

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.

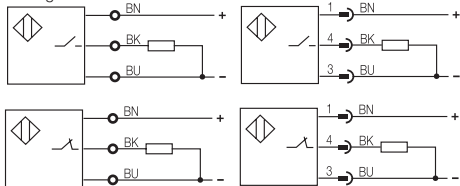
The sensor family includes diffuse types in block style housing with 8 mm side length, retroreflective and through-beam types. These small photoelectric sensors provide solutions in highly dynamic applications

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

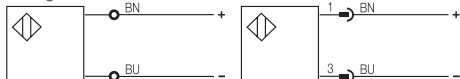


Wiring diagrams

Diffuse, Retroreflective, Through-beam Receiver

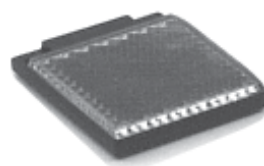


Through-beam emitter



Recommended accessories

please order separately



Reflector
BOS R-9

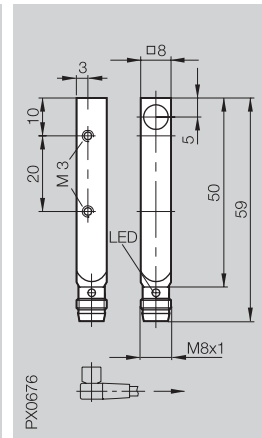
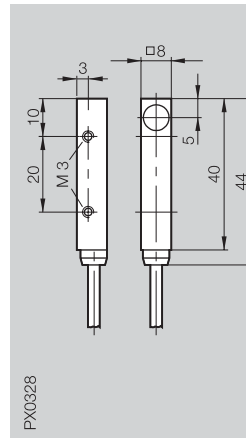
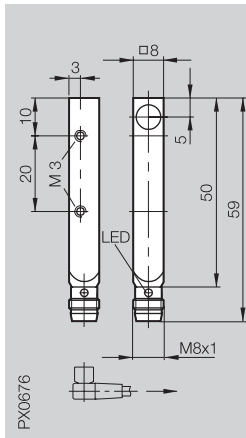


Connector
BKS-_ 48/BKS-_ 49

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			M8 connector, 3-pin	Cable, 3 m	Polarizing filter	
 Diffuse									10...30 V DC				
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

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Diffuse	maximum range
Retroreflective	maximum range
Through-beam	maximum range

0...55 mm
0...55 mm
25...550 mm

Diffuse

PNP, NO	55 mm
PNP, NC	55 mm

BOS Q08M-PS-RD10-S49	BOS Q08M-PS-RD10-03
BOS Q08M-PO-RD10-S49	BOS Q08M-PO-RD10-03

Retroreflective

PNP, NO	25...550 mm	Polarizing filter
PNP, NC	25...550 mm	Polarizing filter

BOS Q08M-PS-PR10-S49	BOS Q08M-PO-PR10-S49
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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
Ripple	10 %
No-load supply current I_0 max.	≤ 20 mA
Switching output	PNP-Transistor
Output current	100 mA
Switching type	Light- or dark-on
Voltage drop U_d at I_0	≤ 2 V
Settings	fixed

10...30 V DC	10 %	≤ 20 mA	PNP-Transistor	100 mA	Light- or dark-on	≤ 2 V	fixed
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10...30 V DC	10 %	≤ 20 mA	PNP-Transistor	100 mA	Light- or dark-on	≤ 2 V	fixed
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Optical data

Recommended range	0...50 mm
Emitter, light type	LED, red light
Wavelength	640 nm

0...50 mm	LED, red light	640 nm
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25...500 mm	LED, red light	640 nm
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Indicator

Output function indicator	LED red
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LED red

LED red

Time data

Response time	1 ms
Frequency of operating cycles f	500 Hz

1 ms
500 Hz

1 ms
500 Hz

Mechanical data

Dimensions	8×59×8 mm
Connection	M8 connector, 3-pin
No. of wires × cross-section	
Housing material	Nickel plated Gd-Zn
Optical surface	PMMA
Weight	13 g

8×44×8 mm	3 m cable, PUR	3×0.14 mm ²	Nickel plated Gd-Zn	PMMA	47 g
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8×59×8 mm	M8 connector, 3-pin		Nickel plated Gd-Zn	PMMA	13 g
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Ambient data

Degree of protection per IEC 60529	IP 67
Polarity reversal protected	yes
Short circuit protected	yes
Ambient temperature range T_a	-10...+60 °C
Ambient light rejection per	EN 60947-5-2

IP 67
yes
yes
-10...+60 °C
EN 60947-5-2

IP 67
yes
yes
-10...+60 °C
EN 60947-5-2

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



Connector orientation

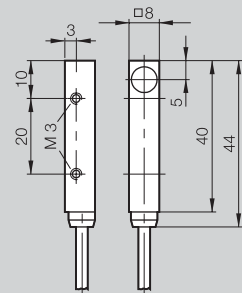
25...550 mm

0...1.1 m

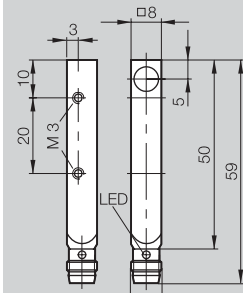
0...1.1 m

0...1.1 m

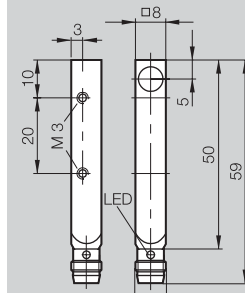
0...1.1 m



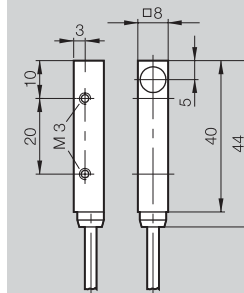
PX0328



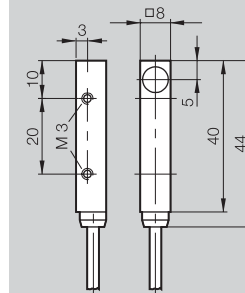
PX0676



PX0676



PX0328



PX0328

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

100 mA

100 mA

Light- or dark-on

Light- or dark-on

≤ 2 V

≤ 2 V

fixed

fixed

fixed

fixed

fixed

25...500 mm

0...1 m

0...1 m

0...1 m

0...1 m

LED, red light
640 nmLED, red light
640 nmLED, 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

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

-10...+60 °C

-10...+60 °C

-10...+60 °C

-10...+60 °C

EN 60947-5-2

EN 60947-5-2

EN 60947-5-2

EN 60947-5-2

EN 60947-5-2

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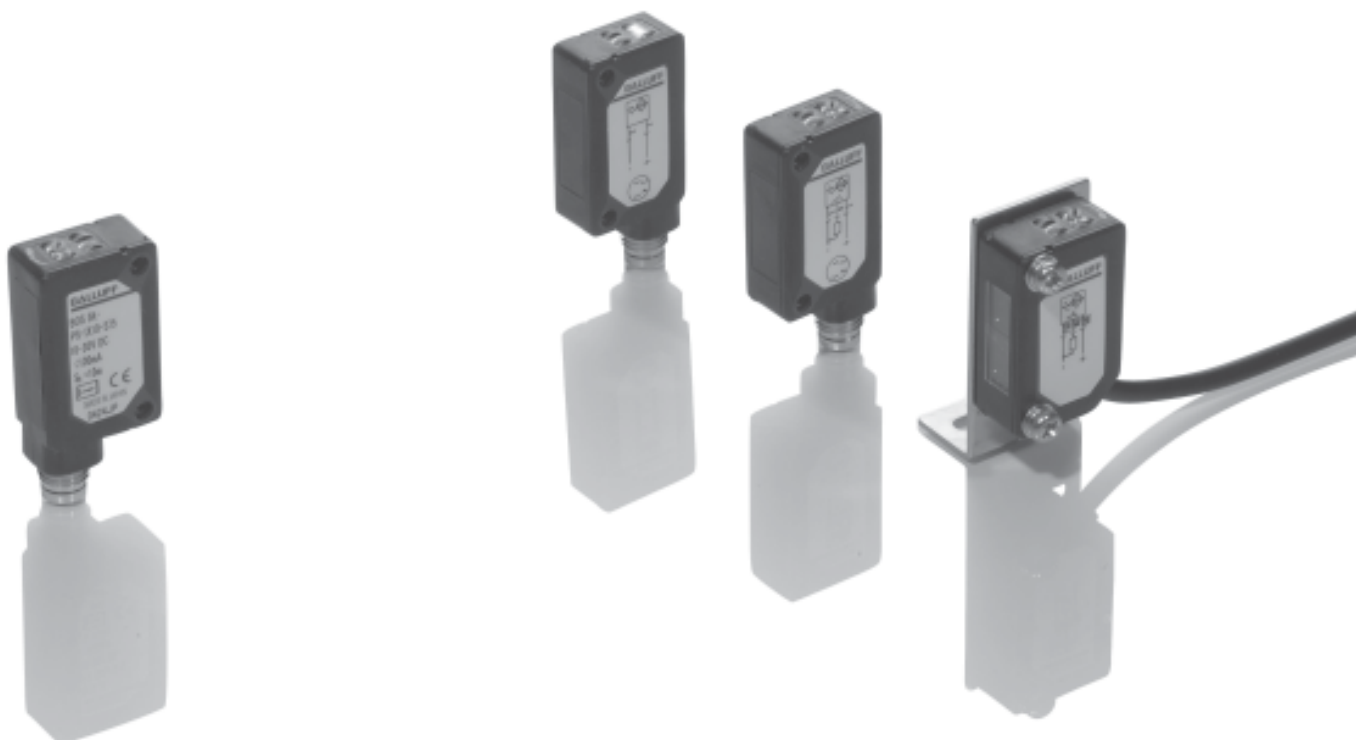
Small sensors are easier to install and sometimes are even the only alternative. The optical performance of these miniature sensors is astounding. Choose between integrated cable or an M8 connector for connecting these sensors.

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	Conne- ction	Fea- tures	Page	
		Red light	Infrared	PNP-Transistor	NPN-Transistor	Light-on	Dark-on		10...30 V DC	M8 connector, 4-pin	Cable	Polarizing filter	
 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

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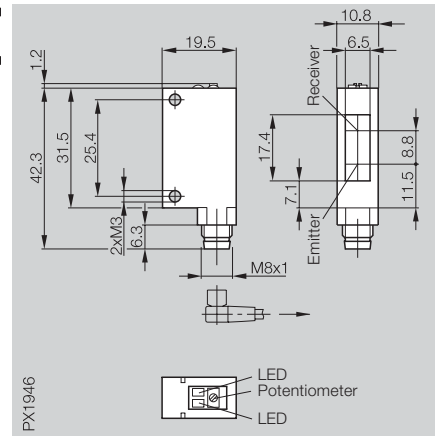
Diffuse

Range

0...900 mm

Diffuse small beam

Range



Diffuse



PNP, NO	900 mm
NPN, NO	900 mm
PNP, NC	900 mm
NPN, NC	900 mm
PNP, NC	900 mm
NPN, NC	900 mm

BOS 5K-PS-ID10-S75
BOS 5K-NS-ID10-S75
BOS 5K-PO-ID10-S75
BOS 5K-NO-ID10-S75
BOS 5K-PO-ID10-S75-S
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

19.5×31.5×10.8 mm

Connection

M8 connector, 4-pin

No. of wires × 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.



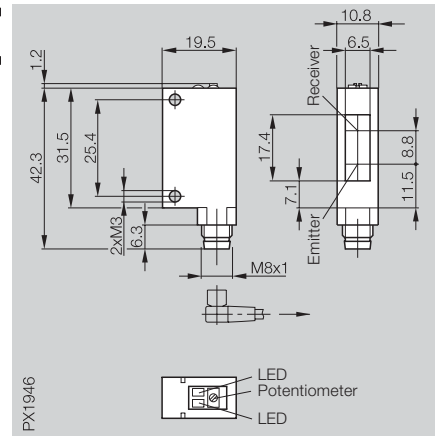
Wiring diagrams, characteristics and accessories see page 2.1.80 and 2.1.81.

BOS 5K
Range 200 mm, 900 mm

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Connectors
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Retroreflective	Range
Through-beam	Range

0.1...4 m



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

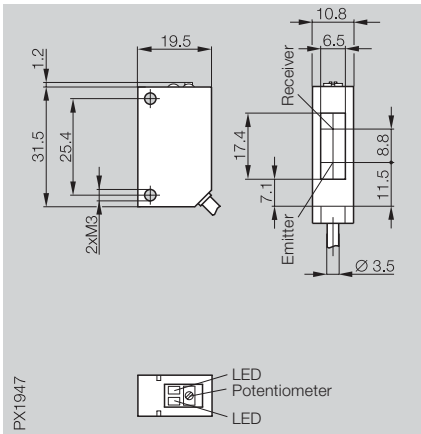
Degree of protection per IEC 60529	IP 67
Polarity reversal protected	yes
Short circuit protected	yes
Ambient temperature range T_a	-25...+55 °C
Ambient light rejection	5 kLux (artificial light)/10 kLux (sunlight)

Retroreflective values referenced to R1 reflector.



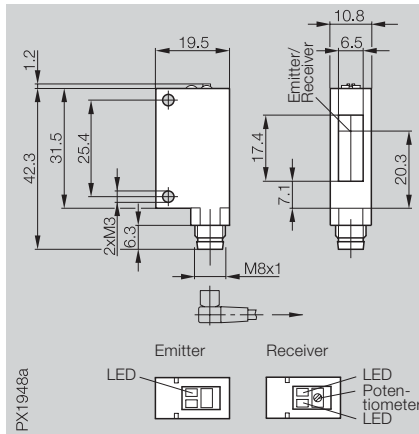
Wiring diagrams, characteristics and accessories see page 2.1.80 and 2.1.81.

