

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



## Basic features

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

## Display/Operation

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

## Electrical connection

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

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

**BALLUFF**

**Electrical data**

<b>Input function</b>	Key disable on/off Same function as button
<b>No-load current I<sub>o max.</sub> at U<sub>e</sub></b>	30 mA
<b>Operating voltage U<sub>b</sub></b>	10...30 VDC
<b>Rated insulation voltage U<sub>i</sub></b>	75 V DC
<b>Rated operating current I<sub>e</sub></b>	100 mA
<b>Rated operating voltage U<sub>e DC</sub></b>	24 V
<b>Ready delay t<sub>v max.</sub></b>	300 ms
<b>Residual current I<sub>r max.</sub></b>	50 µA
<b>Ripple max. (% of U<sub>e</sub>)</b>	10 %
<b>Switching frequency</b>	600 Hz
<b>Turn-off delay t<sub>off max.</sub></b>	0.83 ms
<b>Turn-on delay t<sub>on max.</sub></b>	0.83 ms
<b>Utilization category</b>	DC -13
<b>Voltage drop U<sub>d max.</sub> at I<sub>e</sub></b>	2 V

**Environmental conditions**

<b>Ambient temperature</b>	-20...60 °C
<b>EN 60068-2-27, Shock</b>	Half-sinus, 30 g <sub>n</sub> , 11 ms, 3x6
<b>EN 60068-2-6, Vibration</b>	10...55 Hz, amplitude 0.5 mm, 3x30 min
<b>IP rating</b>	IP6x
<b>IP rating per DIN 40050</b>	IPx9K

**Functional safety**

<b>MTTF (40 °C)</b>	380 a
---------------------	-------

**Interface**

<b>Switching output</b>	PNP normally open/normally closed (NO/NC)
-------------------------	---

**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**

<b>Housing material</b>	PC ABS
<b>Material sensing surface</b>	PMMA

**Mechanical data**

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

**Optical features**

<b>Ambient light max.</b>	5000 Lux
<b>Average power P<sub>o max.</sub></b>	1 mW
<b>Beam characteristic</b>	Collimated
<b>Laser class per IEC 60825-1</b>	1
<b>Light spot size</b>	2.2 x 2.2 mm at 800 mm
<b>Light type</b>	Laser red light
<b>Principle of optical operation</b>	Diffuse sensor, energetic
<b>Pulse duration t<sub>max.</sub></b>	3.0 µs
<b>Pulse frequency</b>	125 kHz
<b>Pulse power P<sub>p max.</sub></b>	4.8 mW
<b>Switching function, optical</b>	Light/dark switching
<b>Wave length</b>	650 nm

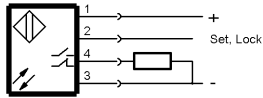
**Range/Distance**

<b>Hysteresis H max. (% of S<sub>r</sub>)</b>	15.0 %
<b>Range</b>	5...1200 mm
<b>Rated operating distance S<sub>n</sub></b>	1.2 m Adjustable

**Connector Drawings**



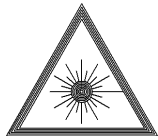
## Wiring Diagrams



## Opto Symbols



## Warning Symbols



LASER CLASS 1 per IEC 60825-1