

Technical Description

The S5 series represent an economical, full-line family of 18 mm tubular photoelectric sensors. This broad-line family is available in straight or right angle tubular housings with all the following sensing modes supported:

- Retroreflective
- Polarized retroreflective
- Diffuse scanner
- Fixed focus diffuse scanner
- Fiber optics
- Emitter/receiver

The S5 versions operating from 10 to 30 Vdc have dual NPN/PNP output and light/dark operation selection. These units are also short-circuit and reverse polarity protected. The AC versions accept any voltage from 15 to 264 Vac and are supplied with Triac output.

A red output LED indicator is standard in all models. The DC versions of the series are provided with a green stability LED to control alignment.

S5 sensors are enclosed in a plastic casing, which meets protection class IP67. Electrical connection may be with a cable or using the standard M12 DC micro connector.

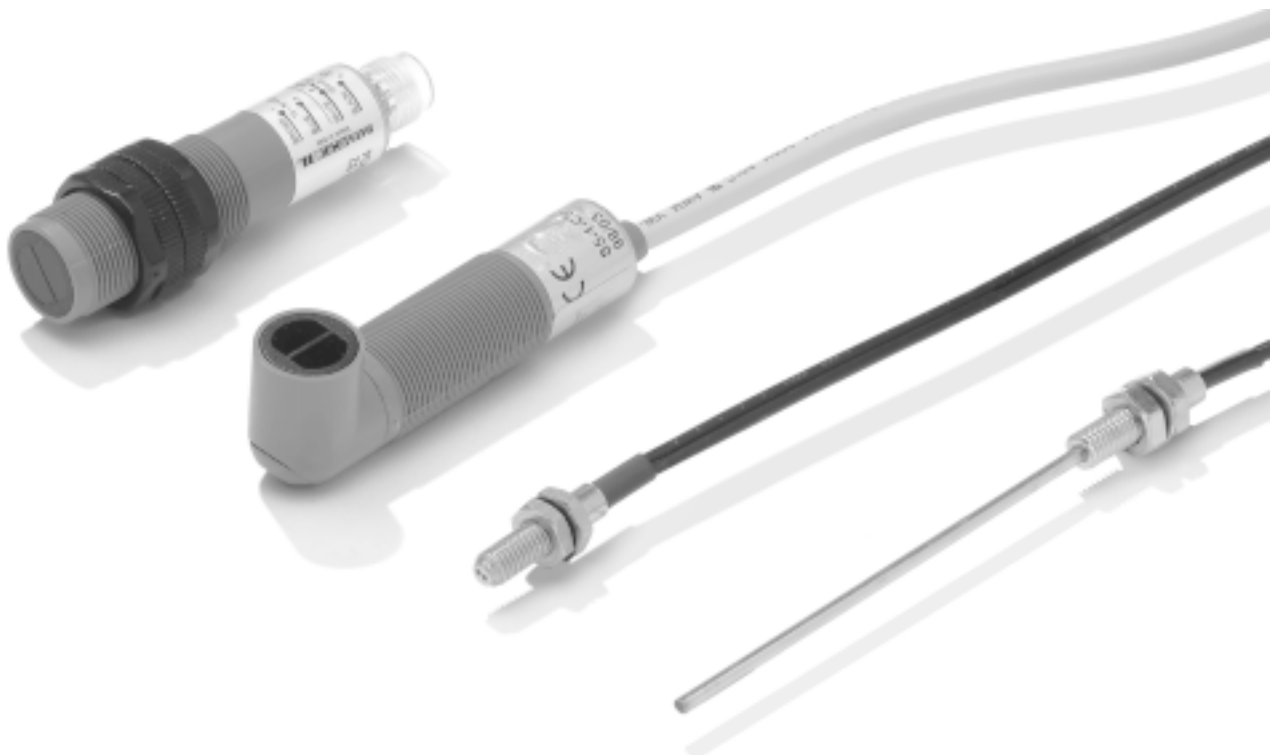
The wide range of models available allow these sensors to be used in a variety of industrial applications requiring solutions for critical space and difficult access situations. An MEK 18 mm glass cover is available to protect the lens when used in the presence of corrosive substances.

