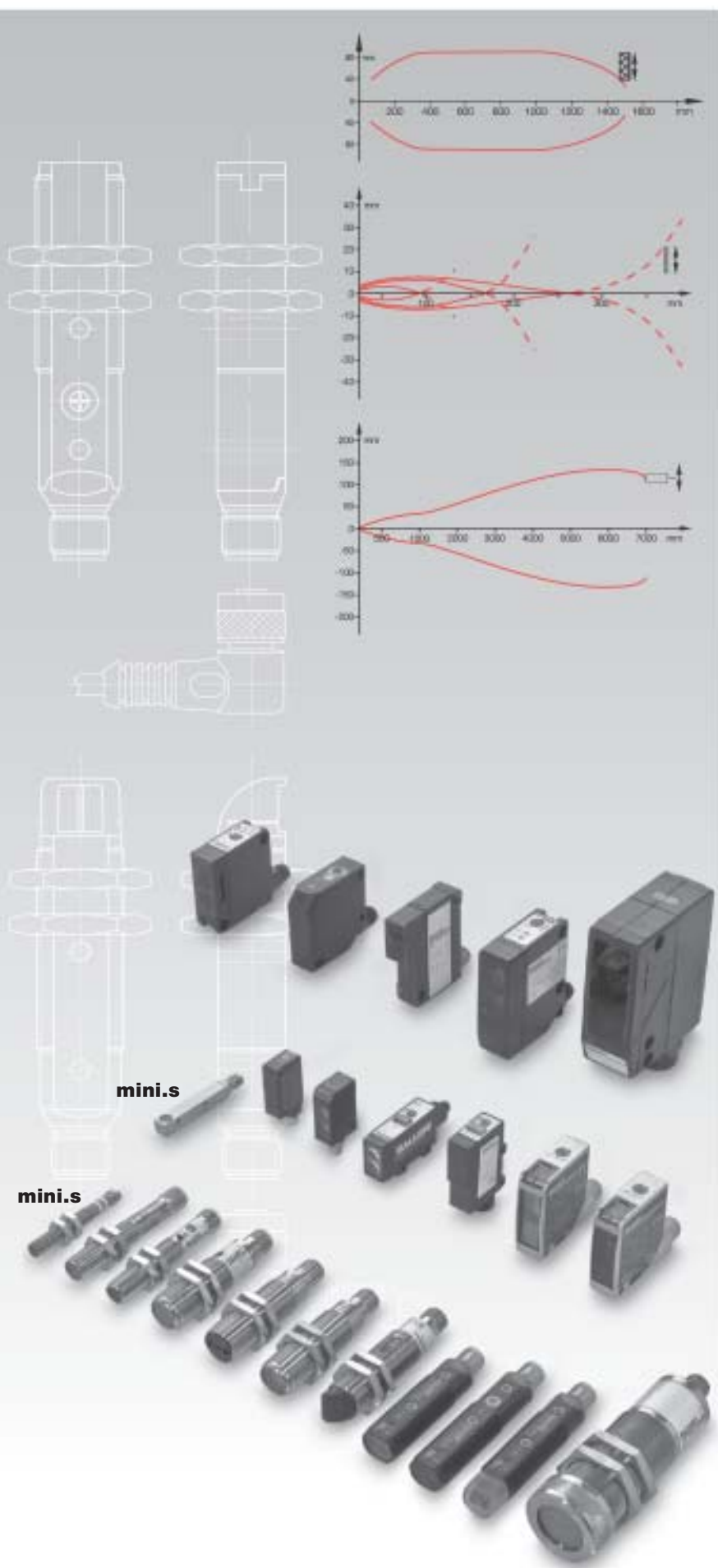


Photoelectric Sensors - Standard



- 2.1.2 **Tubular BOS 08M**
M8 metal
- 2.1.6 **BOS 12M**
M12 metal
- 2.1.14 **BOS 18M**
M18 metal
with potentiometer
Rugged
with teach-in
Laser
with AC
voltage
with angle head
- 2.1.36 **BOS 18E**
M18 stainless steel
- 2.1.42 **BOS 18KF**
M18 plastic
Laser
- 2.1.54 **BOS 18KW**
M18 plastic
with angle head
Laser
- 2.1.66 **BOS 30M**
M30 metal
- 2.1.70 **Block style BOS Q08M**
mini.s
- 2.1.74 **BOS 5K**
mini.s
with potentiometer
- 2.1.82 **BOS 6K**
mini.s
with teach-in
Laser
- 2.1.90 **BOS 15K**
- 2.1.96 **BOS 21M**
Laser
- 2.1.108 **BOS 25K**
- 2.1.114 **BOS 26K**
Laser
- 2.1.122 **BOS 35K**
- 2.1.128 **BOS 36K**
- 2.1.134 **BOS 65K**

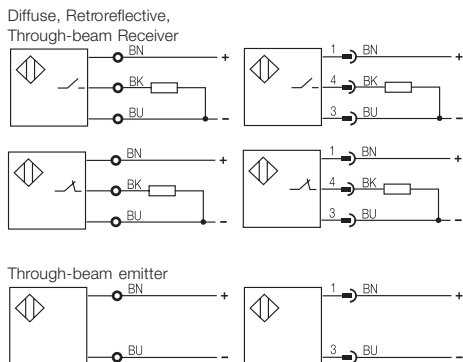
Miniaturization in the Balluff line continues at full pace. The new Opto-mini.s BOS Q08M sensors stand out with ease of handling and fixed sensing ranges.

such as robot gripper arms, where components with low weight, a small footprint and yet the highest switching precision are demanded.

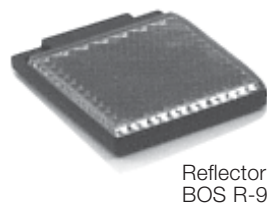
The sensor family includes diffuse types in block style housing with 8 mm side length, retroreflective and through-beam types. These small photoelectric sensors provide solutions in highly dynamic applications






Wiring diagrams



Recommended accessories
please order separately



Type	Range	Light type		Output		Output function		Switching frequency	U _B	Connec-tion		Fea-tures	Page
		Red light	Infrared	PNP-Transistor	NPN-Transistor	Light-on	Dark-on			10...30 V DC	M8 connector, 3-pin		
 Diffuse													
BOS Q08M-PS-RD10-S49	0...55 mm	■		■		■		500 Hz	■	■			2.1.72
BOS Q08M-PO-RD10-S49	0...55 mm	■		■			■	500 Hz	■	■			2.1.72
BOS Q08M-PS-RD10-03	0...55 mm	■		■		■		500 Hz	■		■		2.1.72
BOS Q08M-PO-RD10-03	0...55 mm	■		■			■	500 Hz	■		■		2.1.72
 Retroreflective													
BOS Q08M-PS-PR10-S49	25...550 mm	■		■			■	500 Hz	■	■		■	2.1.72
BOS Q08M-PO-PR10-S49	25...550 mm	■		■		■		500 Hz	■	■		■	2.1.72
BOS Q08M-PS-PR10-03	25...550 mm	■		■			■	500 Hz	■		■	■	2.1.73
BOS Q08M-PO-PR10-03	25...550 mm	■		■		■		500 Hz	■		■	■	2.1.73
 Through-beam													
BOS Q08M-PS-RE10-S49	0...1.1 m	■		■			■	500 Hz	■	■			2.1.73
BOS Q08M-PO-RE10-S49	0...1.1 m	■		■		■		500 Hz	■	■			2.1.73
BOS Q08M-PS-RE10-03	0...1.1 m	■		■			■	500 Hz	■		■		2.1.73
BOS Q08M-PO-RE10-03	0...1.1 m	■		■		■		500 Hz	■		■		2.1.73
BOS Q08M-X-RS10-S49	0...1.1 m	■							■	■			2.1.73
BOS Q08M-X-RS10-03	0...1.1 m	■							■		■		2.1.73

2.1

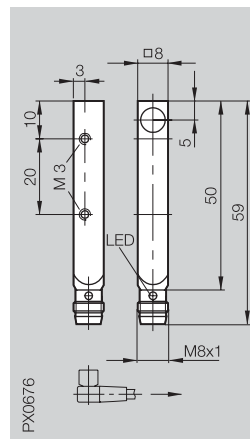
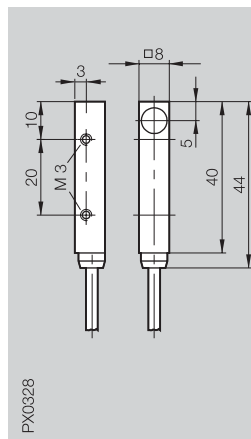
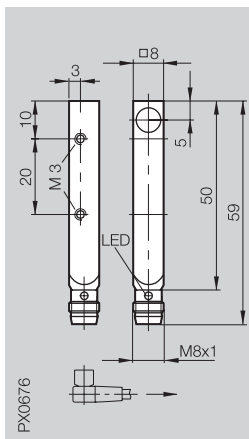
2.3

Photoelectric sensors accessories page 2.3.2 ...

6

Connectors page 6.2 ...