0.1...4 m



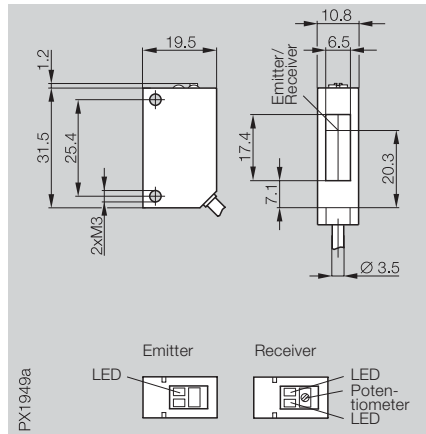
BOS 5K-PS-RR10-01
BOS 5K-NS-RR10-01
BOS 5K-PO-RR10-01
BOS 5K-NO-RR10-01

0...10 m



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

0...10 m



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°

LED, red light
660 nm

LED yellow
LED green

≤ 1 ms
500 Hz

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

IP 67
yes
yes

-25...+55 °C
5 kLux (artificial light)/10 kLux (sunlight)

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, infrared
880 nm

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

≤ 1 ms
500 Hz

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

IP 67
yes
yes

-25...+55 °C
5 kLux (artificial light)/10 kLux (sunlight)

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, infrared
880 nm

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

≤ 1 ms
500 Hz

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

-25...+55 °C
5 kLux (artificial light)/10 kLux (sunlight)

2.1

2.3

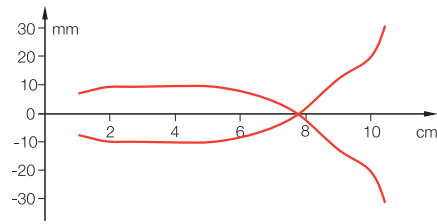
Photoelectric
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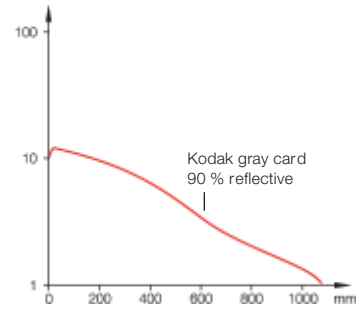
Connectors
page 6.2 ...

Diffuse

BOS 5K-__-ID10-__



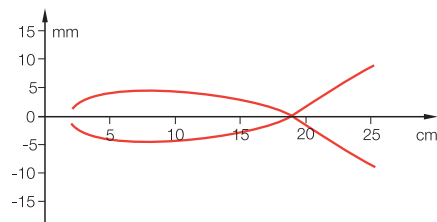
Range measured with side approach
of Kodak gray card 90 %.



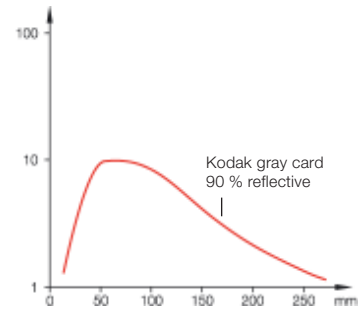
Function reserve

Diffuse small beam

BOS 5K-__-RD11-__



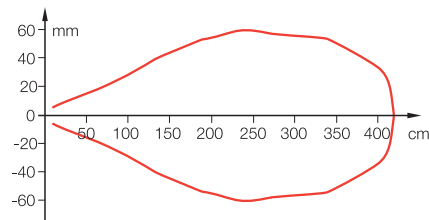
Range measured with side approach
of Kodak gray card 90 %.



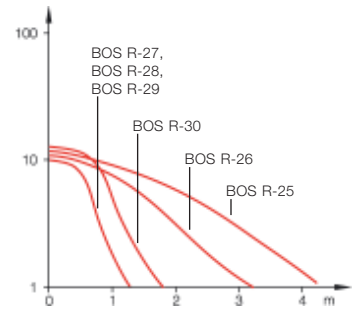
Function reserve

Retroreflective

BOS 5K-__-RR10-__



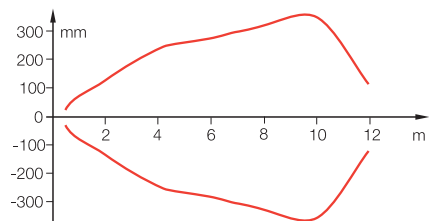
Range measured with
side approach of R1 reflector.



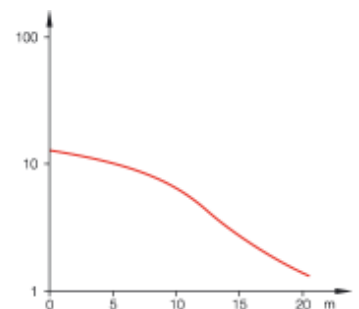
Function reserve

Through-beam

BOS 5K-__-IX10-__

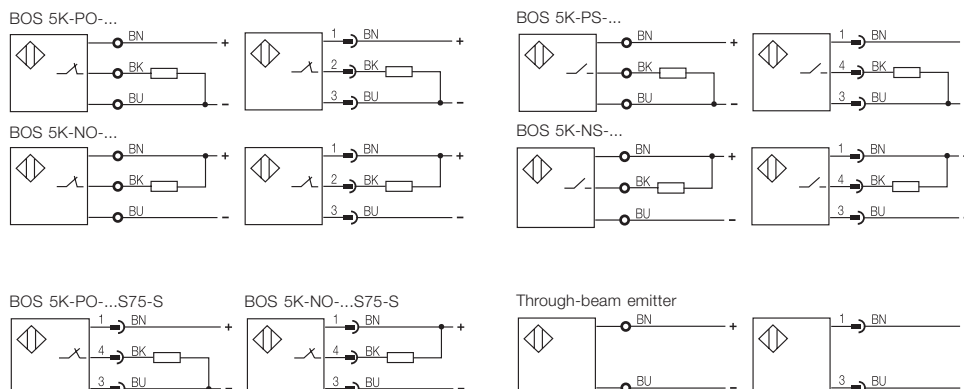


For the through-beam the
maximum possible offset between emitter
and receiver is measured.



Function reserve

Wiring diagrams

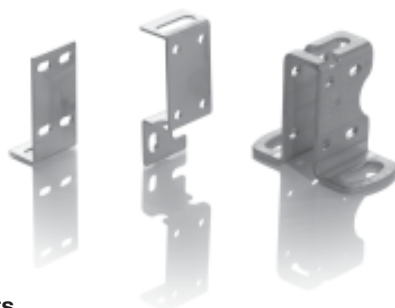


Recommended accessories

please order separately

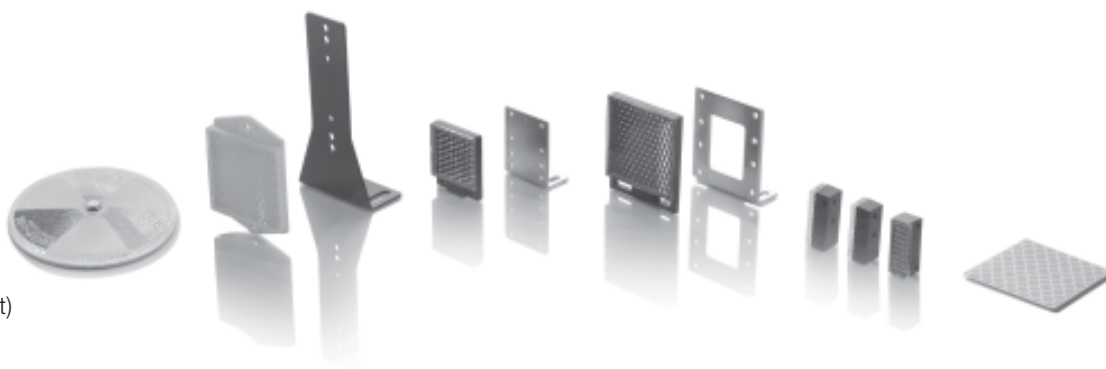
Mounting brackets

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

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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.

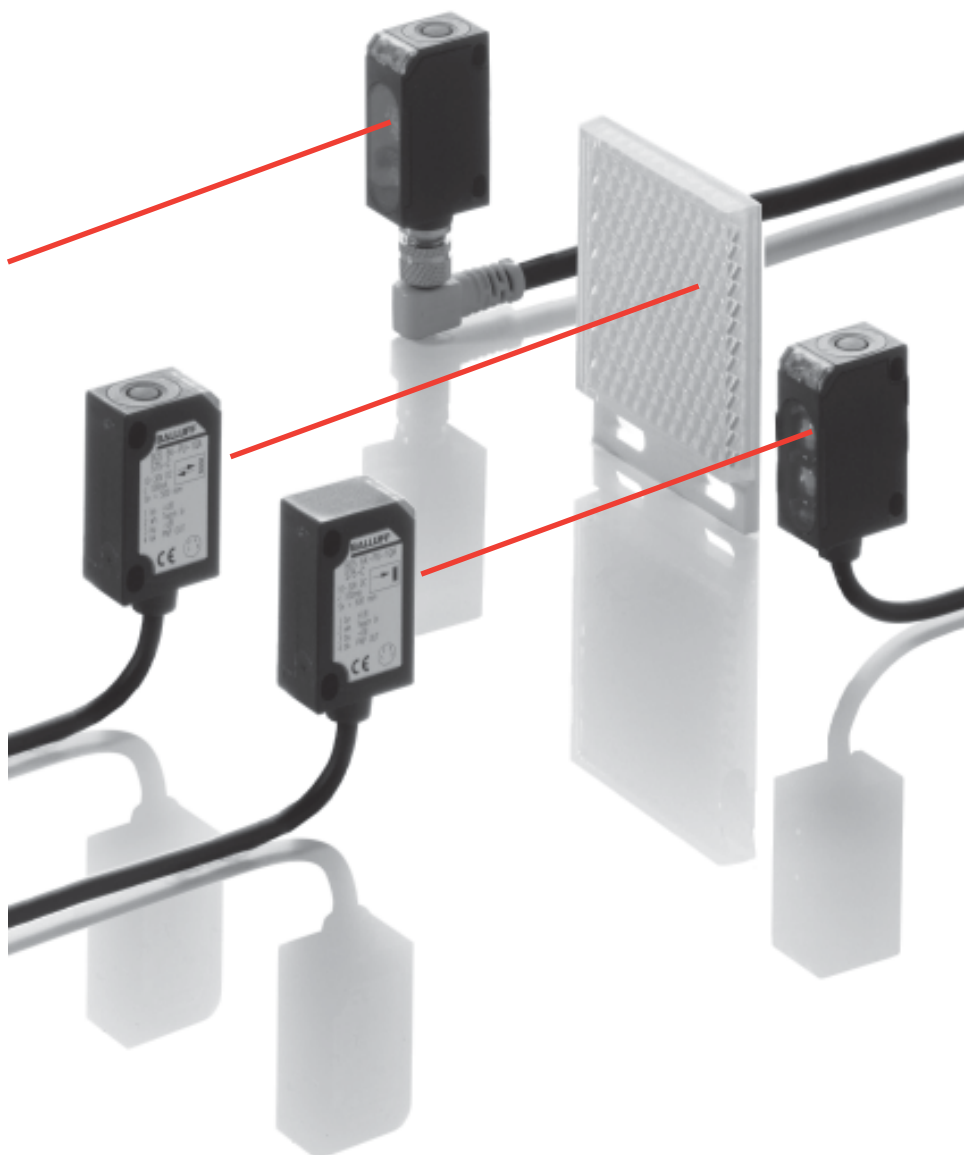
Automatic calibration using the control lines means the sensor can be installed at virtually inaccessible locations. Dynamic teach-in means less and less attention needs to be paid to the sensors.

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	Cable	Polarizing filter	
 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

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Connectors
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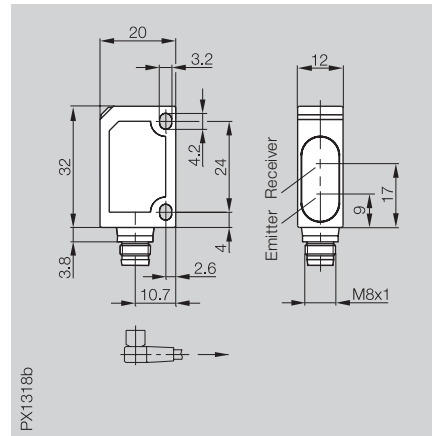
Photoelectric Sensors

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

Diffuse with background suppression
Diffuse
Retroreflective with polarizing filter
Through-beam

Range
Range
Range
Range

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



Diffuse



PNP 25...100 mm HGA
NPN 25...100 mm HGA



PNP 5...300 mm
NPN 5...300 mm

Retroreflective



PNP 0.5 m Polarizing filter, glass sensing
NPN 0.5 m Polarizing filter, glass sensing
PNP 2.5 m Polarizing filter
NPN 2.5 m Polarizing filter

Through-beam



PNP 6 m Receiver
NPN 6 m Receiver
6 m Emitter

BOS 6K-PU-1**HA**-S 75-C
BOS 6K-NU-1**HA**-S 75-C
BOS 6K-PU-1**OC**-S 75-C
BOS 6K-NU-1**OC**-S 75-C

BOS 6K-PU-1**QA**-S 75-C
BOS 6K-NU-1**QA**-S 75-C
BOS 6K-PU-1**QC**-S 75-C
BOS 6K-NU-1**QC**-S 75-C

BLE 6K-PU-1E-S 75-C
BLE 6K-NU-1E-S 75-C
BLS 6K-XX-1E-S 75-C

Electrical data

Supply voltage U_B
No-load supply current I_0 max.
Switching output
Output current
Switching type
Voltage drop U_d at I_e
Settings

10...30 V DC
 ≤ 35 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on (selectable)
 ≤ 2.4 V
Teach-in

Optical data

Emitter, light type
Wavelength
Light spot diameter
Distance hysteresis (18 %/18 %)
Gray value shift (90 %/18 %)

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

Indicator

Output function indicator
Stability indicator

LED yellow
LED green

Time data

Response time
Frequency of operating cycles f

0.5 ms
1 kHz

Mechanical data

Connection
No. of wires $\times$ cross-section
Housing material
Optical surface
Weight

M8 connector, 4-pin
impact-resistant ABS
PMMA
40 g

Ambient data

Degree of protection per IEC 60529
Polarity reversal protected
Short circuit protected
Ambient temperature range T_a
Ambient light rejection

IP 67
yes
yes
-20...+60 °C
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.



