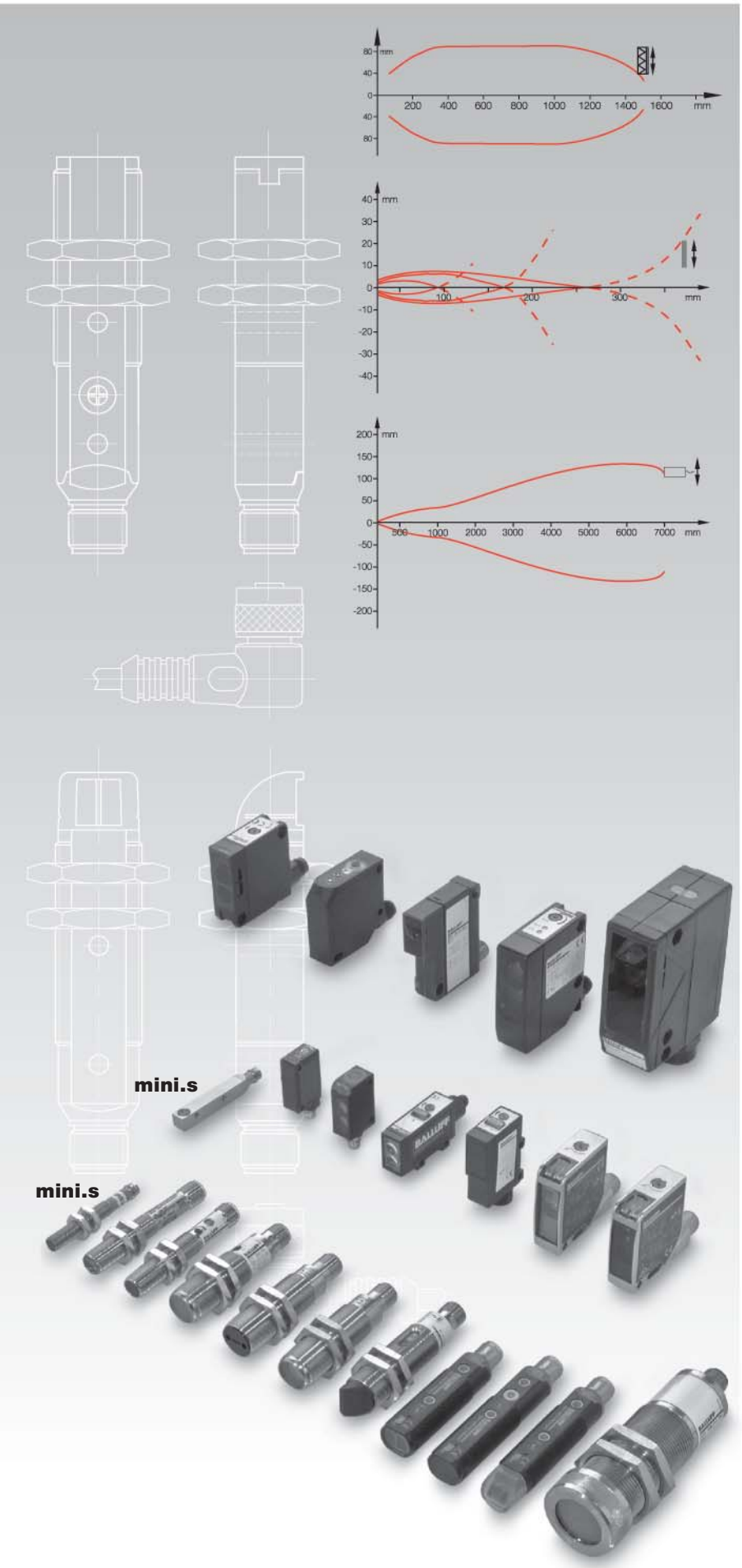


Photoelectric Sensors – Standard

Round style
2.1.2 **BOS 08M**
M8 Metal
2.1.6 **BOS 12M**
M12 Metal
2.1.16 **BOS 18M**
M18 Metal
with potentiometer
tough
with teach-in
Laser
with AC voltage
with angled head
2.1.46 **BOS 18E**
M18 stainless steel
2.1.52 **BOS 18KF**
M18 plastic
Laser
2.1.70 **BOS 18KW**
M18 plastic
with angled head
Laser
2.1.84 **BOS 18K(R)**
M18 plastic
2.1.92 **BOS 30M**
M30 metal

Cube style
2.1.96 **BOS Q08M**
mini.s
2.1.100 **BOS 2K**
mini.s
2.1.110 **BOS 5K**
mini.s
with potentiometer
2.1.118 **BOS 6K**
mini.s
with teach-in
Laser
2.1.130 **BOS 15K**
2.1.136 **BOS 21M**
Laser
2.1.148 **BOS 26K**
Laser
2.1.156 **BOS 36K**
2.1.162 **BOS 65K**

The **BOS 26K** series represents the logical development of an already successful design: a uniform housing for all sensor types used. This makes the BOS 26K series compatible with series BOS 25K and complements it with new kinds of sensors with particular specifications and features:

- Laser sensors
- New, high-performance red light and infrared sensors
- Additional optical and mechanical functions.

The BOS 26K series is ideally suited wherever greater demands are made in terms of precision, handling, high sensing distance or range, as well as small-parts detection.

The retroreflective models feature autocollimation, i.e., the emitter and receiver beams coincide geometrically.
Advantage: Exact switching points for any desired side-approaching object in the entire beam path

The diffuse model with background suppression **BOS 26K-..-1LHB,** with its focused light beam, can detect objects precisely in virtually any color between 30 and 150 mm. The focusing feature enables a spot size of just 0.1 mm at a distance of 80 mm.

Features

- Rotatable M12 connector
- Precise setting mechanism with two revolutions (720°)
- Clear character display for sensitivity setting
- Switching state and contamination display visible any direction
- Complementary PNP or NPN output
- High switching frequency for laser version

Applications

- Precise small part detection
- Positioning tasks
- Detail checking
- Conveyor inspection (background suppression)
- Conveying
- Automation
- Handling equipment, Robotics
- Machine tool building
- Specialty machines