Diffuse	maximum range	0...55 mm	0...55 mm	
Retroreflective	maximum range			25...550 mm
Through-beam	maximum range			



	Diffuse				
	PNP, NO	55 mm	BOS Q08M-PS-RD10-S49	BOS Q08M-PS-RD10-03	
	PNP, NC	55 mm	BOS Q08M-PO-RD10-S49	BOS Q08M-PO-RD10-03	
	Retroreflective				
	PNP, NO	25...550 mm	Polarizing filter		BOS Q08M-PS-PR10-S49
	PNP, NC	25...550 mm	Polarizing filter		BOS Q08M-PO-PR10-S49
	Through-beam				
	PNP, NO	1.1 m	Receiver		
	PNP, NC	1.1 m	Receiver		
		1.1 m	Emitter		
Electrical data					
Supply voltage U_B			10...30 V DC	10...30 V DC	10...30 V DC
Ripple			10 %	10 %	10 %
No-load supply current I_0 max.			≤ 20 mA	≤ 20 mA	≤ 20 mA
Switching output			PNP-Transistor	PNP-Transistor	PNP-Transistor
Output current			100 mA	100 mA	100 mA
Switching type			Light- or dark-on	Light- or dark-on	Light- or dark-on
Voltage drop U_d at I_0			≤ 2 V	≤ 2 V	≤ 2 V
Settings			fixed	fixed	fixed
Optical data					
Recommended range			0...50 mm	0...50 mm	25...500 mm
Emitter, light type			LED, red light	LED, red light	LED, red light
Wavelength			640 nm	640 nm	640 nm
Indicator					
Output function indicator			LED red	LED red	LED red
Time data					
Response time			1 ms	1 ms	1 ms
Frequency of operating cycles f			500 Hz	500 Hz	500 Hz
Mechanical data					
Dimensions			8×59×8 mm	8×44×8 mm	8×59×8 mm
Connection			M8 connector, 3-pin	3 m cable, PUR	M8 connector, 3-pin
No. of wires × cross-section				3×0.14 mm ²	
Housing material			Nickel plated Gd-Zn	Nickel plated Gd-Zn	Nickel plated Gd-Zn
Optical surface			PMMA	PMMA	PMMA
Weight			13 g	47 g	13 g
Ambient data					
Degree of protection per IEC 60529			IP 67	IP 67	IP 67
Polarity reversal protected			yes	yes	yes
Short circuit protected			yes	yes	yes
Ambient temperature range T_a			-10...+60 °C	-10...+60 °C	-10...+60 °C
Ambient light rejection per			EN 60947-5-2	EN 60947-5-2	EN 60947-5-2

Diffuse values referenced to Kodak gray card 90% reflective.
Retroreflective values referenced to R9 reflector.



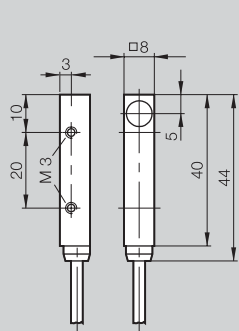
25...550 mm

0...1.1 m

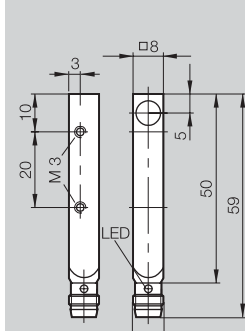
0...1.1 m

0...1.1 m

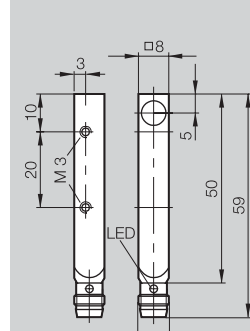
0...1.1 m



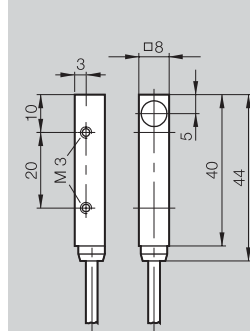
PX0328



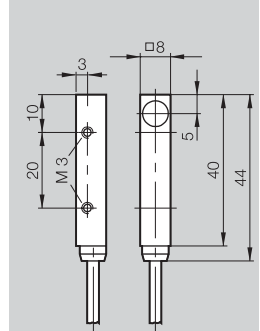
PX0676



PX0676



PX0328



PX0328

BOS Q08M-PS-PR10-03
BOS Q08M-PO-PR10-03

BOS Q08M-PS-RE10-S49
BOS Q08M-PO-RE10-S49

BOS Q08M-X-RS10-S49

BOS Q08M-PS-RE10-03
BOS Q08M-PO-RE10-03

BOS Q08M-X-RS10-03

10...30 V DC

10...30 V DC

10...30 V DC

10...30 V DC

10...30 V DC

10 %

10 %

10 %

10 %

10 %

≤ 20 mA

≤ 15 mA

≤ 15 mA

≤ 15 mA

≤ 15 mA

PNP-Transistor

PNP-Transistor

PNP-Transistor

PNP-Transistor

100 mA

100 mA

100 mA

100 mA

Light- or dark-on

Light- or dark-on

Light- or dark-on

Light- or dark-on

≤ 2 V

≤ 2 V

≤ 2 V

≤ 2 V

fixed

fixed

fixed

fixed

fixed

25...500 mm
LED, red light
640 nm

0...1 m

0...1 m
LED, red light
640 nm

0...1 m

0...1 m
LED, red light
640 nm

LED red

LED red

LED red

1 ms

1 ms

1 ms

500 Hz

500 Hz

500 Hz

8×44×8 mm

8×59×8 mm

8×59×8 mm

8×44×8 mm

8×44×8 mm

3 m cable, PUR

M8 connector, 3-pin

M8 connector, 3-pin

3 m cable, PUR

3 m cable, PUR

3×0.14 mm²

2×0.14 mm²

3×0.14 mm²

3×0.14 mm²

2×0.14 mm²

Nickel plated Gd-Zn

Nickel plated Gd-Zn

Nickel plated Gd-Zn

Nickel plated Gd-Zn

Nickel plated Gd-Zn

PMMA

PMMA

PMMA

PMMA

PMMA

47 g

13 g

13 g

47 g

47 g

IP 67

IP 67

IP 67

IP 67

IP 67

yes

yes

yes

yes

yes

yes

yes

yes

yes

yes

-10...+60 °C
EN 60947-5-2

-10...+60 °C
EN 60947-5-2

-10...+60 °C
EN 60947-5-2

-10...+60 °C
EN 60947-5-2

-10...+60 °C
EN 60947-5-2

2.1

2.3

Photoelectric sensors accessories page 2.3.2 ...

6

Connectors page 6.2 ...

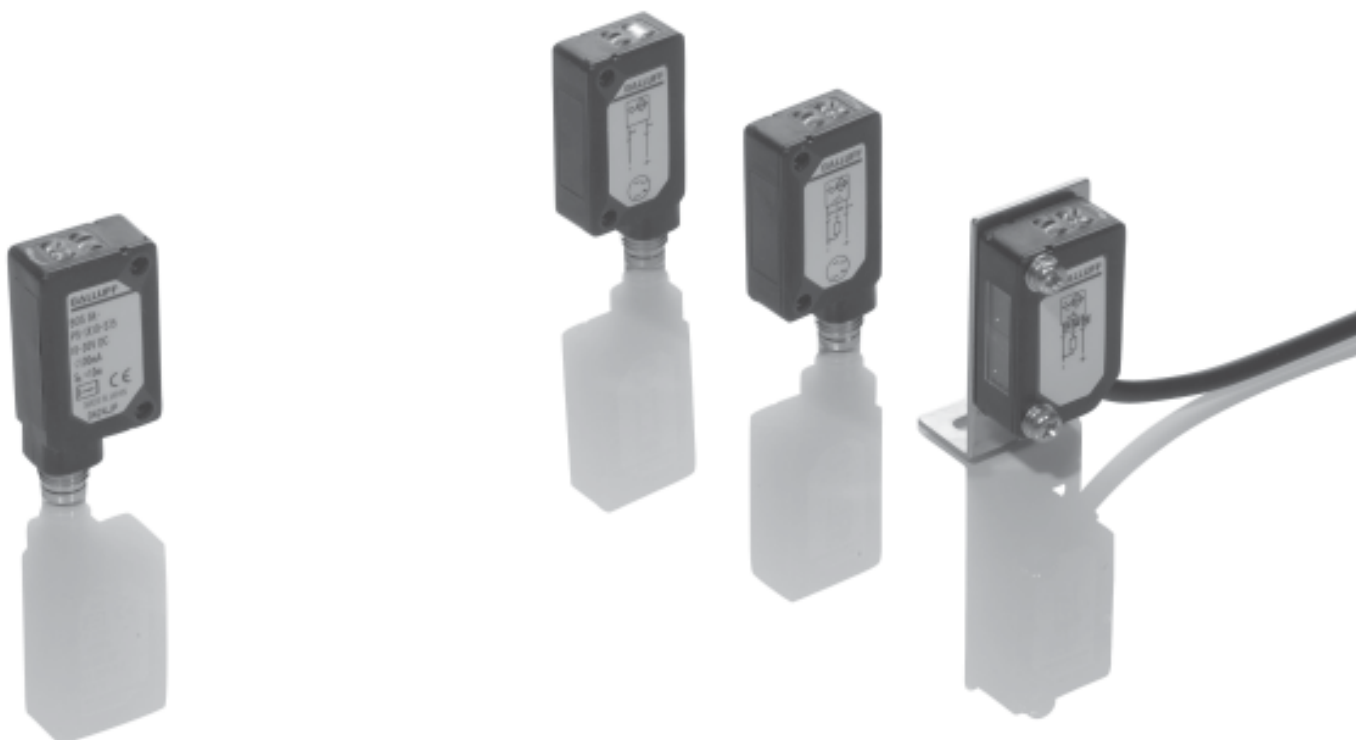
Small sensors are easier to install and sometimes are even the only alternative. The optical performance of these miniature sensors is astounding. Choose between integrated cable or an M8 connector for connecting these sensors.