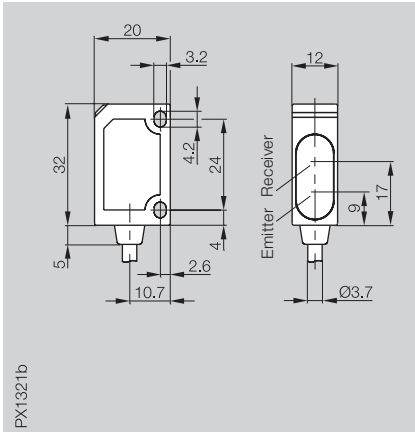
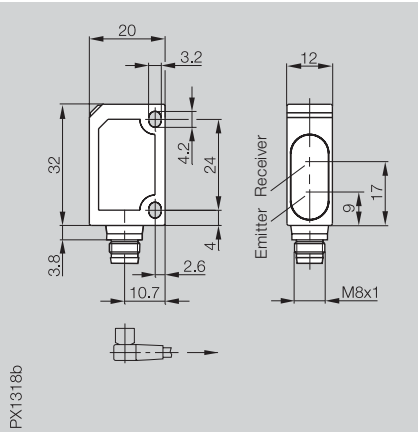
mini.s with teach-in

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

4x0.14 mm²

impact-resistant ABS

PMMA

120 g

IP 67

yes

yes

-20...+60 °C

5 kLux

2.1

2.3

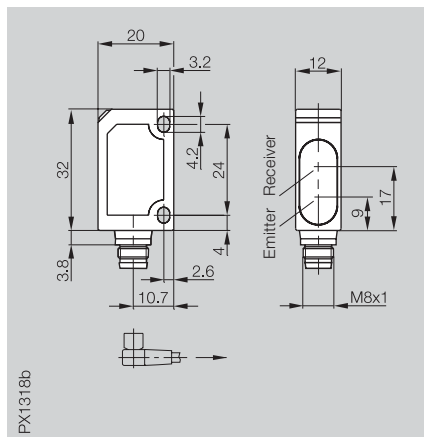
Photoelectric
sensors
accessories
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Connectors
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Light spot diameter	...HA...	...OC...	...QA...	...QC...
	≤ 5x5 mm	≤ 12x12 mm	20x20 mm	75x75 mm
	over entire s _n	over entire s _n	at 500 mm s _n	at 2 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	BOS 6K-PU-1 LHA -S75-C
NPN	20...60 mm	HGA, Laser	BOS 6K-NU-1 LHA -S75-C
PNP	30...110 mm	HGA, Laser	BOS 6K-PU-1 LHA-SA1 -S75-C
NPN	30...110 mm	HGA, Laser	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 x 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



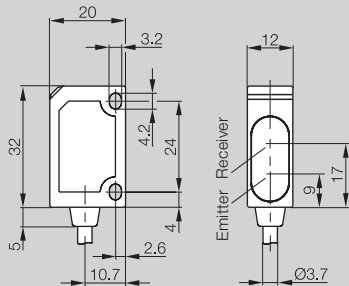
Photoelectric Sensors

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

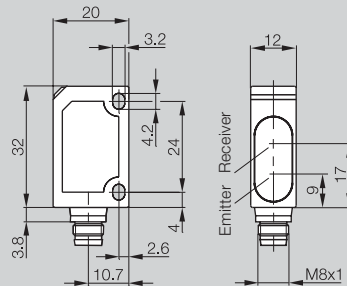
20...60 mm/30...110 mm

0.1...1 m

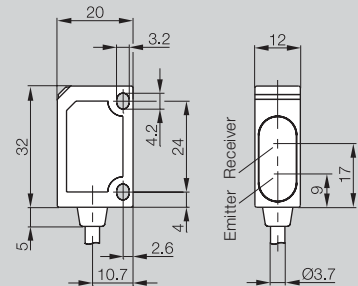
0.1...1 m



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

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

LED yellow
LED green

0.5 ms
1 kHz

20×30×12 mm
2 m cable, PVC
4×0.14 mm²
impact-resistant ABS
PMMA
120 g

IP 67
yes
yes
-20...+60 °C
5 kLux

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
1 mm in 300 mm

LED yellow
LED green

0.5 ms
1 kHz

20×30×12 mm
M8 connector, 4-pin
impact-resistant ABS
PMMA
40 g

IP 67
yes
yes
-20...+60 °C
5 kLux

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
1 mm in 300 mm

LED yellow
LED green

0.5 ms
1 kHz

20×30×12 mm
2 m cable, PVC
4×0.14 mm²
impact-resistant ABS
PMMA
120 g

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

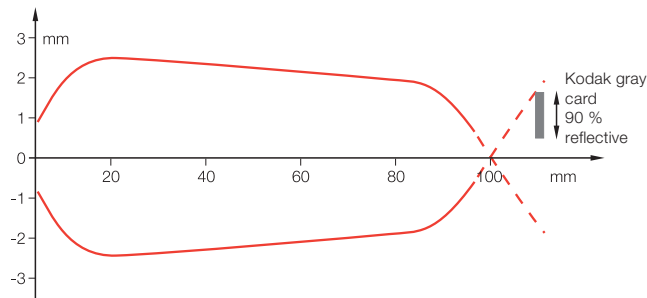
2.3

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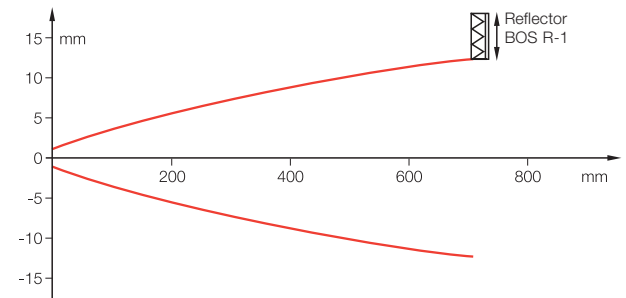
Connectors
page 6.2 ...

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



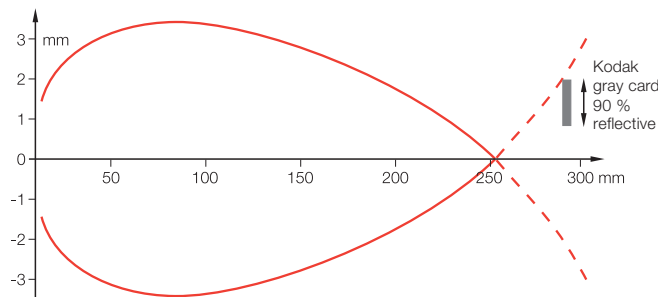
Range measured with side approach of Kodak gray card.

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



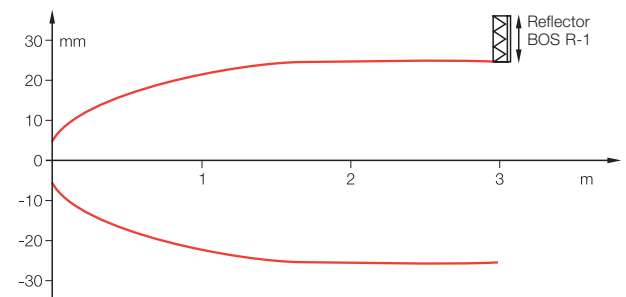
Range measured with side approach of reflector.

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



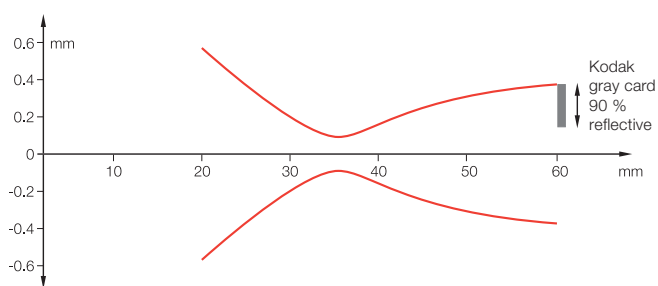
Range measured with side approach of Kodak gray card.

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



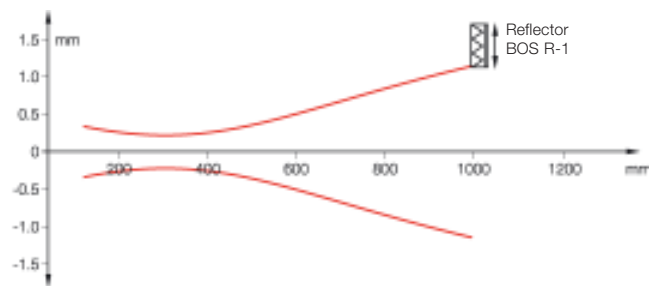
Range measured with side approach of reflector.

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



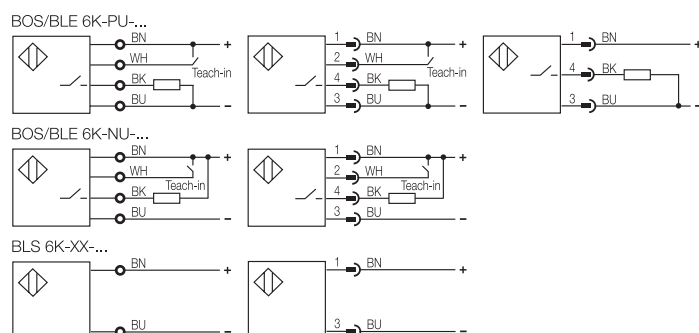
Range measured with side approach of Kodak gray card.

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

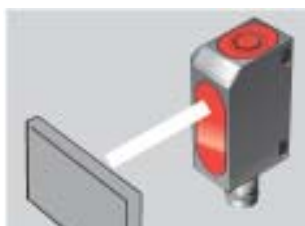


Range measured with side approach of reflector.

Wiring diagrams



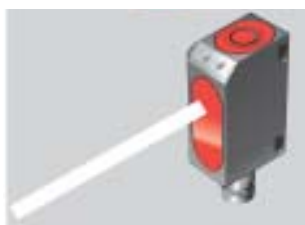
Diffuse



Direct sensor at object.



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

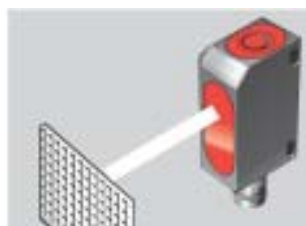


Remove object from beam path.



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.

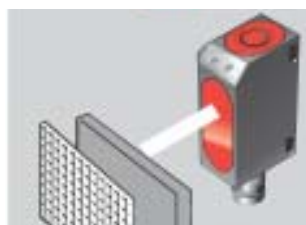
Retroreflective/through-beam



Direct sensor at reflector/receiver.



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



Bring objects into detection range.



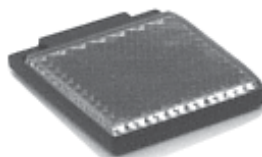
Hold down button for 1 s. Green LED blinks briefly and then comes full on. The sensor is ready. If both LEDs blink together, repeat your settings.

