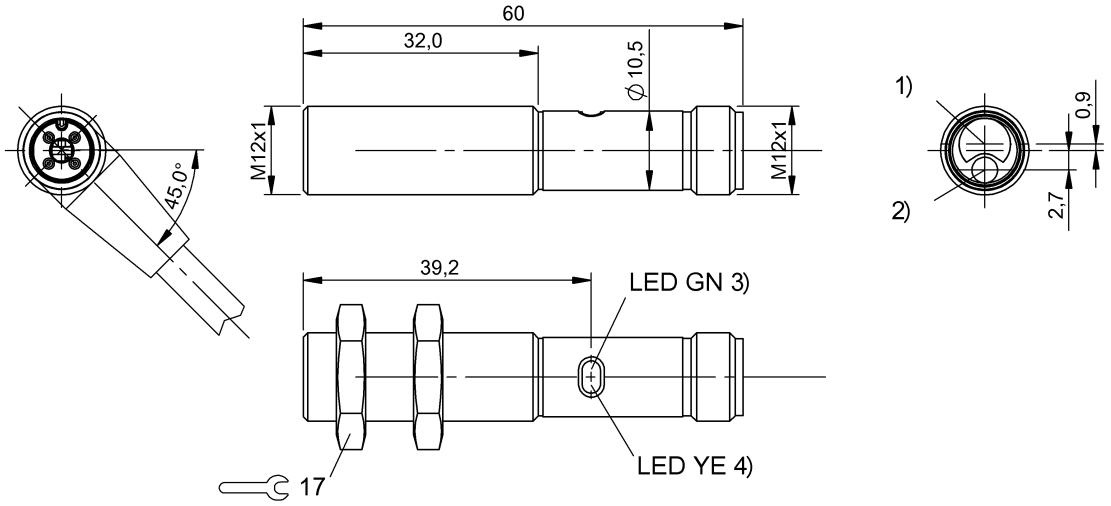
Photoelectric Sensors

BOS 12M-PA-RF10-S4
Order Code: BOS01UM



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

Basic features

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

Display/Operation

Adjuster	no
Display	LED green: Power Error - LED green, flashing Limit range - LED yellow, flashing LED yellow: Light received

Electrical connection

Connection	Connector, M12x1-Male, 4-pin
Contact, surface protection	Gold plated
Polarity reversal protected	yes
Short-circuit protection	yes

Electrical data

Load capacitance max. at Ue	0.2 µF
No-load current Io max. at Ue	20 mA
Operating voltage Ub	10...30 VDC
Rated operating current Ie	100 mA
Rated operating voltage Ue DC	24 V
Ripple max. (% of Ue)	15 %
Switching frequency	1000 Hz
Turn-off delay toff max.	0.5 ms
Turn-on delay ton max.	0.5 ms
Utilization category	DC -13
Voltage drop Ud max. at Ie	1.5 V

Environmental conditions

Ambient temperature	-5...60 °C
Contamination scale	3
EN 60068-2-27, Shock	Half-sinus, 30 g_n, 11 ms, 3x6 Half-sinus, 100 gn, 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)	1561 a

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Interface

Switching output	PNP normally open (NO) PNP NC Pins 4-2

Material

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

Mechanical data

Dimension	Ø 12 x 60 mm
Distance deviation 6 % max. (% of Sr)	5.0 %
Mounting part	Nut M12x1
Tightening torque max.	7 Nm 15 Nm

Optical features

Ambient light max.	50000 Lux
Beam characteristic	Focus, typical at 25 mm
LED group per IEC 62471	Exempt Group
Light spot size	Ø 2 mm at 25 mm
Light type	LED, red light
Principle of optical operation	Diffuse sensor, triangulation
Smallest part typ.	Ø 0.05 mm wire
Special optical feature	Fixed focus Fixed background suppression
Switching function, optical	Light-on dark-on
Wave length	650 nm

Range/Distance

Distance deviation 18 % max. (% of Sr)	1 %
Hysteresis H max. (% of Sr)	1.0 %
Range	1...25 mm
Rated operating distance Sn	25 mm
Repeat accuracy max. (% of Sr)	1.0 %
Temperature drift max. (% of Sr)	5 %

Remarks

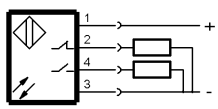
Order accessories separately.
For additional information, refer to user's guide.
Only for applications per NFPA 79 (machines with a supply voltage of maximum 600 V). Use an R/C (CYJV2) cable with suitable properties for attaching the device.
Reference object (target): gray card, 100 x 100, 90 % remission,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

