

- 1) Optical axis receiver  
2) Optical axis emitter



### Basic features

Approval/Conformity	CE cULus Ecolab EAC WEEE
Basic standard	IEC 60947-5-2
Principle of operation	Photoelectric sensor
Series	18E
Style	Cylinder Straight optics

### Display/Operation

Adjuster	no
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### 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 Io max. at Ue	40 mA
Operating voltage Ub	10...30 VDC
Rated insulation voltage Ui	75 V DC
Rated operating current Ie	100 mA
Rated operating voltage Ue DC	24 V
Ripple max. (% of Ue)	15 %
Switching frequency	400 Hz
Turn-off delay toff max.	1.25 ms
Turn-on delay ton max.	1.25 ms
Utilization category	DC -13
Voltage drop Ud max. at Ie	2.5 V

### Environmental conditions

Ambient temperature	-25...60 °C
Contamination scale	3
EN 60068-2-27, Shock	Half-sinus, 100 gn, 2 ms, 3x8000
EN 60068-2-6, Vibration	10...2000 Hz, amplitude 1 mm, 30 gn, 3x5 h
IP rating	IP68/IP67
IP rating per DIN 40050	IPx9K

### Functional safety

MTTF (40 °C)	538 a
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Photoelectric Sensors  
**BOS 18E-PA-RD31-S4**  
Order Code: BOS023T

**BALLUFF**

**Material**

Housing material	Stainless steel (1.4404)
Material sensing surface	PMMA

**Mechanical data**

Dimension	Ø 18 x 75 mm
Mounting	Nut M18x1
Tightening torque max.	40 Nm

**Optical features**

Ambient light max.	10000 Lux
Beam characteristic	Divergent
LED group per IEC 62471	Exempt Group
Light type	LED, red light
Principle of optical operation	Diffuse sensor, energetic
Switching function, optical	Light/dark switching
Wave length	640 nm

**Output/Interface**

Switching output	PNP normally open (NO) PNP NC Pins 4-2
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**Range/Distance**

Hysteresis H max. (% of Sr)	10.0 %
Range	250 mm
Rated operating distance Sn	250 mm
Temperature drift max. (% of Sr)	10 %

**Remarks**

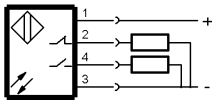
The sensor is functional again after the overload has been eliminated.  
Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.  
For additional information, refer to user's guide.  
Order accessories separately.  
For more information about MTTF and B10d see MTTF / B10d Certificate

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.

**Connector Drawings**



**Wiring Diagrams**



**Opto Symbols**

