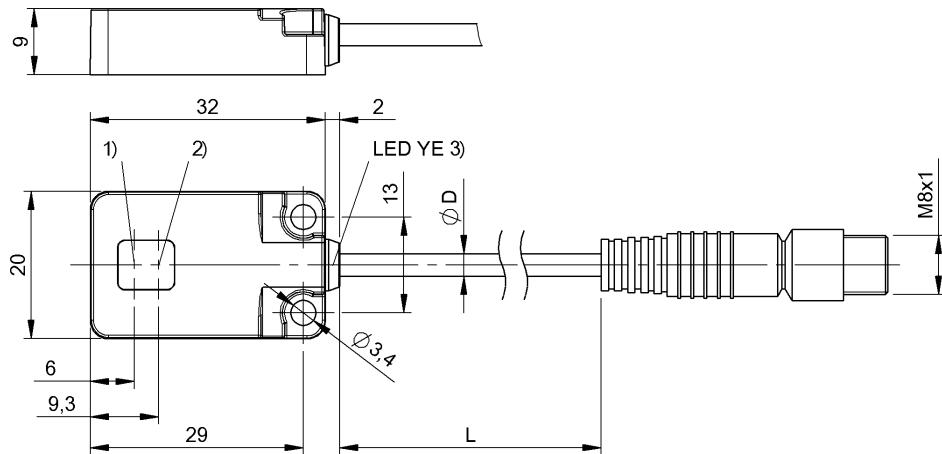


## Photoelectric Sensors

BOS R01E-PO-KD20-00,2-S49

Order Code: BOS021Y

**BALLUFF**

1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

**CE****Basic features**

|                        |                                       |
|------------------------|---------------------------------------|
| Approval/Conformity    | CE<br>UKCA<br>cULus<br>Ecolab<br>WEEE |
| Basic standard         | IEC 60947-5-2                         |
| Principle of operation | Photoelectric sensor                  |
| Series                 | R01E                                  |
| Style                  | Square<br>Connection 90°              |

**Display/Operation**

|         |  |
|---------|--|
| Display | Limit range - LED yellow, flashing<br>LED yellow: Light received |
|---------|--|

**Electrical connection**

|                                   |   |
|-----------------------------------|---|
| Cable diameter D                  | 3.00 mm   |
| Cable length L                    | 0.2 m   |
| Connection                        | Cable with connector, M8x1-Male, 3-pin, 0.20 m, PUR |
| Contact, surface protection       | Gold plated   |
| Polarity reversal protected       | yes   |
| Protection against device mix-ups | yes   |
| Short-circuit protection          | yes   |

**Electrical data**

|  |              |
|--|--------------|
| Load capacitance max. at Ue                        | 0.05 $\mu$ F |
| No-load current I <sub>0</sub> max. at Ue          | 10 mA        |
| Operating voltage U <sub>b</sub>                   | 10...30 VDC  |
| Rated insulation voltage U <sub>i</sub>            | 75 V DC      |
| 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.                    | 150 ms       |
| Residual current I <sub>r</sub> max.               | 50 $\mu$ A   |
| Switching frequency                                | 500 Hz       |
| Turn-off delay t <sub>off</sub> max.               | 1 ms         |
| Turn-on delay t <sub>on</sub> max.                 | 1 ms         |
| Utilization category                               | DC-13        |
| Voltage drop U <sub>d</sub> max. at I <sub>e</sub> | 0.7 V        |

**Environmental conditions**

|                         |  |
|-------------------------|--|
| Ambient temperature     | -5...55 °C   |
| Contamination scale     | 3  |
| EN 60068-2-27, Shock    | Half-sinus, 100 gn, 2 ms, 3x8000<br>Half-sinus, 30 gn, 11 ms, 3x6                  |
| EN 60068-2-6, Vibration | 10...2000 Hz, amplitude 1 mm, 30 gn, 3x5 h<br>10...55 Hz, amplitude 1 mm, 3x30 min |
| IP rating               | IP67   |
| IP rating per DIN 40050 | Housing IP69K, Connector IP67  |

**Interface**

|                  |                          |
|------------------|--------------------------|
| Switching output | PNP normally closed (NC) |
|------------------|--------------------------|

#### Material

|                          |                        |
|--------------------------|------------------------|
| Housing material         | 1.4404 stainless steel |
| Material jacket          | PUR                    |
| Material sensing surface | PA                     |

#### Mechanical data

|               |                |
|---------------|----------------|
| Dimension     | 20 x 32 x 9 mm |
| Mounting part | Screw M3       |

#### Optical features

|                                |                           |
|--------------------------------|---------------------------|
| Ambient light max.             | 5000 Lux                  |
| Beam characteristic            | Divergent                 |
| LED group per IEC 62471        | Exempt Group              |
| Light spot size                | Ø 3.0 mm Light exit       |
| Light type                     | LED, red light            |
| Principle of optical operation | Diffuse sensor, energetic |
| Switching function, optical    | dark-on                   |
| Wave length                    | 650 nm                    |

#### Range/Distance

|                                  |            |
|----------------------------------|------------|
| Hysteresis H max. (% of Sr)      | 8.0 %      |
| Range                            | 1...100 mm |
| Rated operating distance Sn      | 100 mm     |
| Repeat accuracy max. (% of Sr)   | 0.2 %      |
| Temperature drift max. (% of Sr) | 10 %       |

#### Remarks

Order accessories separately.

Actuation object (target): gray card, 200 x 200, 90 % remission, lateral approach, approach direction vertical to lens axis plane.

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

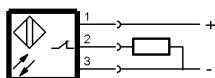
For additional information, refer to user's guide.

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.

#### Connector Drawings



#### Wiring Diagrams



#### Opto Symbols

