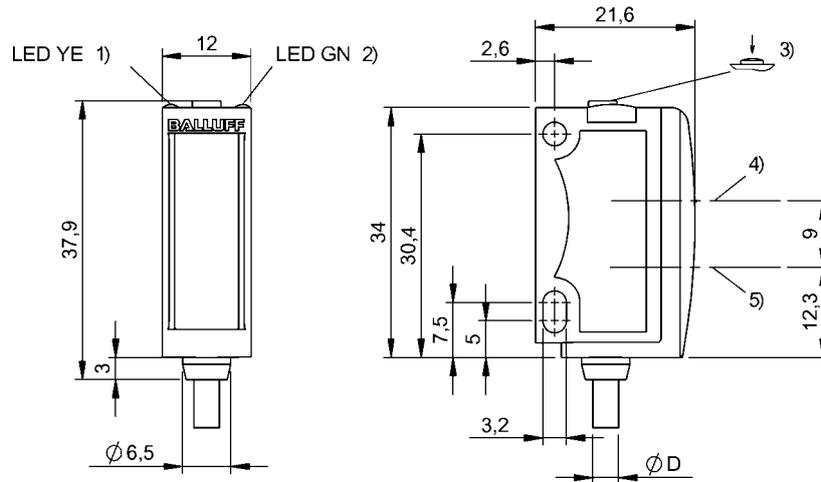


Photoelectric Sensors  
BOD 6K-RA02-02  
Order Code: BOD001M

**BALLUFF**



1) Output function, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter



**Basic features**

Application	Distance measurement
Approval/Conformity	CE cULus Ecolab WEEE
Basic standard	IEC 60947-5-2, IEC 60947-5-7
Principle of operation	Photoelectric distance sensor
Series	6K
Style	Square Connection 90°

**Electrical connection**

Cable diameter D	3.50 mm
Cable length L	2 m
Conductor cross-section	0.14 mm <sup>2</sup>
Connection	Cable, 2.00 m, PVC
Number of conductors	4
Polarity reversal protected	yes
Short-circuit protection	yes

**Display/Operation**

Adjuster	button
Display	Output function- LED yellow LED green: Power
Setting	Factory setting (Reset) Light-on/dark-on Switching output Q Output curve rising / falling Switching distance, 2 values Measuring range QA

**Electrical data**

No-load current I <sub>o</sub> max. at U <sub>e</sub>	30 mA
Operating voltage U <sub>b</sub>	13...30 VDC
Rated operating current I <sub>e</sub>	100 mA
Rated operating voltage U <sub>e</sub> DC	24 V
Ripple max. (% of U <sub>e</sub> )	10 %
Switching frequency	1000 Hz
Turn-off delay t <sub>off</sub> max.	0.5 ms
Turn-on delay t <sub>on</sub> max.	0.5 ms
Voltage drop U <sub>d</sub> max. at I <sub>e</sub>	2.4 V

**Environmental conditions**

Ambient temperature	-20...60 °C
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	IP67
IP rating per DIN 40050	IP69K

Functional safety

MTTF (40 °C)	395 a
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Interface

Analog output	Analog, voltage 1...10 V
Output characteristic	linear rising/falling
Switching output	PNP normally open/normally closed (NO/NC)

Material

Housing material	ABS
Material jacket	PVC
Material sensing surface	PMMA

Mechanical data

Dimension	12 x 37.9 x 21.6 mm
Mounting part	Screw M3

Optical features

Ambient light max.	5000 Lux
Beam characteristic	Divergent
Light spot size	Ø 5 mm at 50 mm
Light type	LED, red light
Principle of optical operation	Triangulation
Switching function, optical	Light/dark switching
Wave length	632 nm

Range/Distance

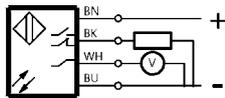
Accuracy	±0.5 % FS
Distance deviation 18 % max. (% of Sr)	7 %
Range	20...80 mm
Rated operating distance Sn	80 mm Adjustable
Repeat accuracy	0.5 %FS
Resolution	≤ 120 µm

Remarks

Order accessories separately.  
 For additional information, refer to user's guide.  
 Do not press key using a pointed tool.  
 The sensor is functional again after the overload has been eliminated.  
 Reference object (target): gray card, 200 x 200, 18 % remission, axial approach.  
 When using as a UL product the ambient temperature Ta max. must not exceed 50°C.  
 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.

Wiring Diagrams



Opto Symbols