The new BOS 5K series features:

- A small, compact form factor
- Emphasis on essential, basic functions
- Attractive price position in the lower price segment
- Large range of accessories for increased functionality

The series includes various diffuse, retroreflective and through-beam models.

Select from between PNP or NPN and light-on or dark-on types.



Type	Range	Light type		Output		Output function		Switching frequency	U _B	Connec-tion		Fea-tures	Page
		Red light	Infrared	PNP-Transistor	NPN-Transistor	Light-on	Dark-on			10...30 V DC	M8 connector, 4-pin		
 Diffuse													
BOS 5K-PS-ID10-S75	0...900 mm	■	■	■		■		500 Hz	■	■			2.1.76
BOS 5K-PO-ID10-S75	0...900 mm	■	■			■		500 Hz	■	■			2.1.76
BOS 5K-PO-ID10-S75-S	0...900 mm	■	■			■		500 Hz	■	■			2.1.76
BOS 5K-PS-ID10-01	0...900 mm	■	■			■		500 Hz	■		■		2.1.77
BOS 5K-PO-ID10-01	0...900 mm	■	■			■		500 Hz	■		■		2.1.77
BOS 5K-NS-ID10-S75	0...900 mm	■		■		■		500 Hz	■	■			2.1.76
BOS 5K-NO-ID10-S75	0...900 mm	■		■		■		500 Hz	■	■			2.1.76
BOS 5K-NO-ID10-S75-S	0...900 mm	■		■		■		500 Hz	■	■			2.1.76
BOS 5K-NS-ID10-01	0...900 mm	■		■		■		500 Hz	■		■		2.1.77
BOS 5K-NO-ID10-01	0...900 mm	■		■		■		500 Hz	■		■		2.1.77
 Diffuse small beam													
BOS 5K-PS-RD11-S75	50...200 mm	■		■		■		500 Hz	■	■			2.1.77
BOS 5K-PO-RD11-S75	50...200 mm	■		■		■		500 Hz	■	■			2.1.77
BOS 5K-PO-RD11-S75-S	50...200 mm	■		■		■		500 Hz	■	■			2.1.77
BOS 5K-PS-RD11-01	50...200 mm	■		■		■		500 Hz	■		■		2.1.77
BOS 5K-PO-RD11-01	50...200 mm	■		■		■		500 Hz	■		■		2.1.77
BOS 5K-NS-RD11-S75	50...200 mm	■			■	■		500 Hz	■	■			2.1.77
BOS 5K-NO-RD11-S75	50...200 mm	■			■	■		500 Hz	■	■			2.1.77
BOS 5K-NO-RD11-S75-S	50...200 mm	■			■	■		500 Hz	■	■			2.1.77
BOS 5K-NS-RD11-01	50...200 mm	■			■	■		500 Hz	■		■		2.1.77
BOS 5K-NO-RD11-01	50...200 mm	■			■	■		500 Hz	■		■		2.1.77
 Retroreflective													
BOS 5K-PS-RR10-S75	0.1...4 m	■		■		■		500 Hz	■	■		■	2.1.78
BOS 5K-PO-RR10-S75	0.1...4 m	■		■		■		500 Hz	■	■		■	2.1.78
BOS 5K-PO-RR10-S75-S	0.1...4 m	■		■		■		500 Hz	■	■		■	2.1.78
BOS 5K-PS-RR10-01	0.1...4 m	■		■		■		500 Hz	■		■	■	2.1.79
BOS 5K-PO-RR10-01	0.1...4 m	■		■		■		500 Hz	■		■	■	2.1.79
BOS 5K-NS-RR10-S75	0.1...4 m	■			■	■		500 Hz	■	■		■	2.1.78
BOS 5K-NO-RR10-S75	0.1...4 m	■			■	■		500 Hz	■	■		■	2.1.78
BOS 5K-NO-RR10-S75-S	0.1...4 m	■			■	■		500 Hz	■	■		■	2.1.78
BOS 5K-NS-RR10-01	0.1...4 m	■			■	■		500 Hz	■		■	■	2.1.79
BOS 5K-NO-RR10-01	0.1...4 m	■			■	■		500 Hz	■		■	■	2.1.79
 Through-beam													
BOS 5K-PS-IX10-S75	0...10 m	■		■		■		500 Hz	■	■			2.1.79
BOS 5K-PO-IX10-S75	0...10 m	■		■		■		500 Hz	■	■			2.1.79
BOS 5K-PO-IX10-S75-S	0...10 m	■		■		■		500 Hz	■	■			2.1.79
BOS 5K-PS-IX10-01	0...10 m	■		■		■		500 Hz	■		■		2.1.79
BOS 5K-PO-IX10-01	0...10 m	■		■		■		500 Hz	■		■		2.1.79
BOS 5K-NS-IX10-S75	0...10 m	■			■	■		500 Hz	■	■			2.1.79
BOS 5K-NO-IX10-S75	0...10 m	■			■	■		500 Hz	■	■			2.1.79
BOS 5K-NO-IX10-S75-S	0...10 m	■			■	■		500 Hz	■	■			2.1.79
BOS 5K-NS-IX10-01	0...10 m	■			■	■		500 Hz	■		■		2.1.79
BOS 5K-NO-IX10-01	0...10 m	■			■	■		500 Hz	■		■		2.1.79

2.1

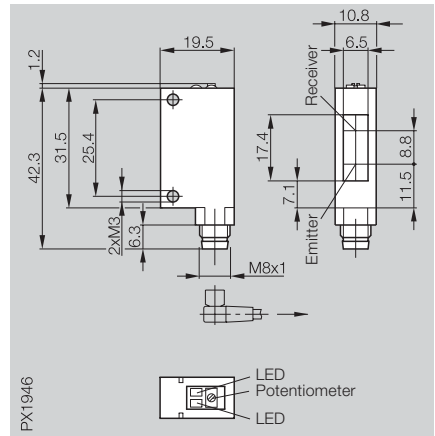
2.3

Photoelectric sensors accessories page 2.3.2 ...

6

Connectors page 6.2 ...

Diffuse	Range	0...900 mm
Diffuse small beam	Range	



Diffuse



PNP, NO	900 mm	BOS 5K-PS-ID10-S75
NPN, NO	900 mm	BOS 5K-NS-ID10-S75
PNP, NC	900 mm	BOS 5K-PO-ID10-S75
NPN, NC	900 mm	BOS 5K-NO-ID10-S75
PNP, NC	900 mm	BOS 5K-PO-ID10-S75-S
NPN, NC	900 mm	BOS 5K-NO-ID10-S75-S

Diffuse small beam



PNP, NO	50...200 mm	
NPN, NO	50...200 mm	
PNP, NC	50...200 mm	
NPN, NC	50...200 mm	
PNP, NC	50...200 mm	
NPN, NC	50...200 mm	

Electrical data

Supply voltage U_B	10...30 V DC
Ripple	≤ 2 V DC
No-load supply current I_0 max.	≤ 30 mA
Switching output	PNP- or NPN-Transistor
Output current	100 mA
Switching type	Light- or dark-on
Voltage drop U_d at I_0	≤ 1.2 V DC
Settings	Potentiometer 270°

Optical data

Emitter, light type	LED, infrared
Wavelength	880 nm

Indicator

Output function indicator	LED yellow
Stability indicator	LED green

Time data

Response time	1 ms
Frequency of operating cycles f	500 Hz

Mechanical data

Dimensions	19.5x31.5x10.8 mm
Connection	M8 connector, 4-pin
No. of wires x cross-section	
Housing material	PC/PBT
Optical surface	PC
Weight	10 g

Ambient data

Degree of protection per IEC 60529	IP 67
Polarity reversal protected	yes
Short circuit protected	yes
Ambient temperature range T_a	-25...+55 °C
Ambient light rejection	5 kLux (artificial light)/10 kLux (sunlight)

Diffuse values referenced to Kodak gray card 90% reflective.



Wiring diagrams, characteristics and accessories see page 2.1.80 and 2.1.81.

mini.s with potentiometer

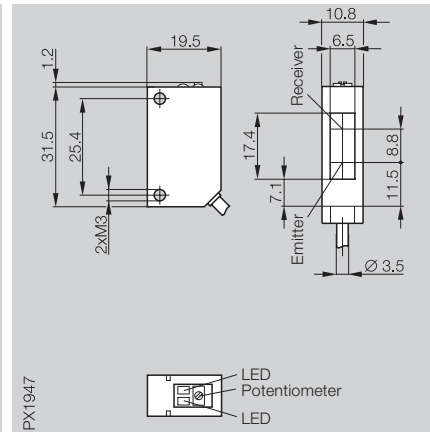
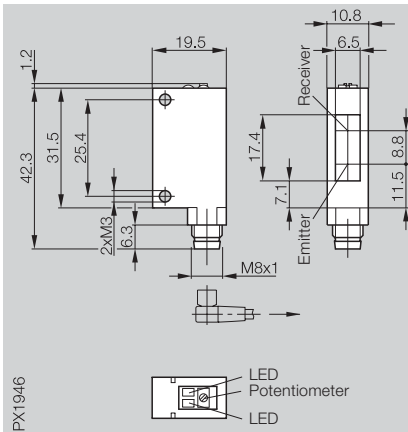
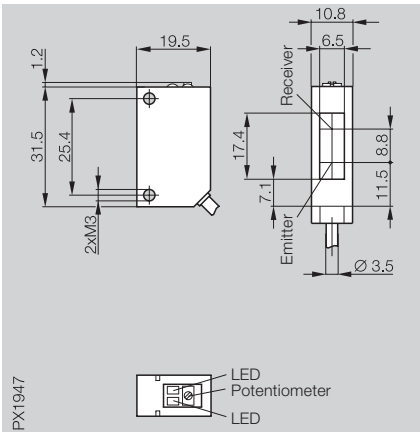
Photoelectric Sensors

