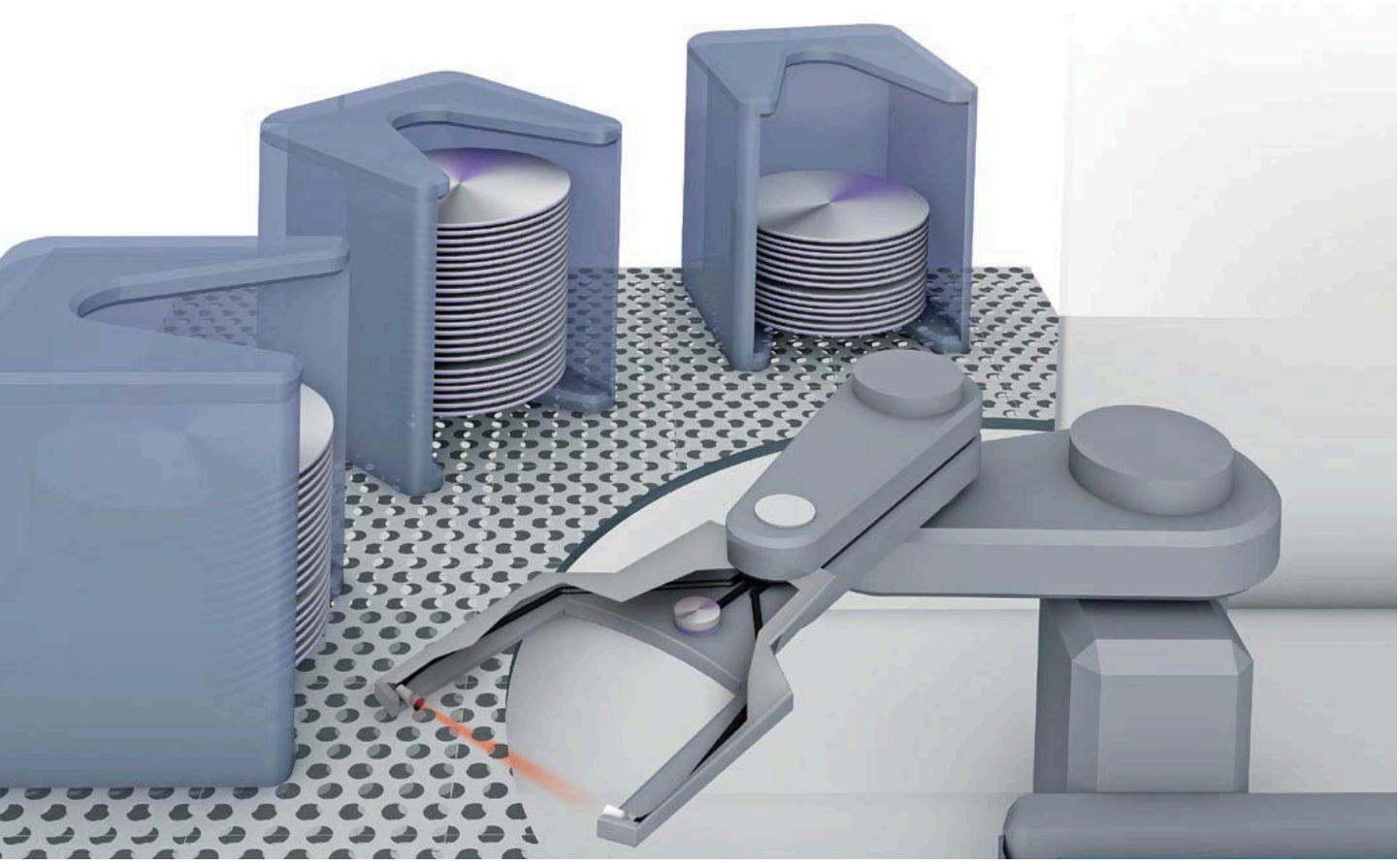
MICROmote® Sensors
Contents



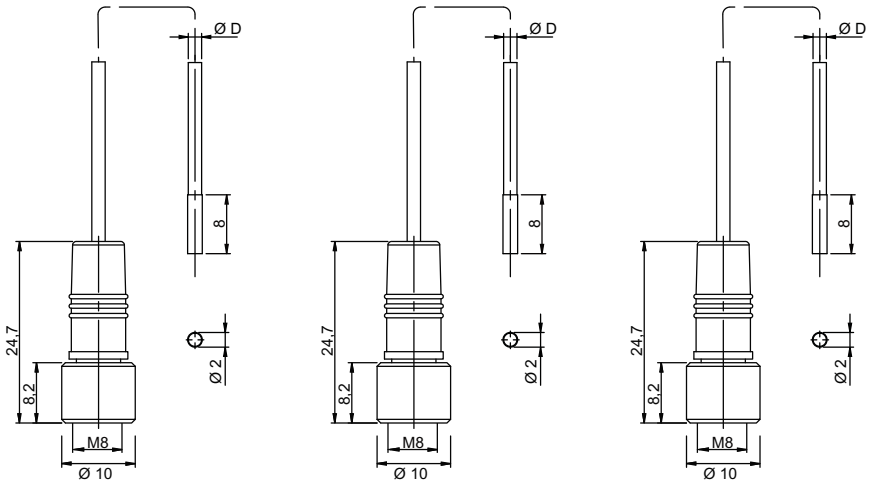
Diffuse sensors BOH for separate amplifiers BAE
Cylinder designs



Type	Diffuse sensor	Diffuse sensor	Diffuse sensor	
Housing size	**Ø 2×8 mm**	**Ø 2×8 mm**	**Ø 2×8 mm**	
Sensing distance	**12 mm**	**12 mm**	**20 mm**	
Order code	**BOH0003**	**BOH0002**	**BOH0035**	
Part number	BOH DR-G02-001-01-S49F	BOH DI-G02-001-01-S49F	BOH DI-G02-006-01-S49F	
Light type	Red light	Infrared	Infrared	
Wavelength	660 Nm	880 Nm	880 Nm	
Light spot diameter				
Degree of protection as per IEC 60529	IP 65	IP 65	IP 65	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	–10...+55 °C	
Housing material	Stainless steel	Stainless steel	Stainless steel	
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	

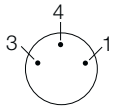
Reference object: white, 90% reflection, 100×100 mm

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02
Function diagrams on page 62.



