

1) Optical axis receiver, 2) Optical axis emitter, 3) Sensitivity, 4) Output function, 5) Light-on/dark-on, 6) stability



## Basic features

Approval/Conformity	cULus CE WEEE UKCA
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Reference reflector	BOS R-22
Series	5K
Style	Square Connection 45°
Trademark	Global

## Display/Operation

Adjuster	Potentiometer 270° (2x)
Display	Output function- LED yellow Stability - LED green
Setting	Light-on/dark-on Sensitivity (Sn)

## Electrical connection

Cable diameter D	3.50 mm
Cable length L	2 m
Conductor cross-section	0.20 mm <sup>2</sup>
Connection	Cable, 2.00 m, PVC
Number of conductors	3
Polarity reversal protected	yes
Short-circuit protection	yes

## Electrical data

No-load current I <sub>o</sub> max. at U <sub>e</sub>	35 mA
Operating voltage U <sub>b</sub>	10...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	2000 Hz
Turn-off delay t <sub>off</sub> max.	0.25 ms
Turn-on delay t <sub>on</sub> max.	0.25 ms
Voltage drop U <sub>d</sub> max. at I <sub>e</sub>	1.5 V

Photoelectric Sensors  
**BOS 5K-NU-LR10-02**  
**Order Code: BOS01JR**



**Environmental conditions**

<b>Ambient temperature</b>	-10...55 °C
<b>EN 60068-2-27, Shock</b>	Half-sinus, 50 g <sub>n</sub> , 11 ms, 3x10
<b>EN 60068-2-6, Vibration</b>	10...55 Hz, amplitude 1.5 mm, 3x2 h
<b>IP rating</b>	IP67

**Functional safety**

<b>MTTF (40 °C)</b>	3 a
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**Interface**

<b>Switching output</b>	NPN normally open/normally closed (NO/NC)
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**Material**

<b>Housing material</b>	PC PBT
<b>Material jacket</b>	PVC
<b>Material sensing surface</b>	PMMA

**Mechanical data**

<b>Dimension</b>	10.8 x 32.7 x 19.5 mm
<b>Mounting part</b>	Screw M3
<b>Tightening torque max.</b>	0.5 Nm

**Optical features**

<b>Ambient light max.</b>	5000 Lux
<b>Average power P<sub>o</sub> max.</b>	390 µW
<b>Beam characteristic</b>	Divergent
<b>Blind zone</b>	300 mm
<b>Laser class per IEC 60825-1</b>	1
<b>Light spot size</b>	Ø 5 mm at 3 m
<b>Light type</b>	Laser red light
<b>Polarizing filter</b>	yes
<b>Principle of optical operation</b>	Retroreflective sensor
<b>Pulse duration t max.</b>	1.4 µs
<b>Pulse frequency</b>	20 kHz
<b>Pulse power P<sub>p</sub> max.</b>	4.5 mW
<b>Switching function, optical</b>	dark-on/light-on
<b>Wave length</b>	650 nm

**Range/Distance**

<b>Range</b>	0...10 m
<b>Rated operating distance S<sub>n</sub></b>	10 m Adjustable

**Remarks**

Order accessories separately.

Polarizing filters prevent spurious switching due to reflecting and shiny parts.

For additional information, refer to user's guide.

Actuation object (target): gray card, 200 x 200, 90 % remission, lateral approach, approach direction vertical to lens axis plane.

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

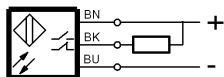
When using as a UL product the ambient temperature T<sub>a</sub> max. must not exceed 50°C.

To meet the EMC requirements of EN 60947-5-2 the mounting bracket must not be grounded.

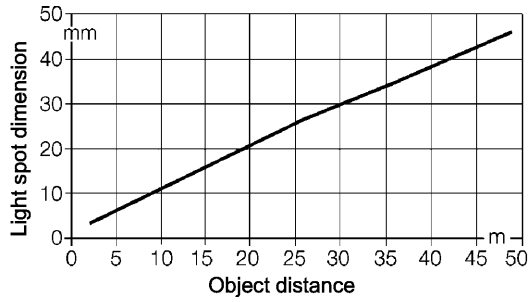
For more information about MTTF and B10d see MTTF / B10d Certificate

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**



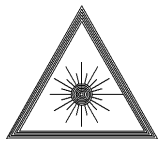
## Technical Drawings



## Opto Symbols



## Warning Symbols



LASER CLASS 1 per IEC 60825-1