.** 5 g
- **part no.** 28.202, 1002.50

---

**Power input side**
Snap in pins with spring
Housing: PBT
Rotor: PBT

**Rating:** 0.5A/120V DC (PSE Jet)
Lampholder thickness: 10.5 mm
Wiring: through the body

**Part no.** 28.202

- **pkg.** 500
- **wt.** 5 g
- **part no.** 28.202, 1002.50

---

*Recommended dimension is based on use of one lampholder with spring and one lampholder without spring. The final distance should be governed by the dimensions of the respective lamps and luminaires.*
Lampholders GX16t-5 for LED tubes

pkg. wt. part no.
500 5 g 28.201 1002.50

Functional earth side
Snap in pins
Housing: PBT
Rating: 0.5A/120V DC (PSE Jet)
Lampholder thickness: 10.5 mm
Wiring: through the body

- VDE-REG.-Nr. E246

*L1 <22mm: Recommended dimension is based on use of one lampholder with spring and one lampholder without spring
*L1 >24mm: Recommended dimension is based on use of both lampholders without spring. The final distance should be governed by the dimensions of the respective lamps and luminaires.
BJB///OEM-Line
The modular system for LED luminaire production
Linear Flat.
The plug & play system from BJB.

With our Linear Flat System, we are, for the first time, offering a complete lighting module consisting of a light source, socket, lampholder and lamp support. The design objectives included being smaller than the T5 luminaire applications possible at present, while achieving comparable or better operational parameters and a clear stylistic design. At just 37 mm wide, the Linear Flat System is positively predestined for use in lighting channels. The Linear Flat System consists of an extruded aluminium profile with an LED board inserted and a diffusing PMMA cover. Clicked into the pre-assembled lampholders, this solution, several LED applications can be realised in a very simple manner.

Main advantage: Luminaire manufacturers can continue to work with familiar assembly technologies because, unlike production methods for conventional LED solutions, no ESD-protected work area is required. The luminaire can be wired automatically and the light source can be installed at a later stage. This so called „Late Stage Finishing“ reduces storage costs on one hand and enables on the other hand upgrades, which with already installed LEDs is only possible with high operational expenses.

Users benefit from the long operating life and ease with which the light source can be replaced. The Linear Flat System is suitable for different lighting requirements, for example in shop lighting applications with varying ranges of goods. It also meets the demands of designers who require delicate, uncomplicated components.

Can be used in linear and panel lighting applications
LED - Lighting and connection technology

Linear Flat System

LED-Module
Lampholder-lamp base system (Plug & Play)

- Exchangeable LED-lamp - No additional tools required
- Length: 568 mm
- CRI >80
- 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

- Module efficiency up to 140 Lumen/Watt (A++) at Tc = 25 °C
- Luminous flux: 1,010 - 2,400 Lumen at Tc = 25 °C
- Tight colour tolerance: McCaDams 3.5 SDCM
- High colour rendering: RA > 80
- Beam angle: 120°
- Life span L70 > 50,000 h
- Ambient temperature: -30 °C bis + 45 °C
- TC: max. 65° C
- Risk group: 0
- Protection class: IP20
- Guarantee*: 5 years
- Approval marks: CE RoHS

Specific technical data

<table>
<thead>
<tr>
<th>part no.</th>
<th>Colour temperature</th>
<th>Luminous flux</th>
<th>Module efficiency</th>
<th>Operational current</th>
<th>Operational voltage</th>
<th>Power consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.130.0001.00</td>
<td>3.000 K</td>
<td>1,160 Lumen</td>
<td>123 lm/W</td>
<td>350 mA</td>
<td>approx. 27 V</td>
<td>9.4 W</td>
</tr>
<tr>
<td>32.130.0002.00</td>
<td>3.000 K</td>
<td>2,036 Lumen</td>
<td>119 lm/W</td>
<td>350 mA</td>
<td>approx. 47 V</td>
<td>17.1 W</td>
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<tr>
<td>32.130.0005.00</td>
<td>4.000 K</td>
<td>1,203 Lumen</td>
<td>128 lm/W</td>
<td>350 mA</td>
<td>approx. 27 V</td>
<td>9.4 W</td>
</tr>
<tr>
<td>32.130.0006.00</td>
<td>4.000 K</td>
<td>2,195 Lumen</td>
<td>123 lm/W</td>
<td>350 mA</td>
<td>approx. 47 V</td>
<td>17.1 W</td>
</tr>
</tbody>
</table>

Tolerances of optical and electrical data: ± 10%

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LED - Lighting and connection technology

Linear Flat System

LED-Module
Lampholder- lamp base system [Plug & Play]
Exchangeable LED-lamp - No additional tools required
Length: 1.168 mm
CRI >80
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

- Module efficiency up to 140 Lumen/Watt (A++) at Tc = 25 °C
- Luminous flux: 2.020 – 4.800 Lumen at Tc = 25 °C
- Tight colour tolerance: McCAdams 3.5 SDCM
- High colour rendering: RA > 80
- Beam angle: 120°
- Life span L70 > 50.000 h
- Ambient temperature: -30 °C bis + 45 °C
- TC: max. 65° C
- Risk group: 0
- Protection class: IP20
- Guarantee*: 5 years
- Approval marks: 

RoHS

Specific technical data

<table>
<thead>
<tr>
<th>part no.</th>
<th>Colour temperature</th>
<th>Luminous flux</th>
<th>Module efficiency Lumen/Watt</th>
<th>Operational current $I_0$</th>
<th>Operational voltage $U_f$</th>
<th>Power consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.130.0003.00</td>
<td>3.000 K</td>
<td>2.319 Lumen</td>
<td>123 lm/W</td>
<td>700 mA</td>
<td>approx. 27 V</td>
<td>18.8 W</td>
</tr>
<tr>
<td>32.130.0004.00</td>
<td>3.000 K</td>
<td>4.071 Lumen</td>
<td>119 lm/W</td>
<td>700 mA</td>
<td>approx. 47 V</td>
<td>34.2 W</td>
</tr>
<tr>
<td>32.130.0007.00</td>
<td>4.000 K</td>
<td>2.407 Lumen</td>
<td>126 lm/W</td>
<td>700 mA</td>
<td>approx. 27 V</td>
<td>18.8 W</td>
</tr>
<tr>
<td>32.130.0008.00</td>
<td>4.000 K</td>
<td>4.209 Lumen</td>
<td>123 lm/W</td>
<td>700 mA</td>
<td>approx. 47 V</td>
<td>34.2 W</td>
</tr>
</tbody>
</table>

Tolerances of optical and electrical data: ± 10%

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LED - Lighting and connection technology

Linear Flat System

**Lampholder**
- For panel thickness: 0.4 - 1.0 mm: **28.701.1001.50**
- For panel thickness: 1.0 - 2.0 mm: **28.701.1005.50**
- Push in fixing
- Also suitable for automatic wiring
- Spring connection "Click-Fit"

**Lamp support**
- For panel thickness: 0.4 - 1.0 mm: **28.701.U301.50**
- For panel thickness: 1.0 - 2.0 mm: **28.701.U302.50**
- Push in fixing
- Thermal extension: Axial movement will be compensated
BJB///OEM-Line
The modular system for LED luminaire production
LED Spot-/Downlight system from BJB. If you want to make an impression.