Features

- AC versions (15 to 264 Vac)
- DC versions (10 to 30 Vdc)
- Green stability LED
- Light/dark selection
- Sensitivity control
- Straight or 90° optics
- Connection via cable or M12 connector
- Test input models
- Fiber optic versions
- Plastic casing - IP67
- M18x1 tubular plastic housing with IP67 rating

Applications

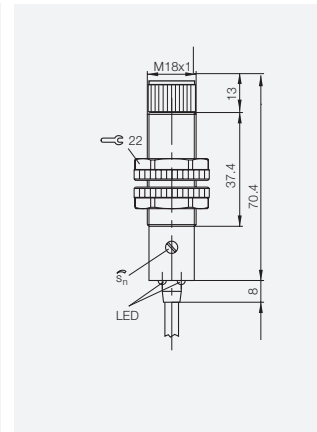
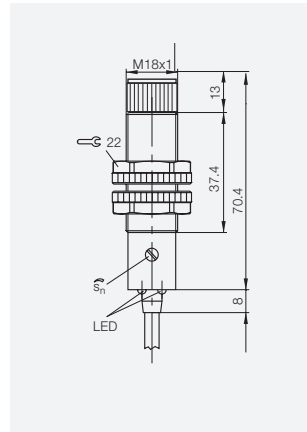
- Automatic packaging machines
- Presence detection, counting
- Transport and conveyor lines
- Robotics and FMS applications
- Small object detection
- Critical space situations



Tubular Optical Sensors

BOS-S5
DC, Selectable PNP/NPN
and Light/Dark Operate

Series	BOS S5 Straight, Cable Out	BOS S5 Straight, Connector
Cable Out	14mm to 12m	14mm to 12m
Sensing Range		



	Diffuse	80mm (3.1 in.) 100mm (4.0 in.) 300mm (11.8 in.), Potentiometer 350mm (13.8 in.), Potentiometer	BOS S5-5-C10-30 BOS S5-5-C35-30 BOS S5-5-D14-30 BOS S5-5-D15-30	BOS S5-5-C10-32 BOS S5-5-C35-32 BOS S5-5-D14-32 BOS S5-5-D15-32
	Fixed Focus	14mm (0.55 in.) 15mm (0.6 in.), Potentiometer	BOS S5-5-A4-30	BOS S5-5-A4-32
	Retroreflective	0.1 to 2m (.3 to 6.6 ft) 0.1 to 4m (.3 to 13 ft)	BOS S5-5-B3-30	BOS S5-5-B3-32
	Polarized Retroreflective	0.1 to 1.5m (.3 to 5 ft) Pol. Filter 0.1 to 2m (.3 to 6.6 ft) Pol. Filter	BLE S5-5-F12-30	BLE S5-5-F12-32
	Thru-Beam	8m (26 ft), Receiver, Potentiometer 12m (39 ft), Receiver, Potentiometer 8m (26 ft), Sender 12m (39 ft), Sender	BLS S5-5-G12-00	BLS S5-5-G12-02
	Fiber Optic, Plastic	Potentiometer		

Voltage supply	10 to 30 Vdc
Voltage drop, output	<1.5 V
Rated isolation voltage	75 Vdc
Rated output current	150 ma
Supply current (no load)	30 ma
Protections	Short circuit, polarity reversal
On/Off delay	1 ms, 2 ms for thru-beam
Switching frequency	500 Hz, 250 for thru-beam
Output type	Wire option PNP/NPN
Output function	Wire option Light/Dark operate
Sensitivity/Range adjustment	1-turn potentiometer (certain models)
Output function indication	Red LED
Ambient Light Protection	3000 Lux: inc. lam 10000 Lux: sun light
Emitter light source	Infrared 880 nm (diffuse, retro, thru-beam) Visible red 660 nm (Fixed focus, fiber)
Ambient operating temperature	-15°C to +55°C (+5°F to +131°F)
Storage temperature	-20°C to +70°C (-4°F to +158°F)
Degree of protection per IEC 529	IP 67
Shock/vibration	50G, 10 to 55 Hz at 1.5mm on all 3 axis
Relative Humidity	35 to 85% (non-condensing)
Housing material	Plastic
Sensing face material	PMMA Methacrylate
Connection	2m cable (4-wire, 22 AWG) 4-pin, M12 (micro) connector
Recommended Connector	- BKS S19/S20