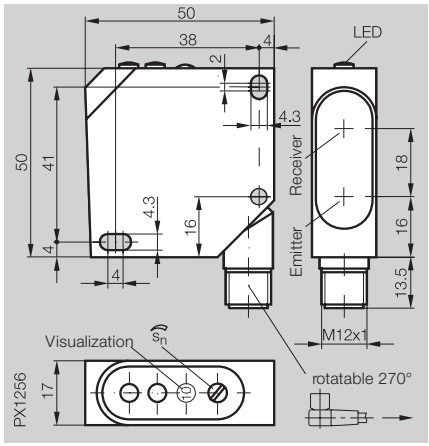


Type	Sensing distance/ Range	Light type			Output		Output function		Switching frequency	U_B	Connection		Help functions			Page
		Red light	Infrared	Laser	PNP-Transistor	NPN-Transistor	Light-on	Dark-on		10...30 V DC	M12 connector, 4-pin		Polarizing filter	Autocollimation	Alarm output	
Diffuse with HGA																
BOS 26K-PA-1LHA-SA1-S4-C	40...60 mm			■	■		■	■	2.5 kHz	■	■					**2.1.**152
BOS 26K-NA-1LHA-SA1-S4-C	40...60 mm			■		■	■	■	2.5 kHz	■	■					**2.1.**152
BOS 26K-PA-1LHB-S4-C	30...150 mm			■	■		■	■	2.5 kHz	■	■					**2.1.**153
BOS 26K-NA-1LHB-S4-C	30...150 mm			■		■	■	■	2.5 kHz	■	■					**2.1.**153
BOS 26K-PA-1HC-S4-C	30...300 mm	■			■		■	■	1 kHz	■	■					**2.1.**150
BOS 26K-NA-1HC-S4-C	30...300 mm	■				■	■	■	1 kHz	■	■					**2.1.**150
BOS 26K-PA-1LHC-S4-C	50...300 mm			■	■		■	■	2.5 kHz	■	■					**2.1.**153
BOS 26K-NA-1LHC-S4-C	50...300 mm			■		■	■	■	2.5 kHz	■	■					**2.1.**153
BOS 26K-PA-1IE-S4-C	150...600 mm		■		■		■	■	800 Hz	■	■					**2.1.**151
BOS 26K-NA-1IE-S4-C	150...600 mm		■			■	■	■	800 Hz	■	■					**2.1.**151
Retroreflective																
BOS 26K-PA-1QE-S4-C	0...5.5 m	■			■		■	■	1 kHz	■	■		■	■		**2.1.**151
BOS 26K-NA-1QE-S4-C	0...5.5 m	■				■	■	■	1 kHz	■	■		■	■		**2.1.**151
BOS 26K-PO-1QE-SA1-C	0...5.5 m	■			■		■		1 kHz	■	■		■	■	■	**2.1.**151
BOS 26K-PA-1LQP-S4-C	0...20 m			■	■		■	■	2.5 kHz	■	■		■	■		**2.1.**153
BOS 26K-NA-1LQP-S4-C	0...20 m			■		■	■	■	2.5 kHz	■	■		■	■		**2.1.**153

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2.3
Photoelectric sensors accessories page 2.3.2 ...
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Connectors ... page 5.2 ...

BOS 26K
Sensing distance 300 mm

Diffuse with background suppression	Sensing distance	**30...300 mm**
Retroreflective with polarizing filter	Range	

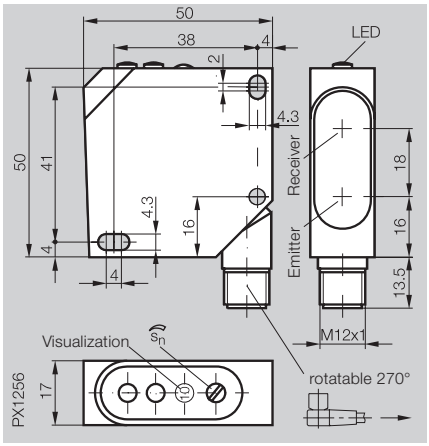
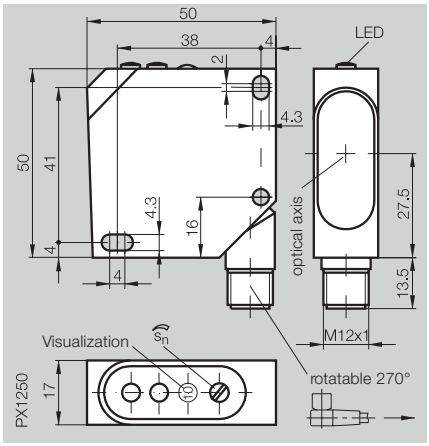
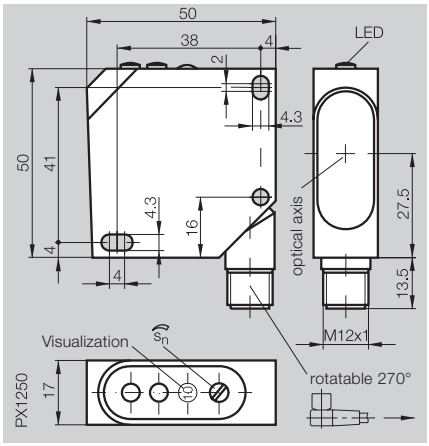


	Diffuse			
	PNP	30...300 mm	HGA	BOS 26K-PA-1HC-S4-C
	NPN	30...300 mm	HGA	BOS 26K-NA-1HC-S4-C
	PNP	150...600 mm	HGA	
	NPN	150...600 mm	HGA	
	Retroreflective			
	PNP	5.5 m	Autocollimation	
	NPN	5.5 m	Autocollimation	

Electrical data	
Supply voltage U_B	10...30 V DC
Ripple	10 %
No-load supply current I_0 max.	≤ 35 mA
Switching output	PNP- or NPN-Transistor
Output current	200 mA
Switching type	Light-/dark-on (complementary)
Voltage drop U_d at I_e	≤ 2.4 V
Settings	2-turn potentiometer with indicator
Help functions	
Optical data	
Emitter, light type	LED, red light, pulsed
Wavelength	660 nm
Light spot diameter	approx. 8 mm at 200 mm
Distance hysteresis (18 %/18 %)	5 %
Gray value shift (90 %/18 %)	8 %
Indicators	
Power-on indicator	LED green
Output function indicator	LED yellow
Stability indicator	LED red
Time data	
Response time	0.5 ms
Switching frequency f	1 kHz
Mechanical data	
Dimensions	50×50×17 mm
Connection	M12 connector, 4-pin
Housing material	Impact-resistant ABS
Optical surface	PMMA
Weight	35 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 per	EN 60947-5-2

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

Wiring diagrams, characteristics and accessories see page **2.1.**154 and **2.1.**155.

150...600 mm	**0...5.5 m**	**0...5.5 m**
		
BOS 26K-PA-1IE-S4-C BOS 26K-NA-1IE-S4-C	BOS 26K-PA-1QE-S4-C BOS 26K-NA-1QE-S4-C	BOS 26K-PO-1QE-SA1-C
10...30 V DC	10...30 V DC	10...30 V DC
10 %	10 %	10 %
≤ 70 mA	≤ 30 mA	≤ 30 mA
PNP- or NPN-Transistor	PNP- or NPN-Transistor	PNP-Transistor
200 mA	200 mA	200 mA
Light-/dark-on (complementary)	Light-/dark-on (complementary)	Light-on
≤ 2.4 V	≤ 2.4 V	≤ 2.4 V
2-turn potentiometer with indicators	2-turn potentiometer with indicator	2-turn potentiometer with indicator
		Contamination output
LED, infrared, pulsed	LED, red light, pulsed	LED, red light, pulsed
880 nm	660 nm	660 nm
approx. 20 mm at 400 mm		
5 %		
12 %		
LED green	LED green	LED green
LED yellow	LED yellow	LED yellow
LED red	LED red	LED red
0.625 ms	0.5 ms	0.5 ms
800 Hz	1 kHz	1 kHz
50×50×17 mm	50×50×17 mm	50×50×17 mm
M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
Impact-resistant ABS	Impact-resistant ABS	Impact-resistant ABS
PMMA	PMMA	PMMA
35 g	35 g	35 g
IP 67	IP 67	IP 67
yes	yes	yes
yes	yes	yes
–20...+60 °C	–20...+60 °C	–20...+60 °C
EN 60947-5-2	EN 60947-5-2	EN 60947-5-2

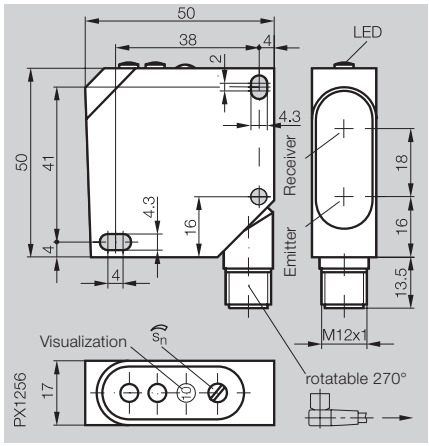
Connector orientation

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Photoelectric sensors accessories page 2.3.2 ...

