

Photoelectric Standard Sensors

BOS 08M

Product overview



Photoelectric sensors

Photoelectric standard sensors

Cylinder designs

Block designs

Photoelectric special sensors

Photoelectric distance sensors for analog distance measurement

Special accessories for photoelectric sensors

Type	Sensing distance/Range	Material Housing		Light type		Output	Switching type		Switching frequency	U _S	Connection		Special features	Page
		Nickel-plated CuZn	Stainless steel	Red light	Infrared		PNP transistor	Light switching			Dark switching	10...30 VDC		
Diffuse sensor														
BOS0006	BOS 08M-PS-RD11-S49	0...55 mm	■	■	■	■			400 Hz	■	■			38
BOS0004	BOS 08M-PO-RD11-S49	0...55 mm	■	■	■	■			400 Hz	■	■			38
BOS0005	BOS 08M-PS-RD11-02	0...55 mm	■	■	■	■			400 Hz	■		■		38
BOS0003	BOS 08M-PO-RD11-02	0...55 mm	■	■	■	■			400 Hz	■		■		38
Retroreflective sensor														
BOS00RC	BOS 08M-PS-PR11-S49	25...550 mm	■	■	■	■			400 Hz	■	■		■	38
BOS00R9	BOS 08M-PO-PR11-S49	25...550 mm	■	■	■	■			400 Hz	■	■		■	38
BOS00RA	BOS 08M-PS-PR11-02	25...550 mm	■	■	■	■			400 Hz	■		■	■	39
BOS00R8	BOS 08M-PO-PR11-02	25...550 mm	■	■	■	■			400 Hz	■		■	■	39
Through-beam sensor Receiver														
BOS00W9	BOS 08M-PS-RE11-S49	0...1.1 m	■	■	■	■			400 Hz	■	■			39
BOS0153	BOS 08M-PO-RE11-S49	0...1.1 m	■	■	■	■			400 Hz	■	■			39
BOS018F	BOS 08M-PS-RE11-02	0...1.1 m	■	■	■	■			400 Hz	■		■		39
BOS018E	BOS 08M-PO-RE11-02	0...1.1 m	■	■	■	■			400 Hz	■		■		39
BOS01F7	BOS 08E-PS-IE11-02	0...1.5 m	■	■	■	■			400 Hz	■		■		40
Through-beam sensor Emitter														
BOS0151	BOS 08M-X-RS11-S49	0...1.1 m	■	■	■	■				■	■			39
BOS018H	BOS 08M-X-RS11-02	0...1.1 m	■	■	■	■				■		■		39
BOS01F6	BOS 08E-X-IS11-02	0...1.5 m	■	■	■	■				■		■		40

NPN on request

Photoelectric Standard Sensors
BOS 08M
 Sensing distance 55 mm, range 550 mm

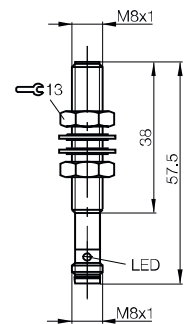
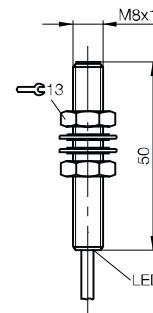
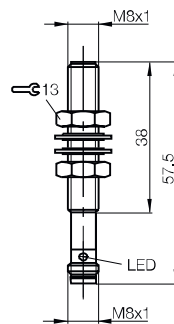
**M8 Metal
 mini.s**



Type		Diffuse sensor	Diffuse sensor	Retroreflective sensor
Detection range		0...55 mm	0...55 mm	25...550 mm
PNP NO	Ordering code	BOS0006	BOS0005	
	Part number	BOS 08M-PS-RD11-S49	BOS 08M-PS-RD11-02	
PNP NC	Ordering code	BOS0004	BOS0003	
	Part number	BOS 08M-PO-RD11-S49	BOS 08M-PO-RD11-02	
PNP NO	Polarizing filter			BOS00RC
	Ordering code			BOS 08M-PS-PR11-S49
PNP NC	Polarizing filter			BOS00R9
	Ordering code			BOS 08M-PO-PR11-S49
PNP NO	Receiver			
	Ordering code			
PNP NC	Receiver			
	Ordering code			
Emitter	Ordering code			
	Part number			
Supply voltage U_B		10...30 V DC	10...30 V DC	10...30 V DC
Output current		100 mA	100 mA	100 mA
No-load supply current I_0 max.		20 mA	20 mA	20 mA
Switching type		Light or dark switching	Light or dark switching	Light or dark switching
Polarity reversal/short-circuit protected		Yes/Yes	Yes/Yes	Yes/Yes
Settings		Fixed	Fixed	Fixed
Emitter, light type		LED, red light	LED, red light	LED, red light
Wavelength		640 nm	640 nm	640 nm
Received light indicator		Yellow LED	Yellow LED	Yellow LED
Response time		1.25 ms	1.25 ms	1.25 ms
Switching frequency f		400 Hz	400 Hz	400 Hz
Degree of protection as per IEC 60529		IP 67	IP 67	IP 67
Ambient temperature T_a		-10...+60 °C	-10...+60 °C	-10...+60 °C
Permissible ambient light per		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Material	Housing	Nickel-plated CuZn	Nickel-plated CuZn	Nickel-plated CuZn
	Optical surface	PMMA	PMMA	PMMA
Connection		M8 connector, 3-pin	2 m PUR cable 3x0.14 mm ²	M8 connector, 3-pin

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

For wiring diagrams see page 41.



Photoelectric Standard Sensors

BOS 08M

Range 550 mm, 1.1 m



Photoelectric sensors

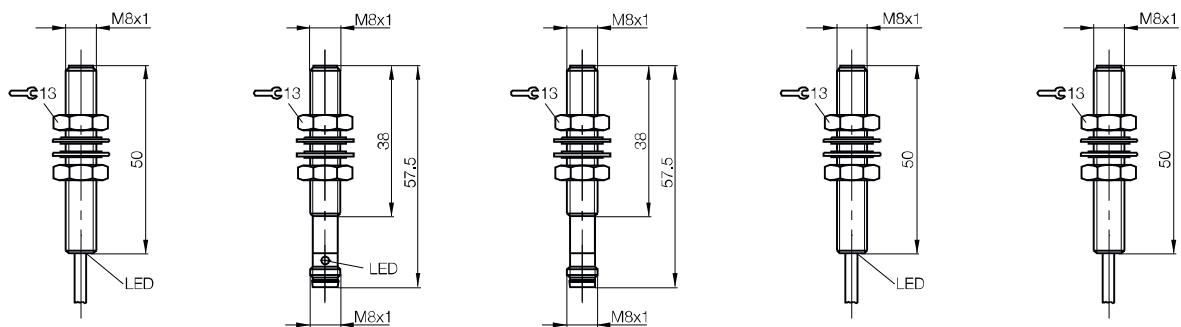
Photoelectric standard sensors
Cylinder designs
Block designs