Recommended accessories

please order separately



Reflector
BOS R-1



Reflector
BOS R-9



Mounting
bracket
BOS 6-HW-1



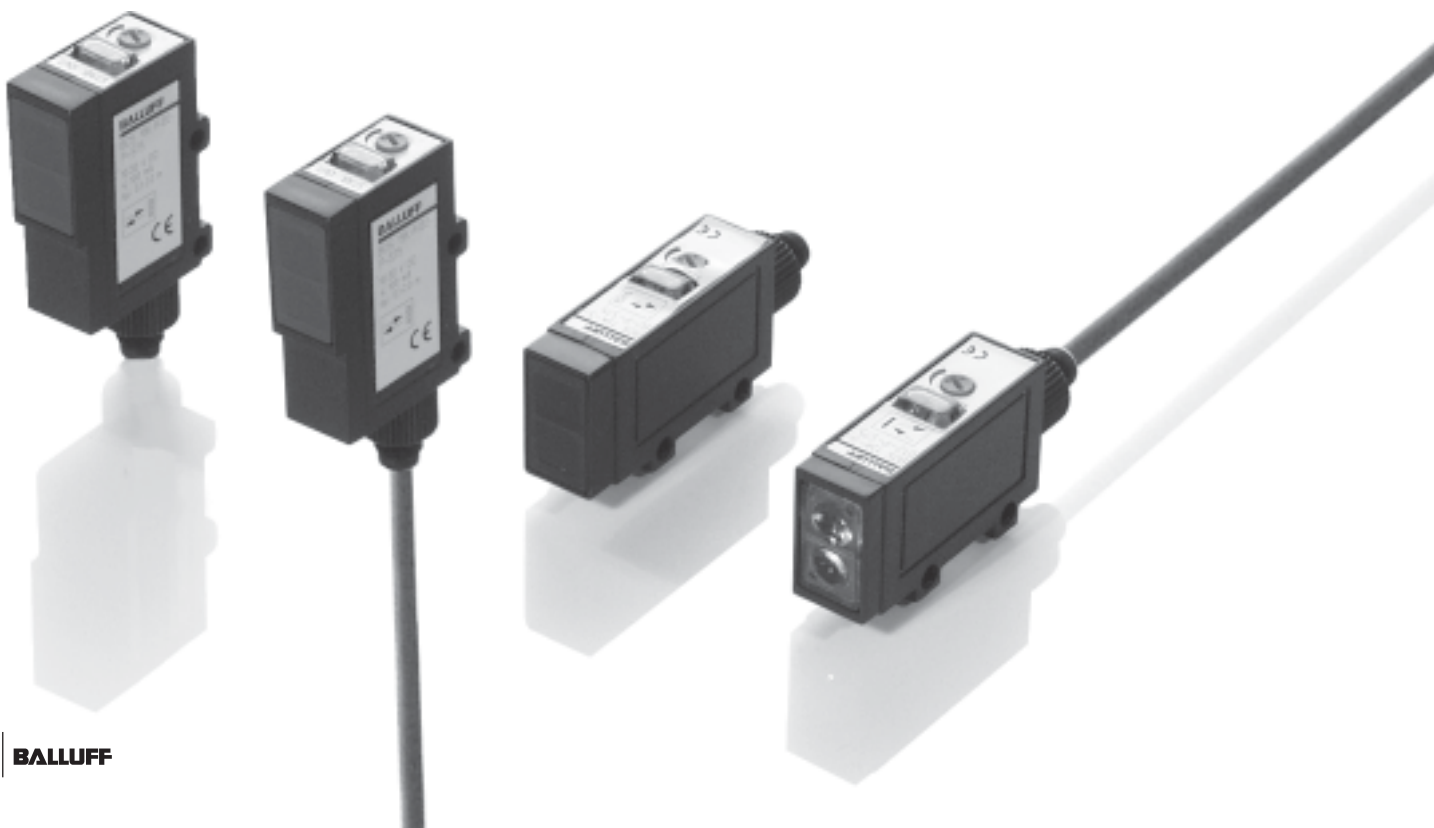
Connector
BKS-S 74/BKS-S 75

BOS 15K

Somewhat larger and available in two mechanical versions (straight and right-angle), the BOS 15K has the ideal size for the most common applications in packaging machines and handling and assembly systems. The familiar sensitivity setting using an easily accessible potentiometer and the number of versions make this sensor ideal for installing in machines and systems of small and medium size.

Features

- Two housing types (straight and right-angle)
- Potentiometer for sensitivity setting
- Cross-talk protection
- NO-/NC-selectable
- Through-beam with test input and alarm output



Type	Range	Light exit		Light type		Output			Output function		Switching frequency	U _B	Connection	Features		Page	
		Straight	Right angle	Red light	Infrared	PNP-Transistor	NPN-Transistor	Alarm output	Light-on	Dark-on		10...30 V DC	M8 connector, 4-pin	Cable, 2 m	Polarizing filter	Test input	
 Diffuse																	
BOS 15K-R-C10-P-S75	0...100 mm		■		■	■			■	■	500 Hz	■	■				2.1.92
BOS 15K-S-C10-P-S75	0...100 mm	■			■	■			■	■	500 Hz	■	■				2.1.93
BOS 15K-R-C10-02	0...100 mm		■		■	■	■		■	■	500 Hz	■		■			2.1.93
BOS 15K-S-C10-02	0...100 mm	■			■	■	■		■	■	500 Hz	■		■			2.1.93
BOS 15K-R-C50-P-S75	0...500 mm		■			■			■	■	500 Hz	■	■				2.1.92
BOS 15K-S-C50-P-S75	0...500 mm	■				■			■	■	500 Hz	■	■				2.1.93
BOS 15K-R-C50-02	0...500 mm		■			■	■		■	■	500 Hz	■		■			2.1.93
BOS 15K-S-C50-02	0...500 mm	■				■	■		■	■	500 Hz	■		■			2.1.93
BOS 15K-R-D12-P-S75	12 mm		■	■		■			■	■	800 Hz	■	■				2.1.92
BOS 15K-S-D12-P-S75	12 mm	■		■		■			■	■	800 Hz	■	■				2.1.93
BOS 15K-R-D12-02	12 mm		■	■		■	■		■	■	800 Hz	■		■			2.1.93
BOS 15K-S-D12-02	12 mm	■		■		■	■		■	■	800 Hz	■		■			2.1.93
 Retroreflective																	
BOS 15K-R-B2-P-S75	0.1...2 m		■	■		■			■	■	500 Hz	■	■		■		2.1.92
BOS 15K-S-B2-P-S75	0.1...2 m	■		■		■			■	■	500 Hz	■	■		■		2.1.93
BOS 15K-R-B2-02	0.1...2 m		■	■		■	■		■	■	500 Hz	■		■	■		2.1.93
BOS 15K-S-B2-02	0.1...2 m	■		■		■	■		■	■	500 Hz	■		■	■		2.1.93
 Through-beam																	
BLE 15K-R-F5-P-S75	0...5 m		■		■	■			■	■	250 Hz	■	■				2.1.92
BLE 15K-S-F5-P-S75	0...5 m	■			■	■			■	■	250 Hz	■	■				2.1.93
BLE 15K-R-F5-02	0...5 m		■		■	■	■	■	■	■	250 Hz	■		■			2.1.93
BLE 15K-S-F5-02	0...5 m	■			■	■	■	■	■	■	250 Hz	■		■			2.1.93
BLS 15K-R-G5-S75	0...5 m		■		■							■	■			■	2.1.92
BLS 15K-S-G5-S75	0...5 m	■			■							■	■			■	2.1.93
BLS 15K-R-G5-02	0...5 m		■		■							■		■		■	2.1.93
BLS 15K-S-G5-02	0...5 m	■			■							■		■		■	2.1.93

2.1

2.3

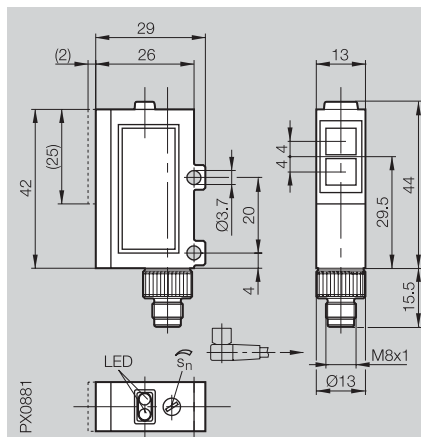
Photoelectric
sensors
accessories
page 2.3.2 ...

6

Connectors
page 6.2 ...

Diffuse	Range
Retroreflective	Range
Through-beam	Range

12 mm/0...100 mm/0...500 mm
0...2 m
0...5 m



Diffuse

PNP/NPN, PNP	100 mm	Infrared light
PNP/NPN, PNP	500 mm	Infrared light
PNP/NPN, PNP	12 mm	Red light, focused

BOS 15K-R-C10-P-S 75
BOS 15K-R-C50-P-S 75
BOS 15K-R-D12-P-S 75



Retroreflective

PNP/NPN, PNP	2 m	Red light, polarizing filter
--------------	-----	------------------------------

BOS 15K-R-B2-P-S 75



Through-beam

PNP/NPN, PNP	5 m	Receiver	Infrared light
	5 m	Emitter	Infrared light

BLE 15K-R-F5-P-S 75
BLS 15K-R-G5-S 75

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-Transistor
Output current	≤ 100 mA
Switching type	Light-/dark-on (selectable)
Voltage drop U_d at I_o	≤ 1.5 V
Settings	Potentiometer 270°
Help function	Test input for BLS

Indicator

Power-on indicator	LED red (BLS)
Output function indicator	LED red
Stability indicator	LED green

Time data

Response time	≤ 1 ms (BLE ≤ 2ms)
Frequency of operating cycles f	500 Hz (BLE 250 Hz)

Mechanical data

Dimensions	29×42×13 mm
Connection	M8 connector, 4-pin
No. of wires × cross-section	
Housing material	ABS
Optical surface	PMMA
Weight	20 g

Ambient data

Degree of protection per IEC 60529	IP 66
Polarity reversal protected	yes
Short circuit protected	yes
Ambient temperature range T_a	-15...+55 °C
Ambient light rejection	3 kLux/10 kLux sunlight

For through-beam types the emitter and receiver are located in the lower optics.

Diffuse values referenced to Kodak gray card 90% reflective.
Retroreflective values referenced to R1 reflector.

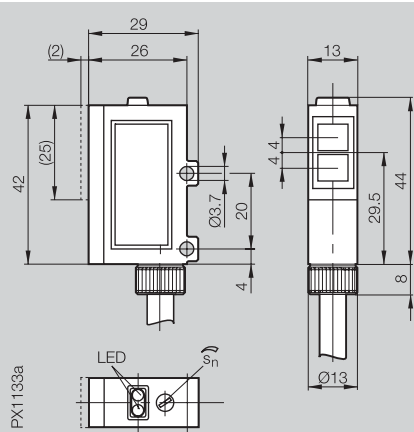
Wiring diagrams, characteristics and accessories see page **2.1.94** and **2.1.95**.



12 mm/0...100 mm/0...500 mm

0...2 m

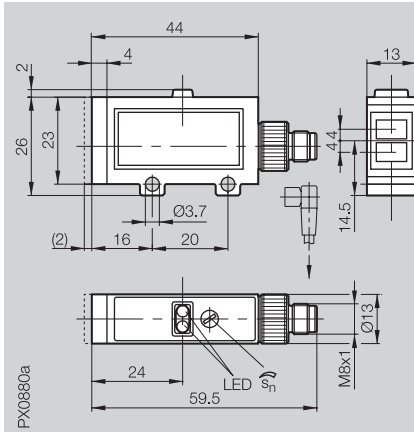
0...5 m



12 mm/0...100 mm/0...500 mm

0...2 m

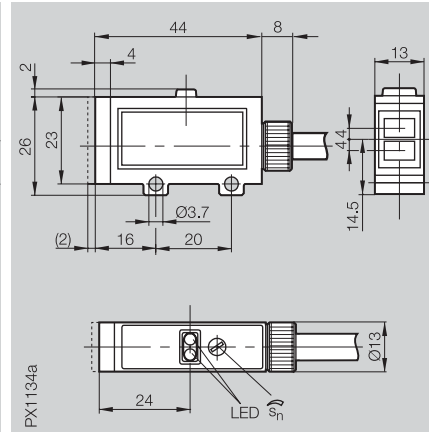
0...5 m



12 mm/0...100 mm/0...500 mm

0...2 m

0...5 m



BOS 15K-R-C10-02

BOS 15K-R-C50-02

BOS 15K-R-D12-02

BOS 15K-S-C10-P-S 75

BOS 15K-S-C50-P-S 75

BOS 15K-S-D12-P-S 75

BOS 15K-S-C10-02

BOS 15K-S-C50-02

BOS 15K-S-D12-02

BOS 15K-R-B2-02

BOS 15K-S-B2-P-S 75

BOS 15K-S-B2-02

BLE 15K-R-F5-02

BLS 15K-R-G5-02

BLE 15K-S-F5-P-S 75

BLS 15K-S-G5-S 75

BLE 15K-S-F5-02

BLS 15K-S-G5-02

10...30 V DC

2 V DC

≤ 30 mA

PNP- and NPN-Transistor selectable

≤ 100 mA

Light-/dark-on (selectable)

≤ 1.5 V

Potentiometer 270°

Test input for BLS

LED red (BLS)

LED red

LED green

≤ 1 ms (BLE ≤ 2ms)

500 Hz (BLE 250 Hz)

29×42×13 mm

2 m cable, PVC

4/5/6×0.34 mm²

ABS

PMMA

90 g

IP 66

yes

yes

-15...+55 °C

3 kLux/10 kLux sunlight

10...30 V DC

2 V DC

≤ 30 mA

PNP-Transistor

≤ 100 mA

Light-/dark-on (selectable)

≤ 1.5 V

Potentiometer 270°

Test input for BLS

LED red (BLS)

LED red

LED green

≤ 1 ms (BLE ≤ 2ms)

500 Hz (BLE 250 Hz)

44×26×13 mm

M8 connector, 4-pin

ABS

PMMA

20 g

IP 66

yes

yes

-15...+55 °C

3 kLux/10 kLux sunlight

10...30 V DC

2 V DC

≤ 30 mA

PNP- and NPN-Transistor selectable

≤ 100 mA

Light-/dark-on (selectable)

≤ 1.5 V

Potentiometer 270°

Test input for BLS

LED red (BLS)

LED red

LED green

≤ 1 ms (BLE ≤ 2ms)

500 Hz (BLE 250 Hz)

44×26×13 mm

2 m cable, PVC

4/5/6×0.34 mm²

ABS

PMMA

90 g

IP 66

yes

yes

-15...+55 °C

3 kLux/10 kLux sunlight

2.1

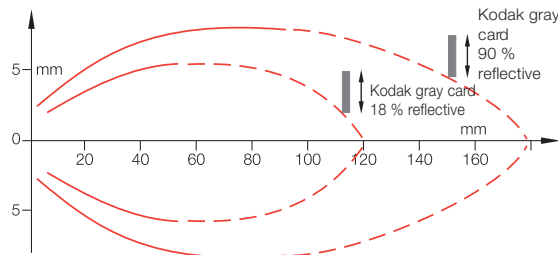
2.3

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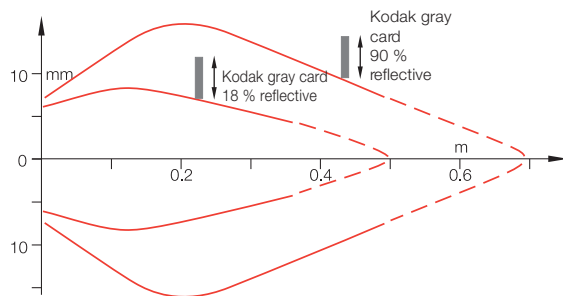
Connectors
page 6.2 ...