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Connectors ... page 5.2 ...

Diffuse with background suppression	Sensing distance	**40...60 mm**
Retroreflective with polarizing filter	Range	



	Diffuse		
	PNP 40...60 mm	HGA	BOS 26K-PA-1LHA-SA1-S4-C
	NPN 40...60 mm	HGA	BOS 26K-NA-1LHA-SA1-S4-C
	PNP 30...150 mm	HGA	
	NPN 30...150 mm	HGA	
	PNP 50...300 mm	HGA	
	NPN 50...300 mm	HGA	
	Retroreflective		
	PNP 20 m	Autocollimation	
	NPN 20 m	Autocollimation	
	Electrical data		
	Supply voltage U_B		10...30 V DC
	Ripple		10 %
	No-load supply current I_0 max.		≤ 50 mA
	Switching output		PNP- or NPN-Transistor
	Output current		200 mA
	Switching type		Light-/dark-on (complementary)
	Voltage drop U_d at I_e		≤ 2.4 V
	Settings		2-turn potentiometer with indicators
	Optical data		
	Emitter, light type		Laser, red light
	Wavelength		670 nm
	Laser class		2
	Light spot diameter		see table
	Distance hysteresis (18 %/18 %)		**≤ 50 µm**
	Gray value shift (90 %/18 %)		1 %
	Indicators		
	Power-on indicator		LED green
	Output function indicator		LED yellow
	Stability indicator		LED red
	Time data		
	Response time		0.2 ms
	Switching frequency f		2.5 kHz
	Mechanical data		
	Dimensions		50×50×17 mm
	Connection		M12 connector, 4-pin
	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...+45 °C
	Ambient light rejection		EN 60947-5-2

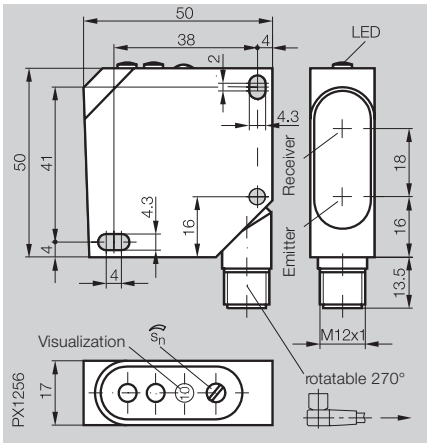
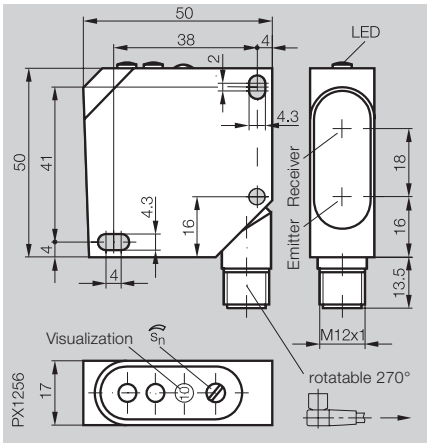
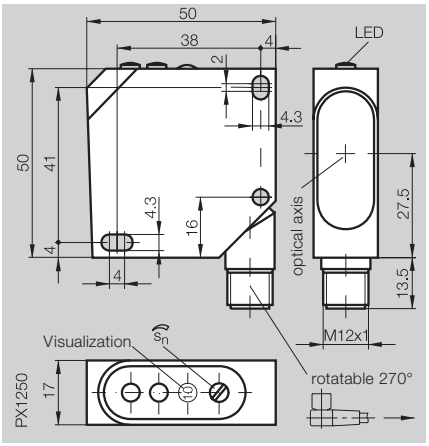
Diffuse sensor values referenced to Kodak gray card 90 % Reflexion. Retroreflective sensor values referenced to R22 reflector.

Light spot diameter [mm]

Sensing distance	40	45	50	55	60
Light spot-Ø	0.25	0.7	1.1	1.5	1.8

Wiring diagrams, characteristics and accessories see page **2.1.**154 and **2.1.**155.

Connector orientation

	30...150 mm	50...300 mm	0...20 m
			
	BOS 26K-PA-1LHB-S4-C BOS 26K-NA-1LHB-S4-C	BOS 26K-PA-1LHC-S4-C BOS 26K-NA-1LHC-S4-C	BOS 26K-PA-1LQP-S4-C BOS 26K-NA-1LQP-S4-C
	10...30 V DC	10...30 V DC	10...30 V DC
	10 %	10 %	10 %
	≤ 50 mA	≤ 50 mA	≤ 40 mA
	PNP- or NPN-Transistor	PNP- or NPN-Transistor	PNP- or NPN-Transistor
	200 mA	200 mA	200 mA
	Light-/dark-on (complementary)	Light-/dark-on (complementary)	Light-/dark-on (complementary)
	≤ 2.5 V	≤ 2.4 V	≤ 2.4 V
	2-turn potentiometer with indicator	2-turn potentiometer with indicator	2-turn potentiometer with indicator
	Laser, red light	Laser, red light	Laser, red light
	670 nm	670 nm	670 nm
	2	2	1
	see table	3×1 mm at 300 mm	15 mm in 12 m
	5 %	2 %	
	8 %	5 %	
	LED green	LED green	LED green
	LED yellow	LED yellow	LED yellow
	LED red	LED red	LED red
	0.2 ms	0.2 ms	0.2 ms
	2.5 kHz	2.5 kHz	2.5 kHz
	50×50×17 mm	50×50×17 mm	50×50×17 mm
	M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
	Impact-resistant ABS	Impact-resistant ABS	Impact-resistant ABS
	PMMA	PMMA	PMMA
	40 g	40 g	40 g
	IP 67	IP 67	IP 67
	yes	yes	yes
	yes	yes	yes
	–15...+45 °C	–20...+45 °C	–20...+45 °C
	5 kLux	5 kLux	5 kLux

Light spot diameter [mm]

Sensing distance	30	60	80	100	150
Light spot Ø	1.8	0.7	0.1	1.1	2.5

Light spot diameter [mm]

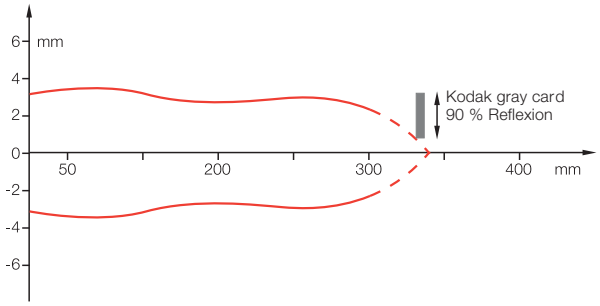
Sensing distance	50	100	200
Light spot Ø	5×1.8	4×1.5	3.8×1.2

