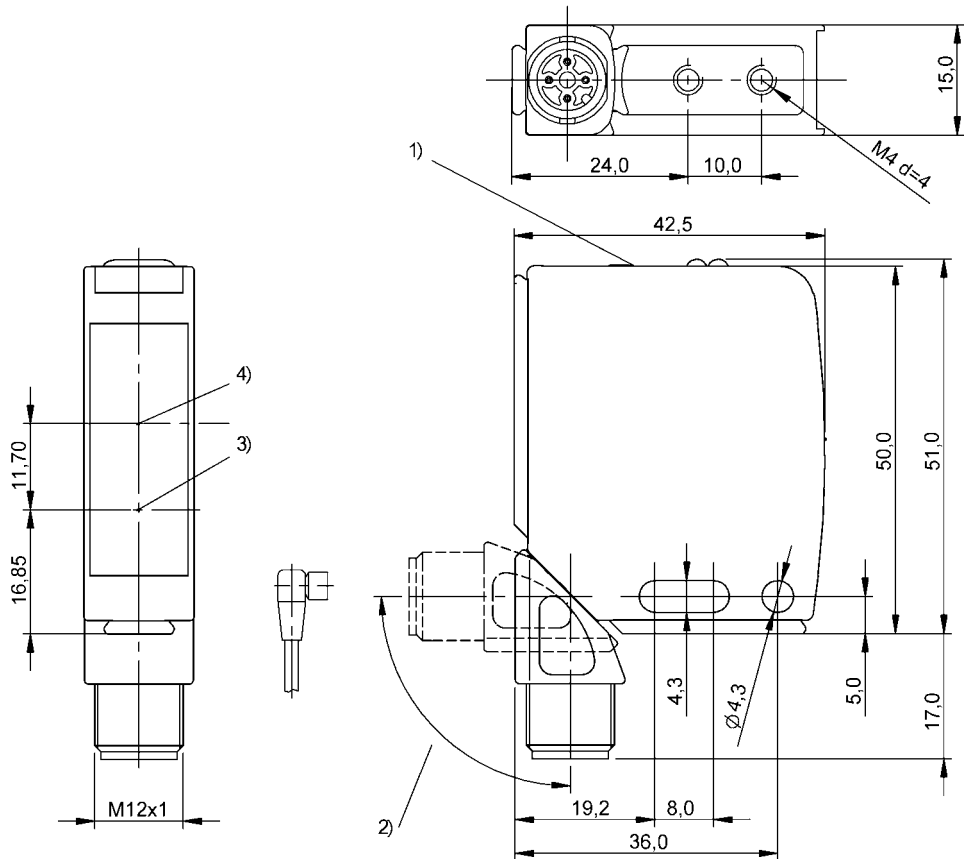


Photoelectric Sensors  
BOS 21M-PA-RH22-S4  
Order Code: BOS01Z8

**BALLUFF**



1) Display and control panel, 2) rotatable 270°, 3) Optical axis emitter, 4) Optical axis receiver



### Basic features

Approval/Conformity	CE UKCA cULus WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Series	21M
Style	Square Connection can be rotated

### 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

### Display/Operation

Adjuster	10-turn potentiometer
Display	Output function- LED yellow LED green: Power Error - LED yellow, flashing Short circuit - LED green, flashing
Setting	Rated switching distance (Sn)

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#### Electrical data

Load capacitance max. at Ue	0.2 µF
No-load current I <sub>o</sub> max. at Ue	40 mA
Operating voltage U <sub>b</sub>	10...30 VDC
Protection class	II
Rated insulation voltage U <sub>i</sub>	250 V AC
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.	50 ms
Residual current I <sub>r</sub> max.	500 µA
Ripple max. (% of U <sub>e</sub> )	15 %
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 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)	264 a
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#### Interface

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

Housing material	Zinc, Die casting, Powder coated Aluminium
Material sensing surface	Glass
Surface protection	Powder coated

#### Mechanical data

Dimension	15 x 51 x 42.5 mm
Mounting part	Screw M4

#### Optical features

Ambient light max.	10000 Lux
Beam characteristic	Focus, typical at 200 mm
LED group per IEC 62471	Exempt Group
Light spot size	6 x 6 mm at 200 mm
Light type	LED, red light
Principle of optical operation	Diffuse sensor, triangulation
Special optical feature	Background suppression
Switching function, optical	Light/dark switching
Wave length	650 nm

#### Range/Distance

Distance deviation 18 % max. (% of Sr)	8 %
Hysteresis H max. (% of Sr)	5.0 %
Range	1...400 mm
Rated operating distance S <sub>n</sub>	400 mm Adjustable
Repeat accuracy max. (% of Sr)	1.0 %
Temperature drift max. (% of Sr)	10 %

#### 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.

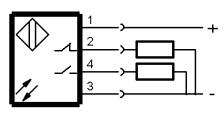
### Connector Drawings



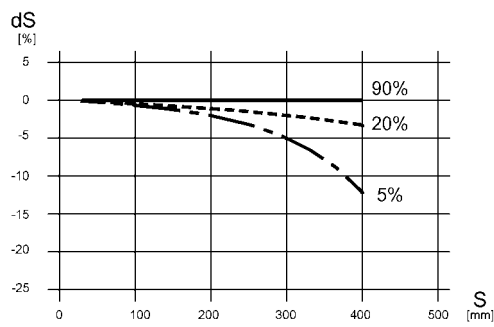
Photoelectric Sensors  
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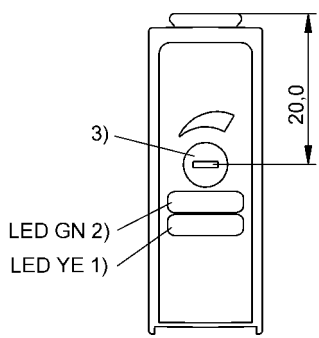
Wiring Diagrams



Technical Drawings



Help Views



- 1) Output function/Error
- 2) Power/short-circuit
- 3) Sn

Opto Symbols