Photoelectric special sensors

Photoelectric distance sensors for analog distance measurement

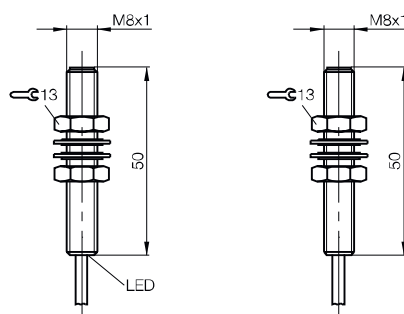
Special accessories for photoelectric sensors

Retroreflective sensor 25...550 mm	Through-beam sensor 0...1.1 m	Through-beam sensor 0...1.1 m	Through-beam sensor 0...1.1 m	Through-beam sensor 0...1.1 m
BOS00RA BOS 08M-PS-PR11-02				
BOS00R8 BOS 08M-PO-PR11-02				
	BOS00W9 BOS 08M-PS-RE11-S49		BOS018F BOS 08M-PS-RE11-02	
	BOS0153 BOS 08M-PO-RE11-S49		BOS018E BOS 08M-PO-RE11-02	
		BOS0151 BOS 08M-X-RS11-S49		BOS018H BOS 08M-X-RS11-02
10...30 V DC 100 mA 20 mA	10...30 V DC 100 mA ≤ 15 mA	10...30 V DC ≤ 15 mA	10...30 V DC 100 mA ≤ 15 mA	10...30 V DC ≤ 15 mA
Light or dark switching Yes/Yes Fixed	Light or dark switching Yes/Yes Fixed	Yes/Yes Fixed	Light or dark switching Yes/Yes Fixed	Yes/Yes Fixed
LED, red light 640 nm	Yellow LED 1.25 ms 400 Hz	LED, red light 640 nm	Yellow LED 1.25 ms 400 Hz	LED, red light 640 nm
IP 67 -10...+60 °C EN 60947-5-2	IP 67 -10...+60 °C EN 60947-5-2	IP 67 -10...+60 °C EN 60947-5-2	IP 67 -10...+60 °C EN 60947-5-2	IP 67 -10...+60 °C EN 60947-5-2
Nickel-plated CuZn PMMA 2 m PUR cable, 3x0.14 mm ²	Nickel-plated CuZn PMMA M8 connector, 3-pin	Nickel-plated CuZn PMMA M8 connector, 3-pin	Nickel-plated CuZn PMMA 2 m PUR cable, 3x0.14 mm ²	Nickel-plated CuZn PMMA 2 m PUR cable, 2x0.14 mm ²





Type		Diffuse sensor	Diffuse sensor	
Detection range		0...1.5 m	0...1.5 m	
PNP NO Receiver	Ordering code	BOS01F7		
	Part number	BOS 08E-PS-IE11-02		
Emitter	Ordering code		BOS01F6	
	Part number		BOS 08E-X-IS11-02	
Supply voltage U_B		10...30 V DC	10...30 V DC	
Output current		100 mA		
No-load supply current I_0 max.		≤ 8 mA	≤ 15 mA	
Switching type		Dark switching		
Polarity reversal/short-circuit protected		Yes/Yes	Yes/Yes	
Settings		Fixed	Fixed	
Emitter, light type			LED, infrared light	
Wavelength			940 nm	
Received light indicator		Yellow LED		
Response time		1.25 ms		
Switching frequency f		400 Hz		
Degree of protection as per IEC 60529		IP 67	IP 67	
Ambient temperature T_a		-10...60°C	-10...60°C	
Permissible ambient light per		EN 60947-5-2	EN 60947-5-2	
Material	Housing	Stainless steel 1.4404	Stainless steel 1.4404	
	Optical surface	PMMA	PMMA	
Connection		2 m PUR cable, 3x0.14 m ²	2 m PUR cable, 2x0.14 m ²	



Photoelectric Standard Sensors

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Connection, accessories



Photoelectric sensors

Photoelectric standard sensors
Cylinder designs
Block designs

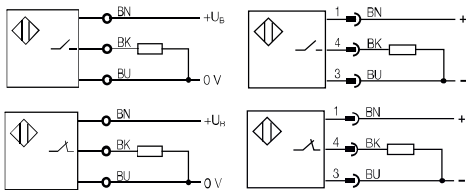
Photoelectric special sensors

Photoelectric distance sensors for analog distance measurement

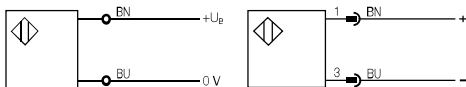
Special accessories for photoelectric sensors

Wiring diagrams

Diffuse, retroreflective, through-beam sensor receivers



Through-beam sensor emitters



Display elements

Yellow LED: received light indicator

The LED can show 3 different statuses:

- LED off: no object detected
- LED constantly lit: object detected
- LED flashing: contamination indicator/signal not stable

Recommended accessories

(please order separately)

Description	Ordering code
Reflector	BAM00WL



You can find special accessories for photoelectric sensors, such as **reflectors, apertures, lenses, filters and deflection heads**, in this catalog on page 379.

More mechanical accessories: You can find a large selection of mounting components of all types, such as clamping holders, mounting brackets, and the Balluff mounting system BMS, in our **Accessory Product Line** catalog.

Suitable connectors

(please order separately)



Size	Design	Cable material	Color	Length	Ordering code
M8, 3-pin	Straight	PUR	Black	2 m	BCC02M8
M8, 3-pin	Straight	PVC	Gray	2 m	BCC02NU
M8, 3-pin	Angled	PUR	Black	2 m	BCC02ML
M8, 3-pin	Angled	PVC	Gray	2 m	BCC02P5

Connectors without LED are suitable for PNP and NPN sensors.

More electrical accessories: You can find a large selection of plug connectors and connector cables in a wide variety of cable materials, colors, and lengths in our **Industrial Networking and Connectivity** catalog.