Light spot diameter [mm]

Range (m)	4	12	20
Light spot-Ø	5	15	24

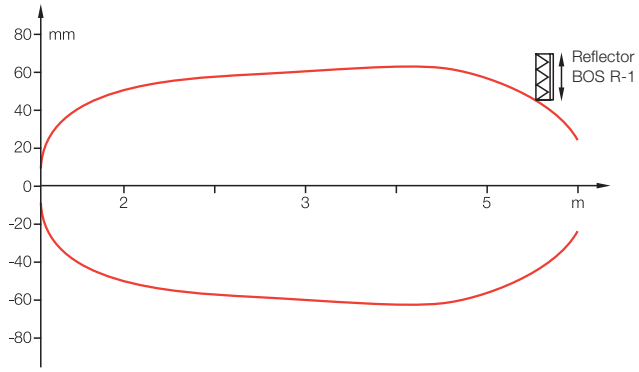
2.1
2.3 Photoelectric sensors accessories page 2.3.2 ...
5 Connectors ... page 5.2 ...

Diffuse BOS 26K-..-1HC-...



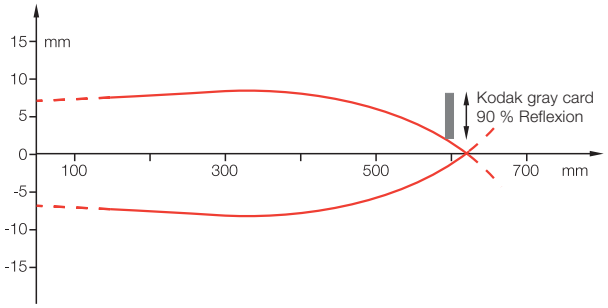
Sensing distance measured with side approach of Kodak gray card.

Retroreflective BOS 26K-..-1QE-...



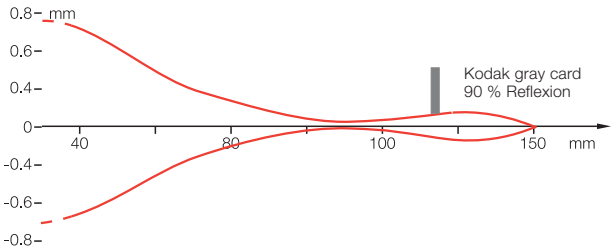
Range measured using side approach with reflector.

Diffuse BOS 26K-..-1IE-...



Sensing distance measured with side approach of Kodak gray card.

Diffuse BOS 26K-..-1LHB-...

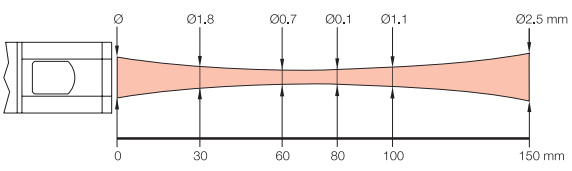


Sensing distance measured with side approach of Kodak gray card.

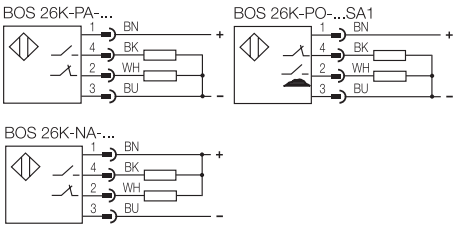
Light beam geometry BOS 26K...1LHC



Light beam geometry BOS 26K...1LHB



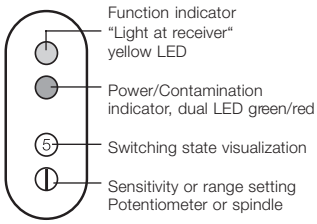
Wiring diagrams



Contamination indicator

The BOS 26K has 2 display LED's: yellow for indicating function and green/red for indicating status and contamination. Should the received light drop below a certain level, this will be indicated by a red LED. This allows contamination or maladjustment to be detected early.

Indicators and operating elements



Recommended accessories

please order separately



Reflector
BOS R-9



Reflector
BOS R-1



Adapter plate
BOS 21-AD-1



Laser reflector
BOS R-22



Laser reflector
BOS R-12



Laser reflector
BOS R-13



Mounting bracket
BOS 26-HW-1



Connector
BKS-_ 19/BKS-_ 20

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Photoelectric sensors accessories page 2.3.2 ...
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Connectors ... page 5.2 ...

The **BOS 36K** series is ergonomic, compact (55×65×20 mm), and the connector is rotatable.
The performance data are outstanding for a sensor this size.
An easily accessible potentiometer is used for setting the sensitivity. The diffuse model with background suppression uses teach-in setting and visible red light. This virtually precludes any incorrect setting.

Features

- Push-pull output 200 mA, short circuit protected
- Function and stability indicators
- Degree of protection IP 66
- Compact plastic housing (ABS)
- Red light (background suppression and retroreflective)
- Teach-in (button background suppression)
- M12 connector, rotatable

Applications

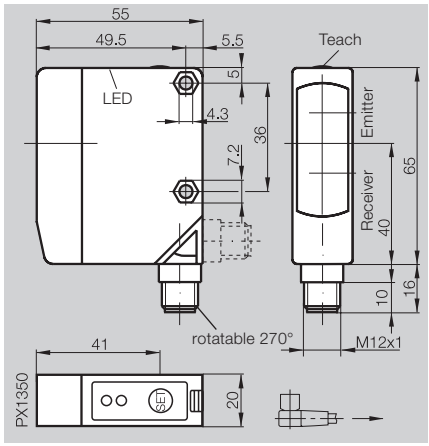
- Wherever a higher performance is needed
- Conveying and warehousing
- Packaging machinery
- Access control
- Lift-type vehicles (not for safety applications)
- Wood industry
- Ceramics industry
- Automobile industry
- Gate and door control



Type	Sensing distance/ range	Light type		Output		Output function		Switching frequency	U_B	Connec-tion		Special features			Page
		Red light	Infrared	PNP-Transistor	NPN-Transistor	Light-on	Dark-on		10...30 V DC	M12 connector, 4-pin	Cable	Polarizing filter	Teach-in	Test input	
Diffuse with HGA															
BOS 36K-PA-1HD-S4-C	100...500 mm	■		■		■	■	500 Hz	■	■			■		**2.1.**158
Diffuse															
BOS 36K-PA-1PH-S4-C	0,01...2 m		■	■		■	■	500 Hz	■	■					**2.1.**159
Retroreflective															
BOS 36K-PA-1QH-S4-C	0,1...8 m	■		■		■	■	500 Hz	■	■		■			**2.1.**159
Through-beam															
BLE 36K-PA-1PT-S4-C	0...50 m		■	■		■	■	500 Hz	■	■					**2.1.**159
BLS 36K-XX-1T-S4-C	0...50 m		■						■	■				■	**2.1.**159

