Technical Description

Special functions like adjustable background suppression and relay outputs are incorporated into the **BOS S6.**

- Diffuse
- Diffuse with background suppression
- Retroreflective with polarizing filter
- Thru-Beam

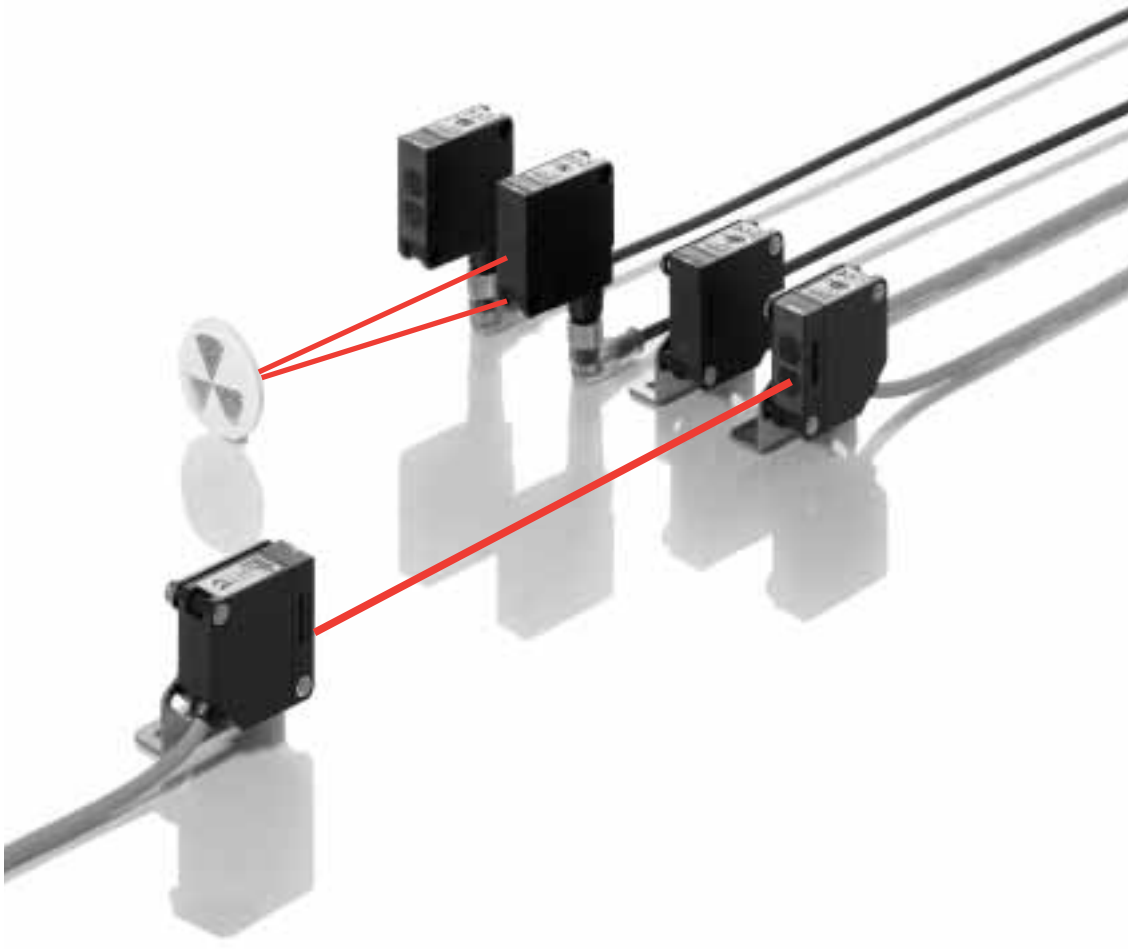
The complete series is available for DC (10...30 V) and AC/DC (15...275 V), with relay output. The DC version uses an M12 connector (cable versions upon request), the AC/DC version is only available with cable.