BOS 5K
Range 200 mm, 900 mm

0...900 mm

50...200 mm

50...200 mm



BOS 5K-PS-ID10-01
BOS 5K-NS-ID10-01
BOS 5K-PO-ID10-01
BOS 5K-NO-ID10-01

BOS 5K-PS-RD11-S75
BOS 5K-NS-RD11-S75
BOS 5K-PO-RD11-S75
BOS 5K-NO-RD11-S75
BOS 5K-PO-RD11-S75-S
BOS 5K-NO-RD11-S75-S

BOS 5K-PS-RD11-01
BOS 5K-NS-RD11-01
BOS 5K-PO-RD11-01
BOS 5K-NO-RD11-01

10...30 V DC
≤ 2 V DC
≤ 30 mA
PNP- or NPN-Transistor
100 mA
Light- or dark-on
≤ 1.2 V DC
Potentiometer 270°

10...30 V DC
≤ 2 V DC
≤ 30 mA
PNP- or NPN-Transistor
100 mA
Light- or dark-on
≤ 1.2 V DC
Potentiometer 270°

10...30 V DC
≤ 2 V DC
≤ 30 mA
PNP- or NPN-Transistor
100 mA
Light- or dark-on
≤ 1.2 V DC
Potentiometer 270°

LED, infrared
880 nm

LED, red light
660 nm

LED, red light
660 nm

LED yellow
LED green

LED yellow
LED green

LED yellow
LED green

1 ms
500 Hz

1 ms
500 Hz

1 ms
500 Hz

19.5x31.5x10.8 mm
1 m cable, PVC
3x0.2 mm²

19.5x31.5x10.8 mm
M8 connector, 4-pin

19.5x31.5x10.8 mm
1 m cable, PVC
3x0.2 mm²

PC/PBT
PC
50 g

PC/PBT
PC
10 g

PC/PBT
PC
50 g

IP 67
yes
yes

IP 67
yes
yes

IP 67
yes
yes

-25...+55 °C

-25...+55 °C

-25...+55 °C

5 kLux (artificial light)/10 kLux (sunlight)

5 kLux (artificial light)/10 kLux (sunlight)

5 kLux (artificial light)/10 kLux (sunlight)

2.1

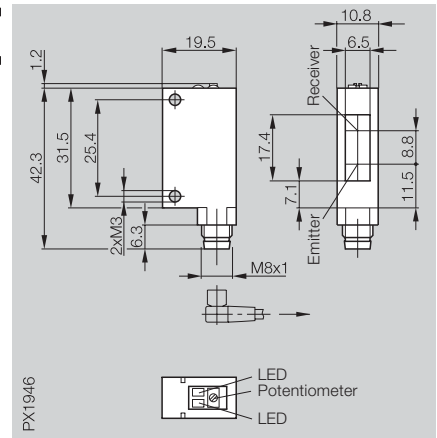
2.3

Photoelectric
sensors
accessories
page 2.3.2 ...

6

Connectors
page 6.2 ...

Retroreflective	Range	0.1...4 m
Through-beam	Range	



Retroreflective



PNP, NO	0.1...4 m	Polarizing filter	BOS 5K-PS-RR10-S75
NPN, NO	0.1...4 m	Polarizing filter	BOS 5K-NS-RR10-S75
PNP, NC	0.1...4 m	Polarizing filter	BOS 5K-PO-RR10-S75
NPN, NC	0.1...4 m	Polarizing filter	BOS 5K-NO-RR10-S75
PNP, NC	0.1...4 m	Polarizing filter	BOS 5K-PO-RR10-S75-S
NPN, NC	0.1...4 m	Polarizing filter	BOS 5K-NO-RR10-S75-S

Through-beam



PNP, NO	10 m	Emitter + receiver
NPN, NO	10 m	Emitter + receiver
PNP, NC	10 m	Emitter + receiver
NPN, NC	10 m	Emitter + receiver
PNP, NC	10 m	Emitter + receiver
NPN, NC	10 m	Emitter + receiver

Electrical data

Supply voltage U_B	10...30 V DC
Ripple	≤ 2 V DC
No-load supply current I_0 max.	≤ 30 mA
Switching output	PNP- or NPN-Transistor
Output current	100 mA
Switching type	Light-/dark-on
Voltage drop U_d at I_0	≤ 1.2 V DC
Settings	Potentiometer 270°

Optical data

Emitter, light type	LED, red light
Wavelength	660 nm

Indicators

Power-on indicator	
Output function indicator	LED yellow
Stability indicator	LED green

Time data

Response time	1 ms
Frequency of operating cycles f	500 Hz

Mechanical data

Dimensions	19.5x31.5x10.8 mm
Connection	M8 connector, 4-pin
No. of wires x cross-section	
Housing material	PC/PBT
Optical surface	PMMA
Weight	10 g

Ambient data

Degree of protection per IEC 60529	IP 67
Polarity reversal protected	yes
Short circuit protected	yes
Ambient temperature range T_a	-25...+55 °C
Ambient light rejection	5 kLux (artificial light)/10 kLux (sunlight)

Retroreflective values referenced to R1 reflector.

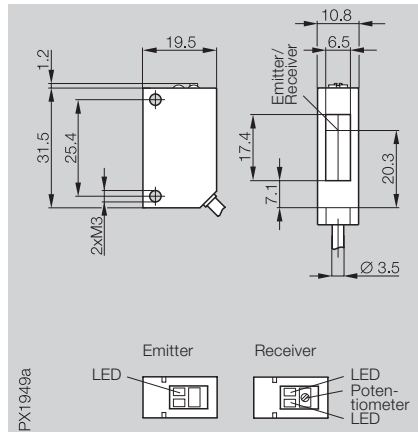
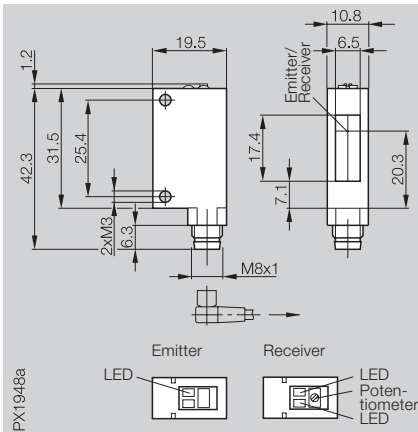
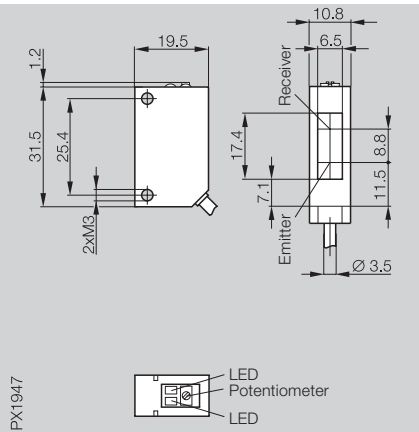


Wiring diagrams, characteristics and accessories see page 2.1.80 and 2.1.81.

0.1...4 m

0...10 m

0...10 m



BOS 5K-PS-RR10-01
BOS 5K-NS-RR10-01
BOS 5K-PO-RR10-01
BOS 5K-NO-RR10-01

BOS 5K-PS-IX10-S75
BOS 5K-NS-IX10-S75
BOS 5K-PO-IX10-S75
BOS 5K-NO-IX10-S75
BOS 5K-PO-IX10-S75-S
BOS 5K-NO-IX10-S75-S

BOS 5K-PS-IX10-01
BOS 5K-NS-IX10-01
BOS 5K-PO-IX10-01
BOS 5K-NO-IX10-01

10...30 V DC
≤ 2 V DC
≤ 30 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on
≤ 1.2 V DC
Potentiometer 270°

10...30 V DC
≤ 2 V DC
≤ 20 mA (receiver), ≤ 15 mA (emitter)
PNP- or NPN-Transistor
100 mA
Light-/dark-on
≤ 1.2 V DC
Potentiometer 270°

10...30 V DC
≤ 2 V DC
≤ 20 mA (receiver), ≤ 15 mA (emitter)
PNP- or NPN-Transistor
100 mA
Light-/dark-on
≤ 1.2 V DC
Potentiometer 270°

LED, red light
660 nm

LED, infrared
880 nm

LED, infrared
880 nm

LED yellow
LED green

LED green (emitter)
LED yellow (receiver)
LED green (receiver)

LED green (emitter)
LED yellow (receiver)
LED green (receiver)

≤ 1 ms
500 Hz

≤ 1 ms
500 Hz

≤ 1 ms
500 Hz

19.5×31.5×10.8 mm
1 m cable, PVC
3×0.2 mm²
PC/PBT
PMMA
50 g

19.5×31.5×10.8 mm
M8 connector, 4-pin
PC/PBT
PC
je 10 g

19.5×31.5×10.8 mm
1 m cable, PVC
3(2)×0.2 mm² (emitter)
PC/PBT
PC
je 50 g

IP 67
yes
yes

IP 67
yes
yes

IP 67
yes
yes

-25...+55 °C

-25...+55 °C

-25...+55 °C

5 kLux (artificial light)/10 kLux (sunlight)

5 kLux (artificial light)/10 kLux (sunlight)

5 kLux (artificial light)/10 kLux (sunlight)

2.1

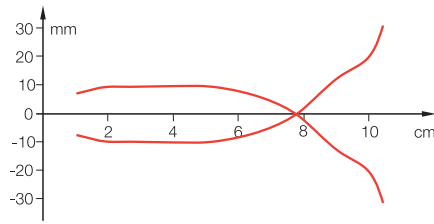
2.3

Photoelectric
sensors
accessories
page 2.3.2 ...