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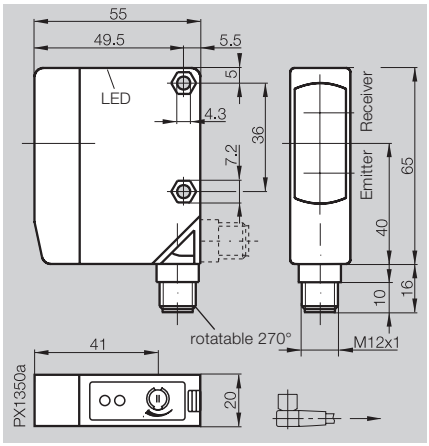
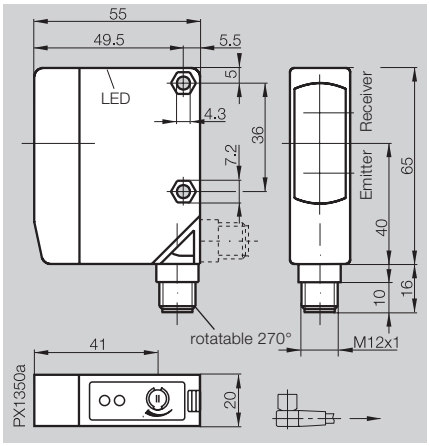
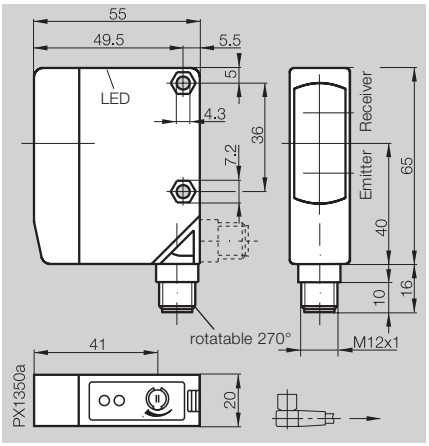
Diffuse with background suppression	Sensing distance	**100...500 mm**
Diffuse	Sensing distance	
Retroreflective with polarizing filter	Range	
Through-beam	Range	

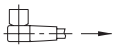


Diffuse				
PNP	100...500	mm	HGA, Teach-in	BOS 36K-PA-1HD-S4-C
PNP	0.01...2	m		
Retroreflective				
PNP	0.1...8	m	Polarizing filter	
Through-beam				
PNP	50	m	Receiver	
	50	m	Emitter	
Electrical data				
Supply voltage U_B				10...30 V DC
Ripple				2 V DC
No-load supply current I_0 max.				≤ 50 mA
Switching output				PNP-Transistor
Output current				200 mA
Switching type				Light/Dark (push-pull)
Voltage drop U_d at I_e				≤ 2 V
Settings				Teach-in
Help function				
Optical data				
Emitter, light type				LED, red light
Wavelength				660 nm
Light spot diameter				approx. 15 mm at 250 mm
Distance hysteresis (18 %/18 %)				20 %
Gray value shift (90 %/18 %)				8 %
Indicators				
Power-on indicator				
Output function indicator				LED yellow
Stability indicator				LED green/red
Time data				
Response time				1 ms
Switching frequency f				500 Hz
Mechanical data				
Dimensions				55×65×20 mm
Connection				M12 connector, 4-pin
Housing material				impact-resistant ABS
Optical surface				PMMA
Weight				50 g
Ambient data				
Degree of protection per IEC 60529				IP 66
Polarity reversal protected				yes
Short circuit protected				yes
Ambient temperature range T_a				–10...+55 °C
Ambient light rejection				5 kLux

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

Wiring diagrams, characteristics and accessories see page **2.1.**160 and **2.1.**161.

0.01...2 m	**0.1...8 m**	**0...50 m**
		
BOS 36K-PA-1PH-S4-C	BOS 36K-PA-1QH-S4-C	BLE 36K-PA-1PT-S4-C BLS 36K-XX-1T-S4-C
10...30 V DC	10...30 V DC	10...30 V DC
2 V DC	2 V DC	2 V DC
≤ 40 mA	≤ 40 mA	≤ 40 mA
PNP-Transistor	PNP-Transistor	PNP-Transistor
200 mA	200 mA	200 mA
Light/Dark (push-pull)	Light/Dark (push-pull)	Light/Dark (push-pull)
≤ 2 V	≤ 2 V	≤ 2 V
Potentiometer 270°	Potentiometer 270°	Potentiometer 270°
		Test input (BLS)
LED, infrared	LED, red light	LED, infrared
880 nm	660 nm	880 nm
		LED green (BLS)
LED yellow	LED yellow	LED yellow (BLE)
LED green	LED green	LED green (BLE)
1 ms	1 ms	1 ms
500 Hz	500 Hz	500 Hz
55×65×20 mm	55×65×20 mm	55×65×20 mm
M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
impact-resistant ABS	impact-resistant ABS	impact-resistant ABS
PMMA	PMMA	PMMA
50 g	50 g	50 g
IP 66	IP 66	IP 66
yes	yes	yes
yes	yes	yes
–25...+55 °C	–25...+55 °C	–25...+55 °C
5 kLux	5 kLux	5 kLux

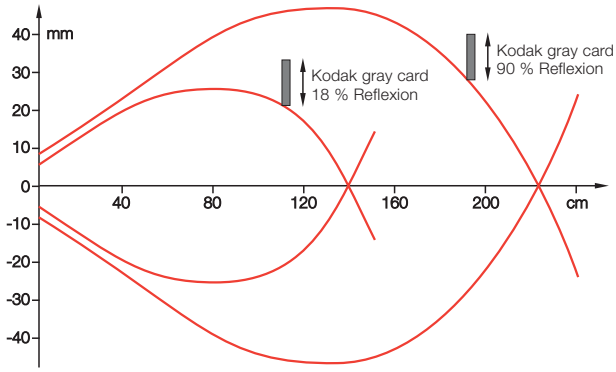
 Connector orientation

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Photoelectric sensors accessories
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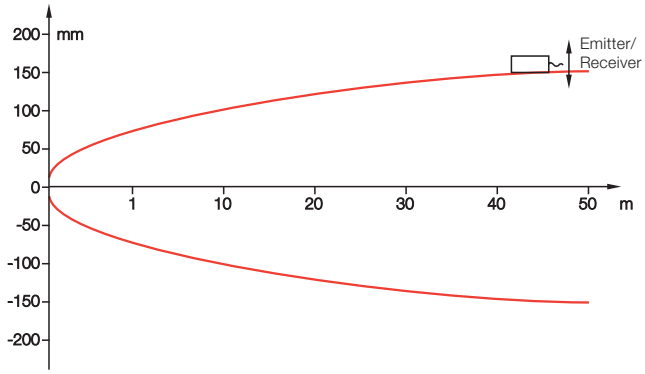
5
Connectors ...
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Diffuse BOS 36K-PA-1PH-S 4-C



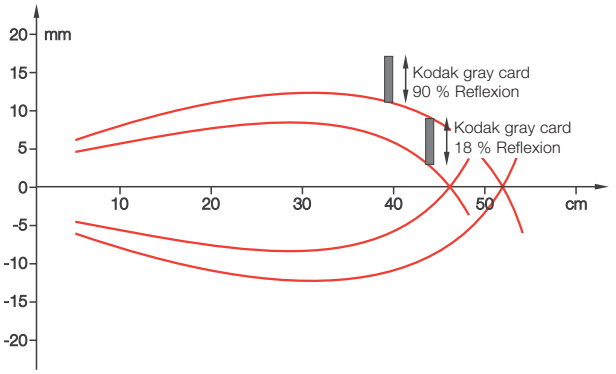
Sensing distance measured with side approach of Kodak gray card.

