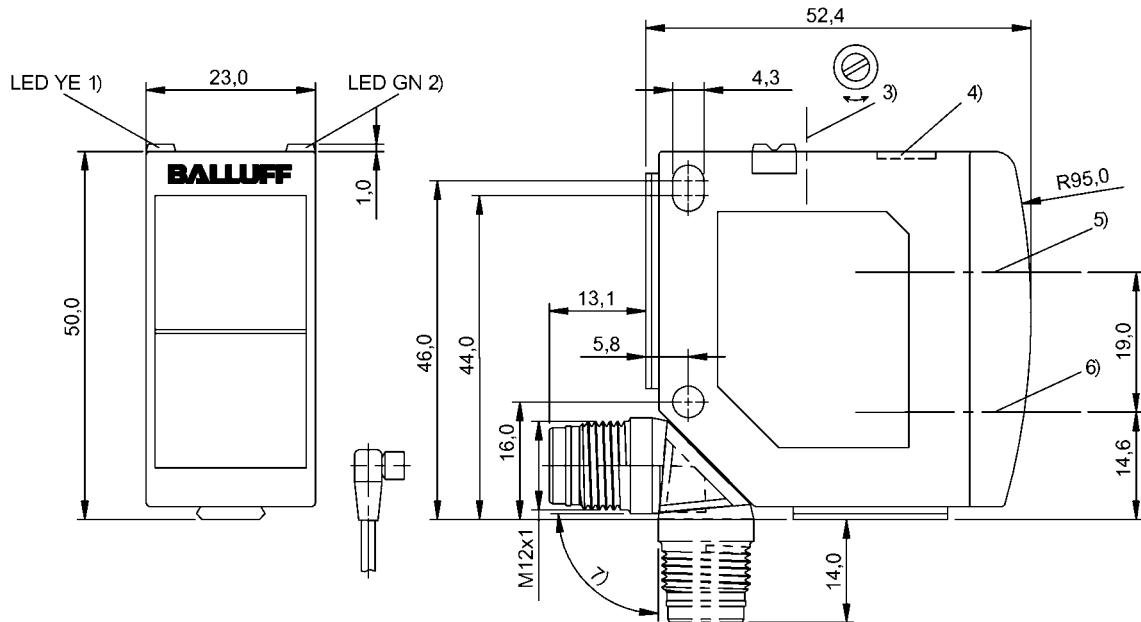


Photoelectric Sensors  
BOS 23K-PA-LH10-S4  
Order Code: BOS01FR

**BALLUFF**



1) Output function/Error, 2) Operating voltage, 3) Sn, 4) Bar display for switching distance, 5) Optical axis receiver, 6) Optical axis emitter, 7) 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

#### Electrical connection

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

#### Display/Operation

Adjuster	Adjusting screw
Display	Output function- LED yellow LED green: Power Error - LED yellow, flashing Switching distance - bar display
Setting	Rated switching distance (Sn)

**Electrical data**

Border range energetic	1200 mm
No-load current $I_0$ max. at $U_e$	30 mA
Operating voltage $U_b$	12...30 VDC
Protection class	II
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 $t_{Vmax}$	300 ms
Residual current $I_r$ max.	50 $\mu$ A
Ripple max. (% of $U_e$ )	10 %
Switching frequency	1000 Hz
Turn-off delay $t_{off}$ max.	0.5 ms
Turn-on delay $t_{on}$ max.	0.5 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 $g_n$ , 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)	362 a
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**Interface**

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

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

For additional information, refer to user's guide.

Order accessories separately.

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.	390 $\mu$ W
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, triangulation
Pulse duration $t$ max.	0.7 $\mu$ s
Pulse frequency	8 kHz
Pulse power $P_p$ max.	4.2 mW
Special optical feature	Background suppression
Switching function, optical	Light-on dark-on
Wave length	655 nm

**Range/Distance**

Distance deviation 18 % max. (% of Sr)	30 %
Hysteresis H max. (% of Sr)	5.0 %
Range	5...800 mm
Rated operating distance $S_n$	800 mm Adjustable

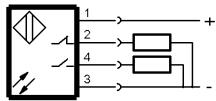
**Connector Drawings**



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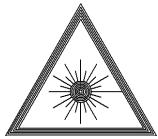
### Wiring Diagrams



### Opto Symbols



### Warning Symbols



LASER CLASS 1 per IEC 60825-1