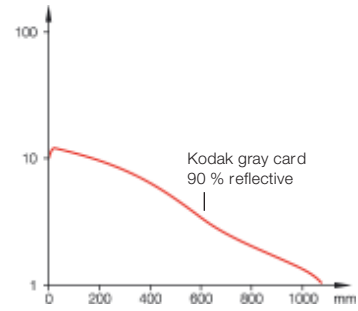
6

Connectors
page 6.2 ...

Diffuse
BOS 5K-___-ID10-___

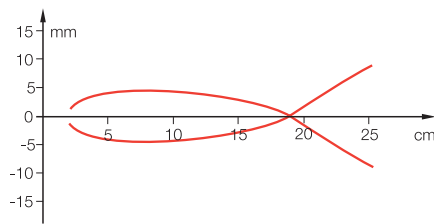


Range measured with side approach of Kodak gray card 90 %.

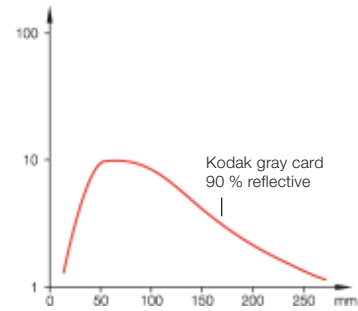


Function reserve

Diffuse small beam
BOS 5K-___-RD11-___

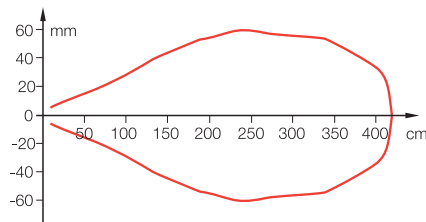


Range measured with side approach of Kodak gray card 90 %.

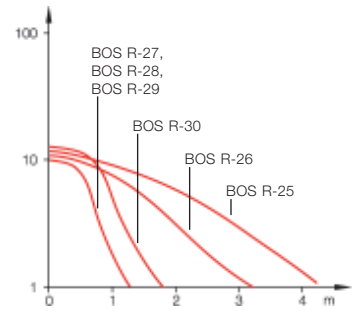


Function reserve

Retroreflective
BOS 5K-___-RR10-___

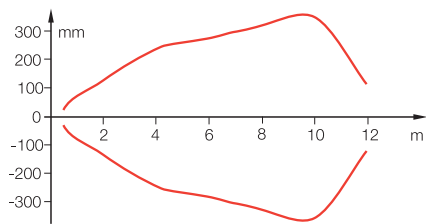


Range measured with side approach of R1 reflector.

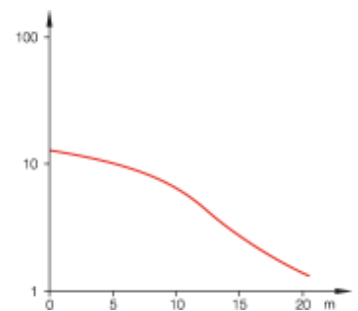


Function reserve

Through-beam
BOS 5K-___-IX10-___

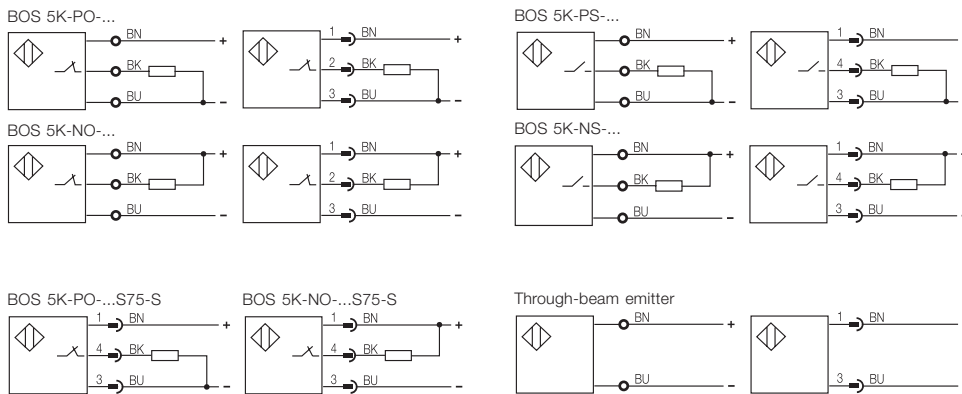


For the through-beam the maximum possible offset between emitter and receiver is measured.



Function reserve

Wiring diagrams

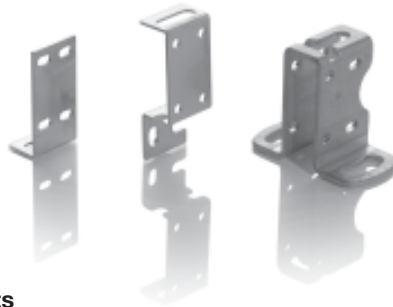


Recommended accessories

please order separately

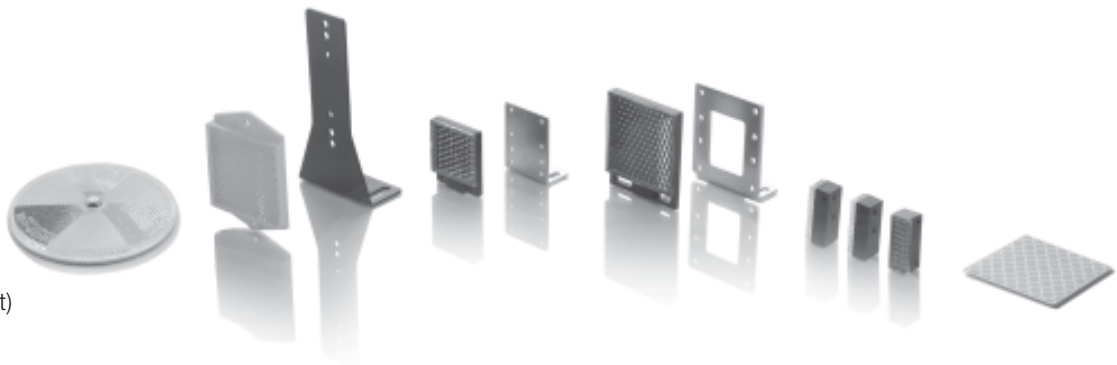
Mounting brackets

BOS 5-HW-1
BOS 5-HW-2
BOS 5-HW-3
(from left to right)



Reflectors, Reflector-Mounting brackets

BOS R-1
BOS R-25
BOS 5-HW-4
BOS R-26
BOS 5-HW-5
BOS R-9
BOS 5-HW-6
BOS R-27
BOS R-28
BOS R-29
BOS R-30
(from left to right)



Slit apertures, vertical

BOS 5-BL-1
BOS 5-BL-2
BOS 5-BL-3

Slit apertures, horizontal

BOS 5-BL-4
BOS 5-BL-5
BOS 5-BL-6

Round apertures

BOS 5-BL-7
BOS 5-BL-8
BOS 5-BL-9
(from left to right)



Connector

BKS-S 74/BKS-S 75



2.1

2.3

Photoelectric sensors
accessories
page 2.3.2 ...

6

Connectors
page 6.2 ...

Its high performance specs allow the **BOS 6K** to be used virtually anywhere. These sensors are especially ideal in tight mounting spaces. The small size allows better integration into the machine.

Red light and background suppression make the sensor extremely user-friendly.

In addition, several laser versions are available for absolute small parts detection.

