

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



## Display/Operation

Adjuster	Potentiometer 270°
Display	Output function- LED yellow LED green: Power Error - LED yellow, flashing Short circuit - LED green, flashing
Setting	Rated switching distance (Sn)

## Electrical connection

Connection	Connector, M12x1-Male, 4-pole
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	0.18 µF
No-load current I <sub>o</sub> max. at Ue	40 mA
Operating voltage U <sub>b</sub>	10...30 VDC
Rated operating current I <sub>e</sub>	100 mA
Rated operating voltage U <sub>e</sub> DC	24 V
Ready delay t <sub>v</sub> max.	100 ms
Residual ripple max. (% of U <sub>e</sub> )	10 %
Switching frequency	500 Hz
Turn-off delay t <sub>off</sub> max.	1 ms
Turn-on delay t <sub>on</sub> max.	1 ms
Utilization category	DC-13
Voltage drop U <sub>d</sub> max. at I <sub>e</sub>	2.5 V

## Environmental conditions

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

## Functional safety

MTTF (40 °C)	631 a
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## General data

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

## Material

Housing material	Brass
Material sensing surface	PMMA
Surface protection	nickel plates

## Mechanical data

Dimension	Ø 12 x 60 mm
Fastening detail	Nut M12x1

Tightening torque max. 7 Nm  
 15 Nm

### Optical data

Ambient light max.	10000 Lux
Beam characteristic	Divergent
LED group per IEC 62471	Exempt Group
Light spot size	Ø 6 mm at 100 mm
Light type	LED, red light
Principle of optical operation	Diffuse sensor, Triangulation
Special optical feature	Background suppression
Switching function optical	Light-on dark-on
Wave length	650 nm

### Output/Interface

Switching output	PNP Normally closed (NC) PNP Normally open (NO) Pins 4-2
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### Range/Distance

Distance deviation 18 % max. (% of Sr)	8 % on 90 % rem.
Hysteresis H typ. (% of Sr)	8.0 %
Range	25...100 mm
Rated operating distance Sn	100 mm, Adjustable

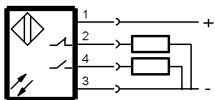
### Remarks

Order accessories separately.  
 For additional information, refer to user's guide.  
 Only for applications per NFPA 79 (machines with a supply voltage of maximum 600 V). Use an R/C (CYJV2) cable with suitable properties for attaching the device.  
 Reference object (target): gray card, 100 x 100 90 % remission, axial approach.  
 The sensor is functional again after the overload has been eliminated.  
 For further information about the 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 view



### Wiring Diagram



### Symbols for Optoelectronic Sensors

