

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



**Basic features**

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

**Display/Operation**

<b>Adjuster</b>	Potentiometer 270°
<b>Display</b>	LED green: Power Limit range - LED yellow, flashing LED yellow: Light received
<b>Setting</b>	Rated switching distance (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>Operating voltage U<sub>b</sub></b>	10...30 VDC
<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>Ripple max. (% of U<sub>e</sub>)</b>	15 %
<b>Switching frequency</b>	1000 Hz
<b>Turn-off delay t<sub>off</sub> max.</b>	0.5 ms
<b>Turn-on delay t<sub>on</sub> max.</b>	0.5 ms
<b>Utilization category</b>	DC -13
<b>Voltage drop U<sub>d</sub> max. at I<sub>e</sub></b>	1.5 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 gn, 11 ms, 3x6
<b>EN 60068-2-6, Vibration</b>	10...55 Hz, amplitude 1 mm, 3x30 min
<b>Protection degree</b>	IP67

**Functional safety**

<b>MTTF (40 °C)</b>	1428 a
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**Material**

<b>Housing material</b>	Brass, nickel plated
<b>Material sensing surface</b>	PMMA
<b>Surface protection</b>	nickel plated

**Mechanical data**

Dimension	Ø 12 x 60 mm
Mounting	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	LED infrared
Principle of optical operation	Diffuse sensor, energetic
Switching function, optical	Light-on
Wave length	850 nm

**Output/Interface**

Switching output	PNP normally open (NO) Pin 4
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**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**

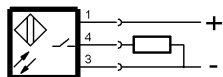
Order accessories separately.  
 For additional information, refer to user's guide.  
 Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.  
 The sensor is functional again after the overload has been eliminated.  
 For more information about MTTF and B10d see MTTF / B10d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