The compact module comprises a socketed and encapsulated LED lamp, together with a suitable lampholder incorporating a twist & lock fixing. The lampholder gets easily assembled with two standard screws. With the support of two preloaded leaf springs, a defined contact pressure of the light source to the heat sink ensures a reliable heat dissipation.

Fully automated wiring processes are just as possible as the pre-assembly of your light fitting without the relevant light source. Those “platforms” can be produced in a very rational manner and then later be equipped with the preferred light source [Late Stage Finishing]. This option eliminates costly small batch sizes and equally minimizes storage risks.

To enhance your production processes even further, the LED lamp incorporates a reflector interface. Whilst this is suitable for standard reflectors available, it also allows for your own designs being used.

Available with divergent light outputs and colour temperatures, the new BJB LED module replaces conventional CFL or MR16 lamps within spotlight and downlight applications. For new fittings, this system offers a smart entry into low maintenance, flexible LED solutions for shops, offices and hospitality areas.

Can be used in Spot- and Downlight applications
LED - Lighting and connection technology

Spot-/Downlight-System GH36d

Spot-/Downlight Module
for applications in Shop, Office and Hospitality-areas
Twist and Lock System
Body of aluminium works as heatsink
Not suitable for power supply voltage, power supply by external ballast
Specifications for luminous flux, colour temperature and Colour rendering index (CRI), see chart
Tc-point (Marking at rim of aluminium base): max. 65 °C
- Flat Design
- More flexibility with reflector design
- With integrated reflector-interface for easy insertion of reflector
- Fasten and release aid: grip pins and recessed grip
- Guided insertion of LED module
- Glass lens as protection against contact

<table>
<thead>
<tr>
<th>part no.</th>
<th>Luminous flux</th>
<th>Colour temperature</th>
<th>CRI*</th>
<th>Ø LES**</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.120.0002.50</td>
<td>1.200 Lumen</td>
<td>3.000 Kelvin</td>
<td>CRI 80</td>
<td>13,5 mm</td>
</tr>
<tr>
<td>32.120.0003.50</td>
<td>1.200 Lumen</td>
<td>4.000 Kelvin</td>
<td>CRI 80</td>
<td>13,5 mm</td>
</tr>
<tr>
<td>32.120.0005.50</td>
<td>2.000 Lumen</td>
<td>3.000 Kelvin</td>
<td>CRI 80</td>
<td>19 mm</td>
</tr>
<tr>
<td>32.120.0006.50</td>
<td>2.000 Lumen</td>
<td>4.000 Kelvin</td>
<td>CRI 80</td>
<td>19 mm</td>
</tr>
<tr>
<td>32.120.0008.50</td>
<td>3.000 Lumen</td>
<td>3.000 Kelvin</td>
<td>CRI 80</td>
<td>19 mm</td>
</tr>
<tr>
<td>32.120.0009.50</td>
<td>3.000 Lumen</td>
<td>4.000 Kelvin</td>
<td>CRI 80</td>
<td>19 mm</td>
</tr>
</tbody>
</table>

*CRI - Colour Rendering Index
**LES Light Emitting Surface

* 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.

Lampholder for Spot-/Downlight Module
Screw fixing: for standard M3 screws
Housing: solid PPS for constant force transmission
- Twist and Lock System
- Optimised heat management: CrNi leaf springs provide permanent contact pressure between LED module and heat sink

* Warranties and conditions of use can be found on page 100 of the LED Applications catalogue (Issue No.1 - 2014) and are available via the Internet under www.bjb.com/warranty-conditions.html.
BJB///OEM-Line
The modular system for LED luminaire production
BJB Spotlight Connectors.
Connection found.

BJB Spotlight Connectors join up the components of an LED luminaire.
The PCB is attached to the underside and fixed to the heat sink. The conductors can be inserted at the sides. A reflector can be placed on the upper side and screwed in. In order to minimise performance losses and shadow formation, we produce them from especially reflective material and equip them as standard with at least one reflector interface, LED fixing lugs and clear markings for the connection points. They are available in three sizes. They now cover a range of over 30 different COB-LEDs and have been adapted to the specifications of the most important manufacturers worldwide. BJB Spotlight Connectors are suitable for LEDs from approx. 1,000 to 15,000 lumen and can be used in downlights, spots and hall lighting applications.

Can be used in Spot- and Downlight applications
LED - Lighting and connection technology

Spotlight connectors for COB LED Modules

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>LED-Type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharp</td>
<td>MegaZeni</td>
<td>47.319</td>
</tr>
<tr>
<td>Philips Lumileds</td>
<td>Luxeon 1204/1205/1208</td>
<td>2011.50</td>
</tr>
</tbody>
</table>

- Screw fixing
- Housing: PBT
- Contacts: CuSn
- Rating: 3A / 150 V DC
- With integrated reflector interface
- Easy pre-assembly of LED by press fixing pins on the rear side
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>LED-Type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizen</td>
<td>CLL020 and CLL022</td>
<td>47.319.0060.50</td>
</tr>
<tr>
<td>Edison Opto</td>
<td>Opto HM05 and HM09</td>
<td>PACB 022</td>
</tr>
<tr>
<td>Prolight Opto</td>
<td>PACB 032</td>
<td></td>
</tr>
<tr>
<td>Tridonic</td>
<td>LES 10</td>
<td></td>
</tr>
</tbody>
</table>

- Screw fixing
- Housing: PBT
- Contacts: CuSn
- Rating: 3A / 150 V DC
- With integrated reflector interface
- Easy pre-assembly of LED by fixing lugs
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>LED-Type</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizen</td>
<td>CLL030 and CLL032</td>
<td>47.319.2021.50</td>
</tr>
<tr>
<td>Edison Opto</td>
<td>HM16 and HM30</td>
<td>PACB 032</td>
</tr>
<tr>
<td>Prolight Opto</td>
<td>PACB 032</td>
<td></td>
</tr>
<tr>
<td>Seoul Semiconductor</td>
<td>ZC12 and ZC18</td>
<td></td>
</tr>
<tr>
<td>Tridonic</td>
<td>LES 17</td>
<td></td>
</tr>
</tbody>
</table>