Connection configuration
M8 connector, 3-pin

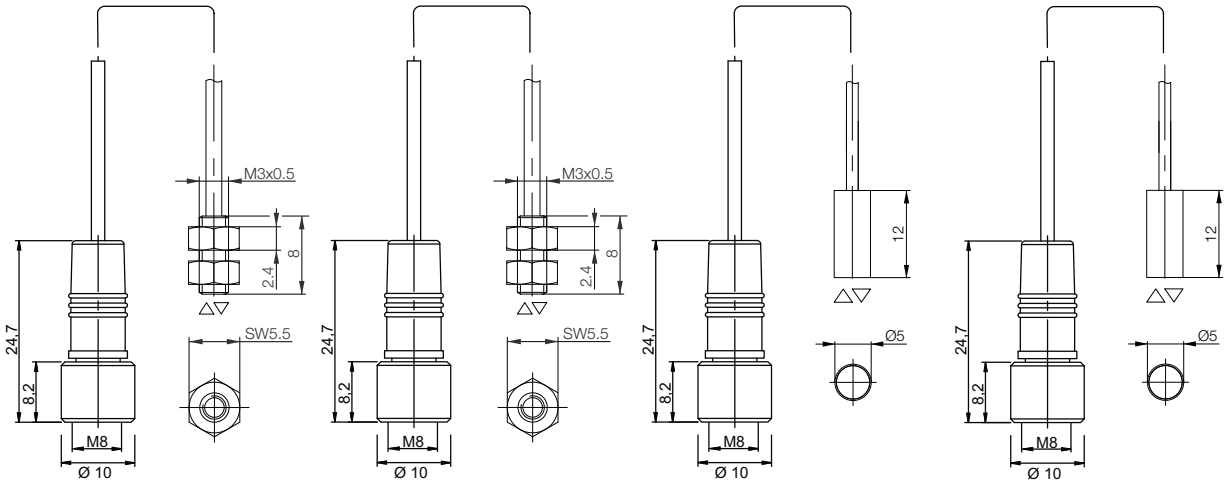
3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)



MICROmote® Sensors

Diffuse sensors BOH for separate amplifiers BAE
Cylinder designs

	Diffuse sensor	Diffuse sensor	Diffuse sensor	Diffuse sensor
	M3×0.5×8 mm	**M3×0.5×8 mm**	**Ø 5×12 mm**	**Ø 5×12 mm**
	12 mm	**12 mm**	**60 mm**	**60 mm**
	BOH0009	**BOH0004**	**BOH0006**	**BOH0005**
	BOH DR-M03-001-01-S49F	BOH DI-M03-001-01-S49F	BOH DK-G05-002-01-S49F	BOH DR-G05-002-01-S49F
	Red light	Infrared	Red light microSPOT	Red light
	660 Nm	880 Nm	645 Nm	660 Nm
			5 mm (at 50 mm)	14 mm (at 50 mm)
	IP 65	IP 65	IP 65	IP 65
	–10...+55 °C	–10...+55 °C	–10...+55 °C	–10...+55 °C
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	PUR cable with	PUR cable with	PUR cable with	PUR cable with
	M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin



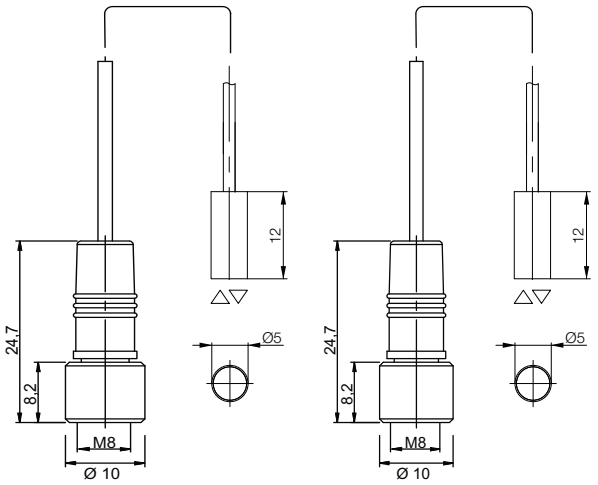
MICROmote® Sensors
Diffuse sensors BOH for separate amplifiers BAE
Cylinder designs

Type	**Diffuse sensor**	**Diffuse sensor**		
Housing size	**5x12 mm**	**5x12 mm**		
Sensing distance	**60 mm**	**100 mm**		
Rated switching distance S_n				
Order code	**BOH003C**	**BOH003F**		
Part number	BOH DI-G05-002-01-S49F	BOH DI-G05-007-01-S49F		
Light type	Infrared	Infrared		
Wavelength	880 Nm	880 Nm		
Light spot diameter				
Degree of protection as per IEC 60529	IP65	IP65		
Ambient temperature T_a	-10...+55 °C	-10...+55 °C		
Housing material	Stainless steel	Stainless steel		
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin		

Reference object: white, 90% reflection, 100×100 mm

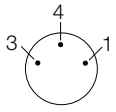
Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

Function diagrams beginning on page 62.



Connection configuration
M8 connector, 3-pin

3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)

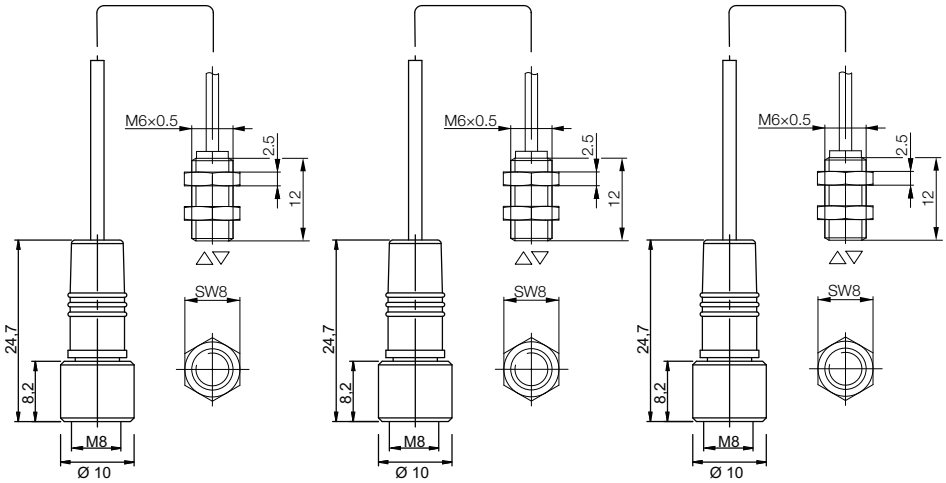


MICROmote® Sensors

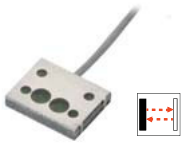
Diffuse sensors BOH for separate amplifiers BAE
Cylinder designs