Diffuse BOS 15K-...-C10-...



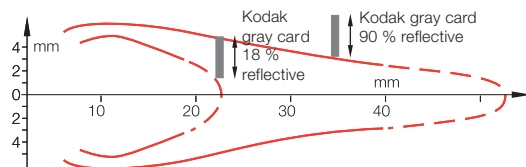
Range measured with side approach of Kodak gray card.

Diffuse BOS 15K-...-C50-...



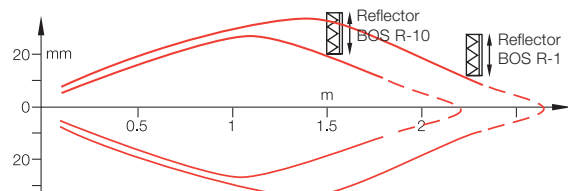
Range measured with side approach of Kodak gray card.

Diffuse with focused beam BOS 15K-...-D12-...



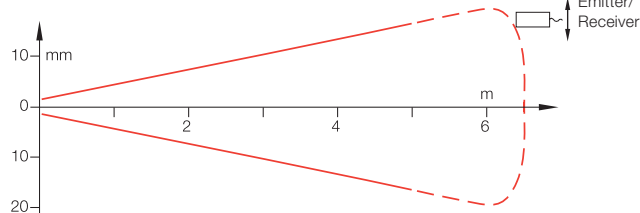
Range measured with side approach of Kodak gray card.

Retroreflective BOS 15K-...-B2-...



Range measured with side approach of reflector.

Through-beam BLE/BLS 15K-...



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

Wiring diagrams

BOS/BLE 15K-...-S 75

PNP/NC



BOS/BLE 15K-...-S 75

PNP/NO



BOS 15K-...-02

NPN/NC



BOS 15K-...-02

NPN/NO



BOS 15K-...-02

PNP/NC



BOS 15K-...-02

PNP/NO



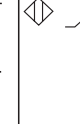
BLE 15K-...-02

NPN/NC



BLE 15K-...-02

NPN/NO



BLE 15K-...-02

PNP/NC



BLE 15K-...-02

PNP/NO



BLS 15K-...-S 75

PNP/NC



BLS 15K-...-02

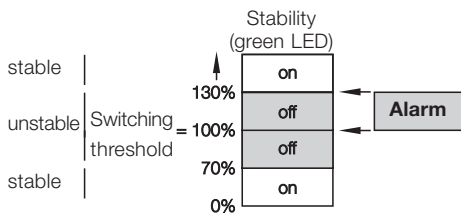
PNP/NO



Alarm output for receiver (cable version only)

The receiver is equipped with an alarm output. This signal output (PNP open collector 30 mA) is used to generate a warning signal when malfunctions due to

contamination or mechanical maladjustment occur. The alarm output is activated if the receive signal remains in the alarm range for at least 3 s.



Test input for emitter

The test input for the emitter interrupts the light pulses from the emitter and allows the function of emitter and receiver to be checked. 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-

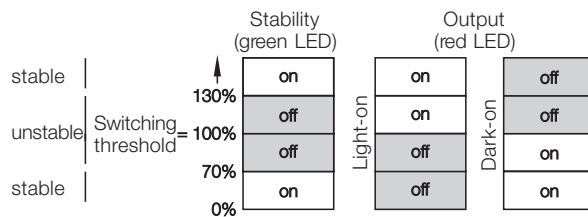
adjustment on the optical axis causes the emitter signal to reach the receiver only weakly, if at all. Therefore the output will not switch even though the test input is activated. The test function provides a remote check of the thru-beam type and serves as a preventative measure.

Green stability display

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.



2.1

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Photoelectric sensors
accessories
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Recommended accessories

please order separately



Connector
BKS-S 74/BKS-S 75

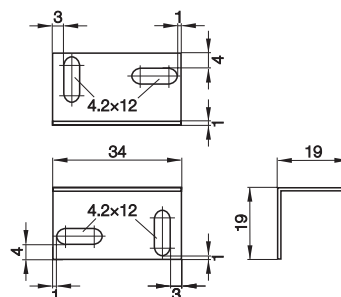
Slit apertures

(supplied with through-beam models)



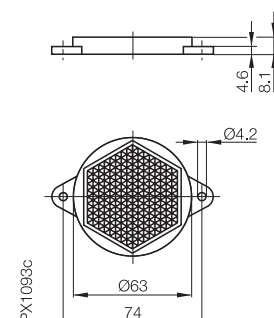
Slit width	0.5 mm	1 mm	2 mm
Range	0.5 m	1 m	2 m
Object size	> 0.5 mm	> 1 mm	> 2 mm

Mounting bracket (included)



Reflector BOS R-10

(included with retroreflective model)



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Connectors
page 6.2 ...

BOS 21M – a complete family in a compact, rugged metal housing. Comprehensive functionality, use of the most modern sensor technologies and innovative manufacturing technology leave nothing to be desired for versatile application in robotics and automation, packaging, assembly and handling.

Teach-in buttons and potentiometers assure fast startup, ease of use and economical operation of the sensor.

A wide range of accessories such as mounting brackets, stands, dovetail clamps etc. enable variable attachment of the products in any position.



Type	Range	Light type			Output		Output function		Switching frequency	U _B	Conne- ction	Features				Page
		Red light	Infrared	Laser light	PNP-Transistor	NPN-Transistor	Light-on	Dark-on				Teach-in	Polarizing filter	Auto-collimation	Glass sensing	
 Diffuse with HGA																
BOS 21M-PUS-RH12-S4	20...200 mm	■			■		■	■	1 kHz	■	■	■				2.1.98
BOS 21M-NUS-RH12-S4	20...200 mm	■				■	■	■	1 kHz	■	■	■				2.1.98
BOS 21M-PUS-LH12-S4	50...100 mm			■	■		■	■	1 kHz	■	■	■				2.1.102
BOS 21M-NUS-LH12-S4	50...100 mm			■		■	■	■	1 kHz	■	■	■				2.1.102
BOS 21M-PUS-RV13-S4	70...200 mm	■			■		■	■	1 kHz	■	■	■				2.1.99
BOS 21M-NUS-RV13-S4	70...200 mm	■				■	■	■	1 kHz	■	■	■				2.1.99
 Diffuse																
BOS 21M-PA-RD10-S4	0.01...1 m	■			■		■	■	500 Hz	■	■					2.1.99
BOS 21M-NA-RD10-S4	0.01...1 m	■				■	■	■	500 Hz	■	■					2.1.99
BOS 21M-PA-ID10-S4	0.05...2 m		■		■		■	■	500 Hz	■	■					2.1.99
BOS 21M-NA-ID10-S4	0.05...2 m		■			■	■	■	500 Hz	■	■					2.1.99
BOS 21M-PA-LD10-S4	0...600 mm			■	■		■	■	2 kHz	■	■					2.1.103
BOS 21M-NA-LD10-S4	0...600 mm			■		■	■	■	2 kHz	■	■					2.1.103
 Retroreflective																
BOS 21M-PA-PR10-S4	0.1...8 m	■			■		■	■	1 kHz	■	■		■			2.1.100
BOS 21M-NA-PR10-S4	0.1...8 m	■				■	■	■	1 kHz	■	■		■			2.1.100
BOS 21M-PA-LR10-S4	0.1...20 m			■	■		■	■	2 kHz	■	■		■			2.1.103
BOS 21M-NA-LR10-S4	0.1...20 m			■		■	■	■	2 kHz	■	■		■			2.1.103
BOS 21M-PA-PK10-S4	0...4 m	■			■		■	■	1 kHz	■	■		■	■		2.1.101
BOS 21M-NA-PK10-S4	0...4 m	■				■	■	■	1 kHz	■	■		■	■		2.1.101
BOS 21M-PA-PT10-S4	0...2 m	■			■		■	■	1 kHz	■	■		■	■	■	2.1.101
BOS 21M-NA-PT10-S4	0...2 m	■				■	■	■	1 kHz	■	■		■	■	■	2.1.101
 Through-beam																
BOS 21M-PA-IE10-S4	0...20 m		■		■		■	■	500 Hz	■	■					2.1.101
BOS 21M-NA-IE10-S4	0...20 m		■			■	■	■	500 Hz	■	■					2.1.101
BOS 21M-PA-LE10-S4	0...60 m			■	■		■	■	1.5 kHz	■	■					2.1.103
BOS 21M-NA-LE10-S4	0...60 m			■		■	■	■	1.5 kHz	■	■					2.1.103
BOS 21M-XT-IS11-S4	0...20 m		■							■	■					2.1.101
BOS 21M-XT-LS11-S4	0...60 m			■						■	■					2.1.103

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2.3

 Photoelectric
sensors
accessories
page 2.3.2 ...

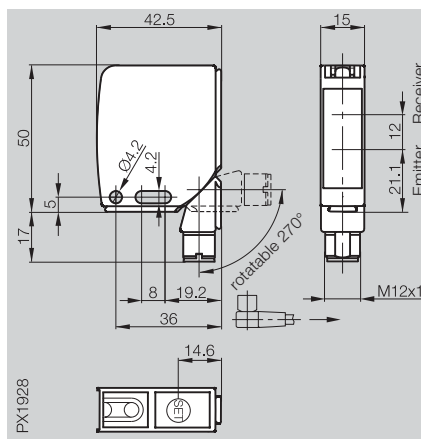
6

 Connectors
page 6.2 ...

Diffuse with background suppression
Diffuse with foreground suppression
Diffuse

Range
Range
Range

20...200 mm



Diffuse



PNP 20...200 mm HGA

NPN 20...200 mm HGA



PNP 70...200 mm VGA + HGA

NPN 70...200 mm VGA + HGA

PNP 0.01...1 m

NPN 0.01...1 m

PNP 0.05...2 m

NPN 0.05...2 m

BOS 21M-PUS-RH12-S4

BOS 21M-NUS-RH12-S4

Electrical data

Supply voltage U_B

10...30 V DC

Ripple

≤ 2 V DC

No-load supply current I_0 max.

≤ 50 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 V

Settings

Teach-in

Optical data

Recommended range

20...200 mm

Emitter, light type

LED, red light

Wavelength

670 nm

Indicator

Output function indicator

LED yellow

Stability indicator

LED green/red

Time data

Response time

0.5 ms

Frequency of operating cycles f

1 kHz

Mechanical data

Dimensions

42.5×50×15 mm

Connection

M12 connector, 4-pin

Housing material

GD-Zn/Al

Optical surface

PMMA

Weight

76 g

Ambient data

Degree of protection per IEC 60529

IP 67

Polarity reversal protected

yes

Short circuit protected

yes

Ambient temperature range T_a

-10...+50 °C

Ambient light rejection

10 kLux

Diffuse values referenced to Kodak gray card 90% reflective.

Wiring diagrams, characteristics and accessories see page 2.1.104 to 2.1.107.

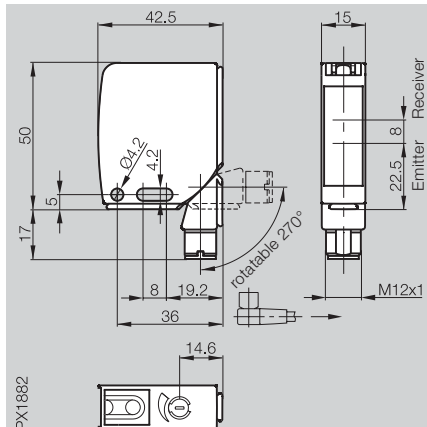
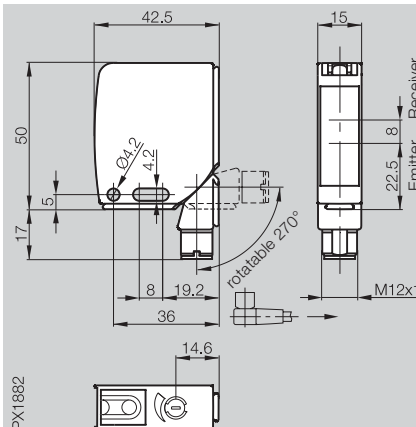
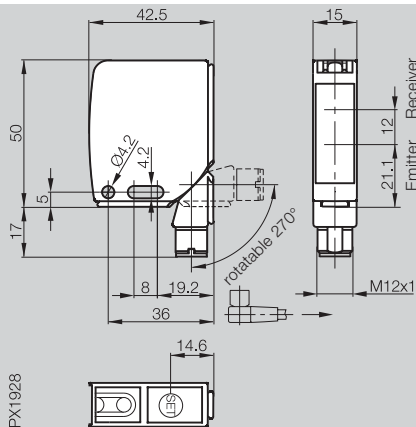


→ Connector orientation

70...200 mm

0.01...1 m

0.05...2 m



BOS 21M-PUS-RV13-S4
BOS 21M-NUS-RV13-S4

BOS 21M-PA-RD10-S4
BOS 21M-NA-RD10-S4

BOS 21M-PA-ID10-S4
BOS 21M-NA-ID10-S4

10...30 V DC

≤ 2 V DC

≤ 50 mA

PNP- or NPN-Transistor
100 mA

Light-/dark-on (selectable)
2 V

Teach-in

70...200 mm

LED, red light
670 nm

LED yellow
LED green

0.5 ms

1 kHz

42.5x50x15 mm
M12 connector, 4-pin
GD-Zn/Al
PMMA
76 g

IP 67

yes

yes

-10...+50 °C

10 kLux

10...30 V DC

≤ 2 V DC

≤ 35 mA

PNP- or NPN-Transistor
100 mA

Light-/dark-on (push-pull)
2 V

Potentiometer 270°

0.01...1 m

LED, red light
650 nm

LED yellow
LED green

0.5 ms

1 kHz

42.5x50x15 mm
M12 connector, 4-pin
GD-Zn/Al
PMMA
76 g

IP 67

yes

yes

-25...+55 °C

10 kLux

10...30 V DC

≤ 2 V DC

≤ 35 mA

PNP- or NPN-Transistor
100 mA

Light-/dark-on (push-pull)
2 V

Potentiometer 270°

0.05...2 m

LED, infrared
880 nm

LED yellow
LED green

0.5 ms

1 kHz

42.5x50x15 mm
M12 connector, 4-pin
GD-Zn/Al
PMMA
76 g

IP 67

yes

yes

-25...+55 °C

10 kLux

2.1

2.3

Photoelectric
sensors
accessories
page 2.3.2 ...