- Screw fixing
- Housing: PBT
- Contacts: CuSn
- Rating: 3A / 150 V DC
- With integrated reflector interface
- Easy pre-assembly of LED by press fixing pins on the rear side
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289
Spotlight connectors for COB LED Modules

Manufacturer | LED-Type | Screw fixing | Housing | Contacts | Rating | Notes
---|---|---|---|---|---|---
Citizen | CLL040 and CLL042 | With integrated reflector interface | PBT | CuSn | 3A / 150 V DC | Part no. 47.319.2000.50

Lextar | Nimbus 2000 and Nimbus 3.000 | With integrated reflector interface | PBT | CuSn | 3A / 150 V DC | Part no. 47.319.2040.50

Seoul Semiconductor | ZC25 and ZC40 | With integrated reflector interface | PBT | CuSn | 3A / 150 V DC | Part no. 47.319.2051.50

Sunnup | G7 | With integrated reflector interface | PBT | CuSn | 3A / 150 V DC | Part no. 47.319.2000.50

Bridgelux | ES-Serie | With integrated reflector interface | PBT | CuSn | 3A / 150 V DC | Part no. 47.319.2040.50

Prolight Opto | PABA RS | With integrated reflector interface | PBT | CuSn | 3A / 150 V DC | Part no. 47.319.2051.50

Sharp | TigerZenigata | With integrated reflector interface | PBT | CuSn | 3A / 150 V DC | Part no. 47.319.2000.50

Specifications of LED manufacturer must be observed.
LED - Lighting and connection technology

Spotlight connectors for COB LED Modules

pkg. wt. part no.
504 6 g 47.319.2070.50

Spotlight connectors for COB LEDs. Suitable for the following LED types

Manufacturer LED-Type
Philips Lumileds K12 and K16
Screw fixing
Housing: PBT
Contacts: CuSn
Rating: 3A / 150 V DC

- With integrated reflector interface
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289

pkg. wt. part no.
504 6 g 47.319.2080.50

Spotlight connectors for COB LEDs. Suitable for the following LED types

Manufacturer LED-Type
LG MCP10-24W
Screw fixing
Housing: PBT
Contacts: CuSn
Rating: 3A / 150 V DC

- With integrated reflector interface
- Easy pre-assembly of LED by press fixing pins on the rear side
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289

pkg. wt. part no.
504 6 g 47.319.2090.50

Spotlight connectors for COB LEDs. Suitable for the following LED types

Manufacturer LED-Type
Osram Soleriq E30
Screw fixing
Housing: PBT
Contacts: CuSn
Rating: 3A / 150 V DC

- With integrated reflector interface
- Easy pre-assembly of LED by fixing lugs
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289
Spotlight connectors for COB LED Modules

Manufacturer: Cree

LED-Type: CXA 1507 and CXA 1512

- Screw fixing
- Housing: PBT
- Contacts: CuSn
- Rating: 3A / 150 V DC

- With integrated reflector interface
- Easy pre-assembly of LED by fixing lugs
- Screw fixing for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289

Part no.: 47.319.6101.50

pkg.: 504
w.t.: 5 g

Spotlight connectors for COB LEDs. Suitable for the following LED types

Manufacturer: Cree

LED-Type: CXA 25xx

- Screw fixing
- Housing: PBT
- Contacts: CuSn
- Rating: 3A / 150 V DC

- With integrated reflector interface
- Easy pre-assembly of LED by fixing lugs
- Screw fixing for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289

Part no.: 47.319.2141.50

pkg.: 504
w.t.: 6 g

Spotlight connectors for COB LEDs. Suitable for the following LED types

Manufacturer: Cree

LED-Type: CXA 13xx

- Screw fixing
- Housing: PBT
- Contacts: CuSn
- Rating: 3A / 150 V DC

- With integrated reflector interface
- Easy pre-assembly of LED by fixing lugs
- Screw fixing for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289

Part no.: 47.319.6120.50

pkg.: 504
w.t.: 5 g
LED - Lighting and connection technology

Spotlight connectors for COB LED Modules

<table>
<thead>
<tr>
<th>pkg. wt.</th>
<th>part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>504</td>
<td>5 g 47.319,2131.50</td>
</tr>
</tbody>
</table>

Spotlight connectors for COB LEDs. Suitable for the following LED types

**Manufacturer** | **LED-Type**
--- | ---
Cree | CXA 1816 and CXA 1820

- Screw fixing
- Housing: PBT
- Contacts: CuSn
- Rating: 3A / 150 V DC

- With integrated reflector interface
- Easy pre-assembly of LED by press fixing pins on the rear side
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289

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<table>
<thead>
<tr>
<th>pkg. wt.</th>
<th>part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>504</td>
<td>6 g 47.319,2151.50</td>
</tr>
</tbody>
</table>

Spotlight connectors for COB LEDs. Suitable for the following LED types

**Manufacturer** | **LED-Type**
--- | ---
Cree | CXA 30xx

- Screw fixing
- Housing: PBT
- Contacts: CuSn
- Rating: 3A / 150 V DC

- With integrated reflector interface
- Easy pre-assembly of LED by press fixing pins on the rear side
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289

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<table>
<thead>
<tr>
<th>pkg. wt.</th>
<th>part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>504</td>
<td>5 g 47.319,2060.50</td>
</tr>
</tbody>
</table>

Spotlight connectors for COB LEDs. Suitable for the following LED types

**Manufacturer** | **LED-Type**
--- | ---
Samsung | LCO26B and LC040A

- Screw fixing
- Housing: PBT
- Contacts: CuSn
- Rating: 3A / 150 V DC

- With integrated reflector interface
- Easy pre-assembly of LED by fixing lugs
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289
LED - Lighting and connection technology

Spotlight connectors for COB LED Modules

pkg. wt. part no.
504 6 g 47.319.6111.50

Spotlight connectors for COB LEDs. Suitable for the following LED types

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>LED-Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lextar</td>
<td>Nimbus 1500</td>
</tr>
<tr>
<td>Osram</td>
<td>Soleriq S13 and X13</td>
</tr>
</tbody>
</table>

Screw fixing
Housing: PBT
Contacts: CuSn
Rating: 3A / 150 V DC

- With integrated reflector interface
- For suitable reflectors see page 58
- Easy pre-assembly of LED by press fixing pins on the rear side
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289

pkg. wt. part no.
240 7.4 g 47.319.4160.50

Spotlight connectors for COB LEDs. Suitable for the following LED types

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>LED-Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citizen</td>
<td>CLL050 and CLL052</td>
</tr>
<tr>
<td>Sunpu</td>
<td>G9</td>
</tr>
</tbody>
</table>

Screw fixing
Housing: PBT
Contacts: CuSn
Rating: 3A / 150 V DC

- With integrated reflector interface
- Easy pre-assembly of LED by press fixing pins on the rear side
- Screw fixing: for screws M3 and locking washer
- Max. torque for screw fixing 0.5 Nm
- Strip length: 6+1 mm
- Polarity of LED must be observed
- Specifications of LED manufacturer must be observed
- In a series connection of LED modules, the air gap and creepage distances has to be sized that each module covers the total voltage of the series connection
- VDE-Reg. Nr. E289
LED - Lighting and connection technology

Reflector for Spotlight connectors

Part no
47.940.-351.56

Reflector
for use with Spotlight connector 47.319.6111.50

- Reflector can only be used by screw fixing the spotlight connector with dome headed screws and locking washer
- Beam angle 24°

For use with
Spotlight connector 47.319.6111.50

see page 52
BJB///OEM-Line
The modular system for LED luminaire production
Push-to-Fix fixing element (P2F).
Simply attach PCBs better.