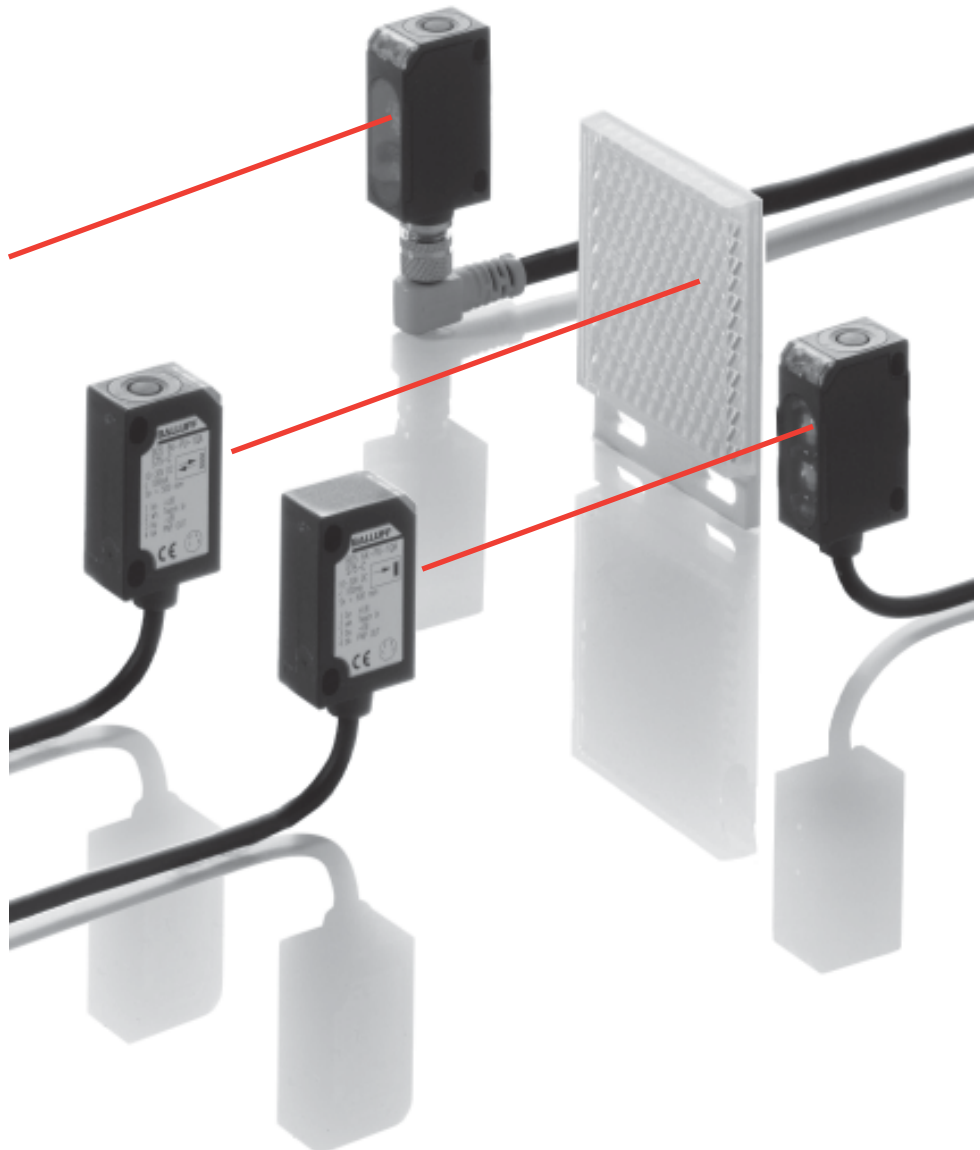
Automatic calibration using the control lines means the sensor can be installed at virtually inaccessible locations. Dynamic teach-in means less and less attention needs to be paid to the sensors.





Features

- Teach-in button plus control line
- Dynamic teach-in possible (i. e., without stopping the machine)
- Multi-function display visible from any direction
- Uses highly-visible red light
- Pushbutton light on/dark on setting/control line
- Versions with 3- or 4-pin M8 connector or with 2 m cable
- Solid workmanship with IP 67 protection

Applications

- Packaging machinery
- Handling and assembly technology
- Specialized machines
- Printing and paper machinery



Type	Range	Light type		Output		Output function		Switching frequency	U _B	Connection			Features	Page
		Red light	Laser	PNP-Transistor	NPN-Transistor	Light-on	Dark-on			10...30 V DC	M8 connector, 4-pin	M8 connector, 3-pin		
 Diffuse with HGA														
BOS 6K-PU-1HA-S75-C	25...100 mm	■		■		■	■	1 kHz	■	■				2.1.84
BOS 6K-NU-1HA-S75-C	25...100 mm	■			■	■	■	1 kHz	■	■				2.1.84
BOS 6K-PU-1HA-S49-C	25...100 mm	■		■		■	■	1 kHz	■		■			2.1.85
BOS 6K-PU-1HA-C-02	25...100 mm	■		■		■	■	1 kHz	■			■		2.1.85
BOS 6K-NU-1HA-C-02	25...100 mm	■			■	■	■	1 kHz	■			■		2.1.85
BOS 6K-PU-1LHA-S75-C	20...60 mm		■	■		■	■	1 kHz	■	■				2.1.86
BOS 6K-NU-1LHA-S75-C	20...60 mm		■		■	■	■	1 kHz	■	■				2.1.86
BOS 6K-PU-1LHA-C-02	20...60 mm		■	■		■	■	1 kHz	■			■		2.1.87
BOS 6K-NU-1LHA-C-02	20...60 mm		■		■	■	■	1 kHz	■			■		2.1.87
BOS 6K-PU-1LHA-SA1-S75-C	30...100 mm		■	■		■	■	1 kHz	■	■				2.1.86
BOS 6K-NU-1LHA-SA1-S75-C	30...100 mm		■		■	■	■	1 kHz	■	■				2.1.86
BOS 6K-PU-1LHA-SA1-C-02	30...100 mm		■	■		■	■	1 kHz	■			■		2.1.87
BOS 6K-NU-1LHA-SA1-C-02	30...100 mm		■		■	■	■	1 kHz	■			■		2.1.87
 Diffuse														
BOS 6K-PU-1OC-S75-C	5...300 mm	■		■		■	■	1 kHz	■	■				2.1.84
BOS 6K-NU-1OC-S75-C	5...300 mm	■			■	■	■	1 kHz	■	■				2.1.84
BOS 6K-PU-1OC-S49-C	5...300 mm	■		■		■	■	1 kHz	■		■			2.1.85
BOS 6K-PU-1OC-C-02	5...300 mm	■		■		■	■	1 kHz	■			■		2.1.85
BOS 6K-NU-1OC-C-02	5...300 mm	■			■	■	■	1 kHz	■			■		2.1.85
 Retroreflective														
BOS 6K-PU-1QA-S75-C	0.5 m	■		■		■	■	1 kHz	■	■			■	2.1.84
BOS 6K-NU-1QA-S75-C	0.5 m	■			■	■	■	1 kHz	■	■			■	2.1.84
BOS 6K-PU-1QA-S49-C	0.5 m	■		■		■	■	1 kHz	■		■		■	2.1.85
BOS 6K-PU-1QA-C-02	0.5 m	■		■		■	■	1 kHz	■			■	■	2.1.85
BOS 6K-NU-1QA-C-02	0.5 m	■			■	■	■	1 kHz	■			■	■	2.1.85
BOS 6K-PU-1LQA-S75-C	0.1...1 m		■	■		■	■	1 kHz	■	■			■	2.1.87
BOS 6K-NU-1LQA-S75-C	0.1...1 m		■		■	■	■	1 kHz	■	■			■	2.1.87
BOS 6K-PU-1LQA-C-02	0.1...1 m		■	■		■	■	1 kHz	■			■	■	2.1.87
BOS 6K-NU-1LQA-C-02	0.1...1 m		■		■	■	■	1 kHz	■			■	■	2.1.87
BOS 6K-PU-1QC-S75-C	2.5 m	■		■		■	■	1 kHz	■	■			■	2.1.84
BOS 6K-NU-1QC-S75-C	2.5 m	■			■	■	■	1 kHz	■	■			■	2.1.84
BOS 6K-PU-1QC-S49-C	2.5 m	■		■		■	■	1 kHz	■		■		■	2.1.85
BOS 6K-PU-1QC-C-02	2.5 m	■		■		■	■	1 kHz	■			■	■	2.1.85
BOS 6K-NU-1QC-C-02	2.5 m	■			■	■	■	1 kHz	■			■	■	2.1.85
 Through-beam														
BLE 6K-PU-1E-S75-C	0...6 m	■		■		■	■	1 kHz	■	■				2.1.84
BLE 6K-NU-1E-S75-C	0...6 m	■			■	■	■	1 kHz	■	■				2.1.84
BLE 6K-PU-1E-S49-C	0...6 m	■		■		■	■	1 kHz	■		■			2.1.85
BLE 6K-PU-1E-C-02	0...6 m	■		■		■	■	1 kHz	■			■		2.1.85
BLE 6K-NU-1E-C-02	0...6 m	■			■	■	■	1 kHz	■			■		2.1.85
BLS 6K-XX-1E-S75-C	0...6 m	■							■	■				2.1.84
BLS 6K-XX-1E-S49-C	0...6 m	■							■		■			2.1.85
BLS 6K-XX-1E-C-02	0...6 m	■							■			■		2.1.85

2.1

2.3

Photoelectric sensors accessories page 2.3.2 ...

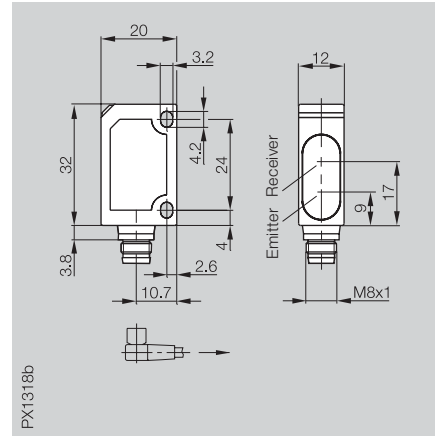
6

Connectors page 6.2 ...