Dimension Values

With potentiometer:

L = 65 mm

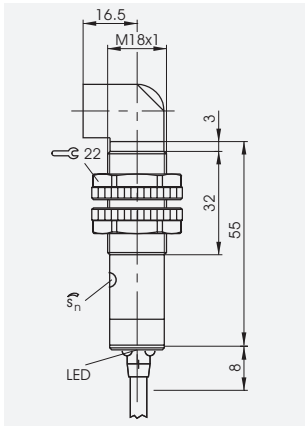
X = 42 mm

Without potentiometer:

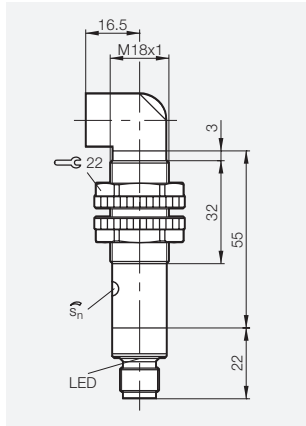
L = 55 mm

X = 32 mm

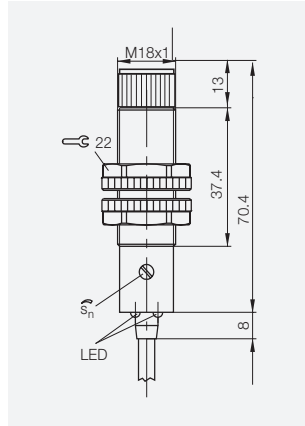
**BOS S5 Right Angle,
Cable Out**
80mm to 8m



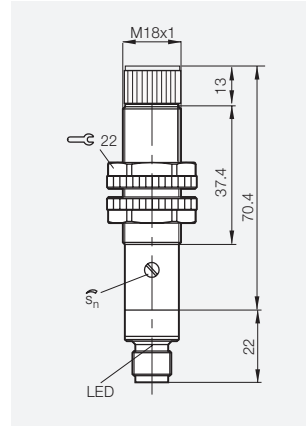
**BOS S5 Right Angle,
Connector**
80mm to 8m



**BOS S5, Fiber-Optic
Cable Out**
Depends on Fibers



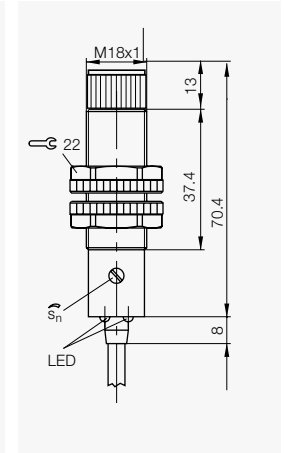
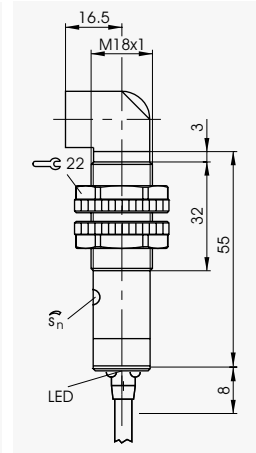
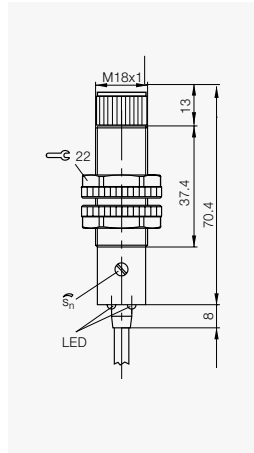
**BOS S5, Fiber-Optic
Connector**
Depends on Fibers



