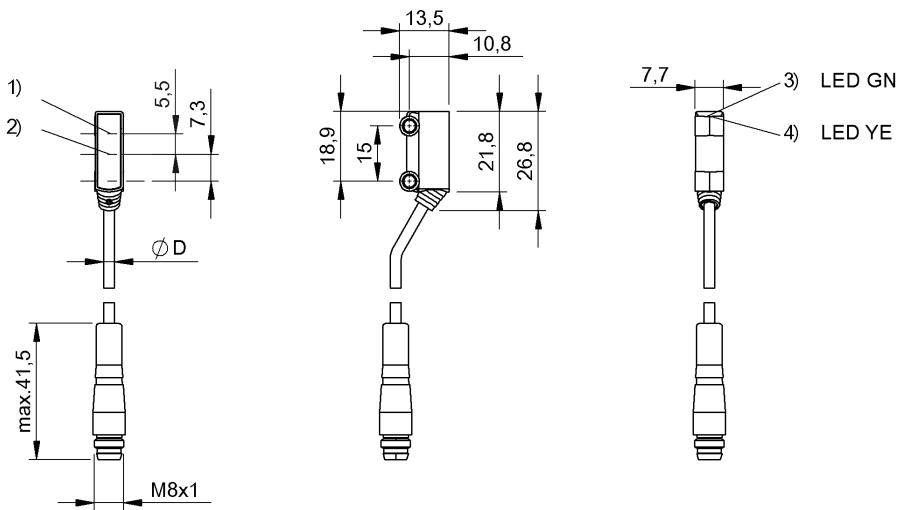


Photoelectric Sensors  
BOS R020K-PO-RF10-00,2-S49  
Order Code: BOS021F

**BALLUFF**



1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception



#### Basic features

|                        |                          |
|------------------------|--------------------------|
| Approval/Conformity    | CE<br>cULus<br>WEEE      |
| Basic standard         | IEC 60947-5-2            |
| Principle of operation | Photoelectric sensor     |
| Series                 | R020K                    |
| Style                  | Square<br>Connection 60° |

#### Display/Operation

|         |  |
|---------|--|
| Display | LED green: Power<br>LED yellow: Light received |
|---------|--|

#### Electrical connection

|                             |  |
|-----------------------------|--|
| Cable diameter D            | 2.40 mm  |
| Cable length L              | 0.2 m  |
| Connection                  | Cable with connector, M8x1-Male,<br>3-pin, 0.20 m, PVC |
| Polarity reversal protected | yes  |
| Short-circuit protection    | yes  |

#### Electrical data

|   |             |
|---|-------------|
| No-load current I <sub>0</sub> max. at U <sub>e</sub> | 20 mA       |
| Operating voltage U <sub>b</sub>                      | 10...30 VDC |
| Protection class                                      | III         |
| Rated insulation voltage U <sub>i</sub>               | 50 V DC     |
| Rated operating current I <sub>e</sub>                | 50 mA       |
| Rated operating voltage U <sub>e</sub> DC             | 24 V        |
| Ripple max. (% of U <sub>e</sub> )                    | 20 %        |
| Switching frequency                                   | 800 Hz      |
| Turn-off delay t <sub>off</sub> max.                  | 0.63 ms     |
| Turn-on delay t <sub>on</sub> max.                    | 0.63 ms     |
| Voltage drop U <sub>d</sub> max. at I <sub>e</sub>    | 2.5 V       |

#### Environmental conditions

|                     |             |
|---------------------|-------------|
| Ambient temperature | -25...50 °C |
| IP rating           | IP67        |

#### Functional safety

|              |        |
|--------------|--------|
| MTTF (40 °C) | 3487 a |
|--------------|--------|

#### Interface

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

#### Material

|                          |      |
|--------------------------|------|
| Housing material         | ABS  |
| Material jacket          | PVC  |
| Material sensing surface | PMMA |

#### Mechanical data

|               |                      |
|---------------|----------------------|
| Dimension     | 7.7 x 26.8 x 13.5 mm |
| Mounting part | Screw M3             |

#### Range/Distance

|                             |           |
|-----------------------------|-----------|
| Range                       | 1...15 mm |
| Rated operating distance Sn | 15 mm     |

#### Optical features

|                                |                           |
|--------------------------------|---------------------------|
| Ambient light max.             | 5000 Lux                  |
| Light spot size                | Ø 2 mm at 8 mm            |
| Light type                     | LED, red light            |
| Principle of optical operation | Diffuse sensor, HGA fixed |
| Special optical feature        | Background suppression    |
| Switching function, optical    | dark-on                   |
| Wave length                    | 660 nm                    |

#### Remarks

Order accessories separately.

For additional information, refer to user's guide.

Reference object (target): gray card, 100 x 100, 90 % remission, axial approach.

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

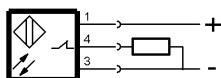
For more information about MTTF and B10d see MTTF / B10d Certificate

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.

#### Connector Drawings



#### Wiring Diagrams



#### Opto Symbols