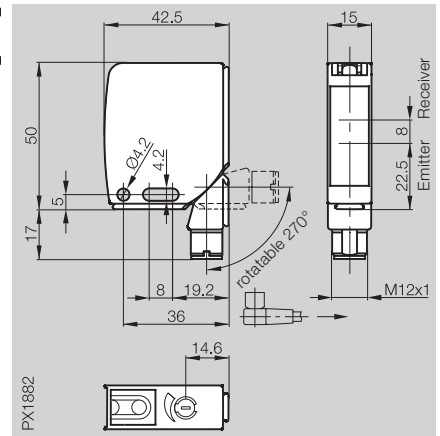
6

Connectors
page 6.2 ...

Retroreflective with polarizing filter
Retroreflective Auto-collimation
Retroreflective for glass sensing
Through-beam

Range
Range
Range
Range

0.1...8 m



Retroreflective



PNP	0.1...8 m	Polarizing filter
NPN	0.1...8 m	Polarizing filter
PNP	4 m	Polarizing filter, auto-collimation
NPN	4 m	Polarizing filter, auto-collimation
PNP	2 m	Polarizing filter, auto-collimation, glass sensing
NPN	2 m	Polarizing filter, auto-collimation, glass sensing

BOS 21M-PA-PR10-S4
BOS 21M-NA-PR10-S4



Through-beam



PNP	20 m	Receiver
NPN	20 m	Receiver
	20 m	Emitter

Electrical data

Supply voltage U_B	10...30 V DC
Ripple	≤ 2 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 (push-pull)
Voltage drop U_d at I_0	2 V
Settings	Potentiometer 270°

Optical data

Recommended range	0.1...8 m
Emitter, light type	LED, red light
Wavelength	650 nm

Indicator

Power-on 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	42.5x50x15 mm
Connection	M12 connector, 4-pin
Housing material	GD-Zn/Al
Optical surface	PMMA
Weight	76 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	10 kLux

Diffuse values referenced to Kodak gray card 90% reflective.

Wiring diagrams, characteristics and accessories see page 2.1.104 to 2.1.107.

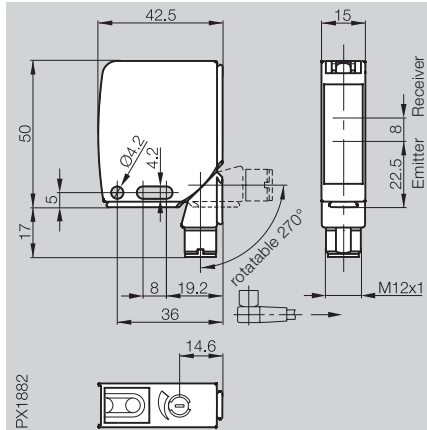
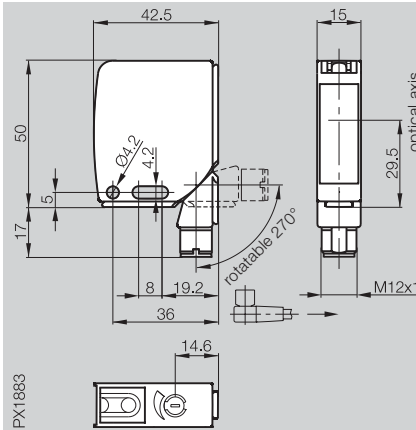
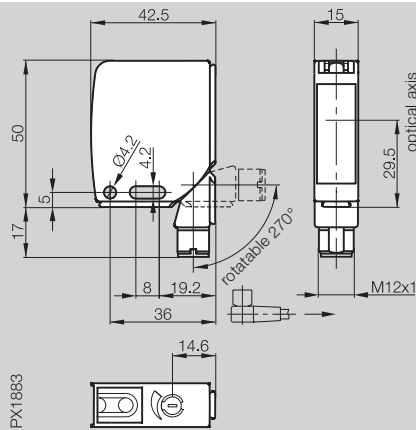


Connector orientation

0...4 m

0...2 m

0...20 m



BOS 21M-PA-PK10-S4
BOS 21M-NA-PK10-S4

BOS 21M-PA-PT10-S4
BOS 21M-NA-PT10-S4

BOS 21M-PA-IE10-S4
BOS 21M-NA-IE10-S4
BOS 21M-XT-IS11-S4

10...30 V DC
≤ 2 V DC
≤ 35 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on (push-pull)
2 V
Potentiometer 270°

10...30 V DC
≤ 2 V DC
≤ 35 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on (push-pull)
2 V
Potentiometer 270°

10...30 V DC
≤ 2 V DC
≤ 35 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on (push-pull)
2 V
Potentiometer 270°
Test input (emitter)

0...4 m
LED, red light
650 nm

0...2 m
LED, red light
650 nm

0...20 m
LED, infrared
880 nm

LED yellow
LED green

LED yellow

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

0.5 ms
1 kHz

0.5 ms
1 kHz

1 ms
500 Hz

42.5×50×15 mm
M12 connector, 4-pin
GD-Zn/Al
Glass
78 g

42.5×50×15 mm
M12 connector, 4-pin
GD-Zn/Al
Glass
78 g

42.5×50×15 mm
M12 connector, 4-pin
GD-Zn/Al
PMMA
75 g

IP 67
yes
yes
-25...+55 °C
10 kLux

IP 67
yes
yes
-25...+55 °C
10 kLux

IP 67
yes
yes
-25...+55 °C
10 kLux

2.1

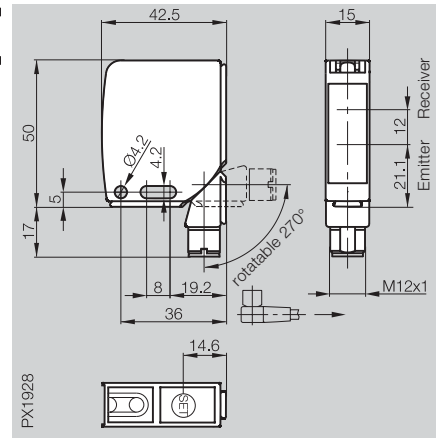
2.3

Photoelectric
sensors
accessories
page 2.3.2 ...

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Connectors
page 6.2 ...

Diffuse with background suppression	Range	50...100 mm	
Diffuse	Range		
Retroreflective with polarizing filter	Range		
Through-beam	Range		



Diffuse

	PNP	50...100 mm	HGA	BOS 21M-PUS-LH12-S4	
	NPN	50...100 mm	HGA	BOS 21M-NUS-LH12-S4	
	PNP	600 mm			
	NPN	600 mm			

Retroreflective

	PNP	0.1...20 m	Polarizing filter		
	NPN	0.1...20 m	Polarizing filter		

Through-beam

	PNP	60 m	Receiver		
	NPN	60 m	Receiver		
		60 m	Emitter		

Electrical data

Supply voltage U_B	10...30 V DC
Ripple	≤ 2 V DC
No-load supply current I_0 max.	60 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 V
Settings	teach-in
Help functions	

Optical data

Recommended range	50...100 mm
Emitter, light type	Laser, red light
Wavelength	650 nm
Laser class	1

Indicator

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

Time data

Response time	0.5 ms
Frequency of operating cycles f	1 kHz

Mechanical data

Dimensions	42.5×50×15 mm
Connection	M12 connector, 4-pin
Housing material	GD-Zn/Al
Optical surface	PMMA
Weight	77 g

Ambient data

Degree of protection per IEC 60529	IP 67
Polarity reversal protected	yes
Short circuit protected	yes
Ambient temperature range T _a	-10...+50 °C
Ambient light rejection	5 kLux

Diffuse values referenced to Kodak gray card 90% reflective.
Retroreflective values referenced to R1 reflector.



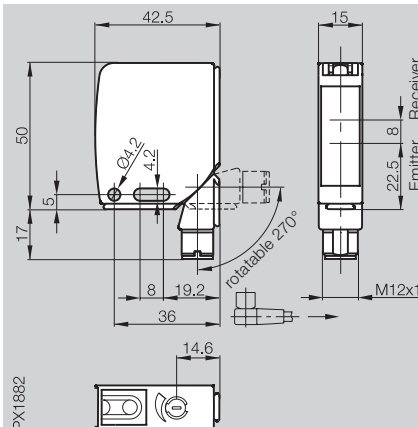
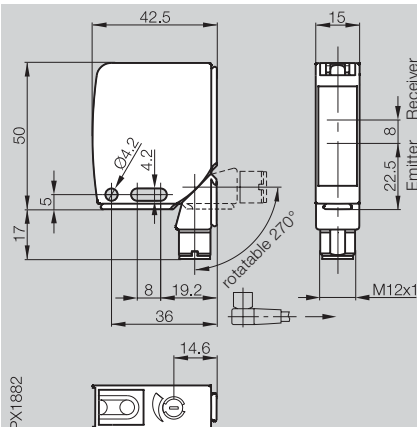
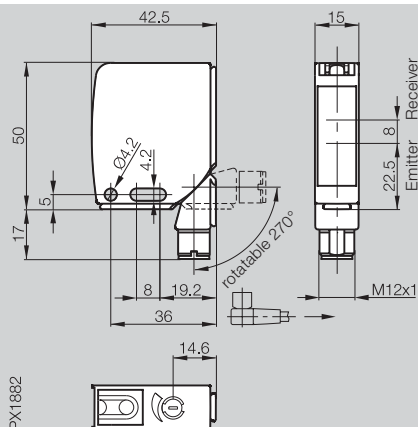
Connector orientation



0...600 mm

0.1...20 m

0...60 m



BOS 21M-PA-LD10-S4
BOS 21M-NA-LD10-S4

BOS 21M-PA-LR10-S4
BOS 21M-NA-LR10-S4

BOS 21M-PA-LE10-S4
BOS 21M-NA-LE10-S4
BOS 21M-XL-LS11-S4

10...30 V DC
≤ 2 V DC
35 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on (push-pull)
2 V
Potentiometer 270°

10...30 V DC
≤ 2 V DC
35 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on (push-pull)
2 V
Potentiometer 270°

10...30 V DC
≤ 2 V DC
35 mA
PNP- or NPN-Transistor
100 mA
Light-/dark-on (push-pull)
2 V
Potentiometer 270°
Test input (emitter)

0...600 mm
Laser, red light
650 nm
1

0.1...20 m
Laser, red light
650 nm
1

0...60 mm
Laser, red light
650 nm
1

LED green
LED yellow

LED green
LED yellow

LED green
LED yellow

0.25 ms
2 kHz

0.25 ms
2 kHz

0.33 ms
1.5 kHz

42.5×50×15 mm
M12 connector, 4-pin
GD-Zn/Al
PMMA
77 g

42.5×50×15 mm
M12 connector, 4-pin
GD-Zn/Al
PMMA
77 g

42.5×50×15 mm
M12 connector, 4-pin
GD-Zn/Al
PMMA
76 g

IP 67
yes
yes
-10...+50 °C
5 kLux

IP 67
yes
yes
-10...+50 °C
5 kLux

IP 67
yes
yes
-10...+50 °C
5 kLux

2.1

2.3

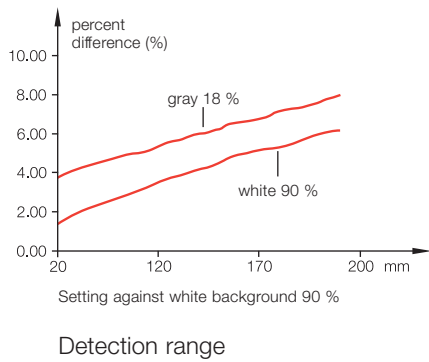
Photoelectric
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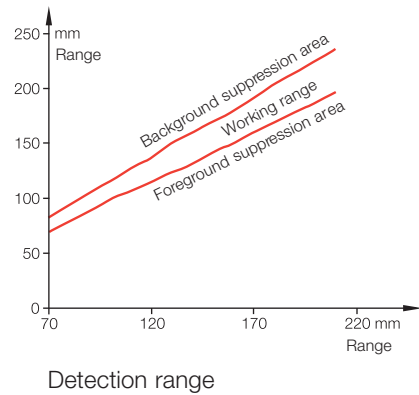
Connectors
page 6.2 ...

Wiring diagrams, characteristics and accessories see page 2.1.104 to 2.1.107.

