

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



### Basic features

Approval/Conformity	CE UKCA cULus WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Series	12M
Style	Cylinder Straight optics

### Display/Operation

Adjuster	Potentiometer 270°
Display	LED green: Power Limit range - LED yellow, flashing LED yellow: Light received
Setting	Rated switching distance (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	0.2 µF
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
Ripple max. (% of U <sub>e</sub> )	15 %
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>	1.5 V

### Environmental conditions

Ambient temperature	-5...55 °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)	1428 a
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### Interface

Switching output	PNP normally closed (NC) Pin 2
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Photoelectric Sensors  
**BOS 12M-PO-ID10-S4**  
Order Code: BOS01ZJ

**BALLUFF**

**Material**

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

**Mechanical data**

Dimension	Ø 12 x 60 mm
Mounting part	Nut M12x1
Tightening torque max.	7 Nm 15 Nm

**Optical features**

Ambient light max.	10000 Lux
Beam characteristic	Divergent
LED group per IEC 62471	Exempt Group
Light spot size	45 x 45 mm at 400 mm
Light type	Infrared
Principle of optical operation	Diffuse sensor, energetic
Switching function, optical	Light-on
Wave length	850 nm

**Range/Distance**

Hysteresis H max. (% of Sr)	10.0 %
Range	1...400 mm
Rated operating distance S <sub>n</sub>	400 mm Adjustable
Temperature drift max. (% of Sr)	10 %

**Remarks**

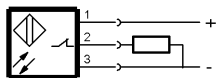
Order accessories separately.  
For additional information, refer to user's guide.  
Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.  
The sensor is functional again after the overload has been eliminated.  
For more information about MTTF and B10d see MTTF / B10d Certificate

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**

