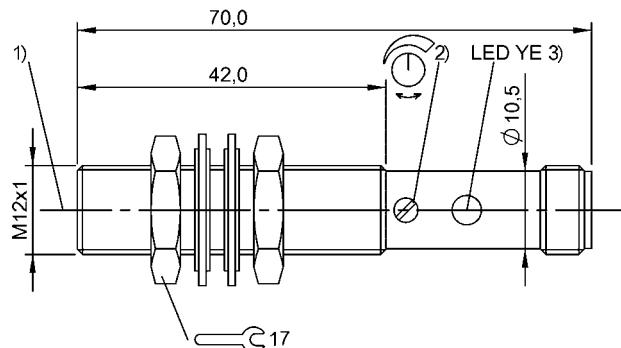


Photoelectric Sensors  
BOS 12M-PA-LE10-S4  
Order Code: BOS00WF

**BALLUFF**



1) Optical axis, 2) Sn, 3) Output function



#### Basic features

|                        |                             |
|------------------------|-----------------------------|
| Approval/Conformity    | CE<br>UKCA<br>cULus<br>WEEE |
| Basic standard         | IEC 60947-5-2               |
| Principle of operation | Photoelectric sensor        |
| Reference emitter      | BOS 12M-XT-LS12..           |
| Series                 | 12M                         |
| Style                  | Cylinder<br>Straight optics |

#### Display/Operation

|          |                             |
|----------|-----------------------------|
| Adjuster | Potentiometer 270°          |
| Display  | Output function- LED yellow |
| Setting  | Sensitivity (Sn)            |

#### 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                          |

#### Electrical data

|  |             |
|--|-------------|
| Load capacitance max. at Ue                        | 0.1 $\mu$ F |
| No-load current I <sub>0</sub> max. at Ue          | 15 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>             | 200 mA      |
| Rated operating voltage U <sub>e</sub> DC          | 24 V        |
| Ready delay t <sub>v</sub> max.                    | 20 ms       |
| Ripple max. (% of U <sub>e</sub> )                 | 10 %        |
| Switching frequency                                | 1000 Hz     |
| Turn-off delay t <sub>off</sub> max.               | 0.5 ms      |
| Turn-on delay t <sub>on</sub> max.                 | 0.5 ms      |
| Utilization category                               | DC-13       |
| Voltage drop U <sub>d</sub> max. at I <sub>e</sub> | 2.5 V       |

#### Environmental conditions

|                         |  |
|-------------------------|--|
| Ambient temperature     | -10...50 °C                                |
| Contamination scale     | 3  |
| 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) | 251 a |
|--------------|-------|

#### Interface

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

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Material

|                          |                      |
|--------------------------|----------------------|
| Housing material         | Brass, nickel-plated |
| Material sensing surface | PMMA                 |
| Surface protection       | nickel-plated        |

Mechanical data

|                        |                            |
|------------------------|----------------------------|
| Dimension              | Ø 12 x 70 mm               |
| Minimum gap, typ.      | 0.5mm at 3m, R0= 6m (LS12) |
| Mounting part          | Nut M12x1                  |
| Tightening torque max. | 15 Nm                      |

Optical features

|                                |                                       |
|--------------------------------|---------------------------------------|
| Ambient light max.             | 5000 Lux                              |
| Light type                     | Laser red light                       |
| Principle of optical operation | Through-beam sensor (receiver)        |
| Smallest part typ.             | 50 µm at focal point, R0 = 3 m (LS11) |

Switching function, optical

Light-on  
dark-on

Range/Distance

|                                  |                                      |
|----------------------------------|--------------------------------------|
| Range                            | 0...30 m                             |
| Rated operating distance Sn      | 3 m Adjustable<br>depends on emitter |
| Temperature drift max. (% of Sr) | compensated                          |

Remarks

Order accessories separately.

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

Actuation object (target): gray card, 200 x 200, lateral approach.

For additional information, refer to user's guide.

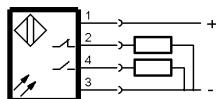
For more information about MTTF and B10d see MTTF / B10d Certificate

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