Push-to-Fix, or P2F for short, is a fixing element for fixing LED boards into a luminaire housing. It consists of a metal spring and a silicone ring, which, due to its material properties, ensures a permanent optimum contact pressure of at least 10 N, while remaining dimensionally stable, elastic and temperature resistant.

Advantage: Due to the virtually “floating” method of connection, a component fixed in this way can compensate for thermal length variations and offset tolerances. The forces exerted during automatic wiring can also be effectively absorbed.

The electrically insulating connection to the PCB is shock and vibration resistant. There is no need for a torque screwdriver system which has to be calibrated. The P2F can be installed quickly and securely with the aid of a (manual) installation tool. A semi- and fully automatic feeder system for the elements is under development.

All in all, therefore, we regard Push-to-Fix as a considerably better alternative to the screw. In order to cover as wide a range of applications as possible, we supply various P2F fixing elements for package thicknesses of between 1.5 and 3.6 mm.
P2F - Push-to-Fix - Fixing element for PCBs

<table>
<thead>
<tr>
<th>part no.</th>
<th>Thickness of PCB and panel X</th>
<th>Ring-Colour-Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.901.U162.10</td>
<td>1.5 - 2.0 mm</td>
<td>transparent natural</td>
</tr>
<tr>
<td>28.901.U163.10</td>
<td>2.0 - 2.4 mm</td>
<td>transparent yellow</td>
</tr>
<tr>
<td>28.901.U164.10</td>
<td>2.4 - 2.7 mm</td>
<td>grey</td>
</tr>
<tr>
<td>28.901.U165.10</td>
<td>2.7 - 3.2 mm</td>
<td>white</td>
</tr>
<tr>
<td>28.901.U166.10</td>
<td>3.2 - 3.6 mm</td>
<td>blue</td>
</tr>
</tbody>
</table>

P2F - Push-to-Fix - Fixing element
Push in fixing for mounting modules and BJB optic holder into light fitting housing
Material: CrNi with silicon insulating ring
Provides consistent and constant contact pressure
Contact pressure: min. 10 N
Push in fixing: for hole pattern ø 4.2 mm

- Quick assembly process improves production efficiency and reduces production costs
- Eliminates potential damage from screw fixing due to low insertion force
- CrNi and silicone materials ensure long life reliability
- Reliable heat dissipation due to a constant pressure
- Suitable for Zhaga standardised hole sizes of ø 4.7 mm in LED board to ensure future proofed designs
- Assembly without any additional tools
- Solutions for Automation upon request
- Removable connection

For use with linear and square modules
Optic holder

see page 14
see page 18
see page 27
BJB///OEM-Line
The modular system for LED luminaire production
Board-to-Board connecting element (B2B).
Bridging of PCBs.

Our B2B connecting element provides a mechanical and electrical bridge between two circuit boards. In this way, Board-to-Board, or B2B for short, simultaneously establishes an electrical connection and fixes the circuit boards firmly and securely to the luminaire housing. This too is a simple technology which provides a number of positive effects: No additional wiring is required and the installation process is easier because no screws or tools are needed.

Fewer wires mean less risk of irritating shadow formation. A metal spring provides permanent contact pressure and ensures that the element is securely fixed. Variable positioning of PCBs is also possible and they can be replaced individually in case of service.

Can be used in linear and panel lighting applications
B2B - Board-to-Board connecting elements for modules

part no. 47.352.1001.50

B2B - Board-to-Board connecting elements for modules in parallel connection

Electrical bridging of modules

Push in fixing for modules into light fitting housing

Only for light fittings of protection class I

Material: Housing: PBT
Spring: CrNi
Contacts: CuSn

- Mounting and electrical connection of modules in one step
- For printed circuit boards t=1 mm
- Release- and reapplicable

PCB Footprint Option 1

- For use with linear and square modules

[Diagram of PCB Footprint Option 1]

PCB Footprint Option 2

- For use with linear and square modules

[Diagram of PCB Footprint Option 2]

see page 14    see page 18
LED - Lighting and connection technology

B2B - Board-to-Board connecting elements for modules

part no 47.351.1001.50

B2B - Board-to-Board connecting elements for modules in series connection

- Electrical bridging of modules
- Push-in fixing for modules into light fitting housing
- Only for light fittings of protection class I

Material:
- Housing: PBT
- Spring: CrNi
- Contacts: CuSn

- Mounting and electrical connection of modules in one step
- For Printed circuit boards t=1 mm
- Release and reapplicable

PCB Footprint Option 1

PCB Footprint Option 2

For use with linear and square modules

see page 14
see page 18

2014 This page is only valid in connection with the general information and notes of the complete catalogue, issue 2014
LED - Lighting and connection technology

B2B - Board-to-Board connecting elements for modules

Example of application

Footprint 1

Footprint 2
BJB///OEM-Line

The modular system for LED luminaire production

- Locking device
- Push wire connection
- Snap-in pins
Board-to-Cable connecting element (B2C). Attachment and electrical contact in one step.

The B2C connecting element enables the mechanical attachment and electrical contacting of PCBs to be carried out in just one step and without soldering. B2C stands for Board-to-Cable and links the PCB to the electrical connection. Simple technology which provides a number of positive effects: Firstly, the risk of reverse polarity connection is reduced through clear marking to enable easy series or parallel connection. Secondly, installation is also easier as no screws or tools are required.

No further wiring is necessary in the luminaire itself, so that there are no irritating wires subsequently passing through the light cone. A metal spring provides permanent contact pressure and ensures that the element is securely fixed. In addition, suitable PCBs can be positioned variably and can be replaced individually in case of service.

