

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	Ecolab CE 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
Input function	Light-on/dark-on
No-load current $I_{0\max}$ at $U_e$	30 mA
Operating voltage $U_b$	10...30 VDC
Protection class	II
Rated insulation voltage $U_i$	75 V DC
Rated operating current $I_e$	100 mA
Rated operating voltage $U_{e\text{DC}}$	24 V
Ready delay $t_{\text{Vmax}}$	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)	466 a
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**Interface**

Switching output	PNP normally open/normally closed (NO/NC)
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**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
Beam characteristic	Focus, typical at 500 mm
LED group per IEC 62471	Exempt Group
Light spot size	15 x 15 mm at focal point
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	640 nm

**Range/Distance**

Distance deviation 18 % max. (% of $S_r$ )	15 %
Hysteresis $H$ max. (% of $S_r$ )	4.0 %
Range	3...800 mm
Rated operating distance $S_r$	800 mm Adjustable

**Remarks**

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

For additional information, refer to user's guide.

Order accessories separately.

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

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.

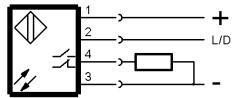
**Connector Drawings**



Photoelectric Sensors  
BOS 23K-PU-RH10-S4  
Order Code: BOS0178

**BALLUFF**

### Wiring Diagrams



### Opto Symbols

