Technical Description

Sensor failures are one of the most common causes of interruptions in production facilities. The resulting costs and problems are not only a problem for the bottom line, but also reduce availability of the equipment. Help is now available by using suitable sensors, such as the Opto-PROXINOX series.

These new sensors have a skin of corrosion-resistant stainless 1.4571, with no surface degradation. Nor are there any compromises with the optical surface, with its 2 mm thick glass element (also plastic for the food industry). The nightmare of lost name-plates is also over: the stainless steel sensors are laser engraved. And inside? Sealed to IP 69, the Balluff electronics operate flawlessly under the most difficult conditions and supplies a generous 200 mA on the output. Mounting and connections: rugged, reliable, and safe (fully reverse polarity protected). The housing design is identical for all the sensors in the BOS 18E series. A special housing nose and optics construction provides optimum sealing and rigidity. In addition to the usual IP 68 protection, steam cleaning is also permitted.

The BOS 18E series includes diffuse models with fixed sensing distances of 100 mm, 200 mm and 400 mm. They are manufactured to precise tolerances. This makes them ideal for rapid and uncomplicated assembly. The use of highly visible red light (100 and 200 mm versions) also makes them easy to set up. The versions with a plastic disc work with high-energetic infrared light. The retroreflective model with polarizing filter and 2000 mm range will not be "blinded" by highly reflective objects, but rather detects them reliably. This increases the sensor's flexibility and reliability. The use of highly visible red light makes setup easier. A non-polarized version even attains a range of 4000 mm.

The thru-beam model operates using infrared light, with an outstanding range of 16 m. The high-energy beam can penetrate ordinary paper. An ideal sensor for harsh environments, for example in the food processing industry, where a sensor with large function reserves is demanded!

Features

- Supply voltage 10...30 V DC, reverse polarity protected
- Output short circuit protected
- Rugged stainless steel housing without holes and with stainless nuts
- Enclosure rating IP 69
- Optical surface of rugged 2 mm BOROFLOAT glass or scratch-resistant Tempax, bead secured
- Diffuse or retroreflective with red light
- One-way thru-beam with infrared light

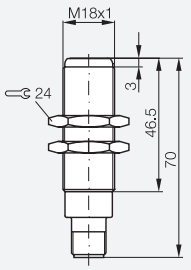
Applications

- Bottling equipment
- Food processing
- Packaging
- Laundry and dry-cleaning
- Machine tools
- Heavy industry
- Car wash equipment
- Wherever other sensors don't measure up

New:
Also with plastic front disc (PMMA scratch-resistant)

					Glass Lens	Plastic Lens
Housing size						
Diffuse	sensing range				**100 mm/200 mm/400 mm**	**100 mm/200 mm/400 mm**
Retroreflective	sensing range				**2 m/4 m**	**2 m/4 m**
Thru-Beam	sensing range				**16 m**	**16 m**

stainless 1.4571



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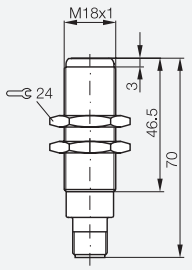

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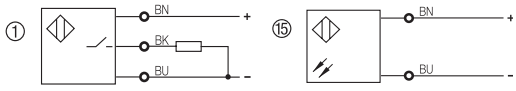
						Glass Lens	Plastic Lens
Diffuse							
PNP	O	100 mm	red light	①		BOS 18E-PS-1YA-E5-D-S 4	
PNP	O	200 mm	red light	①		BOS 18E-PS-1YB-E5-D-S 4	
PNP	O	400 mm	red light	①		BOS 18E-PS-1YD-E5-D-S 4	
PNP	O	100 mm	infrared light	①			BOS 18E-PS-1XA-SA 1-S 4
PNP	O	200 mm	infrared light	①			BOS 18E-PS-1XB-SA 1-S 4
PNP	O	400 mm	infrared light	①			BOS 18E-PS-1XD-SA 1-S 4
Retroreflective							
PNP	●	2 m	red light, polarizing filter	①		BOS 18E-PS-1UB-E5-D-S 4	BOS 18E-PS-1UB-SA 1-S 4
PNP	●	4 m	red light	①		BOS 18E-PS-1WD-E5-D-S 4	
Thru-Beam							
PNP	●	16 m	infrared light	①		BLE 18E-PS-1P-E5-D-S 4	BLE 18E-PS-1P-SA 1-S 4
			emitter	⑮		BLS 18E-XX-1P-E5-X-S 4	BLS 18E-XX-1P-SA 1-S 4

