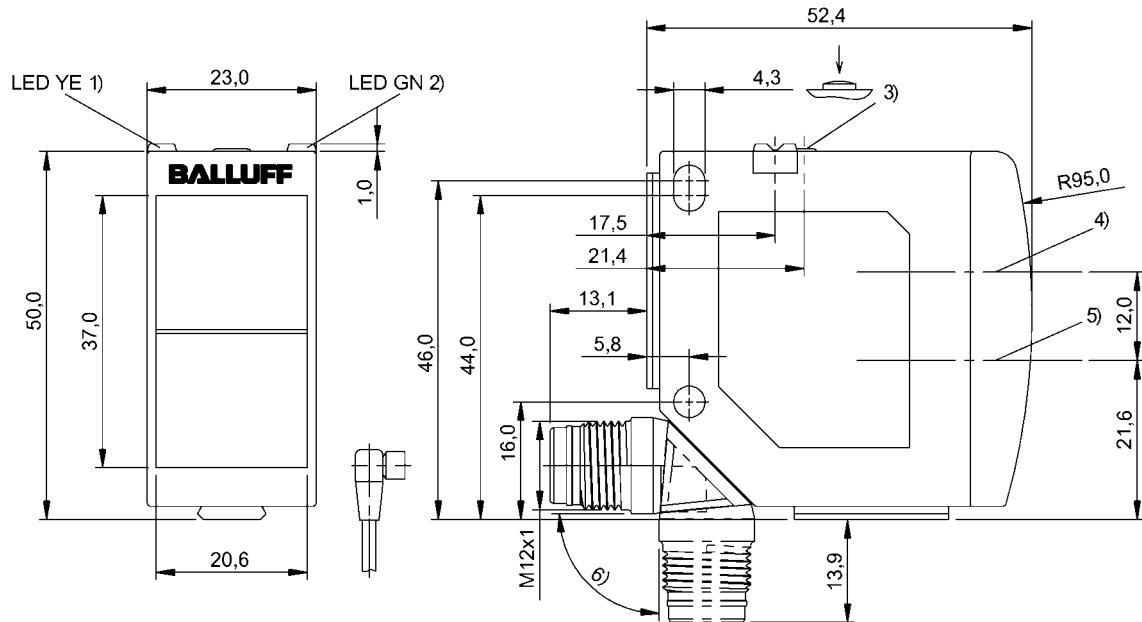


Photoelectric Sensors  
BOS 23K-PU-LD20-S4  
Order Code: BOS0175

**BALLUFF**



1) Output function/Error, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter, 6) rotatable 270°



#### Basic features

Approval/Conformity	CE Ecolab cULus WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Series	23K
Style	Square Connection can be rotated

#### Display/Operation

Adjuster	button
Display	Output function- LED yellow LED green: Power Teach - LED yellow+green, alt. Setting NO/NC - LED green, flashing Error - LED yellow, flashing
Setting	Light-on/dark-on Rated switching distance (Sn)

#### Electrical connection

Connection	Connector, M12x1-Male, 4-pin
Polarity reversal protected	yes
Protection against device mix-ups	yes
Short-circuit protection	yes

Electrical data

Input function	Key disable on/off Same function as button
No-load current $I_0$ max. at $U_e$	30 mA
Operating voltage $U_b$	10...30 VDC
Rated insulation voltage $U_i$	75 V DC
Rated operating current $I_e$	100 mA
Rated operating voltage $U_e$ DC	24 V
Ready delay $t_V$ max.	300 ms
Residual current $I_r$ max.	50 $\mu$ A
Ripple max. (% of $U_e$ )	10 %
Switching frequency	600 Hz
Turn-off delay $t_{off}$ max.	0.83 ms
Turn-on delay $t_{on}$ max.	0.83 ms
Utilization category	DC -13
Voltage drop $U_d$ max. at $I_e$	2 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	IP6x
IP rating per DIN 40050	IPx9K

Functional safety

MTTF (40 °C)	380 a
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Interface

Switching output	PNP normally open/normally closed (NO/NC)
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Remarks

Teach-in also possible when object is in motion.  
Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.  
For additional information, refer to user's guide.  
Order accessories separately.  
Do not press key using a pointed tool.  
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.

Material

Housing material	PC ABS
Material sensing surface	PMMA

Mechanical data

Dimension	23 x 51 x 52.4 mm
Mounting part	Screw M4
Tightening torque max.	1.5 Nm

Optical features

Ambient light max.	5000 Lux
Average power $P_o$ max.	1 mW
Beam characteristic	Collimated
Laser class per IEC 60825-1	1
Light spot size	2.2 x 2.2 mm at 800 mm
Light type	Laser red light
Principle of optical operation	Diffuse sensor, energetic
Pulse duration $t$ max.	3.0 $\mu$ s
Pulse frequency	125 kHz
Pulse power $P_p$ max.	4.8 mW
Switching function, optical	Light/dark switching
Wave length	650 nm

Range/Distance

Hysteresis $H$ max. (% of $S_r$ )	15.0 %
Range	5...1200 mm
Rated operating distance $S_r$	1.2 m Adjustable

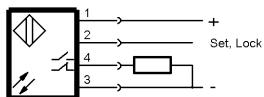
Connector Drawings



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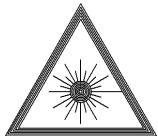
### Wiring Diagrams



### Opto Symbols



### Warning Symbols



LASER CLASS 1 per IEC 60825-1