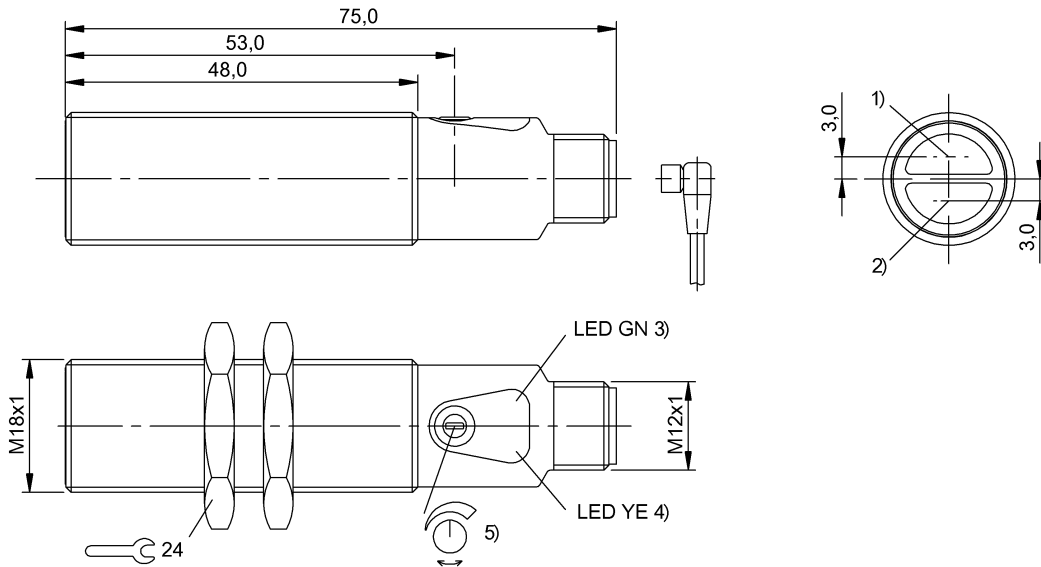


Photoelectric Sensors  
**BOS 18M-PA-IR20-S4**  
**Order Code: BOS01F0**

**BALLUFF**



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



**Basic features**

|                               |                             |
|-------------------------------|-----------------------------|
| <b>Approval/Conformity</b>    | cULus<br>CE<br>UKCA<br>WEEE |
| <b>Basic standard</b>         | IEC 60947-5-2               |
| <b>Principle of operation</b> | Photoelectric sensor        |
| <b>Reference reflector</b>    | BOS R-1                     |
| <b>Scope of delivery</b>      | 2x nut M18x1<br>User manual |
| <b>Series</b>                 | 18M                         |
| <b>Style</b>                  | Cylinder<br>Straight optics |

**Display/Operation**

|                 |   |
|-----------------|---|
| <b>Adjuster</b> | 1-turn potentiometer  |
| <b>Display</b>  | LED green: Power<br>Error - LED green, flashing<br>LED yellow: Light received<br>Limit range - LED yellow, flashing |
| <b>Setting</b>  | Sensitivity (Sn)  |

**Electrical connection**

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

**Electrical data**

|   |             |
|---|-------------|
| <b>Load capacitance max. at Ue</b>                      | 0.2 µF      |
| <b>No-load current I<sub>o</sub> max. at Ue</b>         | 50 mA       |
| <b>Operating voltage U<sub>b</sub></b>                  | 10...30 VDC |
| <b>Protection class</b>                                 | II          |
| <b>Rated insulation voltage U<sub>i</sub></b>           | 75 V DC     |
| <b>Rated operating current I<sub>e</sub></b>            | 100 mA      |
| <b>Rated operating voltage U<sub>e</sub> DC</b>         | 24 V        |
| <b>Ready delay t<sub>v</sub> max.</b>                   | 20 ms       |
| <b>Residual current I<sub>r</sub> max.</b>              | 30 µA       |
| <b>Ripple max. (% of U<sub>e</sub>)</b>                 | 15 %        |
| <b>Switching frequency</b>                              | 800 Hz      |
| <b>Turn-off delay t<sub>off</sub> max.</b>              | 0.63 ms     |
| <b>Turn-on delay t<sub>on</sub> max.</b>                | 0.63 ms     |
| <b>Utilization category</b>                             | DC -13      |
| <b>Voltage drop U<sub>d</sub> max. at I<sub>e</sub></b> | 2.5 V       |

**Environmental conditions**

|                                |   |
|--------------------------------|---|
| <b>Ambient temperature</b>     | -5...55 °C  |
| <b>Contamination scale</b>     | 3   |
| <b>EN 60068-2-27, Shock</b>    | Half-sinus, 30 g <sub>n</sub> , 11 ms, 3x6<br>Half-sinus, 100 g <sub>n</sub> , 2 ms, 3x8000     |
| <b>EN 60068-2-6, Vibration</b> | 10...55 Hz, amplitude 1 mm, 3x30 min<br>10...2000 Hz, amplitude 1 mm, 30 g <sub>n</sub> , 3x5 h |
| <b>IP rating</b>               | IP67  |

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**Functional safety**

|              |       |
|--------------|-------|
| MTTF (40 °C) | 872 a |
|--------------|-------|

**Interface**

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

**Material**

|                                      |                      |
|--------------------------------------|----------------------|
| Housing material                     | Brass, nickel-plated |
| Housing material, surface protection | nickel-plated        |
| Material sensing surface             | Glass, anti-glare    |
| Surface protection                   | nickel-plated        |

**Mechanical data**

|                        |                |
|------------------------|----------------|
| Dimension              | Ø 18 x 75 mm   |
| Mounting part          | Nut M18x1      |
| Tightening torque max. | 15 Nm<br>30 Nm |

**Optical features**

|                                |                        |
|--------------------------------|------------------------|
| Ambient light max.             | 10000 Lux              |
| Beam characteristic            | Divergent              |
| LED group per IEC 62471        | Exempt Group           |
| Light spot size                | Ø 300 mm at 7 m        |
| Light type                     | LED infrared           |
| Polarizing filter              | no                     |
| Principle of optical operation | Retroreflective sensor |
| Switching function, optical    | Light-on<br>dark-on    |
| Wave length                    | 850 nm                 |

**Range/Distance**

|                             |                 |
|-----------------------------|-----------------|
| Range                       | 0...10 m        |
| Rated operating distance Sn | 10 m Adjustable |

**Remarks**

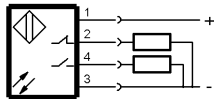
The sensor is functional again after the overload has been eliminated.  
 For additional information, refer to user's guide.  
 Order accessories separately.  
 For more information about MTTF and B10d see MTTF / B10d Certificate

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**

