

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



### Basic features

Approval/Conformity	cULus CE UKCA WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Reference reflector	BOS R-22
Series	18M
Style	Cylinder Straight optics

### Display/Operation

Adjuster	Potentiometer 270°
Display	LED green: Power Error - LED green, flashing Limit range - LED yellow, flashing LED yellow: Light received
Setting	Sensitivity (Sn)

### Electrical connection

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

### Electrical data

Load capacitance max. at Ue	0.1 µF
No-load current I <sub>o</sub> max. at Ue	15 mA
Operating voltage U <sub>b</sub>	10...30 VDC
Protection class	II
Rated insulation voltage U <sub>i</sub>	75 V DC
Rated operating current I <sub>e</sub>	100 mA
Rated operating voltage U <sub>e</sub> DC	24 V
Ready delay t <sub>v</sub> max.	20 ms
Ripple max. (% of U <sub>e</sub> )	15 %
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
Utilization category	DC -13
Voltage drop U <sub>d</sub> max. at I <sub>e</sub>	1.5 V

### Environmental conditions

Ambient temperature	-5...55 °C
Contamination scale	3
EN 60068-2-27, Shock	Half-sinus, 30 g <sub>n</sub> , 11 ms, 3x6
EN 60068-2-6, Vibration	10...55 Hz, amplitude 1 mm, 3x30 min
IP rating	IP67

### Functional safety

MTTF (40 °C)	575 a
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## Interface

<b>Switching output</b>	NPN normally closed (NC)
	NPN normally open (NO) Pins 4-2

## Material

<b>Housing material</b>	Brass, nickel-plated
<b>Material sensing surface</b>	Glass
<b>Surface protection</b>	nickel-plated

## Mechanical data

<b>Dimension</b>	Ø 18 x 75 mm
<b>Mounting part</b>	Nut M18x1
<b>Tightening torque max.</b>	15 Nm
	30 Nm

## Optical features

<b>Ambient light max.</b>	10000 Lux
<b>Average power Po max.</b>	390 µW
<b>Beam characteristic</b>	Collimated
<b>Blind zone</b>	30 mm
<b>Laser class per IEC 60825-1</b>	1
<b>Light spot size</b>	Ø 10 mm at 16 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>	4400 µs
<b>Pulse frequency</b>	10 kHz
<b>Pulse power Pp max.</b>	2.5 mW
<b>Smallest part typ.</b>	Ø 0.4 mm at 1 m. R0 = 3 m
<b>Switching function, optical</b>	Light-on
	dark-on
<b>Wave length</b>	655 nm

## Range/Distance

<b>Range</b>	0..16 m
<b>Rated operating distance Sn</b>	16 m, Adjustable

## Remarks

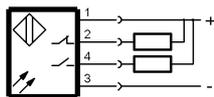
The sensor is functional again after the overload has been eliminated.  
 Polarizing filters prevent spurious switching due to reflecting and shiny parts.  
 For additional information, refer to user's guide.  
 Order accessories separately.  
 For more information about MTTF and B10d see MTTF / B10d 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.

## Connector Drawings

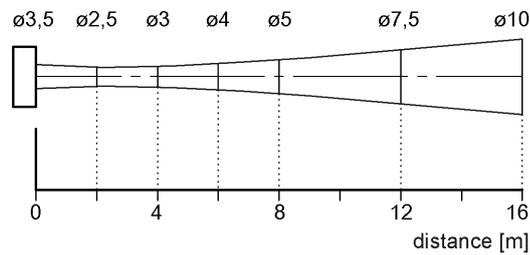


## Wiring Diagrams (Schematic)

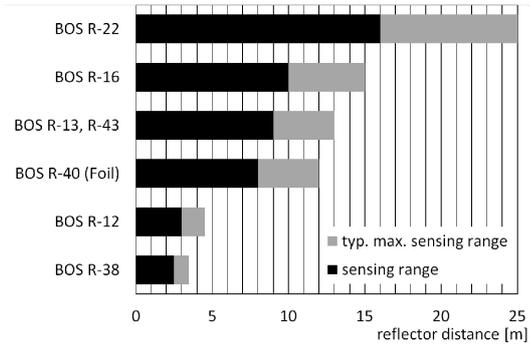


## Technical Drawings

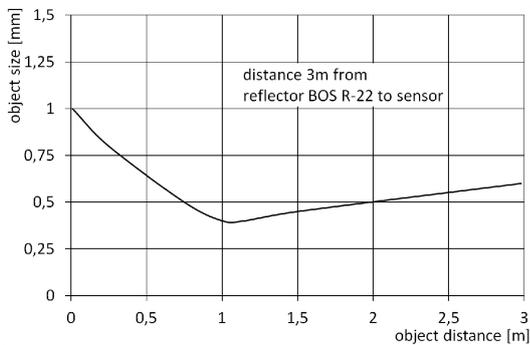
Spot size typ. [mm]



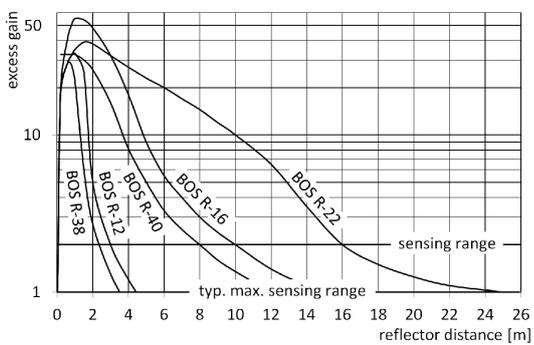
Range



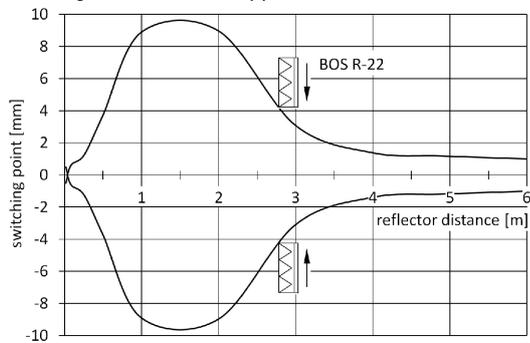
Small part detection



Excess gain



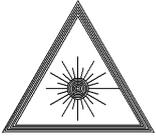
Sensing area for lateral approach



## Opto Symbols



## Warning Symbols



LASER CLASS 1 per IEC 60825-1