

Technical Description

Background suppression is no longer a luxury. The advantages of background suppression are well-known: precise defining of the switchpoint virtually regard-less of shape, color and surface composition of the target. No wonder more and more users are selecting diffuse sensors with background suppression. The only catch until now: The price! Diffuse sensors with background suppression often cost several times as much as a standard diffuse sensor.

This all changes now with the new SDS5 with background suppression. We want to make it possible to use background suppression sensors to make life easier by simplifying the setup or making the application work more reliable.

Naturally the SDS5 with background suppression operates with red light, and there are also versions with a right angle head for tighter mounting locations. DC and AC/DC versions are available.

Features

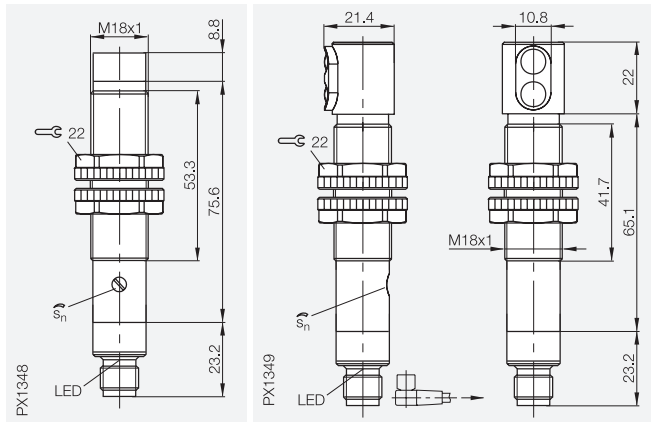
- DC and AC/DC versions available
- Output current of 100 mA, short protected
- Function and stability indicators
- IP 67 plastic housing
- Straight and right angle versions
- Red light
- Uses M12 connector
- PNP and NPN versions

Applications

- Counting, detecting multiple targets
- Detecting objects having various colors
- When an interfering background is present
- For positioning tasks
- Reducing environmental influences (dust)
- Automated handling machines
- Packaging machinery
- As a replacement for energetic diffuse sensors



Housing size	M18x1 straight, Quick-dis.	M18x1 right angle, Quick disconnect
Diffuse sensing range	20...100 mm	20...100 mm



Diffuse with Background Suppression



PNP	○/●	20...100 mm	pot, red light, backgr. suppr.	BOS-SDS5-5-M10-92	BOS-SDS5-5-M10-97
NPN	○/●	20...100 mm	pot, red light, backgr. suppr.	BOS-SDS5-5-M10-72	BOS-SDS5-5-M10-77

Supply voltage U_B	10...30 V DC	10...30 V DC
Voltage drop U_d at I_a	≤ 1.5 V	≤ 1.5 V
Rated isolation voltage U_i	75 V DC	75 V DC
Rated operational current I_a	≤ 100 mA	≤ 100 mA
No-load supply current I_0	≤ 30 mA	≤ 30 mA
Protected against polarity reversal	yes	yes
Short circuit protected	yes	yes
Permissible capacitance	0.5 μF	0.5 μF
On/Off delay	2.5 ms	2.5 ms
Frequency of operating cycles	200 Hz	200 Hz
Utilization category	DC 13	DC 13
Output	PNP/NPN	PNP/NPN
Output function	○/●	○/●
Permissible ambient light	3000 Lux	3000 Lux
Sensitivity/Range adjustment	potentiometer 4 turn	potentiometer 4 turn
Output function indication	LED red	LED red
Emitter type	red 660 nm	red 660 nm
Light spot diameter	∅ 5 mm at s_n 70 mm	∅ 10 mm at s_n 70 mm
Hysteresis (18 %/18 %)	≤ 10 %	≤ 10 %
Gray value shift (90 %/18 %)	≤ 10 %	≤ 10 %
Ambient temperature range T_a	-15...+55 °C	-15...+55 °C
Degree of protection per IEC 529	IP 67	IP 67
Housing material	ABS impact resistant	ABS impact resistant
Material of sensing face	PMMA	PMMA
Connection	connector	connector
Weight	100 g	100 g
Recommended connector	BKS-S 19/BKS-S 20	BKS-S 19/BKS-S 20

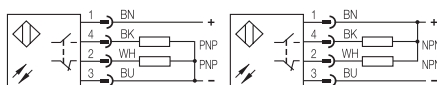
○/● = Light-On/Dark-On

Connector orientation

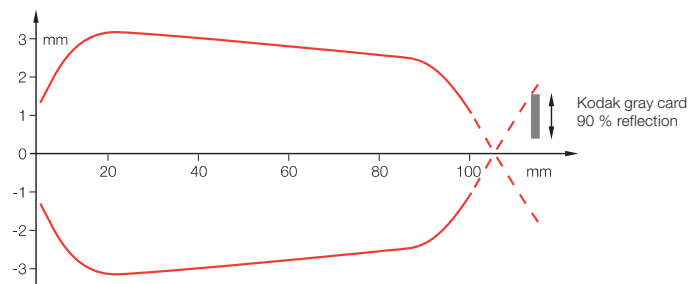


Notes: Diffuse values referenced to Kodak gray card with 90 % reflection.