Features

- 10...30 V DC with PNP output
- Universal 15...264 V AC/DC with relay output
- Light-on/Dark-on selectable
- Reception LED for the safe zone (green LED)
- Function display for the output
- Thru-beam, retroreflective with polarizing filter and diffuse in the same housing
- Retroreflective with adjustable background suppression
- Impact resistant plastic housing
- Thru-beam version with test input and alarm output
- LED display visible from the front and top
- High immunity to ambient light and noise spikes.

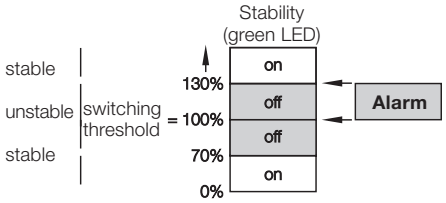
Applications

- Conveying
- Packaging
- Elevators
- Machine tools
- Gate controls
- Robots
- Small parts recognition
- Parts counting
- Assembly and handling automation



Thru-Beam

Alarm Output in Receiver
(PNP open collector – 30 mA)
The receiver is equipped with an alarm output. It acts as a warning signal when the function is affected by contamination or mechanical maladjustment. The alarm output is activated when the receiver signal is in the alarm range for at least 3 seconds.



Test Input on Emitter
The test input interrupts the light pulses from the emitter and allows the function of emitter and receiver to be checked (when using Test+, Test– must be at 0 V, when using Test–, Test+ must be at 10...30 V).
The receiver output must switch each time when a voltage of 10...30 V DC (Test+) or 0 V (Test–) is present on the test input. Contamination or mal-adjustment on the optical axis causes the emitter signal to reach the receiver only weakly, if at all. Therefore, the output will not switch even though the test input is activated. The test function provides a remote check of the thru beam type and serves as a preventative measure.

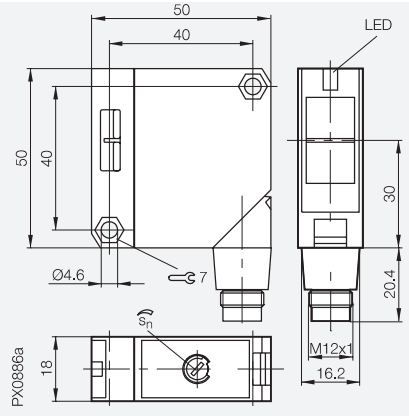
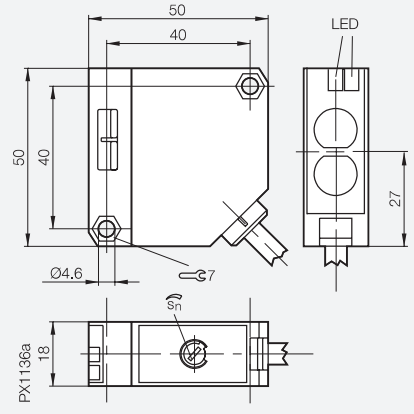
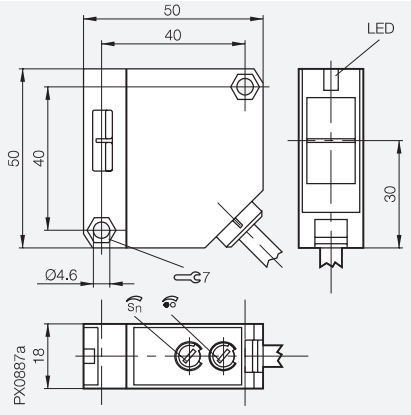
Series	
Diffuse	Sensing range
Retroreflective	Sensing range
Thru-Beam	Sensing range

Diffuse			
PNP,PNP/NPN,relay	O/●	50...250	mm backgrnd supp.
PNP,PNP/NPN,relay	O/●	900	mm
Retroreflective			
PNP,PNP/NPN,relay	O/●	3m	Red light, polarizing filter
PNP,PNP/NPN,relay	O/●	4m	Red light
Thru-Beam			
PNP,PNP/NPN,relay	O/●	5m	Receiver
PNP,PNP/NPN,relay		5m	Emitter