	Glass Lens	Plastic Lens
Supply voltage U_B	10...30 V DC	10...30 V DC
Voltage drop U_d at I_e	≤ 2.5 V	≤ 2.5 V
Rated isolation voltage U_i	250 V DC	250 V DC
Rated operational current I_e	200 mA	200 mA
No-load supply current I_0	≤ 20 mA (BLS ≤ 40 mA)	≤ 20 mA (BLS ≤ 40 mA)
Protected against polarity reversal	yes	yes
Short circuit protected	yes	yes
Permissible capacitance	1 µF	1 µF
On/Off delay	5 ms	5 ms
Frequency of operating cycles	100 Hz	100 Hz
Utilization category	DC 13	DC 13
Output	PNP	PNP
Output function	O or ●	O or ●
Permissible ambient light	2000 Lux	2000 Lux
Sensitivity adjustment	no	no
Output function indication	no	no
Stability indication	no	no
Ambient temperature range T_a	–20...+75 °C	–20...+75 °C
Degree of protection per IEC 529	**IP 68 wash-down rated**	**IP 68 wash-down rated**
Insulation class	II	II
Housing material	stainless 1.4571	stainless 1.4571
Material of sensing face	**glass**	**scratch-resistant PMMA**
Connection	connector	connector
Recommended connector	BKS-S 20 E	BKS-S 20 E

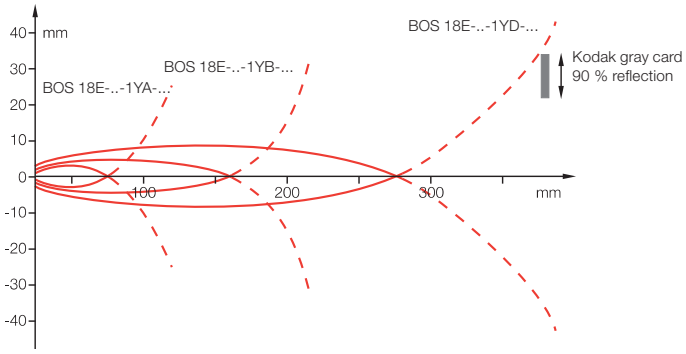
O /● = Light-On/Dark-On

Note: Diffuse values referenced to Kodak gray card with 90 % reflection.
Retroreflective values referenced to R1 reflector.
NPN available on request.

Connection Diagrams

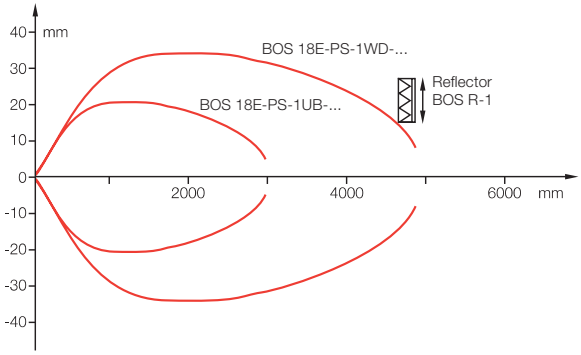


Diffuse BOS-18E-...-1YA/1YB/1YD-...



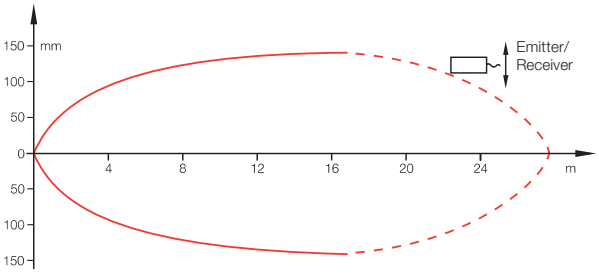
Sensing distance measured with lateral approach using Kodak gray card.

Retroreflective BOS-18E-...-1UB/1WD-...



Sensing distance measured with lateral approach using reflector.

Thru-Beam BLE/BLS 18E-...



For the thru-beam sensor the maximum possible offset between emitter and receiver is measured.