

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



#### Basic features

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

#### 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-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	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
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 g <sub>n</sub> , 11 ms, 3x6 Half-sinus, 100 g <sub>n</sub> , 2 ms, 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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#### Interface

Supplementary output	Error output PNP
Switch function, supplementary output	Normally closed (NC)
Switching output	PNP normally open (NO) Pin 4

#### Material

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

#### Mechanical data

Dimension	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	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
Wave length	650 nm

#### 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

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

Reference object (target): gray card, 100 x 100, 90 % remission, axial approach.

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.

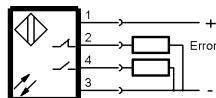
For more information about MTTF and B10d see MTTF / B10d Certificate

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