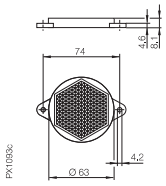
Supply voltage U_B
Voltage drop U_d at I_e
Rated isolation voltage U_i
Rated operational current I_e
No-load supply current I_0
Short circuit protected
Permissible capacitance
On/Off delay
Frequency of operating cycles
Utilization category
Output
Output function
Emitter light source, Diffuse and thru-beam
Emitter light source, Retroreflective
Permissible ambient light
Sensitivity adjustment
Output function indication
Stability indication
Ambient temperature range T_a
Degree of protection per IEC 529
Housing material
Material of sensing face
Connection
No. of wires × conductor cross section
Weight
Recommended connector

*DC only.
O/● = Light-On/Dark-On

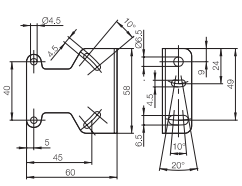
Note: Mounting bracket and R2 reflector for retroreflective types are included.
Diffuse values referenced to Kodak white card 90 % reflection.
Retroreflective values referenced to R1 reflector.

BOS S6, DC, quick disconnect	BOS S6, DC, cable out	BOS S6, AC/DC, Cable out
50...250 mm/900 mm	50...250 mm/900 mm	900 mm
3&4 m	3&4 m	3&4 m
5 m	5 m	5 m
		
BOS S6T-5-M25 BOS S6T-5-C90	BOS S6-5-M25 BOS S6-5-C90	BOS S6-1-C90
BOS S6T-5-B3 BOS S6T-5-A4	BOS S6-5-B3 BOS S6-5-A4	BOS S6-1-B3 BOS S6-1-A4
BLE S6T-5-F5 BLS S6T-5-G5	BLE S6-5-F5 BLS S6-5-G5	BLE S6-1-F5 BLS S6-1-G5
10...30 V DC	**10...30 V DC**	**15...264 V AC/DC**
≤ 1.5 V	≤ 1.5 V	
75 V DC	75 V DC	250 V AC
≤ 100 mA	≤ 100 mA	
≤ 30 mA	≤ 30 mA	≤ 40 mA
yes	yes	no
1 µF	1 µF	
≤ 1 ms/≤ 2 ms	≤ 1 ms/≤ 2 ms	≤ 30 ms
500 Hz/250 Hz	500 Hz/250 Hz	2 Hz
DC 13	DC 13	AC 140
PNP	**PNP/NPN**	**Relay 3 A, 250 V AC**
selectable	selectable	selectable
infrared 880nm		
visible red 660nm		
3000 Lux	3000 Lux	3000 Lux
Pot 0...270°spindle dr.	Pot 0...270° spindle dr.	Potentiometer 0...270°
yes	yes	yes
only for BOS S6T-5-M25	only for BOS S6T-5-M25	no
–15...55 °C	–15...55 °C	–15...55 °C
IP 65	IP 65	IP 65
ABS UL 94 V-O	ABS UL 94 V-O	ABS UL 94 V-O
PMMA	PMMA	PMMA
Connector	Cable	2 m Cable
	4 × 0.34 mm²	5 × 0.25 mm²
80 g	160 g	160 g
BKS-S 19/BKS-S 20		–