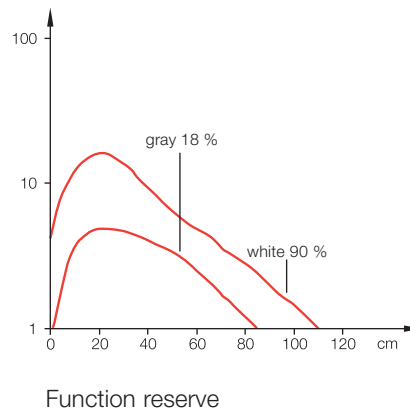
Diffuse with background suppression BOS 21M-SS-RH12-S4



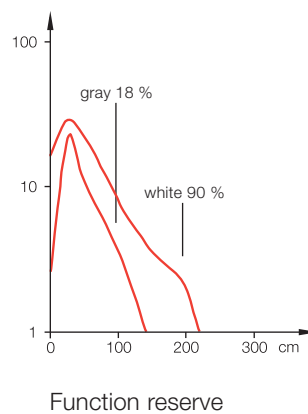
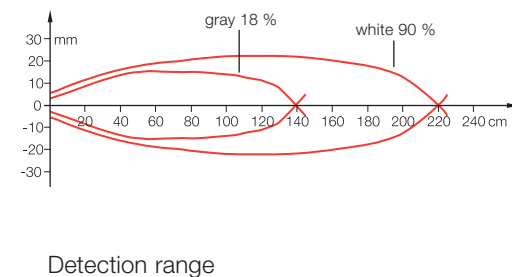
Diffuse with fore- and background suppression BOS 21M-SS-RV13-S4



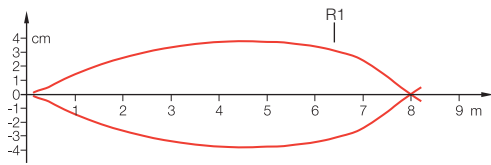
Diffuse BOS 21M-A-RD10-S4



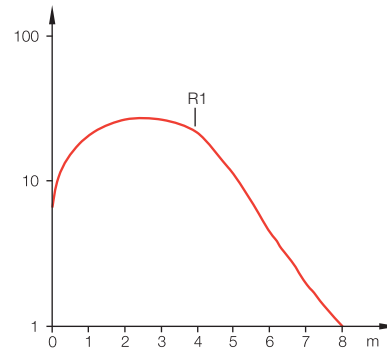
Diffuse long range BOS 21M-A-ID10-S4



**Retroreflective polarized
BOS 21M-_A-PR10-S4**

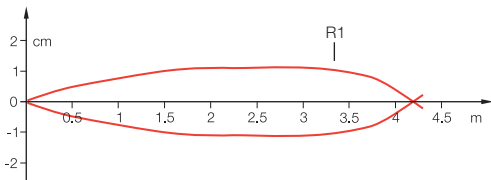


Detection range

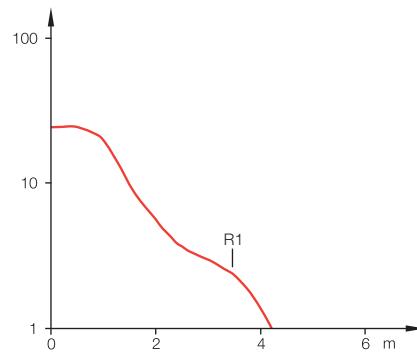


Function reserve

**Retroreflective auto-collimation
BOS 21M-_A-PK10-S4**

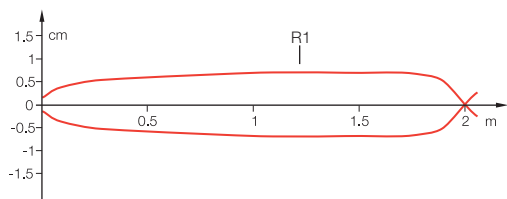


Detection range

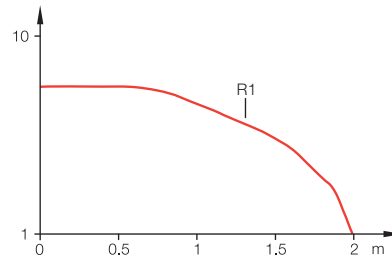


Function reserve

**Retroreflective glass sensing
BOS 21M-_A-PT10-S4**

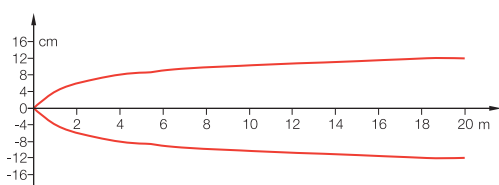


Detection range

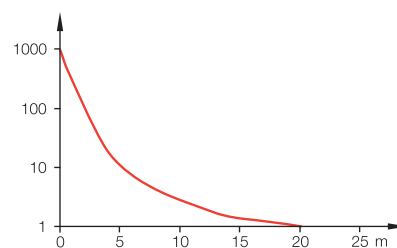


Resolution

**Through-beam
BOS 21M-_A-IE10-S4**



Detection range



Function reserve

2.1

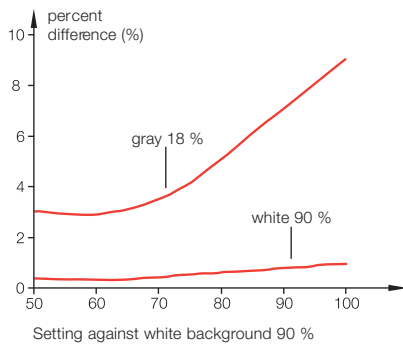
2.3

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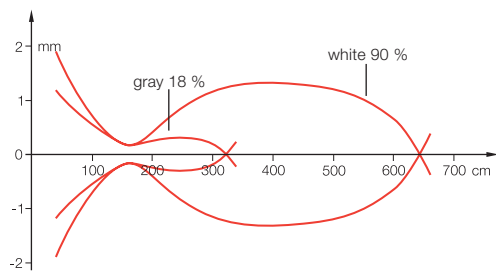
Connectors
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Laser diffuse with background suppression BOS 21M-SS-LH12-S4

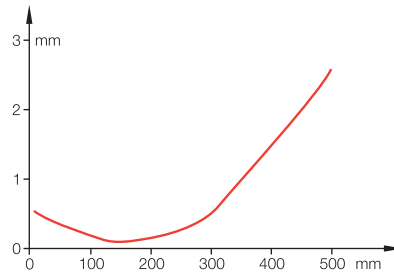


Tolerance with standard setting

Laser diffuse BOS 21M-A-LD10-S4

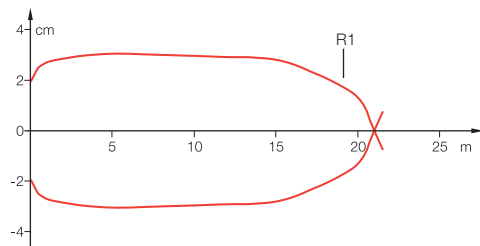


Detection range

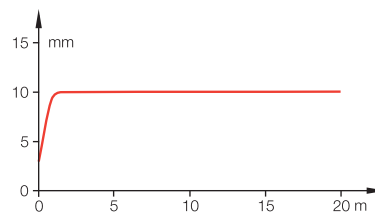


Resolution

Laser retroreflective polarized BOS 21M-A-LR10-S4

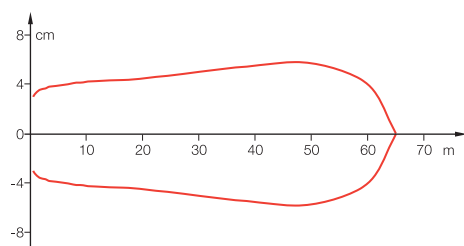


Detection range

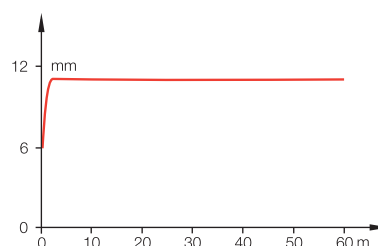


Resolution

Laser through-beam BOS 21M-A-LE10-S4

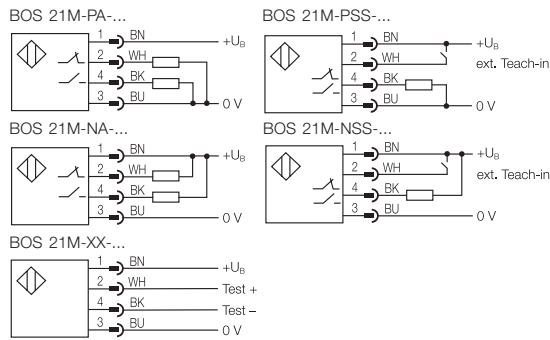


Detection range



Resolution

Wiring diagrams



Recommended accessories

please order separately



Clamp
BOS 21-KH-1



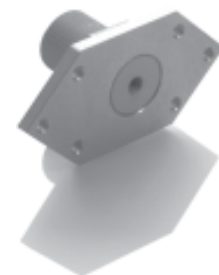
Clamp
BOS 21-KH-2



Mounting bracket
BOS 21-HW-1



Mounting bracket
BOS 21-HW-2



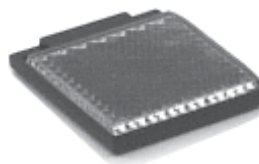
Adapter plate
BOS 21-AD-1



Holding system
BOS 21-HS-1



Reflector
BOS R-1



Reflector
BOS R-9



Connector
BKS-19/BKS-20

2.1

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Complex signal processing (background suppression, relays, lasers) and ease of use (numerical indicator, rotatable connector) are best realized in block style sensors.

Series **BOS 25K** and **BOS 26K** are mechanically compatible. With BOS 25K the emphasis was placed on as many standard applications as possible (e. g. DC or AC/DC power options with relay output).

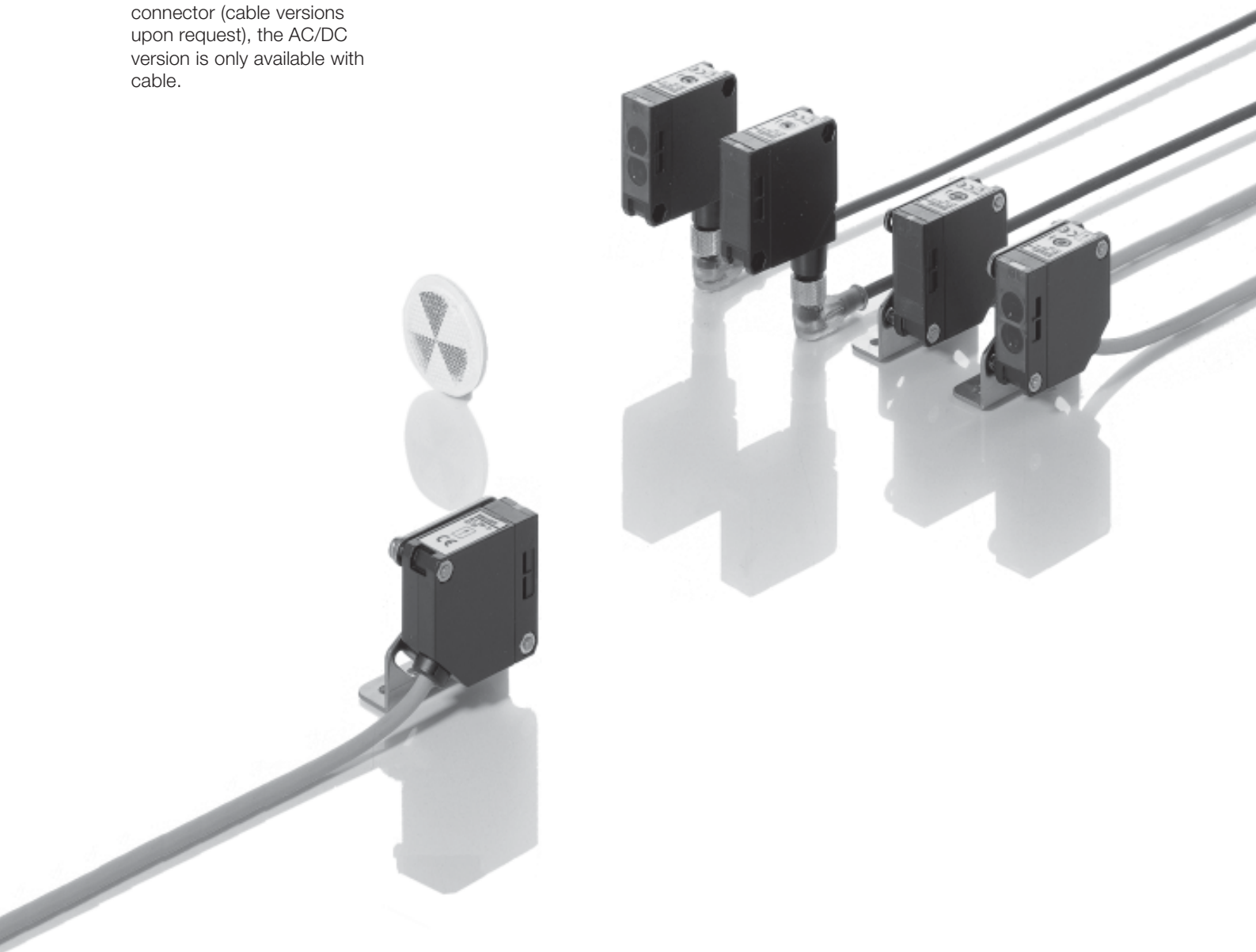
The complete series is available for DC (10...30 V) and AC/DC (15...275 V), with relay output. The DC version uses an M12 connector (cable versions upon request), the AC/DC version is only available with cable.