micro SPOT®

Diffuse sensor	**Diffuse sensor**	**Diffuse sensor**	
M6×0.5×12 mm	**M6×0.5×12 mm**	**M6×0.5×12 mm**	
60 mm	**60 mm**	**60 mm**	
BOH0008	**BOH0007**	**BOH003M**	
BOH DK-M06-002-01-S49F	BOH DR-M06-002-01-S49F	BOH DI-M06-002-01-S49F	
Red light microSPOT	Red light	Infrared	
645 Nm	660 Nm	880 Nm	
5 mm (at 50 mm)	14 mm (at 50 mm)		
IP 65	IP 65	IP 65	
–10...+55 °C	–10...+55 °C	–10...+55 °C	
Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	
PUR cable with	PUR cable with	PUR cable with	
M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin	



Diffuse sensors BOH for separate amplifiers BAE
Block designs

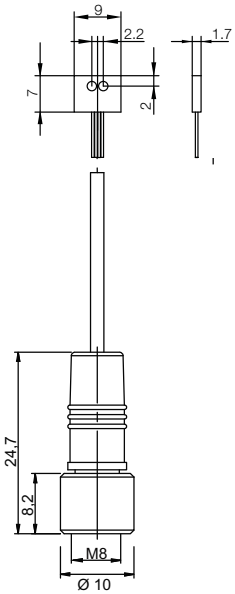


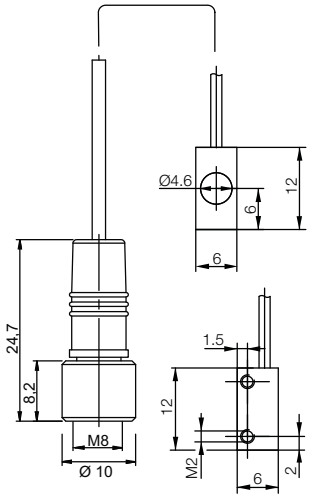
Type	**Diffuse sensor**	**Diffuse sensor**		
Housing size	**9x7x1.7 mm**	**6×6×12 mm**		
Sensing distance	**10 mm**	**60 mm**		
Rated switching distance S_n				
Order code	**BOH00A0**	**BOH000M**		
Part number	BOH DI-R006-009-TF-01-S49F	BOH DK-Q06-001-01-S49F		
Light type	Infrared	Red light microSPOT		
Wavelength	880 Nm	645 Nm		
Light spot diameter		4 mm (at 50 mm)		
Degree of protection as per IEC 60529	IP65	IP 65		
Ambient temperature T_a	–10...+55 °C	–10...+55 °C		
Housing material	Stainless steel	Nickel-plated brass		
Connection	PFA encapsulated cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin		

Reference object: white, 90% reflection, 100×100 mm

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

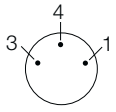
Function diagrams beginning on page 62.





Connection configuration
M8 connector, 3-pin

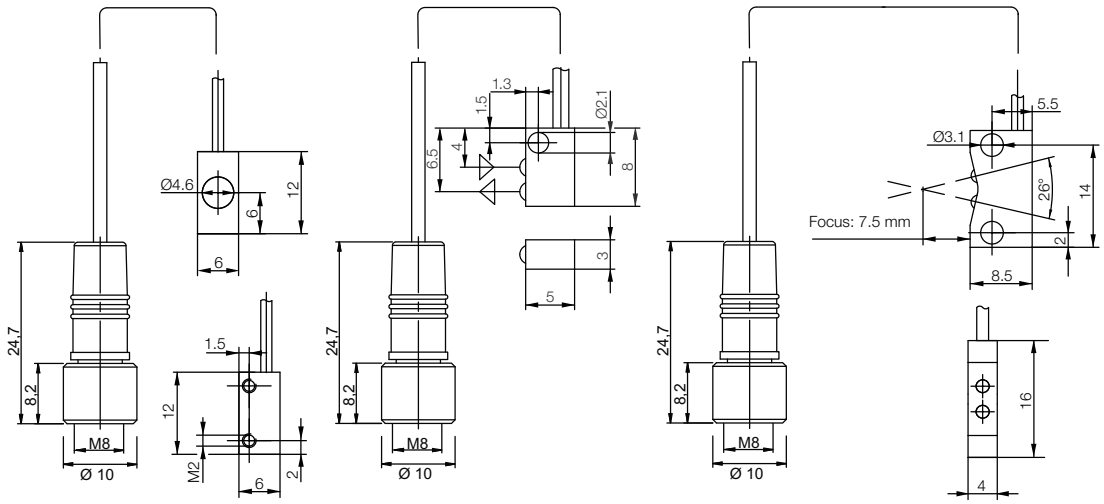
3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)



MICROmote® Sensors

Diffuse sensors BOH for separate amplifiers BAE
Block designs

	Diffuse sensor	**Diffuse sensor**	**Fixed-focus diffuse sensor**	
	6×6×12 mm	**3×8×5 mm**	**16×4×8.5 mm**	
	60 mm	**70 mm**		
			3 ... 15 mm	
	BOH000L	**BOH002K**	**BOH002L**	
	BOH DR-Q06-001-01-S49F	BOH DK-R002-006-01-S49F	BOH FK-Z001-001-01-S49F	
	Red light	Red light microSPOT	Red light microSPOT	
	660 Nm	645 Nm	645 Nm	
	11 mm (at 50 mm)	5 mm (at 50 mm)		
	IP 65	IP 65	IP 65	
	–10...+55 °C	–10...+55 °C	–10...+55 °C	
	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	
	PUR cable with	PUR cable with	PUR cable with	
	M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin	