Simplification with potential

Brilliant solutions impress with their simplicity. As does our **BOS 12M** series. That is because these sensors in a fully potted metal housing with IP 67 degree of protection have been optimized for typical applications. This simplification creates potential.

All the sensors are enclosed in the same housing as a typical inductive proximity switch (M12×1) for this reason. This means photoelectric sensors and inductive proximity switches are mechanically and electrically compatible.

Their installation also draws attention with its simplicity. This is because BOS 12M sensors are fastened in place simply by drilling holes. This provides the following benefits:

- Simplifies the design of machines and systems.
- Adapts sensor principles more quickly.
- Allows accessories to be used in multiple ways, thereby reducing stock levels as well.

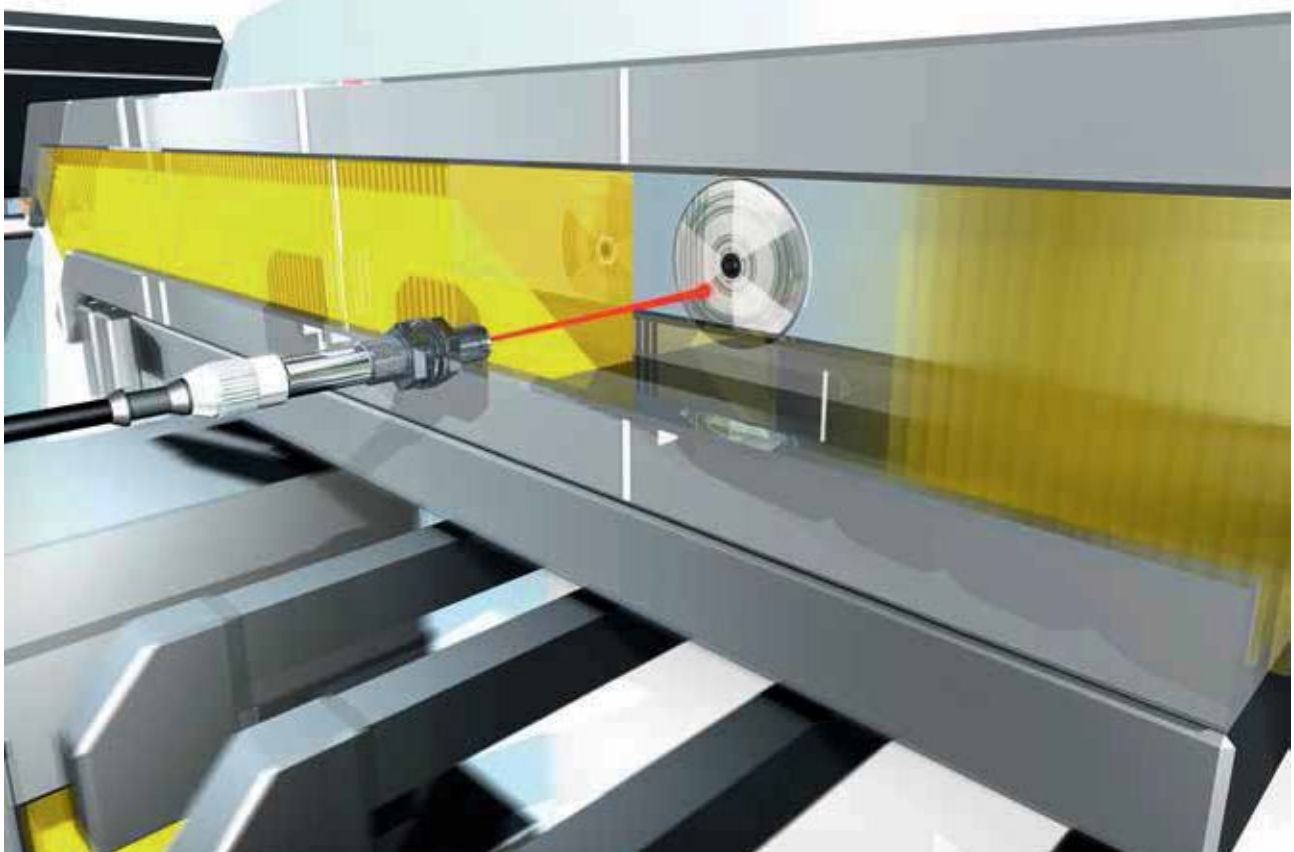
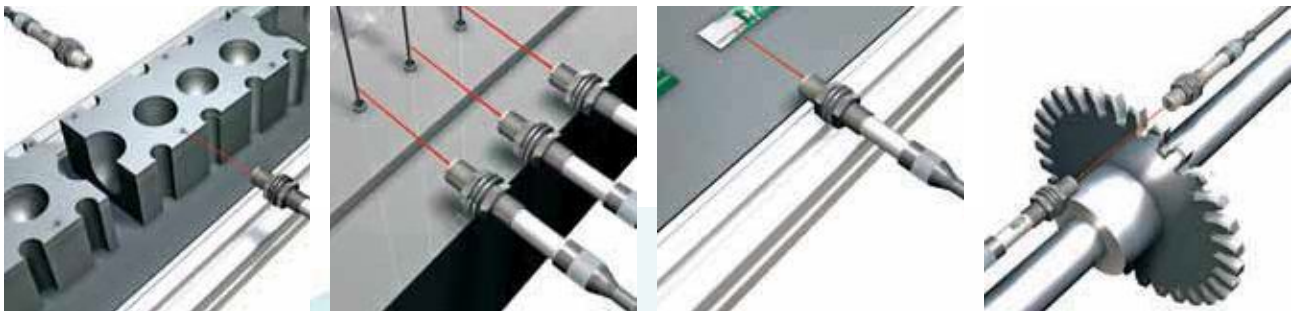
For long ranges or for detecting small parts, laser through-beam sensors are available in two different designs.

