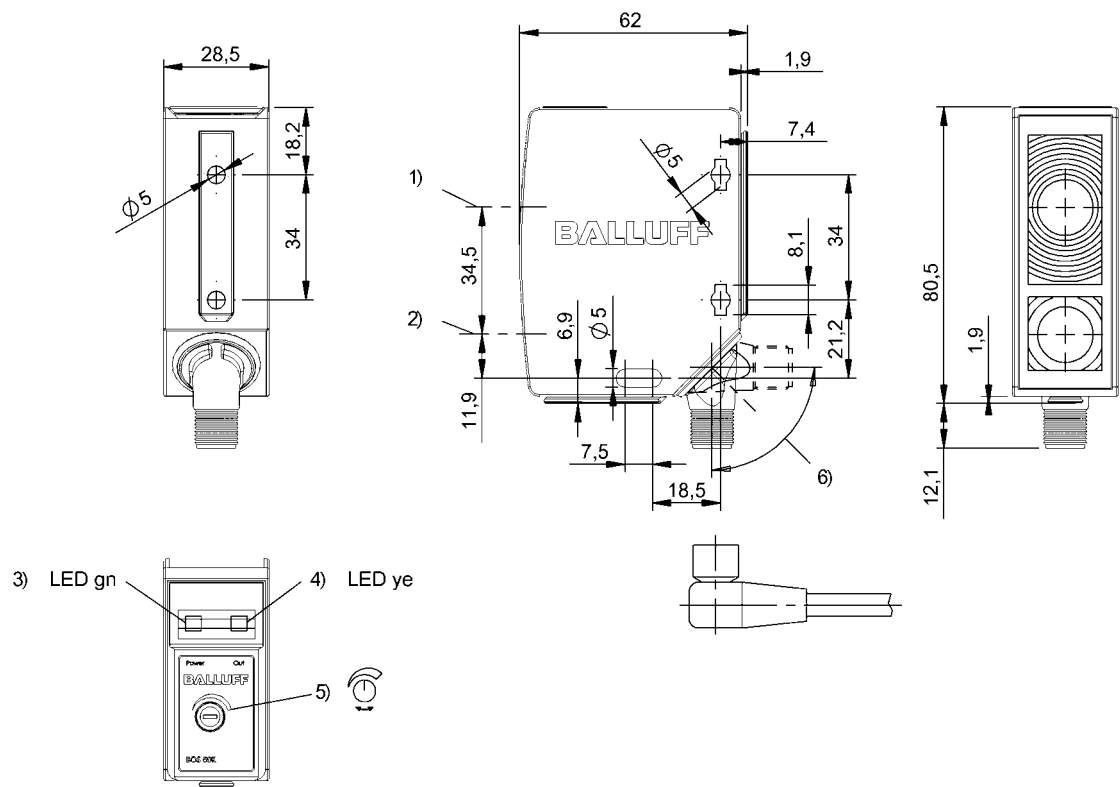




1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn, 6) rotatable 270°



Basic features

|                        |                                     |
|------------------------|-------------------------------------|
| Approval/Conformity    | CE<br>cULus<br>WEEE<br>UKCA         |
| Basic standard         | IEC 60947-5-2                       |
| Principle of operation | Photoelectric sensor                |
| Series                 | 50K                                 |
| Style                  | Square<br>Connection can be rotated |

Electrical connection

|                                   |                              |
|-----------------------------------|------------------------------|
| Connection                        | Connector, M12x1-Male, 4-pin |
| Contact, surface protection       | Gold plated                  |
| Polarity reversal protected       | yes                          |
| Protection against device mix-ups | yes                          |
| Short-circuit protection          | yes                          |

Display/Operation

|          |                                                                                                                                                                                                  |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Adjuster | Potentiometer 270°                                                                                                                                                                               |
| Display  | LED green: Power<br>LED green flashes: Short circuit or overload (PIN4)<br>LED yellow: light reception<br>function reserve > 1.5<br>LED yellow flashing: Light reception function reserve <= 1.5 |
| Setting  | Rated switching distance (Sn)                                                                                                                                                                    |

Photoelectric Sensors  
BOS 50K-PA-RD10-S4  
Order Code: BOS01CJ

**BALLUFF**

Electrical data

|                                                    |             |
|----------------------------------------------------|-------------|
| Load capacitance max. at Ue                        | 100 nF      |
| No-load current I <sub>o</sub> max. at Ue          | 30 mA       |
| Operating voltage U <sub>b</sub>                   | 10...30 VDC |
| Protection class                                   | II          |
| Rated insulation voltage U <sub>i</sub>            | 250 V AC    |
| Rated operating current I <sub>e</sub>             | 100 mA      |
| Rated operating voltage U <sub>e</sub> DC          | 24 V        |
| Ready delay t <sub>v</sub> max.                    | 20 ms       |
| Residual current I <sub>r</sub> max.               | 10 µA       |
| Ripple max. (% of U <sub>e</sub> )                 | 10 %        |
| Switching frequency                                | 800 Hz      |
| Turn-off delay t <sub>off</sub> max.               | 0.65 ms     |
| Turn-on delay t <sub>on</sub> max.                 | 0.65 ms     |
| Utilization category                               | DC -13      |
| Voltage drop U <sub>d</sub> max. at I <sub>e</sub> | 2.5 V       |

Environmental conditions

|                         |                                            |
|-------------------------|--------------------------------------------|
| Ambient temperature     | -5...55 °C                                 |
| EN 60068-2-27, Shock    | Half-sinus, 30 g <sub>n</sub> , 11 ms, 3x6 |
| EN 60068-2-6, Vibration | 10...55 Hz, amplitude 1 mm, 3x30 min       |
| IP rating               | IP67                                       |

Functional safety

|              |       |
|--------------|-------|
| MTTF (40 °C) | 889 a |
|--------------|-------|

Interface

|                  |                                                             |
|------------------|-------------------------------------------------------------|
| Switching output | PNP normally closed (NC)<br>PNP normally open (NO) Pins 4-2 |
|------------------|-------------------------------------------------------------|

Remarks

The sensor is functional again after the overload has been eliminated.

Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.

Order accessories separately.

For additional information, refer to user's guide.

Only for applications per NFPA 79 (machines with a supply voltage of maximum 600 V). Use an R/C (CYJV2) cable with suitable properties for attaching the device.

For more information about MTTF and B10d see MTTF / B10d Certificate

Indication of the MTTF- / B10d value does not represent a binding composition and/or life expectancy assurance; these are simply experiential values with no warranty implications. These declared values also do not extend the expiration period for defect claims or affect it in any way.

Material

|                          |       |
|--------------------------|-------|
| Housing material         | PC    |
|                          | ABS   |
| Material sensing surface | Glass |

Mechanical data

|               |                     |
|---------------|---------------------|
| Dimension     | 28.5 x 80.5 x 62 mm |
| Mounting part | Screw M5            |

Optical features

|                                |                           |
|--------------------------------|---------------------------|
| Ambient light max.             | 5000 Lux                  |
| Beam characteristic            | Divergent                 |
| LED group per IEC 62471        | Exempt Group              |
| Light spot size                | 50 x 50 mm at 2 m         |
| Light type                     | LED, red light            |
| Principle of optical operation | Diffuse sensor, energetic |
| Switching function, optical    | Light-on<br>dark-on       |
| Wave length                    | 630 nm                    |

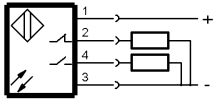
Range/Distance

|                                         |                |
|-----------------------------------------|----------------|
| Hysteresis H max. (% of Sr)             | 10.0 %         |
| Range                                   | 1...2000 mm    |
| Rated operating distance S <sub>n</sub> | 2 m Adjustable |
| Repeat accuracy max. (% of Sr)          | 5.0 %          |
| Temperature drift max. (% of Sr)        | 10 %           |

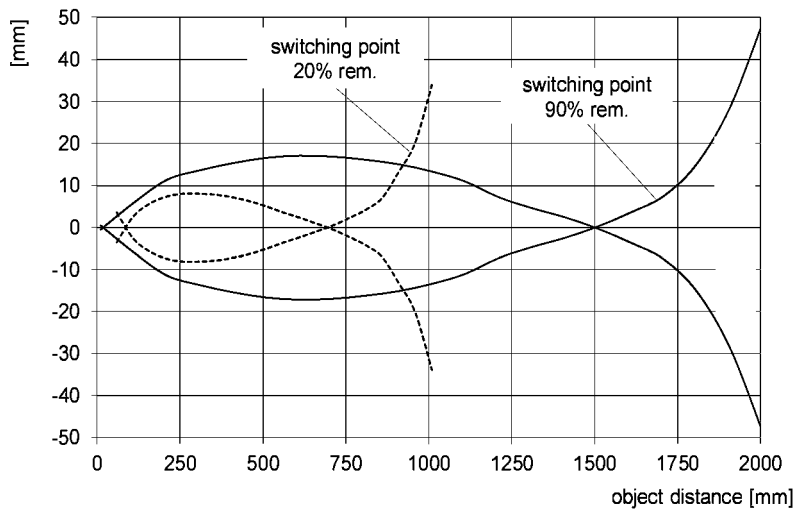
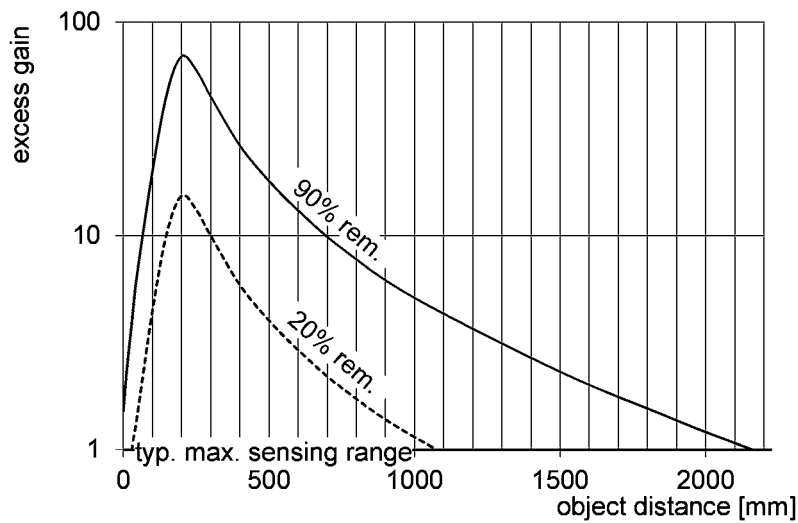
Connector Drawings



Wiring Diagrams



Technical Drawings



Opto Symbols