Through-beam BLE/BLS 36K-...



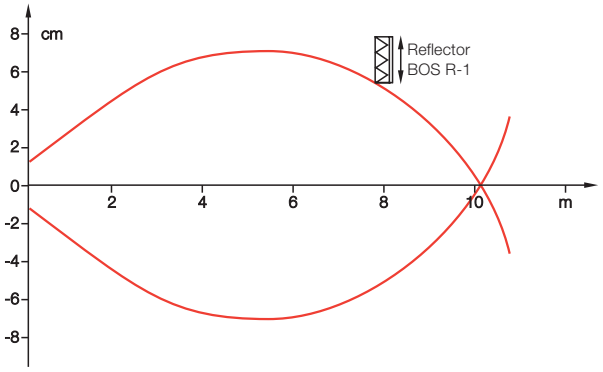
For the through-beam the maximum possible offset between emitter and receiver is measured.

Diffuse BOS 36K-PA-1HD-S 4-C



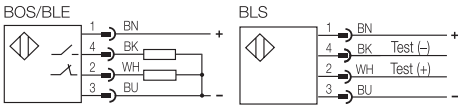
Sensing distance measured with side approach of Kodak gray card.

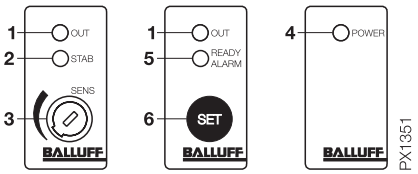
Retroreflective BOS 36K-PA-1QH-S 4-C



Range measured using side approach with reflector.

Wiring diagrams





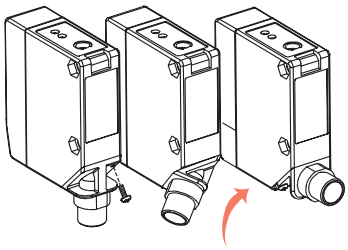
BOS 36K...PH/QH
BLE 36K

BOS 36K...HD

BLS 36K

Indicators and operating elements

1 **Output** (yellow LED)
Yellow LED indicates output function.
2 **Contamination display** (green LED)
The green LED indicates when the received signal is 30 % above the switching threshold needed for switching.
3 **Potentiometer for sensitivity setting**
4 **Power indicator** (green LED)
5 **READY/ALARM** (2-color green/red LED)
6 **SET** (setting button)



Connector 270° rotatable

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Recommended accessories
please order separately



Reflector
BOS R-1



Mounting bracket
BOS 36-HW-1



Connector
BKS-_ 19/BKS-_ 20

Only power helps in the long run! This is especially true under harsh conditions. This is why our **BOS 65K** has a 3 A output at 264 V AC/DC and a very long sensing range. It also comes with setup help, test input, alarm output and time functions. The same tough plastic housing series, with large wiring chamber, is offered with each of the following optical types:

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

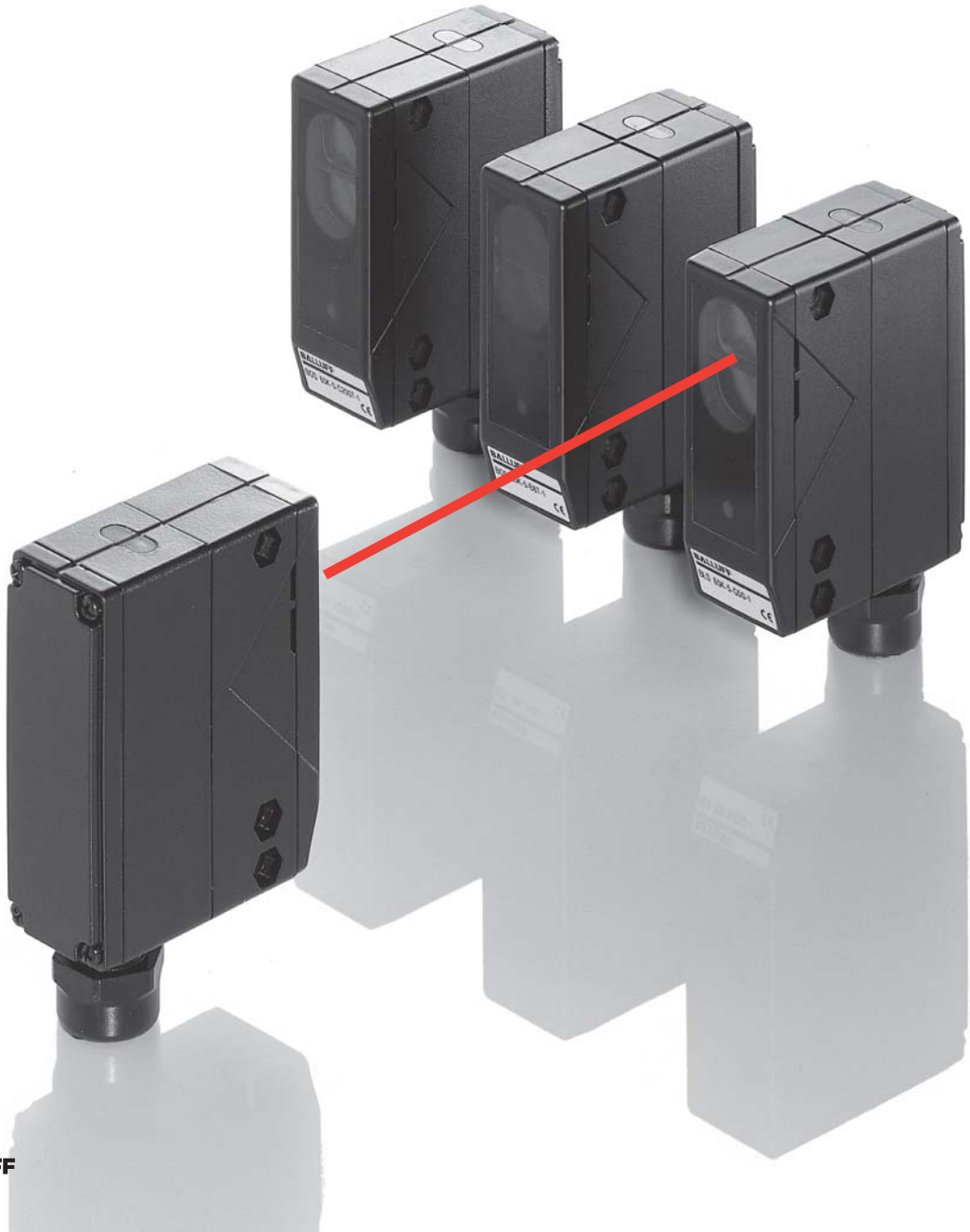
The supply voltage can be 10...30 V DC or 17...264 V AC/DC in the universal version.
All DC versions come standard with PNP and NPN transistor outputs, and have an alarm output and test input. The universal voltage versions have a relay output. The retro- and through-beam versions use both visible red and infrared light.