Features

- DC powered 10...30 V DC with PNP-Output
- All-current model 15...264 V AC/DC with relay output
- Light-/dark-on selectable
- Function indicator for output and stability
- Impact-resistant plastic housing
- Through-beam version with test input and alarm output
- High resistance to ambient light and noise spikes

Applications

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



Type	Range	Light type		Output			Output function		Switching frequency	U _B		Connection	Features		Page	
		Red light	Infrared	PNP-Transistor	NPN-Transistor	Relay	Light-on	Dark-on		10...30 V DC	15...264 V AC/DC	M12 connector, 4-pin	Cable	Polarizing filter	Test input	
 Diffuse with HGA																
BOS 25K-5-M25-P-S4	50...250 mm		■	■			■	■	500 Hz	■		■				21.110
BOS 25K-5-M25-02	50...250 mm		■	■	■		■	■	500 Hz	■			■			21.111
 Diffuse																
BOS 25K-5-C90-P-S4	1...900 mm		■	■			■	■	500 Hz	■		■				21.110
BOS 25K-5-C90-02	1...900 mm		■	■	■		■	■	500 Hz	■			■			21.111
BOS 25K-1-C90-02	1...900 mm		■			■	■	■	2 Hz		■		■			21.111
 Retroreflective																
BOS 25K-R-B3-P-S4	0...4 m	■		■			■	■	500 Hz	■		■		■		21.110
BOS 25K-5-B3-02	0...4 m	■		■	■		■	■	500 Hz	■			■	■		21.111
BOS 25K-1-B3-02	0...4 m	■				■	■	■	2 Hz		■		■	■		21.111
 Through-beam																
BLE 25K-5-F5-P-S4	0...5 m		■	■			■	■	500 Hz	■		■				21.110
BLE 25K-5-F5-02	0...5 m		■	■	■		■	■	500 Hz	■			■		■	21.111
BLE 25K-1-F5-02	0...5 m		■			■	■	■	2 Hz		■		■		■	21.111
BLS 25K-5-G5-S4	0...5 m		■							■		■				21.110
BLS 25K-5-G5-02	0...5 m		■							■			■			21.111
BLS 25K-1-G5-02	0...5 m		■								■		■			21.111

2.1

2.3

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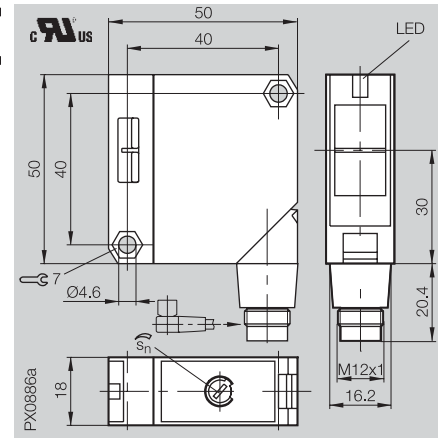
6

Connectors
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Photoelectric Sensors

BOS 25K
Range 250 mm, 900 mm,
4 m, 5 m

Diffuse with background suppression	Range	50...250 mm
Diffuse	Range	1...900 mm
Retroreflective with polarizing filter	Range	0...4 m
Through-beam	Range	0...5 m



Diffuse

PNP/NPN, PNP	50...250 mm	HGA	BOS 25K-5-M25-P-S 4
	900 mm		BOS 25K-5-C90-P-S 4
Relay	900 mm		



Retroreflective

PNP/NPN, PNP	4 m	Red light, polarizing filter	BOS 25K-5-B3-P-S 4
Relay	4 m	Red light, polarizing filter	



Through-beam

PNP/NPN, PNP	5 m	Receiver	BLE 25K-5-F5-P-S 4
	5 m	Emitter	BLS 25K-5-G5-S 4
Relay	5 m	Receiver	
	5 m	Emitter	

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-Transistor
Output current	≤ 100 mA
Switching type	Light-/dark-on (selectable)
Voltage drop U_d at I_e	≤ 1.5 V
Settings	Potentiometer 270° (BOS 25K-5-M25-... with spindle drive)

Indicator

Output function indicator	LED red
Stability indicator	LED green (only BOS 25K-5-M25-...)

Time data

Response time	≤ 1 ms
Frequency of operating cycles f	500 Hz

Mechanical data

Dimensions	50x50x18 mm
Connection	M12 connector, 4-pin
No. of wires × cross-section	
Housing material	ABS
Optical surface	PMMA
Weight	80 g

Ambient data

Degree of protection per IEC 60529	IP 65
Polarity reversal protected	yes
Short circuit protected	yes
Ambient temperature range T_a	-15...+55 °C
Ambient light rejection	3 kLux

Diffuse values referenced to Kodak gray card 90% reflective.
Retroreflective values referenced to R10 reflector.

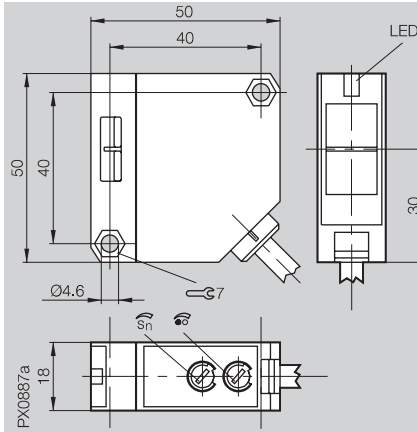
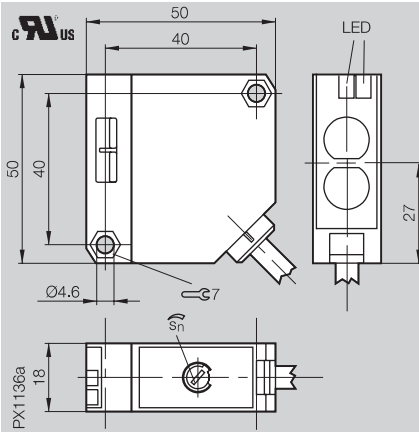
Wiring diagrams, characteristics and accessories see page 2.1.112 and 2.1.113.



→ Connector orientation

50...250 mm
1...900 mm
0...4 m
0...5 m

1...900 mm
0...4 m
0...5 m



BOS 25K-5-M25-02
BOS 25K-5-C90-02

BOS 25K-1-C90-02

BOS 25K-5-B3-02

BOS 25K-1-B3-02

BLE 25K-5-F5-02
BLS 25K-5-G5-02

BLE 25K-1-F5-02
BLS 25K-1-G5-02

10...30 V DC
2 V DC
≤ 30 mA
PNP- and NPN-Transistor
≤ 100 mA
Light-/dark-on (selectable)
≤ 1.5 V

Potentiometer 270° (BOS 25K-5-M25-... with spindle drive)

LED red
LED green (only BOS 25K-5-M25-...)

≤ 1 ms
500 Hz

50x50x18 mm
2 m cable, PVC
5x0.34 mm² (4/2x0.34 mm² for BLE/BLS)
ABS
PMMA
160 g

IP 65
yes
yes
-15...+55 °C
3 kLux

15...264 V AC/DC
2 V DC
≤ 40 mA
Relay 3 A, 250 V AC, 1 changeover contact

Light-/dark-on (selectable)

Potentiometer 270°

LED red
no

≤ 30 ms
2 Hz

50x50x18 mm
2 m cable, PVC
5x0.25 mm² (2x0.25 mm² for BLS)
ABS
PMMA
160 g

IP 65
yes
no
-15...+55 °C
3 kLux

2.1

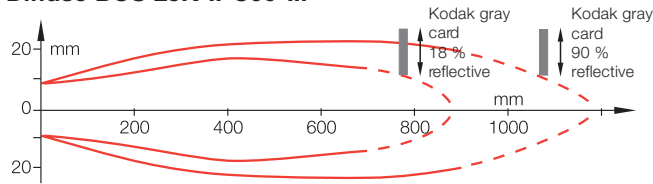
2.3

Photoelectric
sensors
accessories
page 2.3.2 ...

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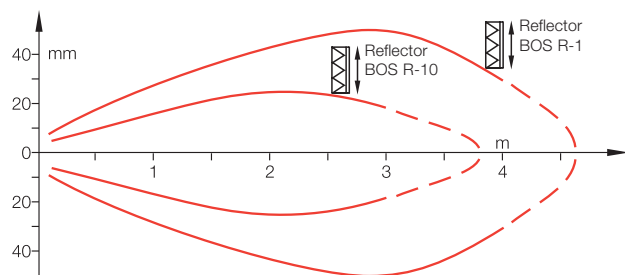
Connectors
page 6.2 ...

Diffuse BOS 25K-...-C90-...



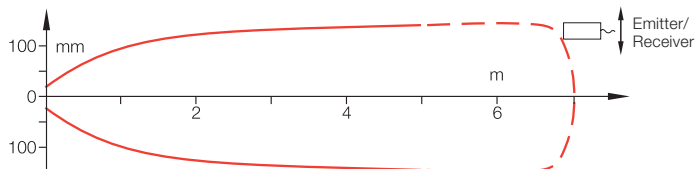
Range measured with side approach of Kodak gray card.

Retroreflective with polarizing filter BOS 25K-...-B3-...



Range measured with side approach of reflector.

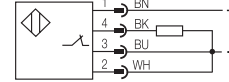
Through-beam BLE/BLS 25K-...



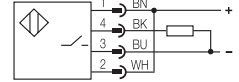
For the through-beam the maximum possible offset between emitter and receiver is measured.

Wiring diagrams

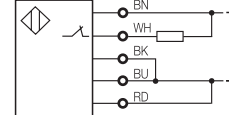
BOS/BLE 25K-5-...-S 4
PNP/ NC



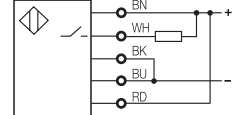
BOS/BLE 25K-5-...-S 4
PNP/ NO



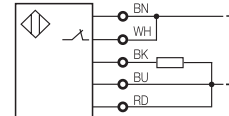
BOS 25K-5-...-02
NPN/ NC



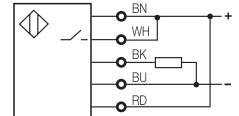
BOS 25K-5-...-02
NPN/ NO



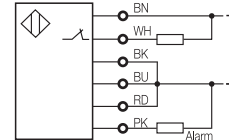
BOS 25K-5-...-02
PNP/ NC



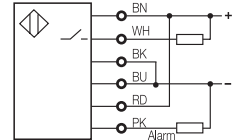
BOS 25K-5-...-02
PNP/ NO



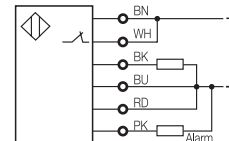
BLE 25K-5-...-02
NPN/ NC



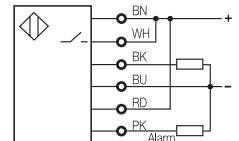
BLE 25K-5-...-02
NPN/ NO



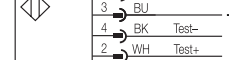
BLE 25K-5-...-02
PNP/ NC



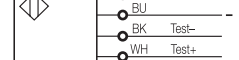
BLE 25K-5-...-02
PNP/ NO



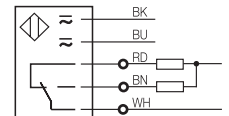
BLS 25K-5-...-S 4



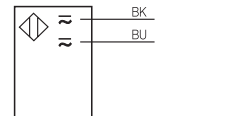
BLS 25K-5-...-02



BOS/BLE 25K-1-...-02
AC/DC



BLS 25K-1-...-02
AC/DC



Green Stability indicator BOS 25K-5-M25-... only

The "threshold energy" at which a signal change on the output results is defined as 100 %. The switching state is considered stable when the input energy exceeds or falls below the "threshold energy" by 30 %.

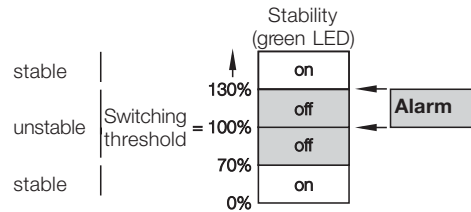
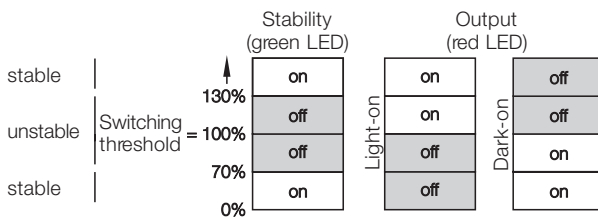
Therefore you are within the "safe" range

- if the input signal exceeds at least 130% of the threshold energy
- if the input signal falls below at least 70 % of the threshold energy.

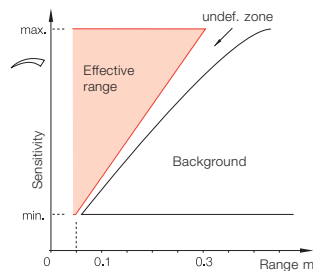
Alarm output for receiver (cable version only)

The receiver is equipped with an alarm output. This signal output (PNP open collector 30 mA) is used to generate a warning signal when malfunctions due to

contamination or mechanical maladjustment occur. The alarm output is activated if the receive signal remains in the alarm range for at least 3 s.



Diffuse BOS 25K with background suppression



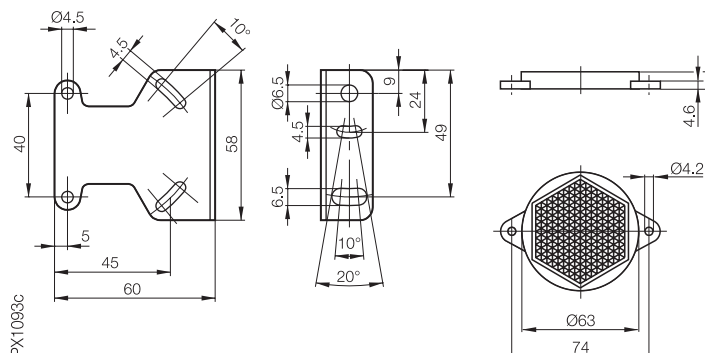
The "undefined zone" in the diffuse BOS 25K-5-M25-... is the zone between the effective range and the background. The sensing distance can be set between 50 mm and 250 mm using a spindle screw on the upper side of the unit. Remember that the "undefined zone" also changes proportionally to the sensing distance.

Test input for emitter

The test input for the emitter interrupts the light pulses from the emitter and allows the function of emitter and receiver to be checked. 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 maladjustment 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.

Mounting bracket and Reflector BOS R-10 (included)



Recommended accessories please order separately



Connector
BKS-_ 19/BKS-_ 20

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2.3

Photoelectric
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Connectors
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