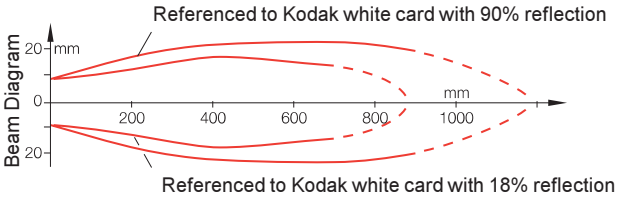
Reflector R2

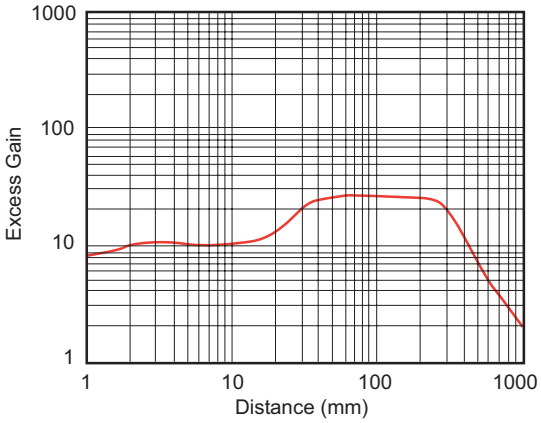


Mounting Bracket

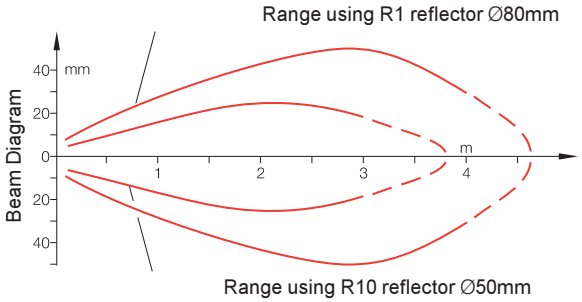


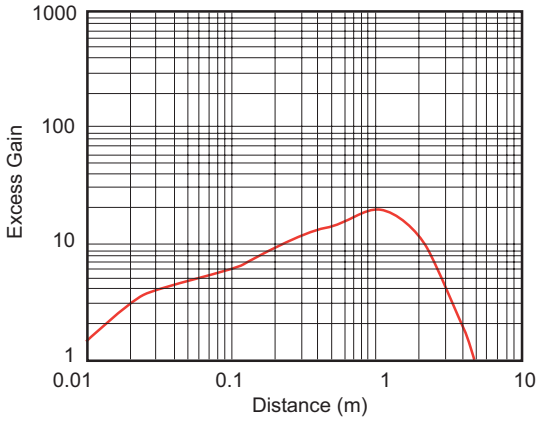
Diffuse BOS S6...C90...



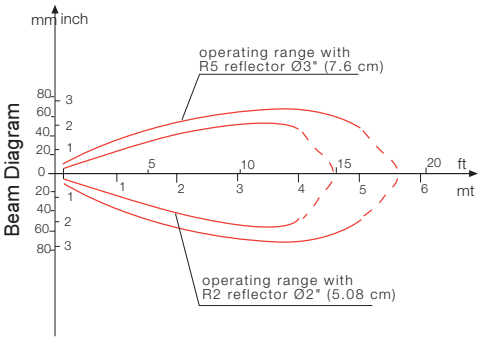


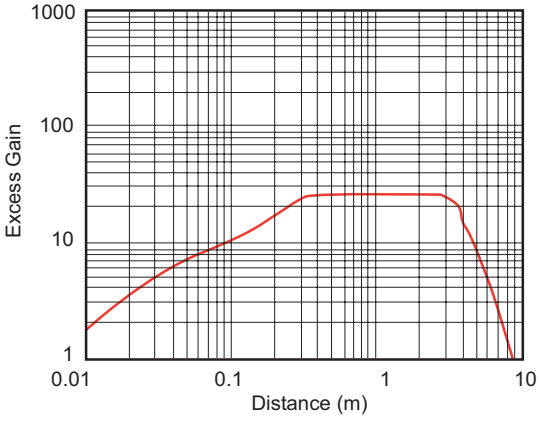
Polarized retroreflective BOS S6...B3...



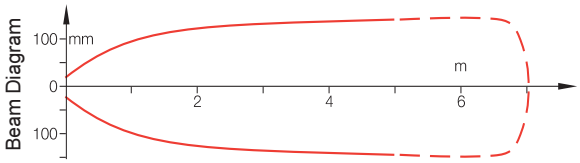


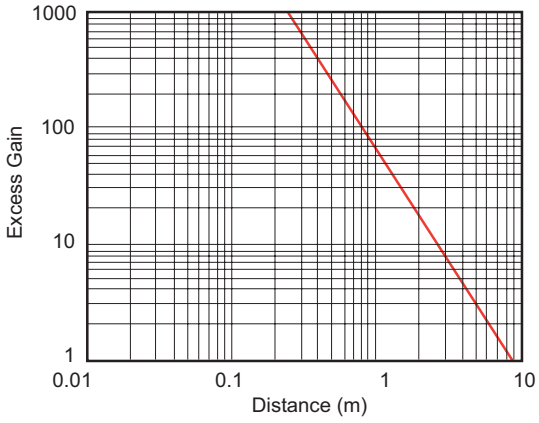
Retroreflective BOS S6...A4...