Photoelectric Sensors

BOS 6K
Range 100 mm, 300 mm,
0.5 m, 2.5 m, 6 m

Diffuse with background suppression	Range	25...100 mm
Diffuse	Range	5...300 mm
Retroreflective with polarizing filter	Range	0.5 m/2.5 m
Through-beam	Range	0...6 m



Diffuse				
	PNP	25...100 mm HGA	BOS 6K-PU-1 HA -S 75-C	
	NPN	25...100 mm HGA	BOS 6K-NU-1 HA -S 75-C	
	PNP	5...300 mm	BOS 6K-PU-1 OC -S 75-C	
	NPN	5...300 mm	BOS 6K-NU-1 OC -S 75-C	
Retroreflective				
	PNP	0.5 m Polarizing filter, glass sensing	BOS 6K-PU-1 QA -S 75-C	
	NPN	0.5 m Polarizing filter, glass sensing	BOS 6K-NU-1 QA -S 75-C	
	PNP	2.5 m Polarizing filter	BOS 6K-PU-1 QC -S 75-C	
	NPN	2.5 m Polarizing filter	BOS 6K-NU-1 QC -S 75-C	
Through-beam				
	PNP	6 m Receiver	BLE 6K-PU-1E-S 75-C	
	NPN	6 m Receiver	BLE 6K-NU-1E-S 75-C	
		6 m Emitter	BLS 6K-XX-1E-S 75-C	
Electrical data				
Supply voltage U_B			10...30 V DC	
No-load supply current I_0 max.			≤ 35 mA	
Switching output			PNP- or NPN-Transistor	
Output current			100 mA	
Switching type			Light-/dark-on (selectable)	
Voltage drop U_d at I_o			≤ 2.4 V	
Settings			Teach-in	
Optical data				
Emitter, light type			LED, red light	
Wavelength			660 nm	
Light spot diameter			see table	
Distance hysteresis (18 %/18 %)			see table	
Gray value shift (90 %/18 %)			see table	
Indicator				
Output function indicator			LED yellow	
Stability indicator			LED green	
Time data				
Response time			0.5 ms	
Frequency of operating cycles f			1 kHz	
Mechanical data				
Connection			M8 connector, 4-pin	
No. of wires × cross-section				
Housing material			impact-resistant ABS	
Optical surface			PMMA	
Weight			40 g	
Ambient data				
Degree of protection per IEC 60529			IP 67	
Polarity reversal protected			yes	
Short circuit protected			yes	
Ambient temperature range T_a			-20...+60 °C	
Ambient light rejection			5 kLux	

Diffuse values referenced to Kodak gray card 90% reflective.

Retroreflective values referenced to R1 reflector.

Wiring diagrams, characteristics and accessories see page 2.1.88 and 2.1.89.



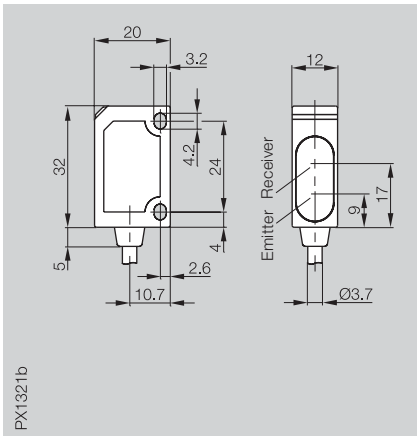
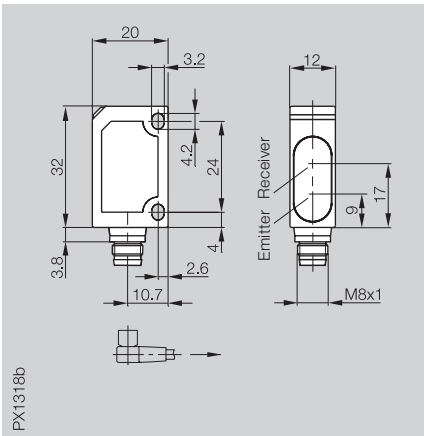
mini.s with teach-in

Photoelectric Sensors

BOS 6K
Range 100 mm, 300 mm,
0.5 m, 2.5 m, 6 m

25...100 mm
5...300 mm
0.5 m/2.5 m
0...6 m

25...100 mm
5...300 mm
0.5 m/2.5 m
0...6 m



BOS 6K-PU-1**HA**-S 49-C

BOS 6K-PU-1**OC**-S 49-C

BOS 6K-PU-1**QA**-S 49-C

BOS 6K-PU-1**QC**-S 49-C

BLE 6K-PU-1E-S 49-C

BLS 6K-XX-1E-S 49-C

10...30 V DC
≤ 35 mA

PNP- or NPN-Transistor
100 mA

Light-/dark-on (selectable)

≤ 2.4 V
Teach-in

LED, red light
660 nm
see table
see table
see table

LED yellow
LED green

0.5 ms
1 kHz

M8 connector, 3-pin

impact-resistant ABS

PMMA
40 g

IP 67

yes
yes

-20...+60 °C

5 kLux

BOS 6K-PU-1**HA**-C-02

BOS 6K-NU-1**HA**-C-02

BOS 6K-PU-1**OC**-C-02

BOS 6K-NU-1**OC**-C-02

BOS 6K-PU-1**QA**-C-02

BOS 6K-NU-1**QA**-C-02

BOS 6K-PU-1**QC**-C-02

BOS 6K-NU-1**QC**-C-02

BLE 6K-PU-1E-C-02

BLE 6K-NU-1E-C-02

BLS 6K-XX-1E-C-02

10...30 V DC
≤ 35 mA

PNP- or NPN-Transistor
100 mA

Light-/dark-on (selectable)

≤ 2.4 V
Teach-in

LED, red light
660 nm
see table
see table
see table

LED yellow
LED green

0.5 ms
1 kHz

2 m cable, PVC
4×0.14 mm²

impact-resistant ABS

PMMA
120 g

IP 67

yes
yes

-20...+60 °C

5 kLux

2.1

2.3

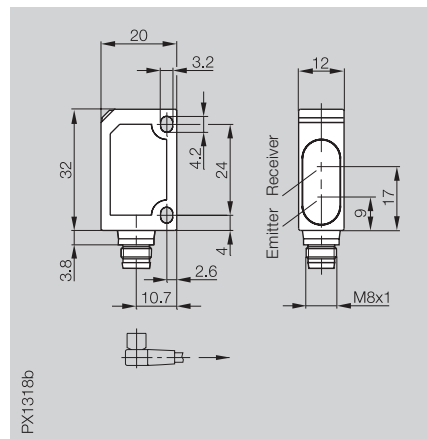
Photoelectric sensors
accessories
page 2.3.2 ...

6

Connectors
page 6.2 ...

	...HA...	...OC...	...QA...	...QC...
Light spot diameter	≤ 5×5 mm over entire s_n	≤ 12×12 mm over entire s_n	20×20 mm at 500 mm s_n	75×75 mm at 2 m s_n
Distance hysteresis	≤ 5 %	≤ 10 %		
Gray value shift	≤ 10 %			

Diffuse with background suppression	Range	20...60 mm/30...110 mm
Retroreflective with polarizing filter	Range	



Diffuse



PNP	20...60 mm	HGA, Laser
NPN	20...60 mm	HGA, Laser
PNP	30...110 mm	HGA, Laser
NPN	30...110 mm	HGA, Laser

BOS 6K-PU-1 LHA -S75-C
BOS 6K-NU-1 LHA -S75-C
BOS 6K-PU-1 LHA-SA1 -S75-C
BOS 6K-NU-1 LHA-SA1 -S75-C

Retroreflective



PNP	0.1...1 m	Polarizing filter, Laser
NPN	0.1...1 m	Polarizing filter, Laser

Electrical data

Supply voltage U_B	10...30 V DC
No-load supply current I_0 max.	≤ 30 mA
Switching output	PNP- or NPN-Transistor
Output current	100 mA
Switching type	Light/dark-on (selectable)
Voltage drop U_d at I_0	≤ 2.4 V
Settings	Teach-in

Optical data

Emitter, light type	Laser, red light
Wavelength	650 nm
Laser class	2
Light spot diameter	see table
Distance hysteresis (18 %/18 %)	see table
Gray value shift (90 %/18 %)	see table

Indicator

Output function indicator	LED yellow
Stability indicator	LED green

Time data

Response time	0.5 ms
Frequency of operating cycles f	1 kHz

Mechanical data

Dimensions	20x30x12 mm
Connection	M8 connector, 4-pin
No. of wires × cross-section	
Housing material	impact-resistant ABS
Optical surface	PMMA
Weight	40 g

Ambient data

Degree of protection per IEC 60529	IP 67
Polarity reversal protected	yes
Short circuit protected	yes
Ambient temperature range T_a	-20...+60 °C
Ambient light rejection	5 kLux

Diffuse values referenced to Kodak gray card 90% reflective.
Retroreflective values referenced to R9 reflector.