BOS S5-5-C8-35	BOS S5-5-C8-37		
BOS S5-5-C30-35	BOS S5-5-C30-37		
BOS S5-5-A2-35	BOS S5-5-A2-37		
BOS S5-5-B1.5-35	BOS S5-5-B1.5-37		
BLE S5-5-F8-35	BLE S5-5-F8-37		
BLS S5-5-G8-05	BLS S5-5-G8-07		
		BOS-S5-5-E1-30	BOS-S5-5-E1-32

10 to 30 Vdc			
<1.5 V			
75 Vdc			
150 ma			
30 ma			
Short circuit, polarity reversal			
1 ms, 2 ms for thru-beam			
500 Hz, 250 for thru-beam			
Wire option PNP/NPN			
Wire option Light/Dark operate			
1-turn potentiometer (certain models)			
Red LED			
Infrared 880 nm	3000 Lux: inc. lam	10000 Lux: sun light	visible red 660nm
	Infrared 880 nm	visible red 660nm	visible red 660nm
-15°C to +55°C (+5°F to +131°F)			
-20°C to +70°C (-4°F to +158°F)			
IP 67			
50G, 10 to 55 Hz at 1.5mm on all 3 axis			
35 to 85% (non-condensing)			
Plastic			
PMMA Methacrylate			
2m cable (4-wire, 22 AWG)	4-pin, M12 (micro) connector	2m cable (4-wire, 22 AWG)	4-pin, M12 (micro) connector
-	BKS-S19/S20	-	BKS-S19/S20

Series	BOS S5 Straight, Cable out	BOS S5 Right Angle, Cable out	BOS S5 Straight, Cable out, Fiber-optics
Sensing Range	80mm to 8m	80mm to 8m	Depends on Fiber



Diffuse	80mm (3.1 in.), Light Operate	BOS-S5-1-C8-20-D1	BOS-S5-1-C8-25	
	80mm (3.1 in.), Dark Operate	BOS-S5-1-C8-10	BOS-S5-1-C8-15	
	300mm (11.8 in.), Light Operate Pot.	BOS-S5-1-C30-20		
	300mm (11.8 in.), Dark Operate Pot.	BOS-S5-1-C30-10		
Fixed Focus	15mm (0.6 in.), Light Operate	BOS-S5-1-D15-20		
	15mm (0.6 in.), Dark Operate	BOS-S5-1-D15-10		
Ret. Refl	0.1 to 2m (.3 to 6.6 ft), Light Operate	BOS-S5-1-A2-20	BOS-S5-1-A2-25	
	0.1 to 2m (.3 to 6.6 ft), Dark Operate	BOS-S5-1-A2-10	BOS-S5-1-A2-15	
Thru-Beam	8m (26 ft), Receiver, Light Operate Pot.	BLE-S5-1-F8-20	BLE-S5-1-F8-25	
	8m (26 ft), Receiver, Dark Operate Pot.	BLE-S5-1-F8-10	BLE-S5-1-F8-15	
	8m (26 ft), Sender	BLS-S5-1-G8-00	BLS-S5-1-G8-05	
Fiber-Optic	AC, Light operate, Potentiometer			BOS-S5-1-E1-20