Can be used in linear and panel lighting applications
LED - Lighting and connection technology

B2C - Board-to-Cable - Feeder for modules

part no
47.312:1001.50

B2C - Board-to-Cable - Feeder for modules

Electrical bridging of modules
Push-in fixing for modules into light fitting housing
Only for light fittings of protection class I

Material: Housing: PBT
Spring: CrNi
Contacts: CuSn

- Mounting and electrical connection of modules in one step
- For printed circuit boards t=1 mm
- Release and reapplicable

For use with linear and square modules

see page 14  see page 18
Example of application:
BjB///OEM-Line
The modular system for LED luminaire production

Soldering lug

Plug-in connection for electrical power supply
SMD terminal blocks connect the circuit board to the conductors. We have developed SMD terminal blocks for rear entry wiring especially for luminaires with ECGs on the rear side. Conventional terminal blocks require the luminaire to be turned during installation. This time consuming operation is no longer necessary as the terminal block connections are now on the same side as the ECG and the other wiring.

Everything disappears elegantly behind the circuit board. There is no further risk of incorrectly routed cables obscuring individual LEDs and limiting the light output. A further advantage: Due to the low-profile design, optical components such as reflectors can be installed directly above the circuit board and standard lenses can be used without difficulty.

Can be used in linear lighting applications
LED - Lighting and connection technology

SMD Terminal blocks for wiring below the PCB

<table>
<thead>
<tr>
<th>Strip details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiring method</td>
</tr>
<tr>
<td>Cross section (solid)</td>
</tr>
<tr>
<td>Cross section (AWG)</td>
</tr>
<tr>
<td>Strip length</td>
</tr>
<tr>
<td>Conductor entry angle to the PCB</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature stability</td>
</tr>
<tr>
<td>Flammability category, based on UL 94</td>
</tr>
<tr>
<td>Insulating material group</td>
</tr>
<tr>
<td>Insulating material</td>
</tr>
</tbody>
</table>

part no.
46.111

SMD Terminal block 2 pole
Wiring from below the PCB
Solder fixing
Housing: PPA
Contacts: Cu tinned/CrNi
Approvals based on: IEC 60947-7-4R
Rating: ENEC: 9 A / 320 V

- No tools required! Wires can be released by twisting and pulling the wire simultaneously.
- Terminal block and ballast on same working level

Note 1: Maximum thickness of PCB and heatsink should not exceed 3.6 mm

Note 2: Recommendation for opening in heatsink is shown with minimum diameter. For smaller diameters or other shaped pockets in heatsink the minimum creepage and clearance distances and manufacturing tolerances have to be considered.

Note 3: Recommended dimension for opening in PCB

Note 4: Recommended dimension for solder mask

Note 5: For metal core PCBs the minimum creepage distance has to be guaranteed

General note:
It is recommended to make an electrical connection between both poles of each polarity on the solder mask.
Soldering temperature higher 220 °C < 60s
Soldering temperature up to 260 °C < 10s

Depending on the SMD soldering process and associated parameters a minor discoloration might occur. However, this will not influence the functionality.

Notes to the Pick and Place Area:
Note 1: Recommended Pick and Place area #1
Note 2: Recommended Pick and Place area #2 inside the connector
Max. ø of nozzle is 2.5 mm
Pick and Place #3 (note 3): Distance from center of mass to pick and place area
LED - Lighting and connection technology

SMD Terminal blocks for wiring below the PCB

part no.
46.112.1001.50

SMD Terminal block 2 pole
Wiring from below the PCB
Solder fixing
Housing: PPA
Contacts: Cu tinned/CrNi
Approvals based on: IEC 60947-7-4R
Rating: ENEC: 9 A / 320 V

- No tools required! Wires can be released by twisting and pulling the wire simultaneously.
- Terminal block and ballast on same working level.

Note 1: Maximum thickness of PCB and heatsink should not exceed 3.6 mm

Note 2: Recommendation for opening in heatsink is shown with minimum diameter. For smaller diameters or other shaped pockets in heatsink the minimum creepage and clearance distances and manufacturing tolerances have to be considered.

Note 3: Recommended dimension for opening in PCB

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General note:
It is recommended to make an electrical connection between both poles of each polarity on the solder mask

Strip details

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wiring method</td>
<td>Plug In</td>
</tr>
<tr>
<td>Cross section (solid)</td>
<td>0.2 mm² - 0.75 mm²</td>
</tr>
<tr>
<td>Cross section (AWG)</td>
<td>22-18 (including ferrule)</td>
</tr>
<tr>
<td>Strip length</td>
<td>8.0 +1 mm</td>
</tr>
<tr>
<td>Conductor entry angle to the PCB</td>
<td>0 - 12°</td>
</tr>
</tbody>
</table>

Material details

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature stability</td>
<td>-40 °C up to +105 °C</td>
</tr>
<tr>
<td>Flammability category, based on UL 94</td>
<td>V0</td>
</tr>
<tr>
<td>Insulating material group</td>
<td>I</td>
</tr>
<tr>
<td>Insulating material</td>
<td>PPA-GF</td>
</tr>
</tbody>
</table>
Important processing notes

Soldering temperature higher 220 °C < 60s
Soldering temperature up to 260 °C < 10s

Depending on the SMD soldering process and associated parameters a minor discolouration might occur. However, this will not influence the functionality.

Notes to the Pick and Place Area:
Note 1: Recommended Pick and Place area #1
Note 2: Recommended Pick and Place area #2 inside the connector
Max. ø of nozzle is 2.5 mm
Pick and Place #3 (note 3): Distance from center of mass to pick and place area
BjB///OEM-Line
The modular system for LED luminaire production

Soldering lug

Plug-in connection for electrical power supply
SMD terminal blocks for LED modules. The little ones are on the way.

Due to their overall height of only 4 mm, we also call these components SMD-Minis. They are PCB terminal blocks for fully automatic assembly with the reflow process (SMD), equipped with “plug-in” connection technology for conductor cross-sections from 0.34 to 0.75 mm². Because SMD PCBs are an increasingly popular design for LED applications in the technical/industrial lighting field, we have developed this particularly compact solution.

It is designed for direct insertion of solid and fine-stranded conductors with tinned ends. The interesting aspect: Push wire connections can be released again quite easily without tools by pulling and twisting. We supply the SMD-Minis in tape and reel packages for processing with pick and place machines. There are currently one- and two-pole versions available, both suitable for automatic wiring with our ADS systems.
**LED - Lighting and connection technology**

**SMD Terminal blocks**

**SMD terminal block 1 pole**
- Solding fixing
- Housing: PPA
- Contacts: Cu tinned/CrNi
- Approval based on: IEC 60947-7-4
- Rating: ENEC: 9 A / 320 V
  - cULus: 3 A / 300 V
  - UL: 9 A / 300 V

No tools required! Wires can be released by twisting and pulling the wire simultaneously.