Connection Diagram



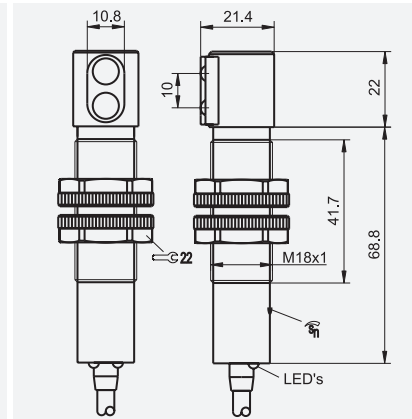
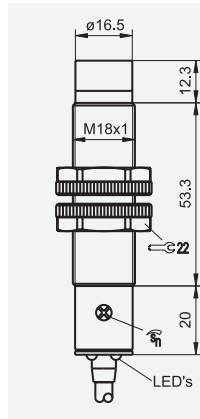
Effective Beam Size



Housing size
Diffuse sensing range

M18x1, cable out
20...100 mm

M18x1 cable out, right angle
20...100 mm



Diffuse with Background Suppression



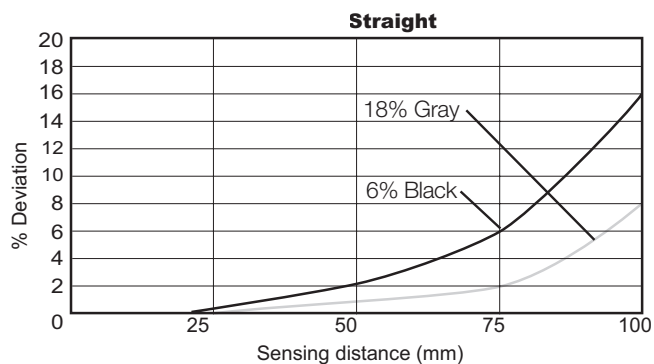
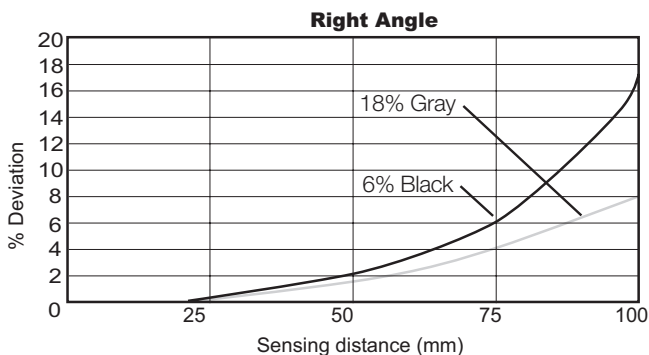
PNP \bigcirc/\bullet 20...100 mm pot, red light, backgr. suppr.
NPN \bigcirc/\bullet 20...100 mm pot, red light, backgr. suppr.

BOS-SDS5-5-M10-90
BOS-SDS5-5-M10-70

BOS-SDS5-5-M10-95
BOS-SDS5-5-M10-75

Supply voltage U_B	10...30 V DC	10...30 V DC
Voltage drop U_d at I_e	≤ 1.5 V	≤ 1.5 V
Rated isolation voltage U_i	75 V DC	75 V DC
Rated operational current I_e	≤ 100 mA	≤ 100 mA
No-load supply current I_0	≤ 30 mA	≤ 30 mA
Protected against polarity reversal	yes	yes
Short circuit protected	yes	yes
Permissible capacitance	0.5 μ F	0.5 μ F
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2



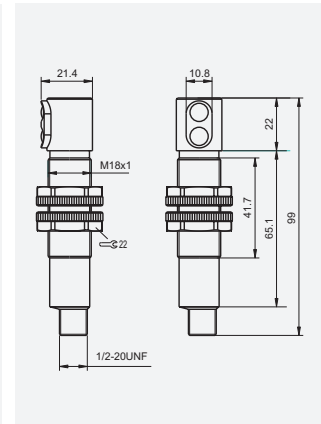
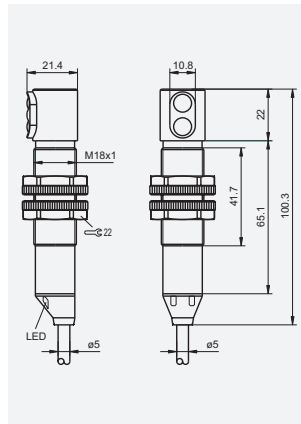
Tubular Optical Sensors

BOS SDS5
AC/DC

Housing size
Diffuse with background suppression

M18×1 right angle,
 cable out
100mm (4.0 in.)

M18×1 right angle,
 connector
100mm (4.0 in.)



Diffuse

AC/DC 100mm Fixed Background Suppression

BOS-SDS5-1-M10-55*

BOS-SDS5-1-M10-55-57U



Supply voltage U_B	15-264 VAC (50-60Hz) 15-30 Vdc
Voltage drop U_d at I_e	< 3.5 V max
Rated output current	150 ma
Power dissipation	1.5W
Protections	None
On/Off delay	10ms
Output type	3-Wire (NPN for DC)
Output function	Light operate (NO)
Sensitivity/Range adjustment	Fixed
LED indicators	Red Output LED
Ambient light protection	Per EN 60947-5-2
Emitter light source	Visible red LED 660 nm
Ambient operating temperature	-15C to +55C (+5F to +131F)
Storage temperature	-20C to +70C (-4F to +158 F)
Degree of protection per IEC 529	IP67
Housing material	ABS Plastic
Sensing face material	PMMA Methacrylate
Connection	2m cable (3-wire, 22 AWG)

* also available in pig-tail

AC/DC Models