Voltage supply	15 to 264 Vac, 48 to 62 Hz
Voltage drop, output	10 VA max.
Rated output current	100 ma
Leakage current	1 ma max. at 264 Vac
Protections	None
On/Off delay	20 ms
Switching frequency	25 Hz
Output type	SCR + bridge rectifier
Output function	Light/Dark operate models
Sensitivity/Range adjustment	1-turn potentiometer (certain models)
Output function indication	Red LED
Ambient Light Protection	3000 Lux: inc. lam 10000 Lux: sun light
Emitter light source: diffuse, retro, thru-beam	Infrared 880 nm
Emitter light source, fixed focus and Fiber-optic	Visible red 660 n
Ambient operating temperature	-15°C to +55°C (+5°F to +131°F)
Storage temperature	-20°C to +70°C (-4°F to +158°F)
Degree of protection per IEC 529	IP 67
Shock/vibration	50G, 10 to 55 Hz at 1.5mm on all 3 axis
Relative Humidity	35 to 85% (non-condensing)
Housing material	Plastic
Sensing face material	PMMA Methacrylate
Connection	2m cable (3-wire, 22 AWG)

Dimension Values

With potentiometer:

L = 75 mm

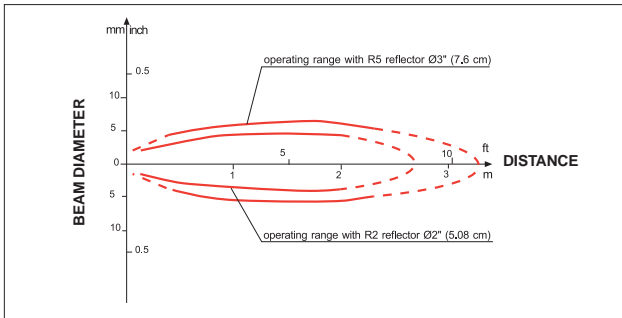
X = 52 mm

Without potentiometer:

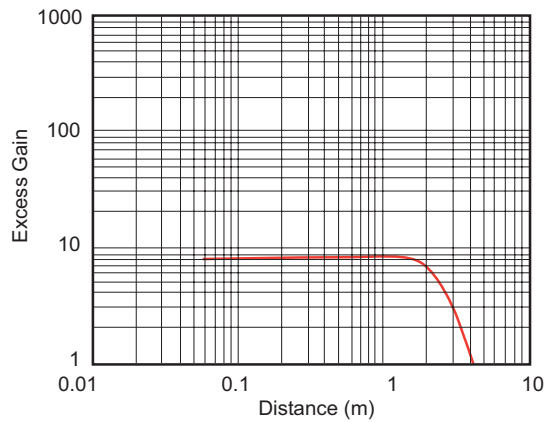
L = 65 mm

X = 42 mm

Retroreflective BOS S5...A2...

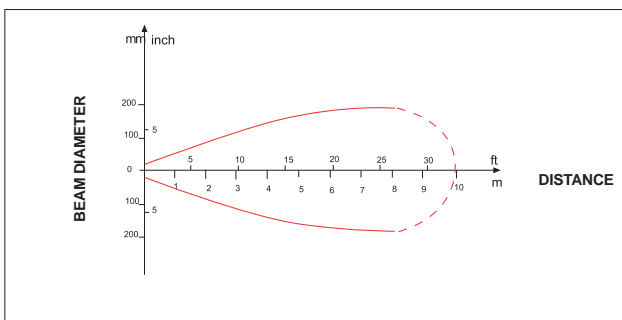


retroreflective



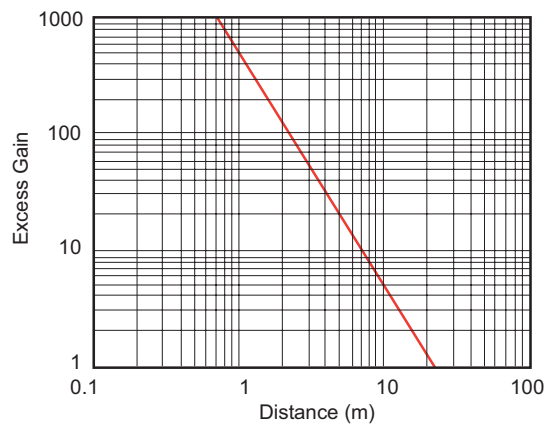
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Thru-Beam