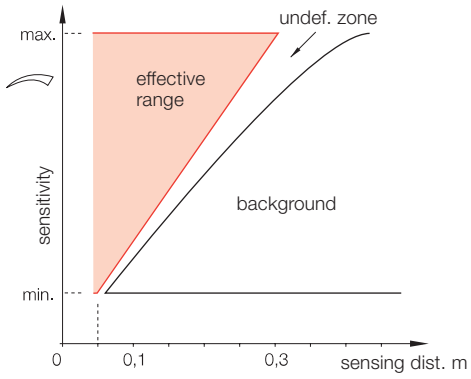


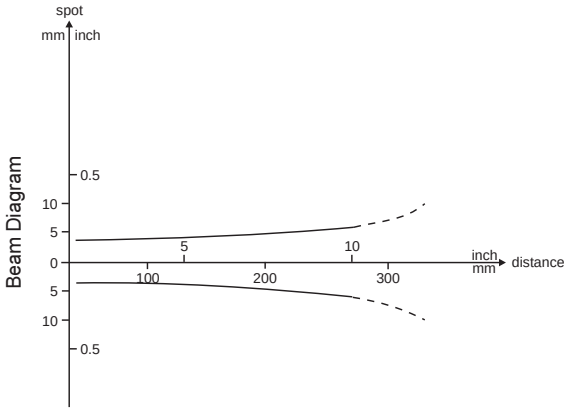
Thru-beam BOS S6...F/G5





Diffuse with Background suppression BOS S1...M25





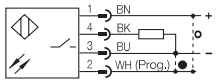
The Undefined Zone
in the diffuse BOS S6... is the zone between the effective range and the background. The sensing distance can be set between 50 mm and 250 mm using a spindle screw on the upper side of the unit. Remember that the "undefined zone" also changes proportionally to the sensing distance. This means that short sensing distances can be used to detect very slight differences in height or between objects.

Wiring diagrams

Diffuse, Retroreflective, Thru-Beam (Receiver)

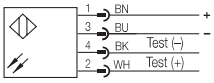
BLE/BOS S6...S4

DC



BLS S6...G...S4

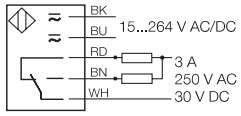
DC



Diffuse, Retroreflective Thru-Beam (Receiver)

BLE/BOS S6...02

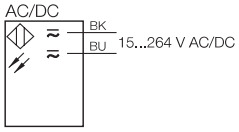
AC/DC



Diffuse (Emitter)

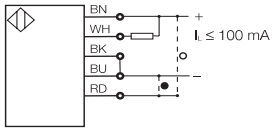
BLS S6...02

AC/DC

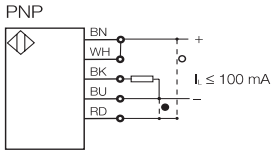


Diffuse, Retroreflective

NPN

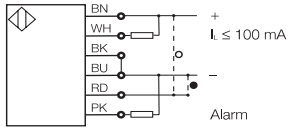


PNP

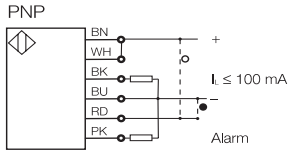


Receiver with Alarm Output

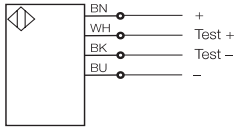
NPN



PNP



Emitter



Green Stability Display only for BOS S6-5-M25...

The green stability display illuminates in the “safe“ range, where the input energy is at least 30 % over or under the “threshold energy“.
The “threshold energy“ at which a signal change is effected, is defined as 100 %. The “safe“ range is therefore reached when:

- the input signal is at 130 % or more of the threshold energy.
- the input signal is at 70 % or less than the threshold energy.