Features

- Supply voltage 10...30 V DC, protected from polarity reversal
- Function indicator for the output
- IP 67 degree of protection
- Standard (M12×1) metal housing
- Red and infrared light versions
- Fixed and adjustable sensitivity
- PNP or NPN, light or dark switching
- Cable and connector versions (M12 connector)

Applications

- General automation tasks
- Assembly and handling technology
- Machine tool building
- Packaging industry
- Robots
- Machine tool building



Photoelectric Standard Sensors

BOS 12M Global

Product overview



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Cylinder designs

Block designs

Photoelectric special sensors

Photoelectric distance sensors for analog distance measurement

Special accessories for photoelectric sensors

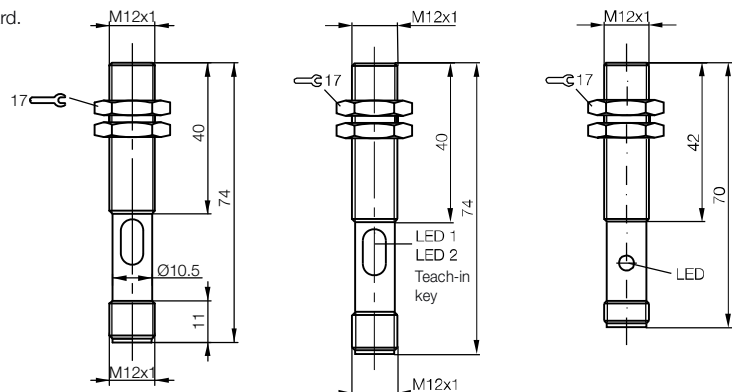
Type	Sensing distance/Range	Light type			Output	Switching type		Switching frequency	U _S	Connection	Special features			Page
		Red light	Infrared	Laser		PNP transistor	Light switching				Dark switching	Adjustable	Polarizing filter	
Diffuse sensor with background suppression														
BOS007R	BOS 12M-PS-1N1I-S4-C	0...24 mm	■		■	■		1 kHz	■	■				44
BOS007T	BOS 12M-PU-1HA-S4-C	10...60 mm	■		■	■	■	1 kHz	■	■		■	■	44
Diffuse sensor														
BOS0012	BOS 12M-PS-1YA-S4-C	1...100 mm	■		■	■		200 Hz	■	■				44
BOS000P	BOS 12M-PO-1YA-S4-C	1...100 mm	■		■		■	200 Hz	■	■				44
BOS0010	BOS 12M-PS-1YA-BO-C-03	1...100 mm	■		■	■		200 Hz	■		■			45
BOS000N	BOS 12M-PO-1YA-BO-C-03	1...100 mm	■		■		■	200 Hz	■	■				45
BOS0043	BOS 12M-PS-1YB-S4-C	1...200 mm	■		■	■		200 Hz	■	■				45
BOS000T	BOS 12M-PO-1YB-S4-C	1...200 mm	■		■		■	200 Hz	■	■				45
BOS0013	BOS 12M-PS-1YB-BO-C-03	1...200 mm	■		■	■		200 Hz	■		■			45
BOS000R	BOS 12M-PO-1YB-BO-C-03	1...200 mm	■		■		■	200 Hz	■	■				45
BOS000W	BOS 12M-PS-1PB-S4-C	1...200 mm		■	■	■		200 Hz	■	■		■		45
BOS000U	BOS 12M-PS-1PB-BO-C-03	1...200 mm		■	■	■		200 Hz	■		■	■		45
BOS0045	BOS 12M-PS-1PD-S4-C	1...400 mm		■	■	■		200 Hz	■	■		■		46
BOS0044	BOS 12M-PO-1PD-S4-C	1...400 mm		■	■		■	200 Hz	■	■		■		46
BOS000Y	BOS 12M-PS-1PD-BO-C-03	1...400 mm		■	■	■		200 Hz	■		■	■		46
BOS000L	BOS 12M-PO-1PD-BO-C-03	1...400 mm		■	■		■	200 Hz	■	■		■		46
Retroreflective sensor														
BOS00RE	BOS 12M-PS-1QA-S4-C	0...1.5 m	■		■		■	200 Hz	■	■		■	■	46
BOS00RJ	BOS 12M-PO-1QA-S4-C	0...1.5 m	■		■	■		200 Hz	■	■		■	■	46
BOS00RK	BOS 12M-PS-1QA-BO-C-03	0...1.5 m	■		■		■	200 Hz	■		■	■		47
BOS00RH	BOS 12M-PO-1QA-BO-C-03	0...1.5 m	■		■	■		200 Hz	■	■		■	■	47
Through-beam sensor Receiver														
BOS00UE	BLE 12M-PA-1PD-S4-C	0...5 m	■		■	■	■	500 Hz	■	■		■		47
BOS00UC	BLE 12M-PA-1PD-BO-C-03	0...5 m	■		■	■	■	500 Hz	■		■	■		47
Through-beam sensor Emitter														
BOS00W2	BLS 12M-XX-1RD-S4-L	0...5 m	■						■	■				47
BOS00UW	BLS 12M-XX-1RD-BO-L-03	0...5 m	■						■		■			47
Laser through-beam sensor Receiver														
BOS00WF	BOS 12M-PA-LE10-S4			■	■	■	■	1 kHz	■	■		■		51
BOS00WE	BOS 12M-PA-LE10-03			■	■	■	■	1 kHz	■		■	■		51
Laser through-beam sensor Emitter														
BOS00WH	BOS 12M-X-LS11-S4	0...3 m		■					■	■				51
BOS00WL	BOS 12M-XT-LS11-S4	0...3 m		■					■	■				51
BOS00WK	BOS 12M-XT-LS11-03	0...3 m		■					■		■			51
BOS00WJ	BOS 12M-X-LS12-S4	0...30 m		■					■	■				51
BOS00WN	BOS 12M-XT-LS12-S4	0...30 m		■					■	■				51
BOS00WM	BOS 12M-XT-LS12-03	0...30 m		■					■		■			51



Type	Diffuse sensor with background suppression	Diffuse sensor with background suppression	Diffuse sensor
Detection range	0...24 mm	10...60 mm	1...100 mm
PNP NO Background suppression	Ordering code BOS007R Part number BOS 12M-PS-1N1I-S4-C		
PNP NO/NC Background suppression, Teach-in	Ordering code Part number	BOS007T BOS 12M-PU-1HA-S4-C	
PNP NO	Ordering code Part number		BOS0012 BOS 12M-PS-1YA-S4-C
PNP NC	Ordering code Part number		BOS000P BOS 12M-PO-1YA-S4-C
Supply voltage U_B	10...30 V DC	10...30 V DC	10...30 V DC
Output current	100 mA	100 mA	≤ 200 mA
No-load supply current I_0 max.	≤ 25 mA	≤ 25 mA	≤ 20 mA
Switching type	Light switching	Light/dark switching (selectable)	Light or dark switching
Polarity reversal/short-circuit protected	Yes/Yes	Yes/Yes	Yes/Yes
Settings	Fixed	Teach-in	Fixed
Emitter, light type	LED, red light	LED, red light	LED, red light
Wavelength	660 nm	660 nm	660 nm
Light spot diameter	5×5 mm	5×5 mm at 50 mm	
Distance hysteresis	≤ 5%	≤ 5%	
Gray value shift (90%/18%)	≤ 5%	≤ 6%	
Output function indicator	Yellow LED	Yellow LED	Yellow LED
Stability indicator	Green LED	Green LED	
Response time	0.5 ms	0.5 ms	2.5 ms
Switching frequency f	1 kHz	1 kHz	200 Hz
Degree of protection as per IEC 60529	IP 67	IP 67	IP 67
Ambient temperature T_a	-20...+60 °C	-20...+60 °C	-15...+55 °C
Permissible ambient light	5 klx	5 klx	5 klx
Material	Housing: Nickel-plated CuZn Optical surface: PMMA	Nickel-plated CuZn PMMA	Nickel-plated CuZn PMMA
Connection	M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin

Diffuse sensor values referenced to 90% reflective Kodak gray card.