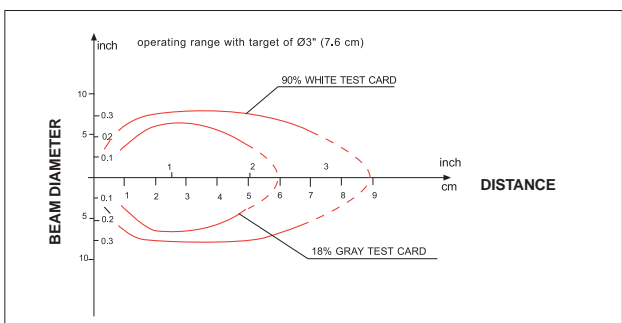


emitter/receiver

BLE/BLS S5...F/G8...

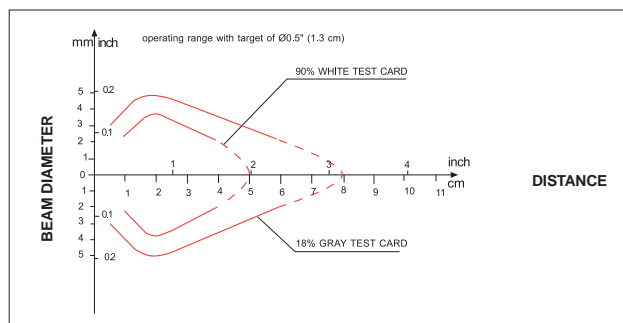


Fixed Focus BOS S5...D14



fixed focus diffuse scanner (red emission)

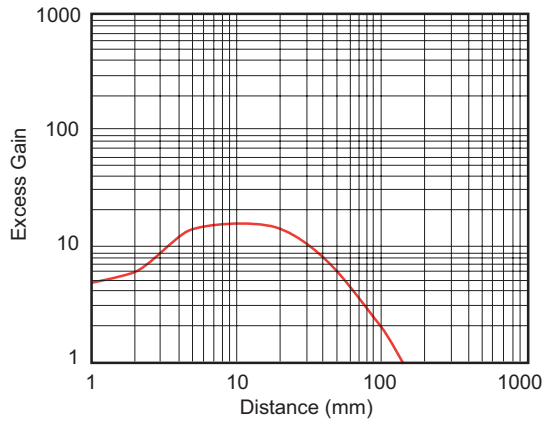
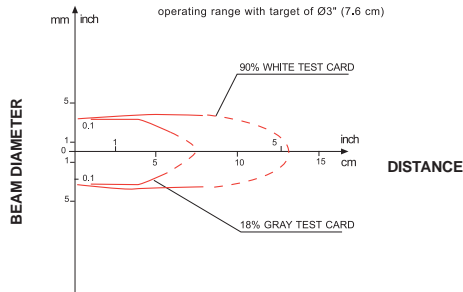
Fixed Focus BOS S5...D15...



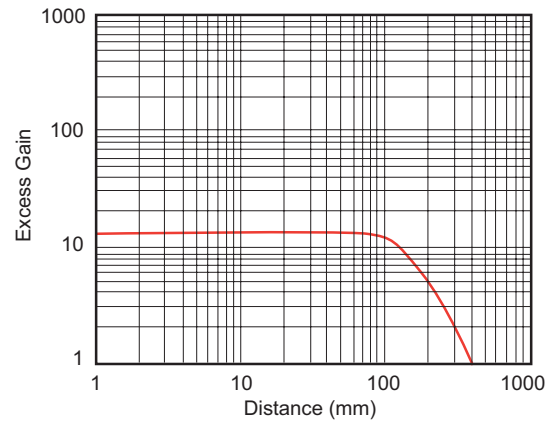
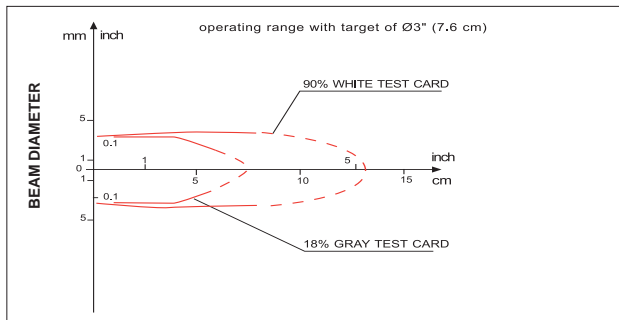
S5-X-D15 - fixed focus diffuse scanner