Wiring diagrams, characteristics and accessories see page 2.1.88 and 2.1.89.

mini.s Laser with teach-in



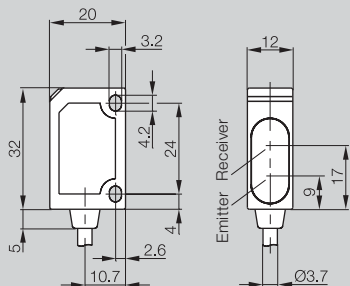
Photoelectric Sensors

BOS 6K Laser
Range 60 mm, 110 mm, 1 m

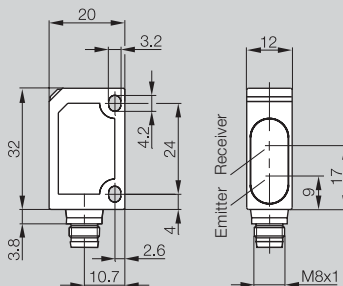
20...60 mm/30...110 mm

0.1...1 m

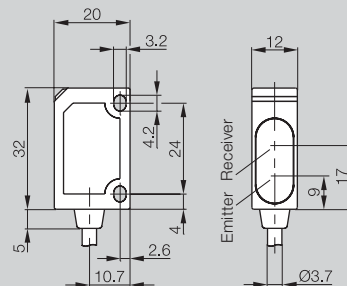
0.1...1 m



PX1321b



PX1318b



PX1321b

BOS 6K-PU-1**LHA**-C-02
BOS 6K-NU-1**LHA**-C-02
BOS 6K-PU-1**LHA-SA1**-C-02
BOS 6K-NU-1**LHA-SA1**-C-02

BOS 6K-PU-1**LQA**-S75-C
BOS 6K-NU-1**LQA**-S75-C

BOS 6K-PU-1**LQA**-C-02
BOS 6K-NU-1**LQA**-C-02

10...30 V DC
≤ 30 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on (selectable)
≤ 2.4 V
Teach-in

10...30 V DC
≤ 30 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on (selectable)
≤ 2.4 V
Teach-in

10...30 V DC
≤ 30 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on (selectable)
≤ 2.4 V
Teach-in

Laser, red light
650 nm
2
see table
see table
see table

Laser, red light
650 nm
2
1 mm in 300 mm

Laser, red light
650 nm
2
1 mm in 300 mm

LED yellow
LED green

LED yellow
LED green

LED yellow
LED green

0.5 ms
1 kHz

0.5 ms
1 kHz

0.5 ms
1 kHz

20×30×12 mm
2 m cable, PVC
4×0.14 mm²

20×30×12 mm
M8 connector, 4-pin

20×30×12 mm
2 m cable, PVC
4×0.14 mm²

impact-resistant ABS
PMMA
120 g

impact-resistant ABS
PMMA
40 g

impact-resistant ABS
PMMA
120 g

IP 67
yes
yes
-20...+60 °C
5 kLux

IP 67
yes
yes
-20...+60 °C
5 kLux

IP 67
yes
yes
-20...+60 °C
5 kLux

Light spot diameter
Distance hysteresis
Gray value shift

...LHA...
0.5 mm im
Focus (35 mm)
≤ 2 % to focus
≤ 6 % to end
≤ 7 %

...LHA-SA1...
0,7 mm im
Focus (85 mm ± 15 mm)
≤ 5 % to focus
≤ 7 % to end

2.1

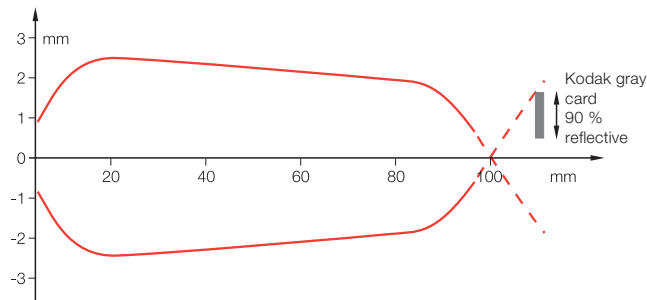
2.3

Photoelectric
sensors
accessories
page 2.3.2 ...

6

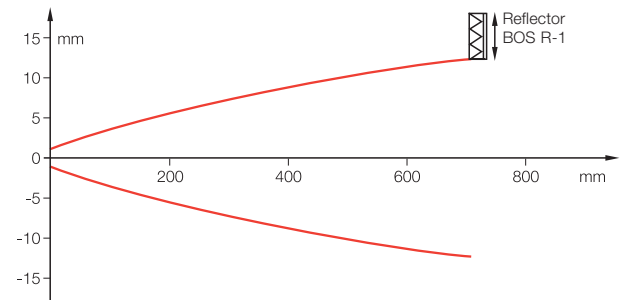
Connectors
page 6.2 ...

Diffuse BOS 6K...-1HA-...



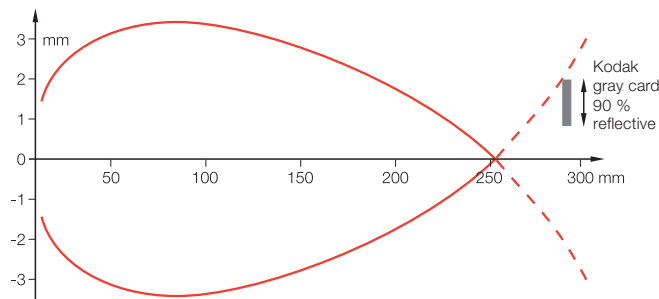
Range measured with side approach of Kodak gray card.

Retroreflective BOS 6K...-1QA-...



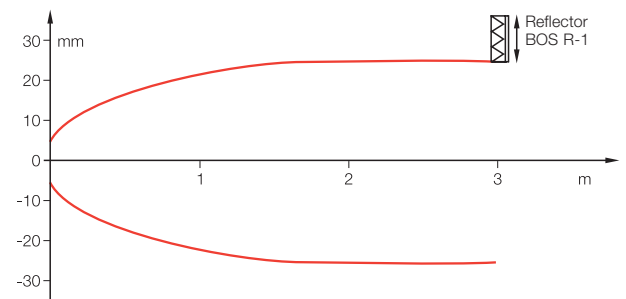
Range measured with side approach of reflector.

Diffuse BOS 6K...-1OC-...



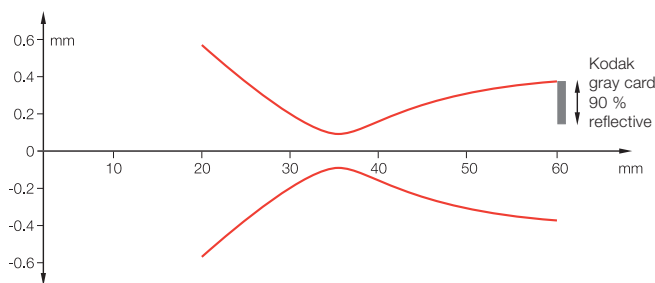
Range measured with side approach of Kodak gray card.

Retroreflective BOS 6K...-1QC-...



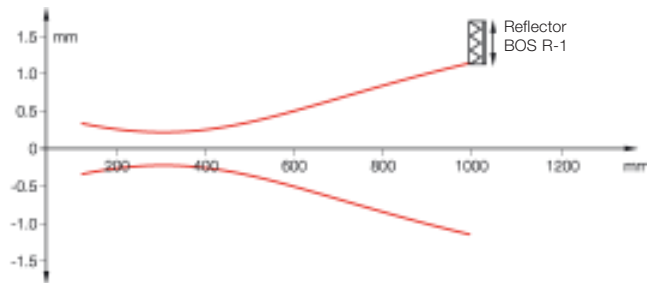
Range measured with side approach of reflector.

Diffuse BOS 6K...-1LHA-...



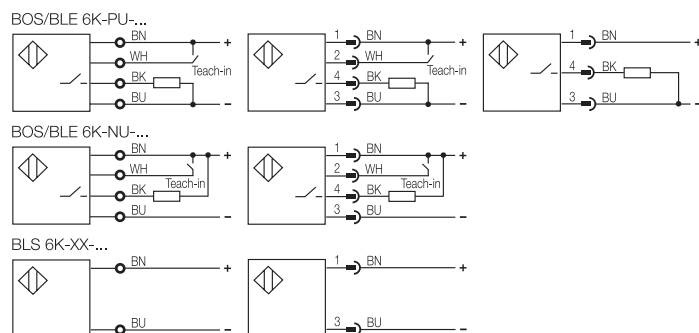
Range measured with side approach of Kodak gray card.

Retroreflective BOS 6K...-1LQA-...

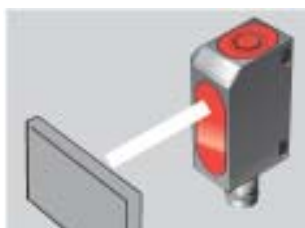


Range measured with side approach of reflector.

Wiring diagrams



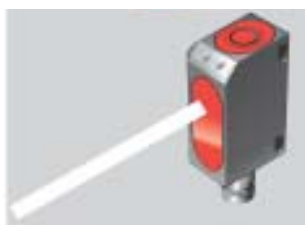
Diffuse



Direct sensor at object.



Press button for approx. 3 s until both LED's blink together.

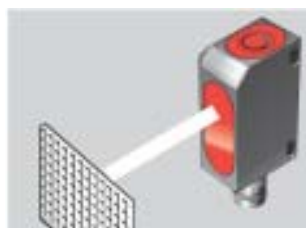


Remove object from beam path.



Hold down button for 1 s. Green LED blinks briefly and then comes full on. The sensor is ready. If both LEDs blink together, repeat your settings.

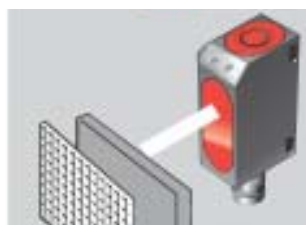
Retroreflective/through-beam



Direct sensor at reflector/receiver.



Press button for approx. 3 s until both LED's blink together.



Bring objects into detection range.



Hold down button for 1 s. Green LED blinks briefly and then comes full on. The sensor is ready. If both LEDs blink together, repeat your settings.

2.1

2.3

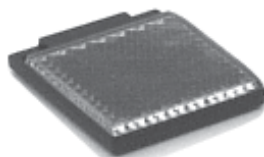
Photoelectric sensors accessories page 2.3.2 ...

Recommended accessories

please order separately



Reflector BOS R-1



Reflector BOS R-9



Mounting bracket BOS 6-HW-1



Connector BKS-S 74/BKS-S 75

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Connectors page 6.2 ...