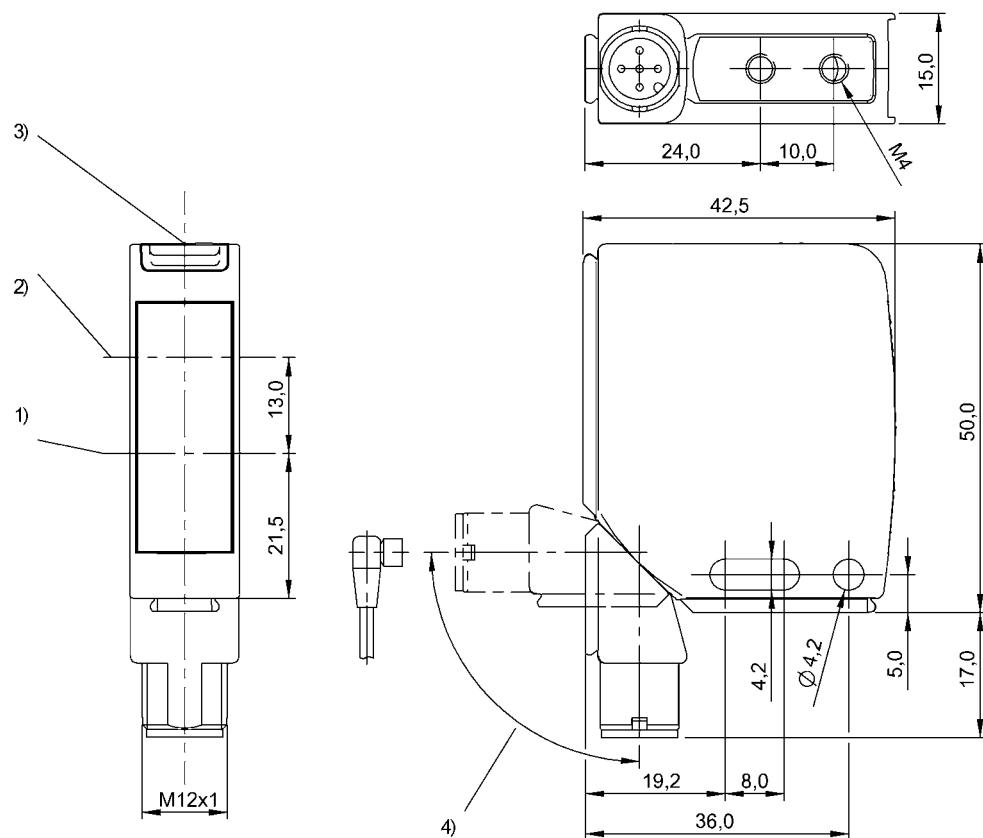


Photoelectric Sensors  
BOD 21M-LA04-S92  
Order Code: BOD000N

**BALLUFF**



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



#### Basic features

Application	Distance measurement
Approval/Conformity	CE UKCA cULus WEEE
Basic standard	IEC 60947-5-2, IEC 60947-5-7
Principle of operation	Photoelectric distance sensor
Series	21M
Style	Square Connection can be rotated

#### Electrical connection

Connection	Connector, M12x1-Male, 5-pin
Contact, surface protection	Gold plated
Polarity reversal protected	yes
Short-circuit protection	yes

#### Display/Operation

Adjuster	Rotary switch 5 positions
Display	Output function Output 1 - LED yellow LED green: Power
Setting	Rated switching distance (Sn) Working range

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**BALLUFF**

**Electrical data**

Load capacitance max. at Ue	0.1 $\mu$ F
Load resistance RL min. (Analog V)	2 kOhm
No-load current I <sub>0</sub> max. at Ue	50 mA
Operating voltage U <sub>b</sub>	18...30 VDC
Rated insulation voltage U <sub>i</sub>	75 V DC
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.	300 ms
Ripple max. (% of U <sub>e</sub> )	15 %
Switching frequency	70 Hz
Turn-off delay t <sub>off</sub> max.	7 ms
Turn-on delay t <sub>on</sub> max.	7 ms
Utilization category	DC-13
Voltage drop U <sub>d</sub> max. at I <sub>e</sub>	2 V

**Environmental conditions**

Ambient temperature	-10...50 °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 0.5 mm, 3x30 min

IP rating

**Functional safety**

MTTF (40 °C)	69 a
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**Interface**

Analog output	Analog, voltage 1...10 V
Output characteristic	linear increasing
Switching output	2x PNP/NPN NO/NC push-pull

**Remarks**

Order accessories separately.

The push-pull switching outputs must not be connected in parallel.

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

Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.

Full accuracy after warmup phase

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 additional information, refer to user's guide.

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.

**Material**

Housing material	Zinc, Die casting
	Aluminium
Material sensing surface	Glass

**Mechanical data**

Dimension	15 x 42.5 x 50 mm
Distance deviation 6 % max. (% of Sr)	1.5 %
Mounting part	Screw M4

**Optical features**

Ambient light max.	5000 Lux
Average power P <sub>o</sub> max.	1 mW
Beam characteristic	Collimated
Laser class per IEC 60825-1	2
Light spot size	1 x 6 mm at 500 mm
Light type	Laser red light
Principle of optical operation	Triangulation
Pulse duration t max.	3000 $\mu$ s
Pulse power P <sub>p</sub> max.	1.2 mW
Switching function, optical	Light/dark switching
Wave length	650 nm

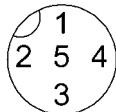
**Range/Distance**

Accuracy	$\pm 3$ % FS
Hysteresis H max. (% of Sr)	6.0 %
Range	20...500 mm, adjustable
Rated operating distance S <sub>n</sub>	500 mm Adjustable
Repeat accuracy	1 % FS (< 200 mm) 3 % (200...500 mm)
Resolution	100...500 $\mu$ m

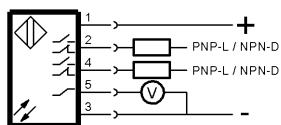
Photoelectric Sensors  
BOD 21M-LA04-S92  
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**BALLUFF**

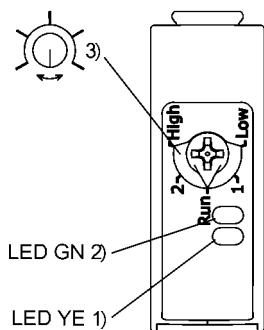
### Connector Drawings



### Wiring Diagrams



### Help Views

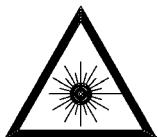


- 1) Output function
- 2) Stability
- 3) Teach-in Sn, WR

### Opto Symbols



Warning Symbols



LASER BEAM - DO NOT STARE INTO THE LIGHT BEAM!

LASER CLASS 2 per IEC60825-1: 2003-10