MICROmote® Sensors

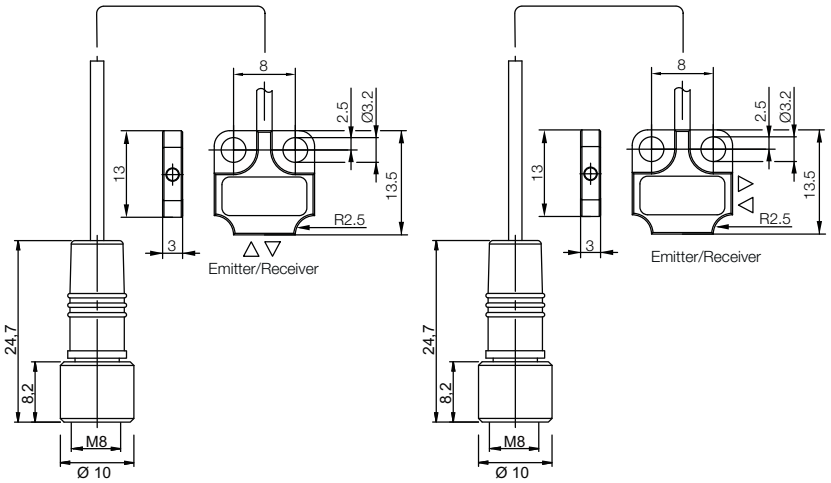
Diffuse sensors BOH for separate amplifiers BAE
Block designs

Type	**Diffuse sensor**	**Diffuse sensor**	
Housing size	**13.5×13×3 mm**	**13.5×13×3 mm**	
Sensing distance	**60 mm**	**60 mm**	
Order code	**BOH0027**	**BOH0028**	
Part number	BOH DK-R018-001-01-S49F	BOH DK-R018-002-01-S49F	
Light type	Red light microSPOT	Red light microSPOT	
Wavelength	645 Nm	645 Nm	
Light spot diameter	5 mm (at 50 mm)	5 mm (at 50 mm)	
Degree of protection as per IEC 60529	IP 67	IP 67	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	
Housing material	Naturally anodized aluminum	Naturally anodized aluminum	
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	

Reference object: white,
90% reflection, 100×100 mm

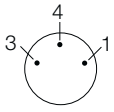
Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

Function diagrams
beginning on page 62.



Connection configuration
M8 connector, 3-pin

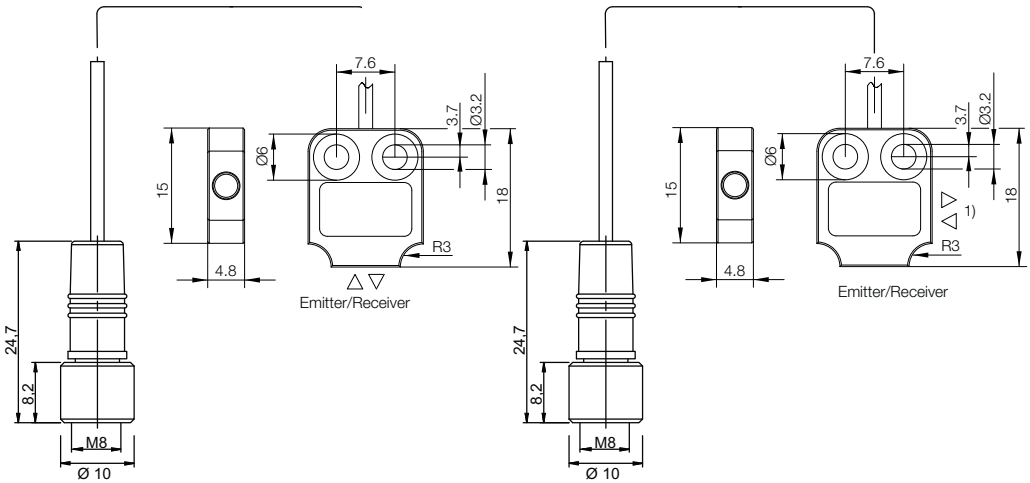
3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)



MICROmote® Sensors

Diffuse sensors BOH for separate amplifiers BAE
Block designs

	Diffuse sensor	Diffuse sensor	
	18×15×4.8 mm	**18×15×4.8 mm**	
	100 mm	**100 mm**	
	BOH0029	**BOH002A**	
	BOH DK-R027-003-01-S49F	BOH DK-R027-004-01-S49F	
	Red light microSPOT	Red light microSPOT	
	645 Nm	645 Nm	
	8 mm (at 100 mm)	8 mm (at 100 mm)	
	IP 67	IP 67	
	–10...+55 °C	–10...+55 °C	
	Naturally anodized aluminum	Naturally anodized aluminum	
	PUR cable with	PUR cable with	
	M8 connector, 3-pin	M8 connector, 3-pin	



Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs

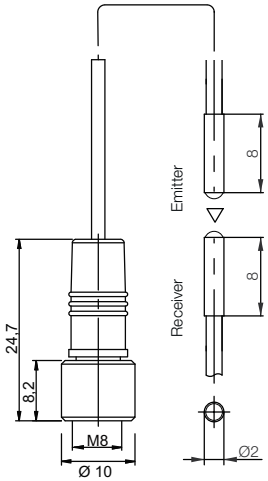
Type	**Through-beam sensor**	**Through-beam sensor**
Housing size	**Ø 2×8 mm**	**Ø 2×8 mm**
Range	**300 mm**	**800 mm**
Order code	**BOH005J**	**BOH005N**
Part number	BOH TI-G02-001-01-S49F	BOH TI-G02-008-01-S49F
Light type	Infrared	Infrared
Wavelength	880 Nm	880 Nm
Light spot diameter		
Resolution (smallest detectable part)	0.1 mm	0.2 mm
Degree of protection as per IEC 60529	IP 65	IP 65
Ambient temperature T_a	–10...+55 °C	–10...+55 °C
Housing material	Stainless steel	Stainless steel
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin

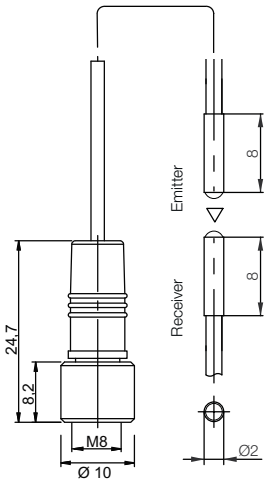
Reference object: white,
90% reflection, 100×100 mm

Included in the scope of delivery:
Emitter and receiver

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

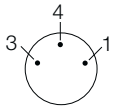
Function diagrams
on page 62.