**SMD terminal block 2 pole**
- Solding fixing
- Housing: PPA
- Contacts: Cu tinned/CrNi
- Approval based on: IEC 60947-7-4
- Rating: ENEC: 9 A / 320 V
  - cULus: 3 A / 300 V
  - UL: 9 A / 300 V

No tools required! Wires can be released by twisting and pulling the wire simultaneously.

**Strip details**

<table>
<thead>
<tr>
<th>Wiring method</th>
<th>Plug In</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross section (solid)</td>
<td>0.34 mm² - 0.75 mm²</td>
</tr>
<tr>
<td>Cross section (AWG)</td>
<td>22-18 (including ferrule)</td>
</tr>
<tr>
<td>Strip length</td>
<td>8.0 ±1mm</td>
</tr>
<tr>
<td>Conductor entry angle to the PCB</td>
<td>0 - 12°</td>
</tr>
</tbody>
</table>

**Material details**

<table>
<thead>
<tr>
<th>Temperature stability</th>
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</table>
Important processing notes

Soldering temperature higher 220 °C < 60s
Soldering temperature up to 260 °C < 10s

Depending on the SMD soldering process and associated parameters a minor discoloration might occur. However, this will not influence the functionality.
## Component overview

<table>
<thead>
<tr>
<th>BJB-Components</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Waterproof luminaire with cover</td>
</tr>
</tbody>
</table>

### Components for linear and panel LED lighting

<table>
<thead>
<tr>
<th>Component</th>
<th>Waterproof luminaire with cover</th>
<th>Batten luminaire</th>
<th>Pendant luminaire</th>
<th>Striplight module</th>
<th>Recessed louvre luminaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED modules 280 x 40 mm and 560 x 40 mm</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
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<tr>
<td>LED modules 260 x 260 mm</td>
<td>⬤</td>
<td></td>
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<tr>
<td>Optical holder and optical plates</td>
<td>⬤</td>
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<tr>
<td>Push-to-Fix (P2F)</td>
<td>⬤</td>
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<tr>
<td>Board-to-Cable (B2C) and Board-to-Board (B2B)</td>
<td>⬤</td>
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<tr>
<td>Mini SMD terminal blocks</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
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<tr>
<td>SMD terminal blocks for rear-entry wiring</td>
<td>⬤</td>
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<td>GX16t-5 LED tube</td>
<td>⬤</td>
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<tr>
<td>Linear Flat System</td>
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</tbody>
</table>

### Components for Spot- and Downlights

<table>
<thead>
<tr>
<th>Component</th>
<th>Waterproof luminaire with cover</th>
<th>Batten luminaire</th>
<th>Pendant luminaire</th>
<th>Striplight module</th>
<th>Recessed louvre luminaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spot-/Downlight system</td>
<td>⬤</td>
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<tr>
<td>Spotlight connectors</td>
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<tr>
<td>Surface mounted louvre luminaire</td>
<td>Ceiling/ wall mounted luminaires</td>
<td>Luminous ceiling, panel luminaires</td>
<td>Floor standing/ table lamps</td>
<td>Downlight</td>
<td>Spotlight</td>
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 BjB///OEM-Line
Production and test systems for LED applications
An overview of BJB automation

088  BJB automation systems
090  Automatic wiring
091  ESD protection
092  Test systems
094  Parameterisation of ECGs
Assembling, wiring and testing with BJB automation systems

BJB///OEM-Line
The modular system for LED luminaire production
As well as components and light sources, BJB///OEM-Line also includes production processes. For this purpose, we supply individually configurable, ESD-protected systems for the automatic assembling, wiring and testing of all kinds of LED applications. Based on our three product lines, ADS One, ADS Basic and ADS Master L, we advise and support manufacturers of all sizes in putting together suitable solutions for their individual requirements. Every conceivable variation is possible from single modules, such as an ADS One 2.0 with wiring robot as an entry level system, to scalable solutions and optional added features, up to complete production lines for large and very large volume production. Manual workstations, camera systems, tools for the parameterisation of ECGs or modularly configurable test stations – the options are as varied as the requirements of the manufacturers and customers.
Efficient wiring with BJB automation systems.

Automatic wiring of components, which has proven its worth over many years with standard applications, is also possible for LED luminaires when using BJB//OEM-Line components. Automatic wiring is carried out according to familiar principles. A wiring tool installed on an industrial robot performs pre-programmed work processes autonomously and precisely. Because these systems are used to process LEDs, they are also equipped with comprehensive ESD protection measures (see page on right). As a result, they prove to be extremely productive instruments for the efficient manufacture of luminaires and ensure consistent high quality in the end product.
LED processing with certified* ESD protection.

When carrying out automatic wiring of luminaires with LED technology, the relevant ESD requirements have to be taken into consideration. ESD or “electrostatic discharge” is a spark or disruptive discharge resulting from a large potential difference and causing a short voltage surge in an electrical appliance. Under unfavourable circumstances, this voltage surge may damage components in the electrical appliance. LEDs are particularly susceptible to such damage. In order to avoid this problem, we offer the option of ADS systems with ESD protection. Equipped in this way, these systems can then be used in so-called ESD protection zones. For this purpose, we supply a comprehensive range of ESD protection articles** and ESD devices. These include protective fences with antistatic coating and conductive connection to the aluminium profiles, ESD-safe connection of profiles, protective hoses for the wiring robots, wristbands with cables to earth the staff working at the manual workstations, ESD equipotential bonding blocks to earth the luminaire housings and earth bonding points with connection terminals and spiral cables to connect the conductors in the wire barrels to the earthing points. Safety first!

* ADS systems from BJB Automation are certified by the ESD Academy with regard to their protective measures against electrostatic discharge

** ESD protection can be retrofitted to existing ADS systems. For this purpose, there is a service kit, which is adapted to individual requirements.
BjB///OEM-Line
Production and test systems for LED applications
Current requirements in the final testing of luminaires call for the use of flexible test systems. For this purpose, we offer modularly configurable test stations. These consist of a test bench with a protective cover of tinted polycarbonate which can lower automatically. This is for visual protection during the test process. This protective cover enables the entire test process to be carried out without supervision. The test bench is also ESD protected and has an earth bonding point for the operating staff. The following tests are carried out with the integrated compact tester GLP 1: Protective conductor resistance test, insulation resistance test and functional test. As an alternative, the PC based compact tester GLP 3 is available for the test station. As well as the standard tests offered by the GLP 1, this can perform additional tests: DALI/DSI interface and 1-10 V interface for luminaires with dimming functions. A camera for the visual inspection of LED luminaires can also be integrated into the test station with the compact tester GLP 1 or GLP 3. The test results are stored in an Access or SQL database. The tested parameters can be viewed at any time via the serial number of the luminaire and can be printed out via a standard label printer connected to the tester. The GLP 3 also offers the option of parameterising ECGs via the DALI interface prior to the final luminaire test. Detailed information on this and the other products offered by BJB Automation is available on request.
Parameterisation of ECGs?
Now easier still with Set’n’Drive.