For wiring diagrams see page 49.



Photoelectric Standard Sensors

BOS 12M Global

Sensing distance 100, 200 mm



Photoelectric sensors

Photoelectric standard sensors

Cylinder designs
Block designs

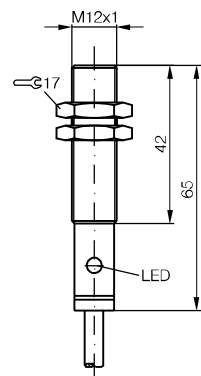
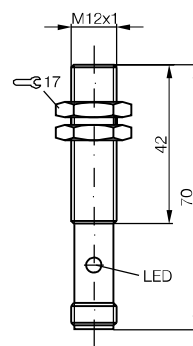
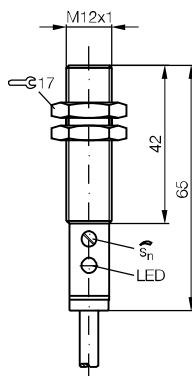
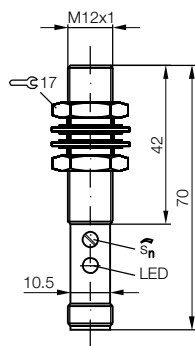
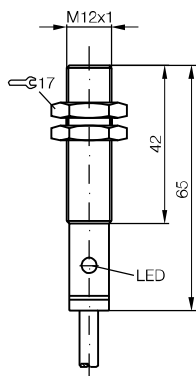
Photoelectric special sensors

Photoelectric distance sensors for analog distance measurement

Special accessories for photoelectric sensors



	Diffuse sensor 1...100 mm	Diffuse sensor 1...200 mm	Diffuse sensor 1...200 mm	Diffuse sensor 1...200 mm	Diffuse sensor 1...200 mm
	BOS0010 BOS 12M-PS-1YA-B0-C-03	BOS000W BOS 12M-PS-1PB-S4-C	BOS000U BOS 12M-PS-1PB-B0-C-03	BOS0043 BOS 12M-PS-1YB-S4-C	BOS0013 BOS 12M-PS-1YB-B0-C-03
	BOS000N BOS 12M-PO-1YA-B0-C-03			BOS000T BOS 12M-PO-1YB-S4-C	BOS000R BOS 12M-PO-1YB-B0-C-03
	10...30 V DC ≤ 200 mA ≤ 20 mA	10...30 V DC ≤ 200 mA ≤ 20 mA	10...30 V DC ≤ 200 mA ≤ 20 mA	10...30 V DC ≤ 200 mA ≤ 20 mA	10...30 V DC ≤ 200 mA ≤ 20 mA
	Light or dark switching Yes/Yes	Light switching Yes/Yes	Light switching Yes/Yes	Light or dark switching Yes/Yes	Light or dark switching Yes/Yes
	Fixed	Potentiometer, 270°	Potentiometer, 270°	Fixed	Fixed
	LED, red light 660 nm	LED, infrared light 880 nm	LED, infrared light 880 nm	LED, red light 660 nm	LED, red light 660 nm
	Yellow LED	Yellow LED	Yellow LED	Yellow LED	Yellow LED
	2.5 ms 200 Hz	2.5 ms 200 Hz	2.5 ms 200 Hz	2.5 ms 200 Hz	2.5 ms 200 Hz
	IP 67	IP 67	IP 67	IP 67	IP 67
	-15...+55 °C	-5...+55 °C	-5...+55 °C	-15...+55 °C	-15...+55 °C
	5 klx	5 klx	5 klx	5 klx	5 klx
	Nickel-plated CuZn PMMA	Nickel-plated CuZn PMMA	Nickel-plated CuZn PMMA	Nickel-plated CuZn PMMA	Nickel-plated CuZn PMMA
	3 m PVC cable, 3×0.34 mm ²	M12 connector, 4-pin	3 m PVC cable, 3×0.34 mm ²	M12 connector, 4-pin	3 m PVC cable, 3×0.34 mm ²

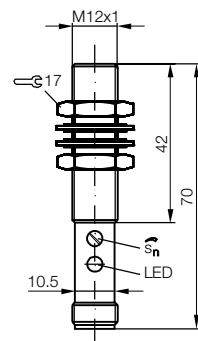
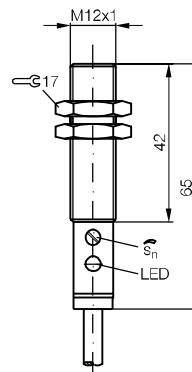
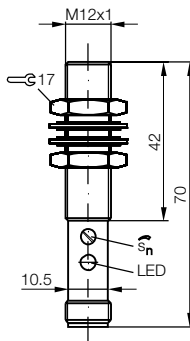