Features

- Universal voltage model 17...264 V AC/DC with relay output
- DC 10...30 V with transistor output (PNP/NPN)
- Light switching/dark switching
- DC version standard with alarm output and test input
- Version with various time functions (2 times settable)
- Wiring chamber with PG 11 cord seal

Applications

- Conveying
- Machine tool building
- Packaging
- Assembly and handling automation
- Gate controls
- Inventory control



Type	Sensing distance/ range	Light type		Output			Output function		Switching frequency	U_B		Connec-tion		Help functions			Page
		Red light	Infrared	PNP-Transistor	NPN-Transistor	Relay	Light-on	Dark-on		10...30 V DC	17...264 V AC	M12 connector, 4-pin	Wiring chamber	Polarizing filter	Alarm output	Test input	
Diffuse with HGA																	
BOS 65K-5-M110T-1	0.2...1.1 m		■	■	■		■	■	500 Hz	■			■		■	■	**2.1**.165
BOS 65K-5-M110T-2P-S4	0.2...1.1 m		■	■			■	■	500 Hz	■		■			■		**2.1**.165
BOS 65K-1-M110T-1	0.2...1.1 m		■			■	■	■	10 Hz		■		■				**2.1**.165
Diffuse																	
BOS 65K-5-C200T-1	0.05...2 m		■	■	■		■	■	500 Hz	■			■		■	■	**2.1**.165
BOS 65K-5-C200T-2P-S4	0.05...2 m		■	■			■	■	500 Hz	■		■			■		**2.1**.165
BOS 65K-1-C200T-1	0.05...2 m		■			■	■	■	10 Hz		■		■				**2.1**.165
Retroreflective																	
BOS 65K-5-B8T-1	0.3...8 m	■		■	■		■	■	500 Hz	■			■	■	■	■	**2.1**.165
BOS 65K-5-B8T-2P-S4	0.3...8 m	■		■			■	■	500 Hz	■		■		■	■		**2.1**.165
BOS 65K-1-B8T-1	0.3...8 m	■				■	■	■	10 Hz		■		■	■			**2.1**.165
Through-beam																	
BLE 65K-5-F50T-1	0...50 m		■	■	■		■	■	500 Hz	■			■		■		**2.1**.165
BLE 65K-5-F50T-2P-S4	0...50 m		■	■	■		■	■	500 Hz	■		■			■		**2.1**.165
BLE 65K-1-F50T-1	0...50 m		■			■	■	■	10 Hz		■		■				**2.1**.165
BLS 65K-5-G50-1	0...50 m		■							■			■			■	**2.1**.165
BLS 65K-5-G50-2-S4	0...50 m		■							■		■				■	**2.1**.165
BLS 65K-1-G50-1	0...50 m		■								■		■				**2.1**.165

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Diffuse with background suppression	maximum sensing distance
Diffuse	maximum sensing distance
Retroreflective	maximum range
Through-beam	maximum range

CE

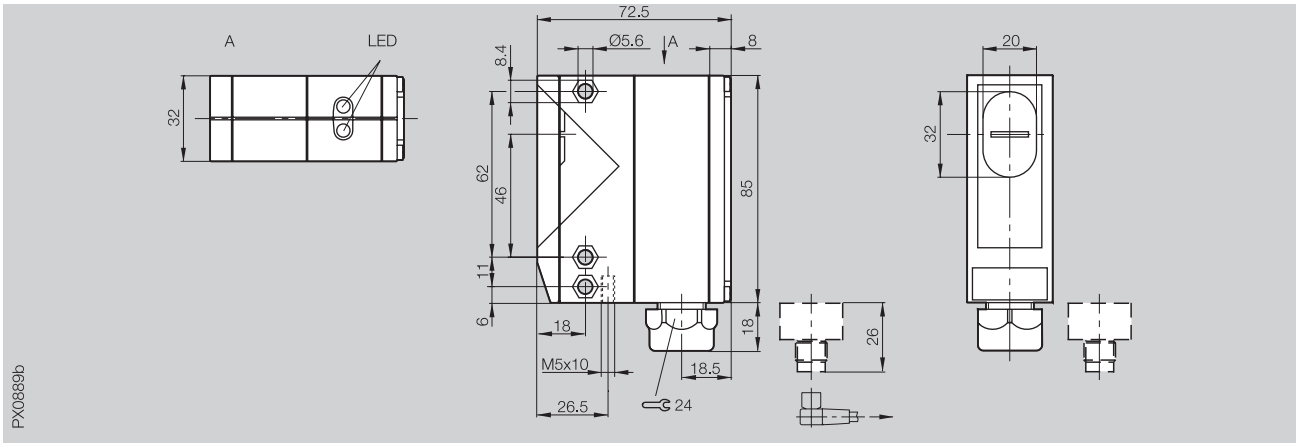
Diffuse			
PNP/NPN	0.2...1.1	m	HGA, time function
	0.05...2	m	Time function
Relay	0.2...1.1	m	HGA, time function
	0.05...2	m	Time function
Retroreflective			
PNP/NPN	0.3...8	m	Polarizing filter, red light, time function
Relay	0.3...8	m	Polarizing filter, red light, time function
Through-beam			
PNP/NPN	50	m	Receiver, time function
	50	m	Emitter
Relay	50	m	Receiver, time function
	50	m	Emitter

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	
Alarm output	
Settings	
Help function	
Indicators	
Power-on indicator	
Output function indicator	
Stability indicator	
Time data	
Response time	
Switching frequency f	
Time function	
Mechanical data	
Dimensions	
Connection	
max. conductor cross-section	
Housing material	
Optical surface	
Weight	
Ambient data	
Degree of protection per IEC 60529	
Polarity reversal protected	
Short circuit protected	
Ambient temperature range T_a	
Ambient light rejection	

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

Wiring diagrams, characteristics and accessories see page **2.1.**166 and **2.1.**167.

	0.2...1.1 m	**0.2...1.1 m**	**0.2...1.1 m**
	0.05...2 m	**0.05...2 m**	**0.05...2 m**
	0.3...8 m	**0.3...8 m**	**0.3...8 m**
	0...50 m	**0...50 m**	**0...50 m**