The standard values for the operating ranges are referred to ideal conditions, i.e. clean air, clean lenses, etc. Dust, air pollution and other kinds of ambient contamination reduce the operating ranges.

Diffuse (Short Range) BOS S5...C10...

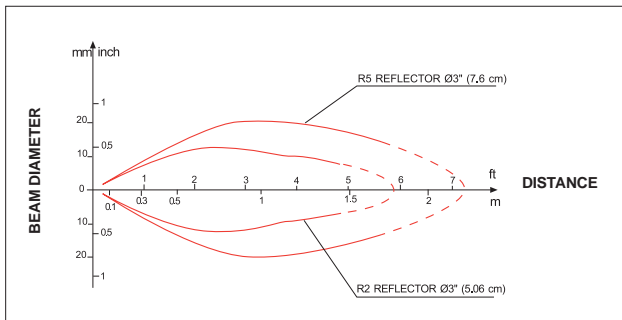


Diffuse (Long Range) BOS S5...C350...

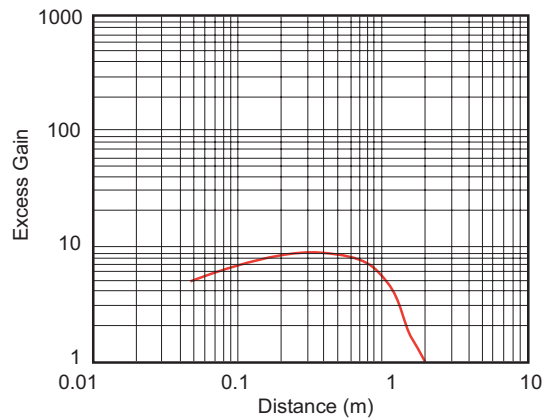


S5-X-C30 - diffuse scanner (long distance)

Polarized Retroreflective BOS S5...B1.5...

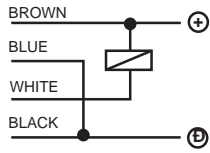


S5-X-B1.5 - polarized retroreflective



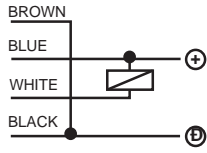
Connections

**DC Type
Light-Mode NPN (light on)**



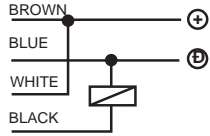
Thru Beam = N/C
Diffuse = N/O
Retro = N/C
Thru Beam = N/C
(Fiber Optic)

**DC Type
Dark-Mode NPN (dark on)**



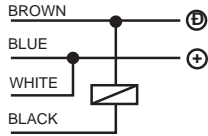
Thru Beam = N/O
Diffuse = N/C
Retro = N/O
Thru Beam = N/O
(Fiber Optic)

Light-Mode PNP (light on)



Thru Beam = N/C
Diffuse = N/O
Retro = N/C
Thru Beam = N/C
(Fiber Optic)

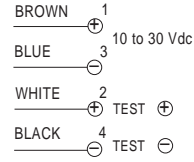
Light-Mode PNP (dark on)



Thru Beam = N/O
Diffuse = N/C
Retro = N/O
Thru Beam = N/O
(Fiber Optic)

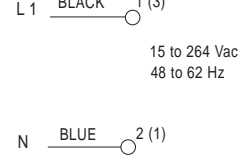
DC Type

DC emitter only

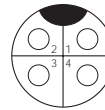


AC Type

AC emitter only



S19/S20 with M12 male connector



AC other models