Type		Diffuse sensor	Diffuse sensor	Retroreflective sensor
Detection range		1...400 mm	1...400 mm	0...1.5 m
PNP NO	Ordering code	BOS0045	BOS000Y	
	Part number	BOS 12M-PS-1PD-S4-C	BOS 12M-PS-1PD-B0-C-03	
PNP NC	Ordering code	BOS0044	BOS000L	
	Part number	BOS 12M-PO-1PD-S4-C	BOS 12M-PO-1PD-B0-C-03	
PNP NO	Polarizing filter			BOS00RE
	Part number			BOS 12M-PS-1QA-S4-C
PNP NC	Polarizing filter			BOS00RJ
	Part number			BOS 12M-PO-1QA-S4-C
PNP complementary	Receiver	Ordering code		
	Part number			
	Emitter	Ordering code		
	Part number			
Supply voltage U_B		10...30 V DC	10...30 V DC	10...30 V DC
Output current		≤ 200 mA	≤ 200 mA	≤ 200 mA
No-load supply current I_0 max.		≤ 20 mA	≤ 20 mA	≤ 20 mA
Switching type		Light or dark switching	Light or dark switching	Light or dark switching
Polarity reversal/short-circuit protected		Yes/Yes	Yes/Yes	Yes/Yes
Settings		Potentiometer, 270°	Potentiometer, 270°	Potentiometer, 270°
Emitter, light type		LED, infrared light	LED, infrared light	LED, red light
Wavelength		880 nm	880 nm	660 nm
Power-on indicator				
Output function indicator		Yellow LED	Yellow LED	Yellow LED
Response time		2.5 ms	2.5 ms	2.5 ms
Switching frequency f		200 Hz	200 Hz	200 Hz
Degree of protection as per IEC 60529		IP 67	IP 67	IP 67
Ambient temperature T_a		-15...+55 °C	-15...+55 °C	-15...+55 °C
Permissible ambient light		5 klx	5 klx	5 klx
Material	Housing	Nickel-plated CuZn	Nickel-plated CuZn	Nickel-plated CuZn
	Optical surface	PMMA	PMMA	PMMA
Connection		M12 connector, 4-pin	3 m PVC cable, 3x0.34 mm ²	M12 connector, 4-pin

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

For wiring diagrams see page 49.



Photoelectric Standard Sensors

BOS 12M Global

Range 5 m



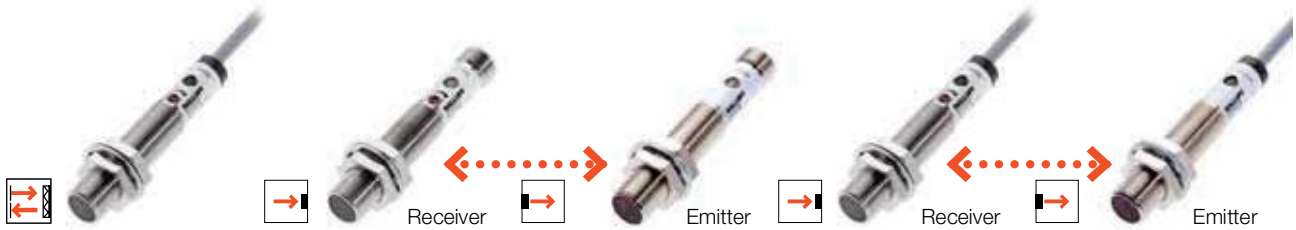
Photoelectric sensors

Photoelectric standard sensors
Cylinder designs
Block designs

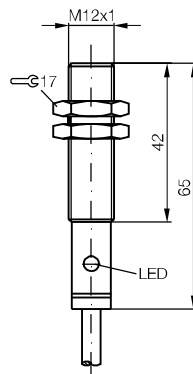
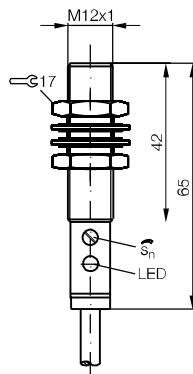
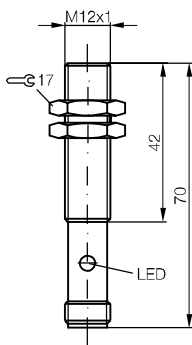
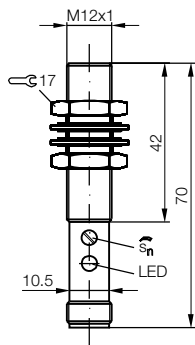
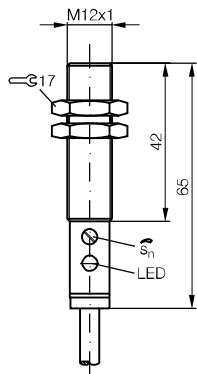
Photoelectric special sensors

Photoelectric distance sensors for analog distance measurement

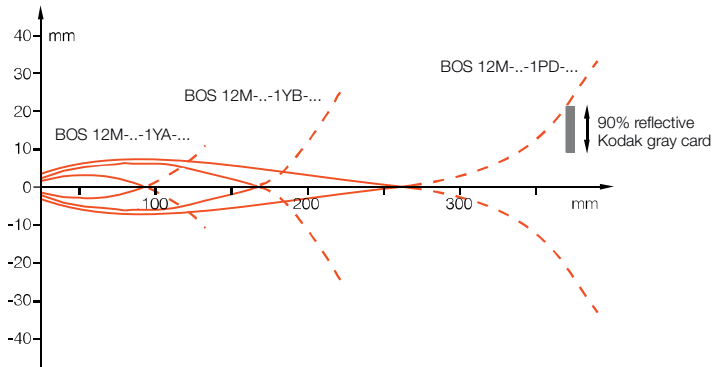
Special accessories for photoelectric sensors



Retroreflective sensor 0...1.5 m	Through-beam sensor 0...5 m	Through-beam sensor 0...5 m	Through-beam sensor 0...5 m	Through-beam sensor 0...5 m
BOS00RK BOS 12M-PS-1QA-B0-C-03				
BOS00RH BOS 12M-PO-1QA-B0-C-03				
	BOS00UE BLE 12M-PA-1PD-S4-C		BOS00UC BLE 12M-PA-1PD-B0-C-03	
		BOS00W2 BLS 12M-XX-1RD-S4-L		BOS00UW BLS 12M-XX-1RD-B0-L-03
10...30 V DC ≤ 200 mA ≤ 20 mA	10...30 V DC ≤ 200 mA ≤ 20 mA	10...30 V DC ≤ 20 mA	10...30 V DC ≤ 200 mA ≤ 20 mA	10...30 V DC ≤ 20 mA
Light or dark switching Yes/Yes	Light and dark switching Yes/Yes	Yes/Yes	Light and dark switching Yes/Yes	Yes/Yes
Potentiometer, 270°	Potentiometer, 270°		Potentiometer, 270°	
LED, red light 660 nm	LED, red light 660 nm	LED, red light 660 nm Green LED	LED, red light 660 nm	LED, red light 660 nm Green LED
Yellow LED 2.5 ms 200 Hz	Yellow LED 1 ms 500 Hz		Yellow LED 1 ms 500 Hz	
IP 67 -15...+55 °C	IP 67 -15...+55 °C	IP 67 -15...+55 °C	IP 67 -15...+55 °C	IP 67 -15...+55 °C
5 klx	5 klx	5 klx	5 klx	5 klx
Nickel-plated CuZn PMMA	Nickel-plated CuZn PMMA	Nickel-plated CuZn PMMA	Nickel-plated CuZn PMMA	Nickel-plated CuZn PMMA
3 m PVC cable 3×0.34 mm ²	M12 connector, 4-pin	M12 connector, 4-pin	3 m PVC cable, 3×0.34 mm ²	3 m PVC cable, 3×0.34 mm ²