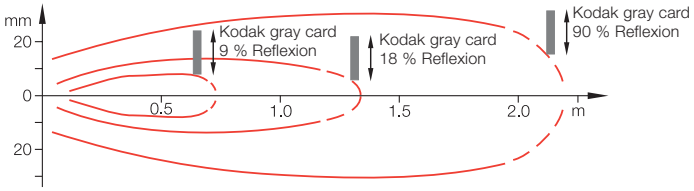


	BOS 65K-5-M110T-1	BOS 65K-5-M110T-2P-S4	
	BOS 65K-5-C200T-1	BOS 65K-5-C200T-2P-S4	
			BOS 65K-1-M110T-1
			BOS 65K-1-C200T-1
	BOS 65K-5-B8T-1	BOS 65K-5-B8T-2P-S4	
			BOS 65K-1-B8T-1
	BLE 65K-5-F50T-1	BLE 65K-5-F50T-2P-S4	
	BLS 65K-5-G50-1	BLS 65K-5-G50-2-S4	
			BLE 65K-1-F50T-1
			BLS 65K-1-G50-1
	10...30 V DC	10...30 V DC	17...264 V AC/DC
	≤ 40 mA	≤ 40 mA	
	PNP and NPN Transistor	PNP-Transistor	Relay 3A, 250 V AC/24 V DC
	200 mA	200 mA	
	Light and dark (reversible)	Light and dark (reversible)	Light and dark (reversible)
	≤ 2 V	≤ 1.5 V	0 V
	PNP-Transistor, 200 mA	PNP-Transistor, 200 mA	
	Potentiometer 270°	Potentiometer 270°	Potentiometer 270°
	Test input (except BLE)	Test input (for BLS)	
	LED green (only for BLS)	LED green (only for BLS)	LED green (only for BLS)
	LED red	LED red	LED red
	LED green	LED green	LED green
	1 ms	1 ms	20 ms
	500 Hz	500 Hz	10 Hz
	selectable 0.02…12 sec.	selectable 0.02…12 sec.	selectable 0.02…12 sec.
	72.5×85×32 mm	72.5×85×32 mm	72.5×85×32 mm
	Wiring chamber	M12 connector, 4-pin	Wiring chamber
	0.75 mm²		0.75 mm²
	PC	PC	PC
	PMMA	PMMA	PMMA
	160 g	180 g	160 g
	IP 67	IP 67	IP 67
	yes	yes	yes
	yes	yes	no
	–20...+55 °C	–20...+55 °C	–20...+55 °C
	3 kLux	3 kLux	3 kLux

Connector orientation

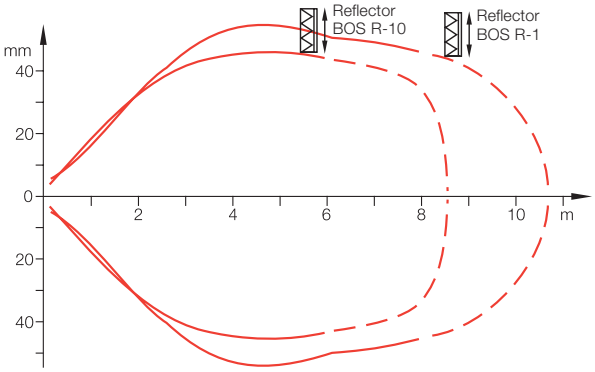
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Diffuse BOS 65K-.-C200T-...



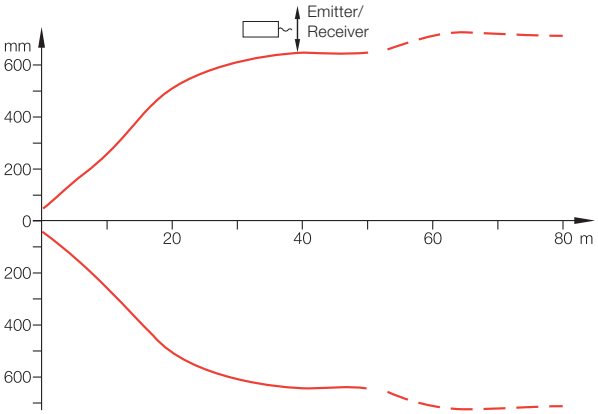
Sensing distance measured with side approach of Kodak gray card.

Retroreflective with polarizing filter BOS 65K-.-B8T-...



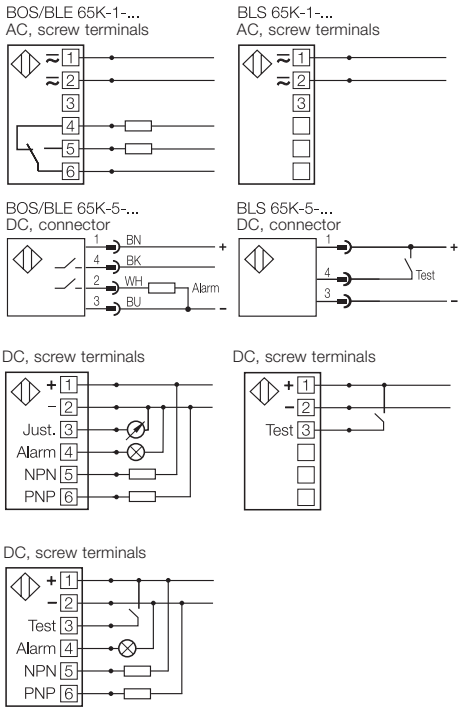
Range measured using side approach with reflector.

Through-beam BLE/BLS 65K-...



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

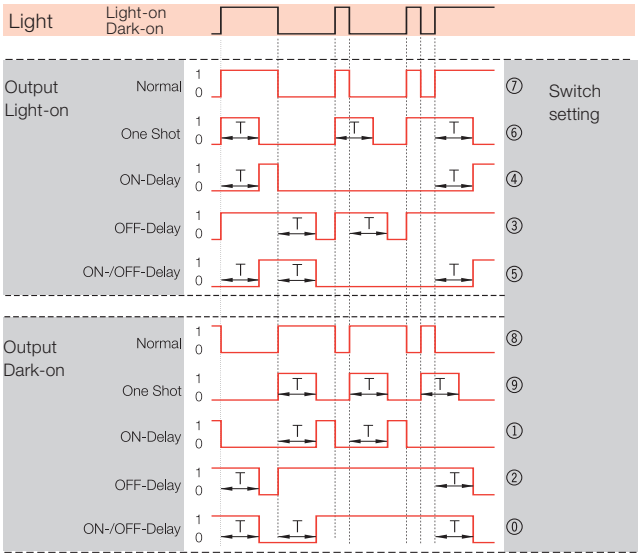
Wiring diagrams





Access to the operating elements by removing the cover (rear).

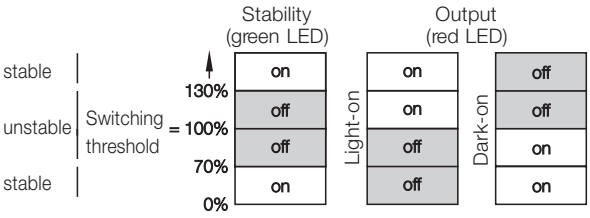
Programmable time functions



Green stability display

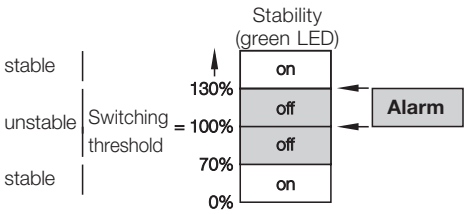
The “threshold energy”, which results in a signal change on output, is defined as 100 %.
The switching state is considered stable when the input energy exceeds or falls below the “threshold energy” by 30 %. The green LED illuminates.

The “safe” range is therefore reached when
- the input signal exceeds at least 130% of the threshold energy
- the input signal falls below at least 70 % of the threshold energy.



Alarm output for receiver, diffuse and retroreflective (DC)

The alarm output (PNP 200 ma) for DC versions generates a warning signal for malfunctions due to contamination or mechanical maladjustment.
The alarm output is activated if the signal received remains in the alarm range for at least 3 s.



Test input for emitter, diffuse and retroreflective (DC)

The test input interrupts the light pulses from the emitter and thereby allows it to be tested for function.
When using the test input the input must be set to 10...30 V.
The output must change every time there is 10...30 V DC 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 change even though the test input is activated. The test function provides a remote check of the through-beam type and serves as a preventive system check.

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Recommended accessories
please order separately



Reflector
BOS R-1



Mounting bracket
BOS 65-HW-1



Connector
BKS-_ 19/BKS-_ 20