The parameterisation of ECGs (Electronic Control Gear) can be performed electronically via the DALI interface with one of our test devices, or by the insertion of a resistor on the secondary side (e.g. BAG, OSRAM, Philips, Tridonic).

For this type of parameterization, BJB has developed the Set’n’Drive resistor, which can be inserted either manually or automatically. In the case of automatic processing, the three gripping positions of the wiring tool in ADS wiring systems enable the resistor to be inserted at the desired angle. For this purpose, the Set’n’Drive resistors are correctly pre-positioned in trays in the area of the workpiece carrier.

The advantages of the Set’n’Drive at a glance:
- Accidental contact protection
- Can be inserted manually and automatically
- No unnecessary cable lengths due to cable harness with soldered resistor
LED - Lighting and connection technology

Set'n'Drive parameterising resistor for LED ballasts

Set’n’Drive (S’n’D) parameterising resistor
for easy insertion into LED ballast for adjusting the $I_{LED}$

Also for automatic insertion by ADS

- The resistor is protected against contact already integrated into a housing and is quick and easily inserted into the terminal block of the electronic control gear.
- Push in - Ready.

<table>
<thead>
<tr>
<th>part no.</th>
<th>resistor</th>
</tr>
</thead>
<tbody>
<tr>
<td>47.901.1001.50</td>
<td>680 Ohm</td>
</tr>
<tr>
<td>47.901.1003.50</td>
<td>1.8K Ohm</td>
</tr>
</tbody>
</table>

Additional versions in preparation
BJB///OEM-Line

The smartest route to your LED application
Appendix

098  Information on product pages
099  Technical information
100  Guarantee conditions
101  General terms and conditions of sale
102  Contact details and addresses
General information

All articles in this catalogue have been designed according to the appropriate national and international standards (VDE / IEC). The choice of product and correct technical embodiment is the sole responsibility of the user. Exact information can be obtained upon request. We reserve the right to modify products.

Explanation of the symbols shown on the product pages.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED-Light-Engine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rating</td>
</tr>
<tr>
<td>Temperature rating T 90</td>
<td>2A 250V</td>
</tr>
<tr>
<td>T 90</td>
<td>Rating</td>
</tr>
<tr>
<td>Temperature rating T 110</td>
<td>2A 60VDC</td>
</tr>
<tr>
<td>T 110</td>
<td>Rating</td>
</tr>
<tr>
<td>Single push wire terminals</td>
<td>3A 60VDC</td>
</tr>
<tr>
<td>Twin push wire terminals</td>
<td>3A 250V</td>
</tr>
<tr>
<td>For tinned wire ends within the cross sectional range stated</td>
<td>CAD-Data in 2D or 3D format available</td>
</tr>
<tr>
<td>(In this example 0.5 - 1.0 mm²)</td>
<td>For solid conductors within the cross sectional range stated</td>
</tr>
<tr>
<td>When regulations deviate from IEC, other cross sections are possible (e.g. UL / CSA: cable 18 AWG).</td>
<td>CAD</td>
</tr>
<tr>
<td>90° rotor fixing</td>
<td></td>
</tr>
<tr>
<td>Material thickness</td>
<td>Additional information</td>
</tr>
<tr>
<td>Indication in mm</td>
<td>Further information about the products shown on this page can be found on the pages shown within this symbol.</td>
</tr>
</tbody>
</table>

(In this example 0.5 - 1.0 mm²) When regulations deviate from IEC, other cross sections are possible (e.g. UL / CSA: cable 18 AWG).
Technical information for embodiment of our products

BJB lampholders are in accordance with IEC regulations and are designed to IEC 60061-2 publication.

Where no electrical data is stated then:
- according to IEC 60238 / VDE 0616 part 1, Edison lampholders E14 rated 250 V / 2 A conform to overload capacity category II, E27 rated 250 V / 4 A voltage and E40 conform to voltage overload capacity category III,
- according to IEC 60400 / VDE 0616 part 3 fluorescent lampholders and starter holders rated 250 V / 2 A conform to voltage overload capacity category II
- Halogen lampholders designed according to IEC 60838 / VDE 0616 part 5, conform to voltage overload capacity category II
- Bayonet lampholders according to the requirements IEC 61184 / VDE 0616 part 2 conform to voltage overload capacity category II,
- Lampholder outer threads conform to IEC 60399.

When regulations deviate from IEC, e.g. UL, other ratings may be possible. Please consult us before use.

Through our work with the relevant standardisation committees, we ensure our lampholders are developed and tested to the latest specifications.

All technical product drawings shown in this catalogue indicate only the main important dimensions and tolerance values. As a rule only where this is of importance for the intended application.

All measurements stated without tolerances are nominal.
Limit values are:
- DIN 16901, size 130 for moulded parts
- DIN ISO 2768-m for metal parts
- DIN 40680, medium for ceramic parts

Weights of single items stated in this catalogue are rounded up or rounded down to the nearest gram, therefore the final weight of a pack quantity may differ. The weights shown are only a guide and should not be used for order or shipping specification purposes.

The choice of product and correct technical embodiment in accordance with the corresponding regulations [e.g. IEC 60598 / VDE 0711, IEC 60335 / VDE 0700] is the sole responsibility of the user. Specific attention must be given to:
- Temperature limits which must be observed in accordance with the corresponding regulations (e.g. T-markings);
- The necessary creepage and clearance distances as well as distances through insulation;
- The connecting cable and wires, which must have the correct heat and UV resistance, mechanical strength, voltage rating and a current carrying capacity corresponding to the conditions of the intended application;
- Protection against contact with live parts;
- Connectors, e.g. tab terminals, which must be selected in accordance with the requirements of their intended use (e.g. temperature, current carrying capacity, corrosion resistance);
- The influence of control gear, transformers, starters / ignitors and other circuit components, must always be taken into consideration.

The catalogue also contains technical information, to which attention must be paid during project development, construction and electrical installation or when operating lighting installations. This information must be passed on, e.g. in an installation instruction.

To ensure snap fix products locate correctly and securely, consideration must also be given to the cut-out and where applicable, attention must be paid to special requirements (e.g. degree of burr, direction of punching, radii, etc.).

Consideration must also be given to the area required around the cut-out, to allow correct insertion. Different components may require to be inserted at different angles.

During fixing, it must be ensured that the fixing surface is correctly sized.

Information regarding light fitting wall thickness, should always be interpreted as inclusive of a coating, unless stated otherwise.

If there is a requirement for one of our products to be embodied in a way other than shown in our catalogue, please contact us.