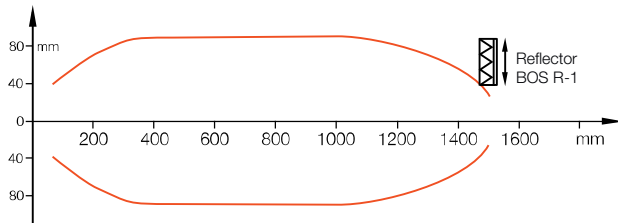


Diffuse sensor BOS 12M-..-1YA/1YB/1PD-...



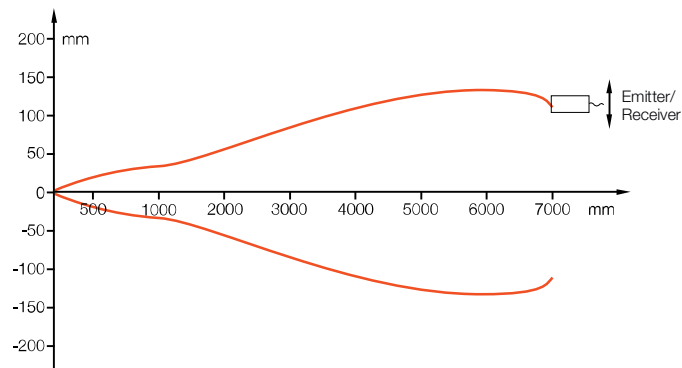
Sensing distance measured with side approach of Kodak gray card.

Retroreflective sensor BOS 12M-..-1QA-...



Range measured with side approach of reflector.

Through-beam sensor BLE/BLS 12M-...



The maximum offset between the emitter and receiver is measured for the through-beam sensor.

Photoelectric Standard Sensors

BOS 12M Global

Accessories, Connection

Orientation aid

The additional function indicator on the receiver of the through-beam sensor enables fast and simple alignment between the emitter and receiver.

First attach the receiver and then the emitter. As soon as the emitter is located within the active range of the receiver, the function indicator on the front of the sensor goes out. This indicates an optical connection between the emitter and receiver. It is also easily visible when the sensor is flush mounted.



Photoelectric sensors

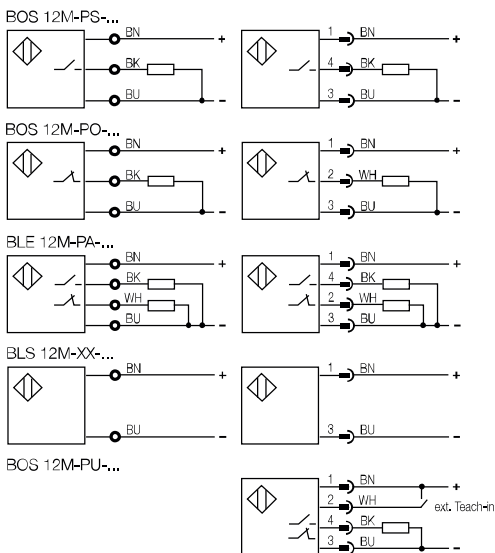
Photoelectric standard sensors
Cylinder designs
Block designs

Photoelectric special sensors

Photoelectric distance sensors for analog distance measurement

Special accessories for photoelectric sensors

Wiring diagrams



Recommended accessories (please order separately)

Description	Ordering code
① Reflector	BAM00WL
② Reflector	BAM00UK
③ Diagonal mirror	BAM00R0
④ Air shield	BAM00PY
⑤ Slit aperture	BAM00PW
⑥ Mounting cuff	BAM01KM
⑦ Cover nut	BAM01Y6



Suitable connectors (please order separately)

Size	Design	Cable material	Color	Length	Ordering code
M12, 4-pin	Straight	PUR	Black	2 m	BCC032F
M12, 4-pin	Straight	PVC	Gray	2 m	BCC0367
M12, 4-pin	Angled	PUR	Black	2 m	BCC032Y
M12, 4-pin	Angled	PVC	Gray	2 m	BCC036N

Connectors without LED are suitable for PNP and NPN sensors.



You can find special accessories for photoelectric sensors, such as **reflectors, apertures, lenses, filters and deflection heads**, in this catalog on page 379.

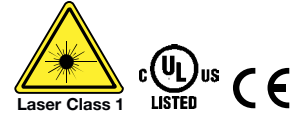
More mechanical accessories: You can find a large selection of mounting components of all types, such as clamping holders, mounting brackets, and the Balluff mounting system BMS, in our **Accessory Product Line** catalog.

More electrical accessories: You can find a large selection of plug connectors and connector cables in a wide variety of cable materials, colors, and lengths in our **Industrial Networking and Connectivity** catalog.

The basis of the laser through-beam sensor BOS 12 is its two different emitters. Emitter version **LS11** is for small parts detection and offers a resolution of 50 µm at the focal point of 500 mm.

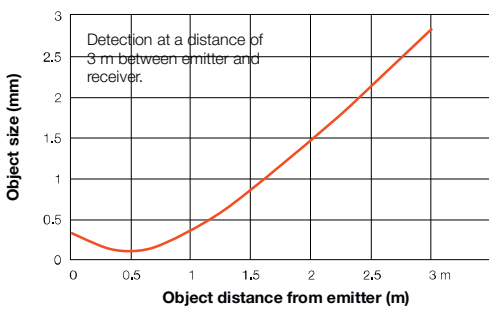
The **LS12** version is not focused and is used for long ranges up to 30 m. The receivers can be PNP or NPN, and any emitter can be combined with any receiver.

All sensors are Laser Class 1 and are available as a connector or with a cable.

