

1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception, 5) Sn



**Basic features**

Approval/Conformity	CE cULus WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Series	R020K
Style	Square Connection 60°

**Display/Operation**

Adjuster	3-turn potentiometer
Display	LED green: Power LED yellow: Light received
Setting	Rated switching distance (Sn)

**Electrical connection**

Cable diameter D	2.40 mm
Cable length L	2 m
Conductor cross-section	0.09 mm <sup>2</sup>
Connection	Cable, 2.00 m, PVC
Number of conductors	3
Polarity reversal protected	yes
Protection against device mix-ups	yes
Short-circuit protection	yes

**Electrical data**

No-load current I <sub>0</sub> max. at U <sub>e</sub>	20 mA
Operating voltage U <sub>b</sub>	10...30 VDC
Protection class	III
Rated insulation voltage U <sub>i</sub>	50 V DC
Rated operating current I <sub>e</sub>	50 mA
Rated operating voltage U <sub>e</sub> DC	24 V
Ripple max. (% of U <sub>e</sub> )	20 %
Switching frequency	1000 Hz
Turn-off delay t <sub>off</sub> max.	0.5 ms
Turn-on delay t <sub>on</sub> max.	0.5 ms
Voltage drop U <sub>d</sub> max. at I <sub>e</sub>	2.5 V

**Environmental conditions**

Ambient temperature	-20...50 °C
IP rating	IP67

**Functional safety**

MTTF (40 °C)	3378 a
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**Interface**

Switching output	NPN normally open (NO)
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**Material**

Housing material	ABS
Material jacket	PVC
Material sensing surface	PMMA

Photoelectric Sensors  
**BOS R020K-NS-RH12-02**  
Order Code: BOS0229

# BALLUFF

## Mechanical data

Dimension	7.7 x 32.5 x 13.5 mm
Mounting part	Screw M3

## Range/Distance

Range	1...150 mm
Rated operating distance Sn	30 mm

## Optical features

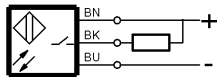
Ambient light max.	5000 Lux
Beam characteristic	Focus, typical at 15 mm
Light spot size	Ø 4.4 mm at 80 mm
Light type	LED, red light
Principle of optical operation	Diffuse sensor, triangulation
Special optical feature	Background suppression
Switching function, optical	Light-on
Wave length	660 nm

## Remarks

The sensor is functional again after the overload has been eliminated.  
Reference object (target): gray card, 100 x 100, 90 % remission, axial approach.  
For additional information, refer to user's guide.  
Order accessories separately.  
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



## Opto Symbols