Attention must also be given to the IEC lamp standards, as well as the technical instructions of the lamp manufacturers in respect of the embodiment and correct operation of lamp.

When LED modules are connected in series, creepage and clearance distances must be observed in accordance with the overall voltage.

Our oven lamps are exclusively designed for embodiment within domestic appliances. They are not suitable to be used for general ambient lighting.

In accordance with our policy of continual product development and improvement, we reserve the right to make design modifications.

Due to the amount of information involved in compiling this catalogue, it is not always possible to avoid printer’s errors or minor mistakes. Although every care is taken, BJB accepts no responsibility for the accuracy of the contents. If in doubt, or if you require confirmation of specific information, please contact us.

Edition 2014
Guarantee conditions

These Terms apply for products and components which the acquirer has acquired from BJB GmbH & Co. KG, Werler Str. 1, 59755 Arnsberg (hereinafter referred to as “BJB”), insofar as BJB and the acquirer have agreed on these Guarantee Terms contractually, for example by making reference in the contract documents. Insofar as nothing to the contrary is agreed upon for the products and components affected, BJB GmbH & Co KG's General Terms & Conditions also apply (as of 06/2011), insofar as nothing different arises from the following terms.

Guarantee period
Subject to compliance with the terms set out here, the acquirer is granted a guarantee for the below-mentioned period.

- For active parts with a physical nominal lifetime* pursuant to the BJB product description ≥ 50,000 operating hours, BJB grants a guarantee for a period of five years.
- For active parts with a physical nominal lifetime* pursuant to the BJB product description < 50,000 operating hours, BJB grants a guarantee for a period of three years.

The guarantee period commences upon the respective delivery of the products and components to the acquirer.

* Life span according to TM-21 L70 (6K) as per warranty condition.

Guarantee prerequisites
The assertion of guarantee rights pursuant to these conditions requires that the products and components have been duly assembled and operated in accordance with BJB's instructions.

The guarantee lapses if changes or repairs are made to the products or components by people who are not qualified to do so. The acquirer has to keep a log sheet in this respect and have it ready for the purpose of the inspection. BJB representatives are to be given the opportunity to appraise the defective products in the necessary scope and within the time frame.

The guarantee for individual products and components applies subject to the prerequisite that the products or components are used pursuant to their agreed specifications and guidelines or specifications and guidelines arising out of BJB product publications.

Claims under the guarantee are to be notified in writing to BJB within 30 days after the appearance of the defect. The notification has to include a detailed defect description, details about the system used, the operating hours and cycles of operation, and name the installation and invoice date. If this is not done, claims under the guarantee are excluded.

Moreover, guarantee claims are excluded insofar as the notified defect is attributable to the following circumstances:
- improper use, misuse or improper treatment by the customer or a third party, particularly non-compliance with instructions or technical information in the operating instructions or in the product datasheets, including installation information in catalogues and electronic media;
- abnormal use conditions (e.g. ambient temperature, moisture);
- defective construction components which are not part of the relevant BJB products or components for which this guarantee is granted; or
- faults or fluctuations in the supply voltage or in the electric circuits outside the permissible tolerance limits.

Services in guarantee case
If the defect is notified to BJB within the guarantee period, BJB will in its own discretion repair or replace the defective product or refund the product purchase price to the acquirer. If the product is no longer available, BJB reserves the right to replace it with a similar product, which might have minor deviations with regard to design and product specification. Ownership of defective products is transferred to BJB upon their replacement. Transport costs are borne by BJB in guarantee cases, otherwise by the acquirer. Costs arising in connection with disassembling the defective products or product parts and assembly for the new products are not borne by BJB in the framework of the guarantee. More extensive compensation claims, including claims for compensation of indirect loss, consequential loss or lost profit, are excluded pursuant to this guarantee.

Scope of the guarantee
This guarantee pertains exclusively to the mortality beyond the nominal failure rate of the components. Only the full failure of the BJB products or components is deemed to be a defect and thus a guarantee case in the sense of these Guarantee Terms. Reduction in luminous flux or colour shift depending on operating time does not constitute a failure of BJB products or components and thus does not constitute a guarantee case.

Due to technical advances in LED technology as well as usage-related changes in light properties (such as colour location shifts, degradation) of products, when making subsequent deliveries of LED modules, there might be deviations in the light properties compared to the original products.

The guarantee period is not prolonged by the performance of work which falls under this guarantee service.

The Guarantee Terms pertain exclusively to commercial, industrial customers.

The acquirer’s contractual or statutory warranty rights against BJB remain unaffected by this guarantee.
VI. Right of rescission, etc. in the event of default in payment and

4. For special orders, we hereby reserve the right to make

7. Set-off or withholding payment is only permissible on the

6. Payment by bill of exchange or cheque is only ever conditional

3. VAT in the amount prescribed by law on the date of the

II. Oral supplementary agreements

3. Information such as dimensions, weights, pictures, assembly

VII. Delivery period, bearing of risk and packaging disposal

8. In the case of the elimination of a defect or replacement

X. Rendering of services

1. The following liability obligations (sections VIII. 7 and 8. 6) of the claimant are governed by the Commercial Code's provisions governing the rendering of services shall apply accordingly.

V. Payment and conditions of payment

3. If the shipment is delayed because of circumstances for

2. Insofar as there is a defect and this has been complained

VI. Right of rescission, etc. in the event of default in payment and

3. The customer only has the right to resell the goods to which

IV. Product qualities and quantities

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II. Oral supplementary agreements

3. If the shipment is delayed because of circumstances for

XII. General Conditions of Sale

2. In the event of levy or attachment of the goods and/or

5. The customer is obliged to take out reasonable insurance

II. Oral supplementary agreements

3. Information such as dimensions, weights, pictures, assembly

III. Prices and payment

4. For special orders, we hereby reserve the right to make

B. Bill products are components for installation by our customers into electrical equipment, such as luminaries or

V. Payment and conditions of payment

6. If we negligently breach a cardinal obligation, our obligation

10. In the event of default or refusal to pay damages is limited to the contract-typical, foreseeable loss, if such damage has not been caused, or if the damage has not been caused, if the customer is responsible for the damage which has not occurred to the delivery object itself. The particular damage is considered to be the contract-typical, foreseeable loss suffered by the customer in this respect.

4. If after entering into the contract, the party recalls its agreement or renounces the contract for a reason which is not attributable to the other party, the contract may be rescinded at the agreement or renunciation and the contract partners shall be released from their payment obligations. The customer has to inform the other party in writing without undue delay, including the forwarding of a copy of the bailiff's record.

4. If we negligently breach a cardinal obligation, our obligation

6. The customer is entitled to rescind the contract for the parts of the performance which have not yet been performed. The customer is entitled to demand cash payment for the same.

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