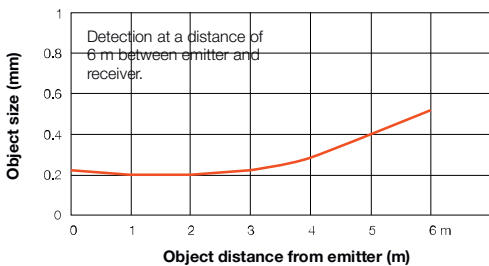


Small parts detection

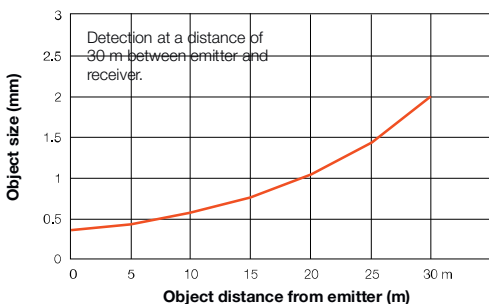
BOS 12M-XT-**LS11**-..



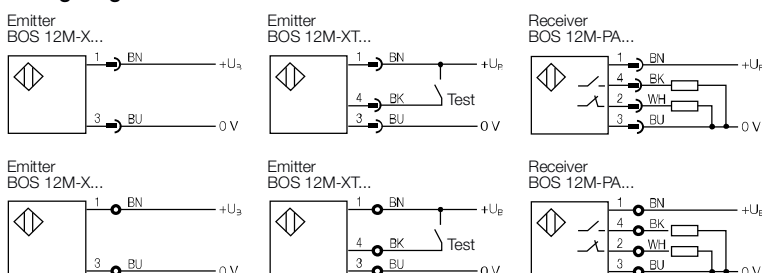
BOS 12M-XT-**LS12**-..



BOS 12M-XT-**LS12**-..



Wiring diagrams



Type	
Detection range	
Emitter	Ordering code
50 µm high resolution	Part number
Emitter	Ordering code
Long range 30 m	Part number
PNP	Ordering code
NO/NC	Part number
Receiver	Part number
Supply voltage U _B	
Output current	
No-load supply current I ₀ max.	
Switching type	
Polarity reversal/short-circuit protected	
Settings	
Help function	
Emitter, light type	
Wavelength	
Laser class	
Output function indicator	
Response time	
Switching frequency f	
Degree of protection as per IEC 60529	
Ambient temperature T _a	
Permissible ambient light per	
Material	Housing
	Optical surface
Connection	



Photoelectric Standard Sensors

BOS 12M

Range 3 m, 30 m



Photoelectric sensors

Photoelectric standard sensors

Cylinder designs
Block designs

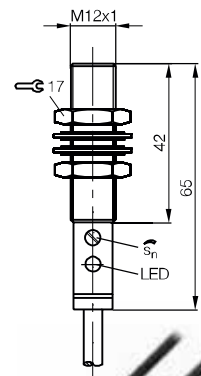
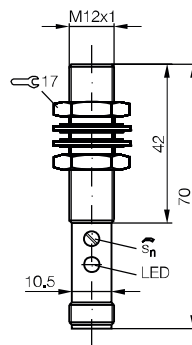
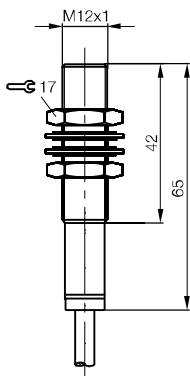
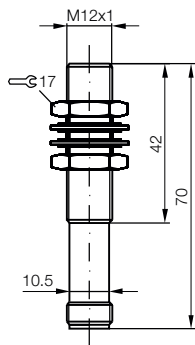
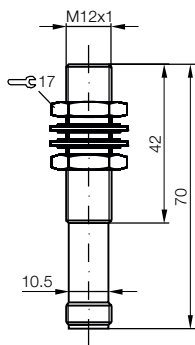
Photoelectric special sensors

Photoelectric distance sensors for analog distance measurement

Special accessories for photoelectric sensors



Laser through-beam sensor 0...3 m/0...30 m	Laser through-beam sensor 0...3 m/0...30 m	Laser through-beam sensor 0...3 m/0...30 m	Laser through-beam sensor	Laser through-beam sensor
BOS00WH	BOS00WL	BOS00WK		
BOS12M-X-LS11-S4	BOS 12M-XT-LS11-S4	BOS 12M-XT-LS11-03		
BOS00WJ	BOS00WN	BOS00WM		
BOS12M-X-LS12-S4	BOS 12M-XT-LS12-S4	BOS 12M-XT-LS12-03		
			BOS00WF	BOS00WE
			BOS 12M-PA-LE10-S4	BOS 12M-PA-LE10-03
10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
≤ 10 mA	≤ 10 mA	≤ 10 mA	≤ 200 mA ≤ 15 mA	≤ 200 mA ≤ 15 mA
Yes/Yes	Yes/Yes	Yes/Yes	Light/dark switching (complementary) Yes/Yes	Light/dark switching (complementary) Yes/Yes
			Potentiometer, 270°	Potentiometer, 270°
Laser, red light 655 nm 1	Test input Laser, red light 655 nm 1	Test input Laser, red light 655 nm 1		
			Yellow LED	Yellow LED
			0.5 ms	0.5 ms
			1 kHz	1 kHz
IP 67	IP 67	IP 67	IP 67	IP 67
-10...+50 °C	-10...+50 °C	-10...+50 °C	-10...+50 °C	-10...+50 °C
EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Nickel-plated CuZn	Nickel-plated CuZn	Nickel-plated CuZn	Nickel-plated CuZn	Nickel-plated CuZn
Glass	Glass	Glass	PMMA	PMMA
M12 connector, 4-pin	M12 connector, 4-pin	3 m PVC cable, 3x0.34 mm ²	M12 connector, 4-pin	3 m PVC cable, 4x0.34 mm ²



Recommended accessories

(please order separately)

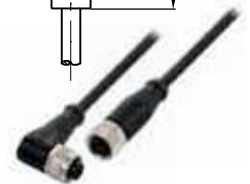
Description	Ordering code
Mounting cuff	BAM00R2



Suitable connectors

(please order separately)

Size	Design	Cable material	Color	Length	Ordering code
M12, 4-pin	Straight	PUR	Black	2 m	BCC032F
M12, 4-pin	Straight	PVC	Gray	2 m	BCC0367
M12, 4-pin	Angled	PUR	Black	2 m	BCC032Y
M12, 4-pin	Angled	PVC	Gray	2 m	BCC036N



More mechanical accessories: You can find a large selection of mounting components of all types, such as clamping holders, mounting brackets, and the Balluff mounting system BMS, in our **Accessory Product Line** catalog.

Connectors without LED are suitable for PNP and NPN sensors.