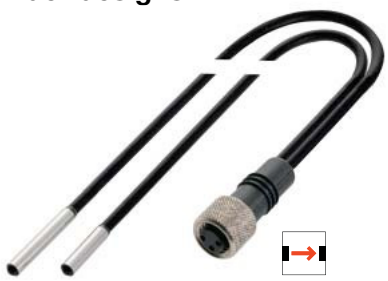
Connection configuration
M8 connector, 3-pin

3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)

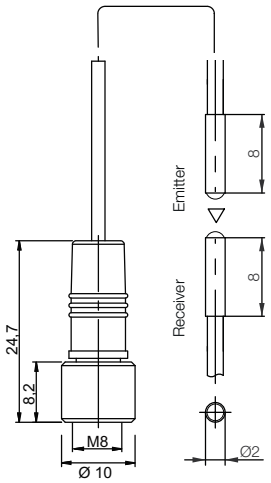


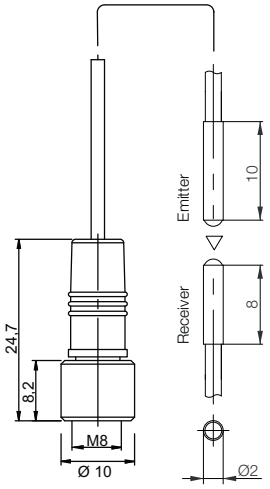
MICROmote® Sensors

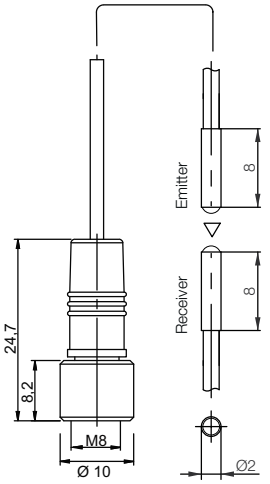
Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs



	Through-beam sensor Ø 2×8 mm	Through-beam sensor Emitter Ø 2x10 mm Receiver Ø 2x8 mm	Through-beam sensor Ø 2×8 mm
	300 mm	**200 mm**	**500 mm**
	BOH000A	**BOH001K**	**BOH000C**
	BOH TR-G02-001-01-S49F	BOH TZ-G02-001-01-S49F-SA2	BOH TK-G02-001-01-S49F
	Red light	Red light	Red light microSPOT
	660 Nm	660 Nm	645 Nm
		0.4 mm (at 10 mm)	10 mm (at 100 mm)
	0.2 mm	0.1 mm	0.2 mm
	IP 65	IP 65	IP 65
	–10...+55 °C	–10...+55 °C	–10...+55 °C
	Stainless steel	Stainless steel	Stainless steel
	PUR cable with	PUR cable with	PUR cable with
	M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin







Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs

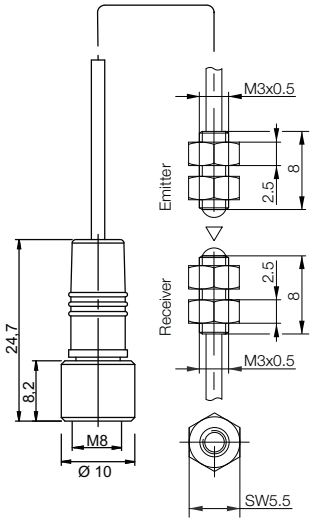
Type	**Through-beam sensor**	**Through-beam sensor**	
Housing size	**M3×0.5×8 mm**	**M3×0.5×8 mm**	
Range	**300 mm**	**800 mm**	
Order code	**BOH0061**	**BOH0064**	
Part number	BOH TK-G02-001-01-S49F	BOH TI-M03-012-01-S49F	
Light type	Infrared	Infrared	
Wavelength	880 Nm	880 Nm	
Light spot diameter			
Resolution (smallest detectable part)	0.1 mm	0.2 mm	
Degree of protection as per IEC 60529	IP 65	IP 65	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	
Housing material	Stainless steel	Stainless steel	
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	

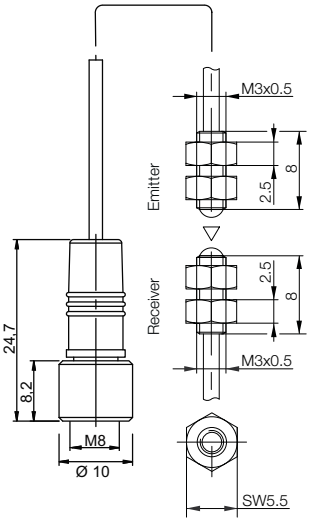
Reference object: white,
90% reflection, 100×100 mm

Included in the scope of delivery:
Emitter and receiver

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

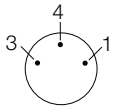
Function diagrams
on page 62.





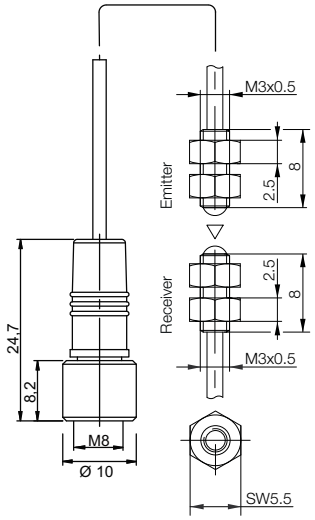
Connection configuration
M8 connector, 3-pin

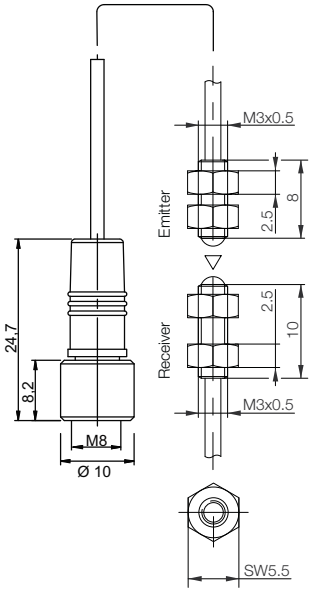
3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)

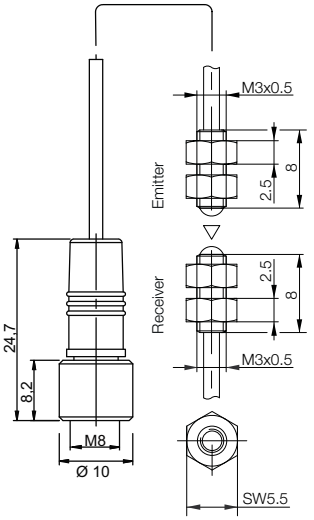


Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs

	Through-beam sensor M3×0.5×8 mm 300 mm	Through-beam sensor M3×0.5×10 mm M3×0.5×8 mm 200 mm	Through-beam sensor M3×0.5×8 mm 500 mm
	BOH000T	**BOH001L**	**BOH000U**
	BOH TR-M03-001-01-S49F	BOH TZ-M03-001-01-S49F-SA2	BOH TK-M03-001-01-S49F
	Red light	Red light	Red light microSPOT
	660 Nm	660 Nm	645 Nm
		0.4 mm (at 10 mm)	10 mm (at 100 mm)
	0.2 mm	0.1 mm	0.2 mm
	IP 65	IP 65	IP 65
	–10...+55 °C	–10...+55 °C	–10...+55 °C
	Stainless steel	Stainless steel	Stainless steel
	PUR cable with	PUR cable with	PUR cable with
	M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin







Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs

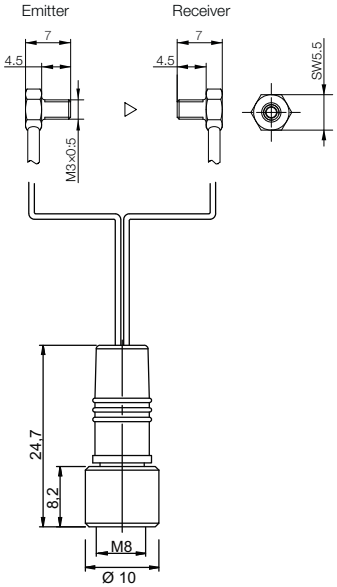
Model	Through-beam sensor	Through-beam sensor
Housing size	**M3×0.5×7 mm**	**Ø 3×5 mm**
Range	**500 mm**	**500 mm**
Order code	**BOH000E**	**BOH000Z**
Part number	BOH TK-M03-005-01-S49F	BOH TK-G03-004-01-S49F
Light type	Red light microSPOT	Red light microSPOT
Wavelength	645 Nm	645 Nm
Light spot diameter	10 mm (at 100 mm)	10 mm (at 100 mm)
Resolution (smallest detectable part)	0.2 mm	0.2 mm
Degree of protection as per IEC 60529	IP 65	IP 65
Ambient temperature T_a	–10...+55 °C	–10...+55 °C
Housing material	Stainless steel	Stainless steel
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin

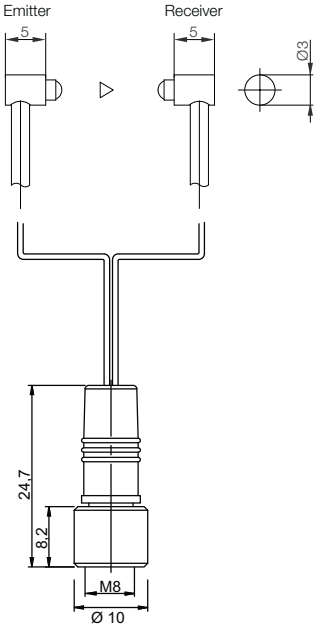
Reference object: white,
90% reflection, 100×100 mm

Included in the scope of delivery:
Emitter and receiver

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

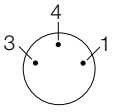
Function diagrams
beginning on page 62.





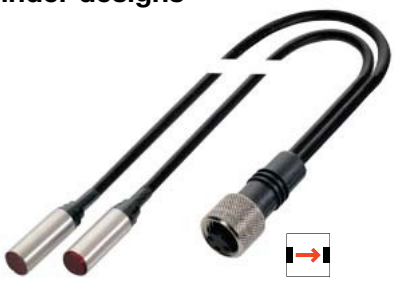
Connection configuration
M8 connector, 3-pin

3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)

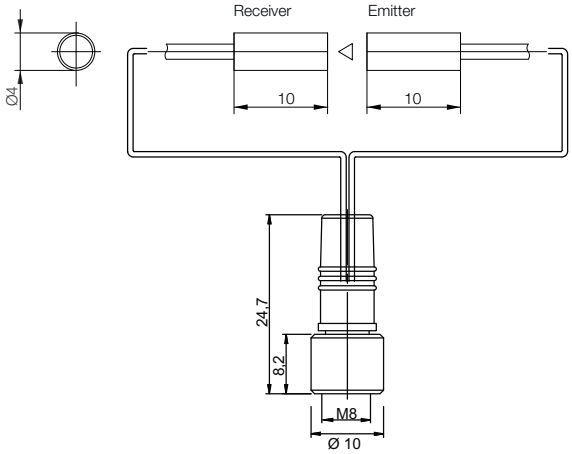


MICROmote® Sensors

Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs



	Through-beam sensor Ø 4×10 mm	Through-beam sensor Ø 4×10 mm	Through-beam sensor Ø 4×10 mm
	1000 mm	**2000 mm**	**1000 mm**
	BOH005P	**BOH005T**	**BOH000W**
	BOH TI-G04-003-01-S49F	BOH TI-G04-010-01-S49F	BOH TR-G04-003-01-S49F
	Infrared	Infrared	Red light
	880 Nm	880 Nm	660 Nm
	0.1 mm	0.4 mm	0.3 mm
	IP 65	IP 65	IP 65
	–10...+55 °C	–10...+55 °C	–10...+55 °C
	Stainless steel	Stainless steel	Stainless steel
	PUR cable with	PUR cable with	PUR cable with
	M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin



Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs

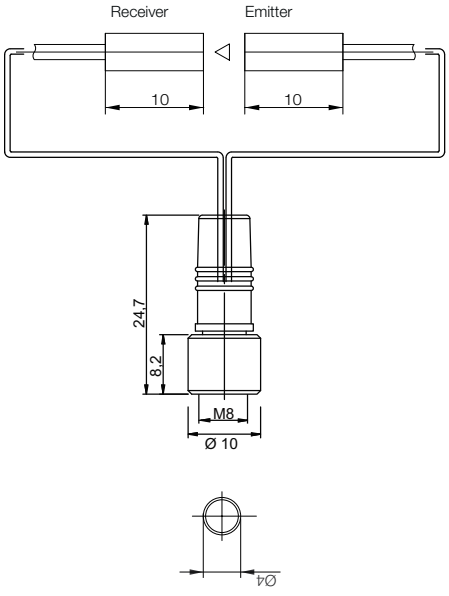
Model	Through-beam sensor	Through-beam sensor
Housing size	**Ø 4×10 mm**	**Ø 5×12 mm**
Range	**2000 mm**	**4000 mm**
Order code	**BOH0014**	**BOH0010**
Part number	BOH TK-G04-003-01-S49F	BOH TR-G05-005-02-S49F
Light type	Red light microSPOT	Red light
Wavelength	645 Nm	660 Nm
Light spot diameter	8 mm (at 100 mm)	
Resolution (smallest detectable part)	0.4 mm	0.4 mm
Degree of protection as per IEC 60529	IP 65	IP 65
Ambient temperature T_a	–10°C... +55°C	–10...+55 °C
Housing material	Stainless steel	Stainless steel
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin

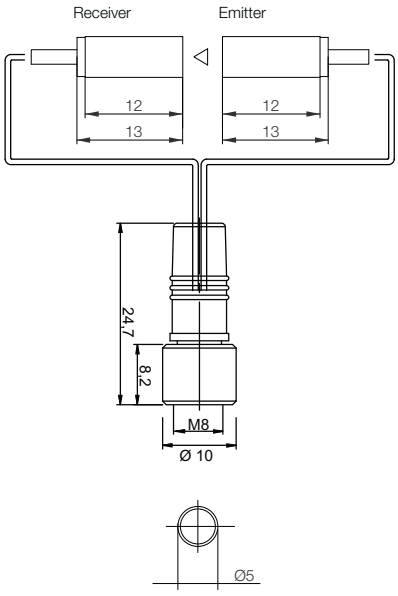
Reference object: white,
90% reflection, 100×100 mm

Included in the scope of delivery:
Emitter and receiver

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

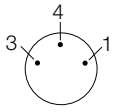
Function diagrams
beginning on page 62.





Connection configuration
M8 connector, 3-pin

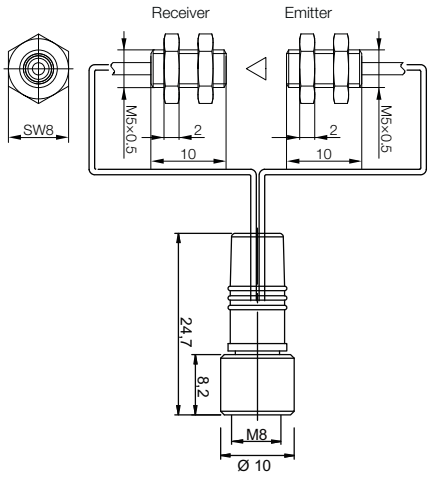
3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)



MICROmote® Sensors

Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs

	Through-beam sensor M5×0.5×10 mm	Through-beam sensor M5×0.5×10 mm	Through-beam sensor M5×0.5×10 mm
	1000 mm	**2000 mm**	**1000 mm**
	BOH0065	**BOH006A**	**BOH000Y**
	BOH TK-M05-003-01-S49F	BOH TK-M05-013-01-S49F	BOH TR-M05-003-01-S49F
	Infrared	Infrared	Red light
	880 Nm	880 Nm	660 Nm
	0.1 mm	0.4 mm	0.3 mm
	IP 65	IP 65	IP 65
	–10...+55 °C	–10...+55 °C	–10...+55 °C
	Stainless steel	Stainless steel	Nickel-plated brass
	PUR cable with	PUR cable with	PUR cable with
	M8 connector, 3-pin	M8 connector, 3-pin	M8 connector, 3-pin



MICROmote® Sensors

Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs

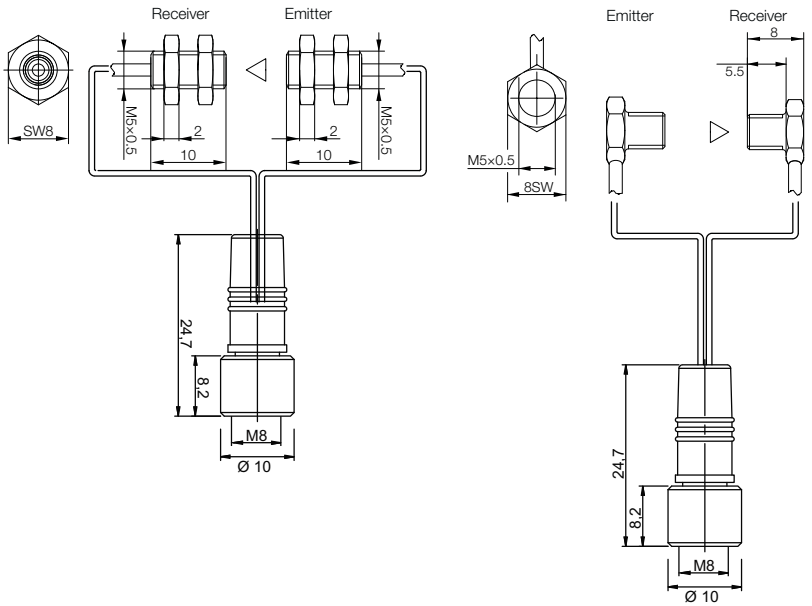
Model	Through-beam sensor	Through-beam sensor	
Housing size	**M5×0.5×10 mm**	**M5×0.5×8 mm**	
Range	**2000 mm**	**2000 mm**	
Order code	**BOH0013**	**BOH000F**	
Part number	BOH TK-M05-003-01-S49F	BOH TK-M05-006-01-S49F	
Light type	Red light microSPOT	Red light microSPOT	
Wavelength	645 Nm	645 Nm	
Light spot diameter	8 mm (at 100 mm)	8 mm (at 100 mm)	
Resolution (smallest detectable part)	0.4 mm	0.4 mm	
Degree of protection as per IEC 60529	IP 65	IP 65	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	
Housing material	Nickel-plated brass	Stainless steel	
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	

Reference object: white,
90% reflection, 100×100 mm

Included in the scope of delivery:
Emitter and receiver

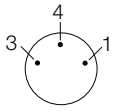
Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

Function diagrams
beginning on page 62.



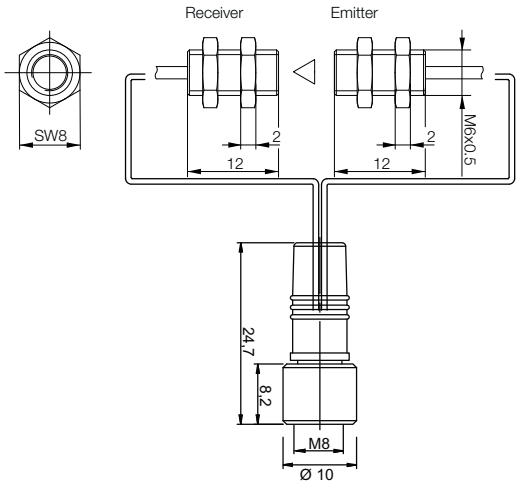
Connection configuration
M8 connector, 3-pin

3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)



Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs

	Through-beam sensor		
	M6×0.5×12 mm		
	4000 mm		
	BOH006H		
	BOH TI-M06-002-01-S49F		
	Infrared		
	880 Nm		
	0.4 mm		
	IP 65		
	–10...+55 °C		
	Stainless steel		
	PUR cable with M8 connector, 3-pin		



Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs

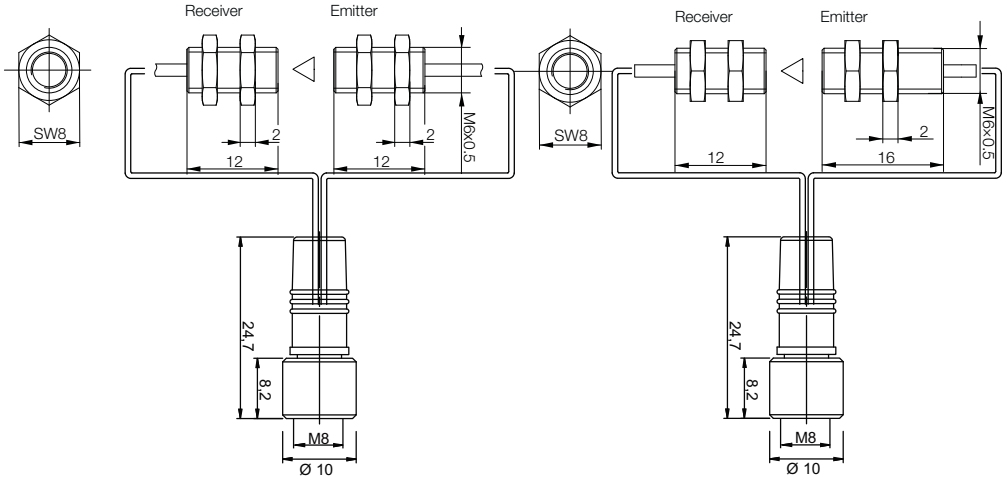
Model	Through-beam sensor	Through-beam sensor	
Housing size	**M6×0.5×12 mm**	**M6×0.5×16 mm**	
Range	**4000 mm**	**4000 mm**	
Order code	**BOH000K**	**BOH000H**	
Part number	BOH TR-M06-002-02-S49F	BOH TL-M06-007-02-S49F	
Light type	Red light	Laser red light, class 1	
Wavelength	660 Nm	650 Nm	
Light spot diameter		4.5 mm (at 2000 mm)	
Resolution (smallest detectable part)	0.4 mm	< 0.05 mm	
Degree of protection as per IEC 60529	IP 65	IP 65	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	
Housing material	Nickel-plated brass	Stainless steel	
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	

Reference object: white, 90% reflection, 100×100 mm

Included in the scope of delivery: Emitter and receiver

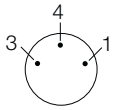
Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

Function diagrams beginning on page 62.



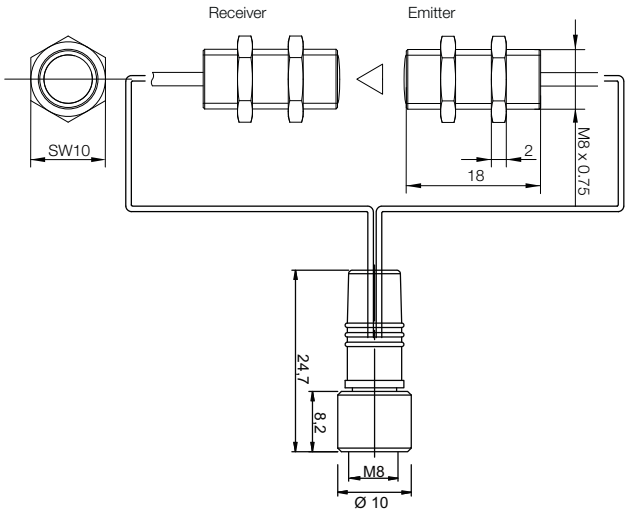
Connection configuration
M8 connector, 3-pin

3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)



Through-beam sensors BOH for separate amplifiers BAE
Cylinder designs

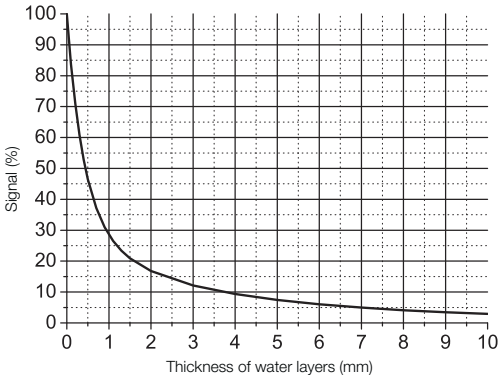
	Through-beam sensor		
	M8×0.75×18 mm		
	4000 mm		
	BOH0012		
	BOH TK-M08-004-02-S49F		
	Red light microSPOT		
	645 Nm		
	18 mm (at 1000 mm)		
	0.2 mm		
	IP 65		
	–10...+55 °C		
	Nickel-plated brass		
	PUR cable with M8 connector, 3-pin		



Through-beam sensors BOH for water detection for separate amplifiers BAE

Detection of water

MICROmote® photoelectric sensors for water detection use a specific wavelength at which water absorbs more light. This significantly simplifies the detection of liquids with high water content using optical sensors.
The combination of an extra-compact design and powerful micro-optics allows for reliable use in tubes and capillary tubes where other physical effects are stretched to their natural limits.



Type	
Housing size	
Range	
Order code	
Part number	
Light type	
Wavelength	
Degree of protection as per IEC 60529	
Ambient temperature T_a	
Housing material	
Connection	

Included in the scope of delivery:
Emitter and receiver

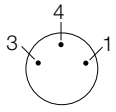
Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

Function diagrams
on pages 62.

Connection configuration

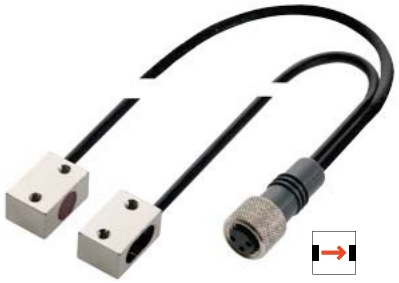
M8 connector, 3-pin

3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)

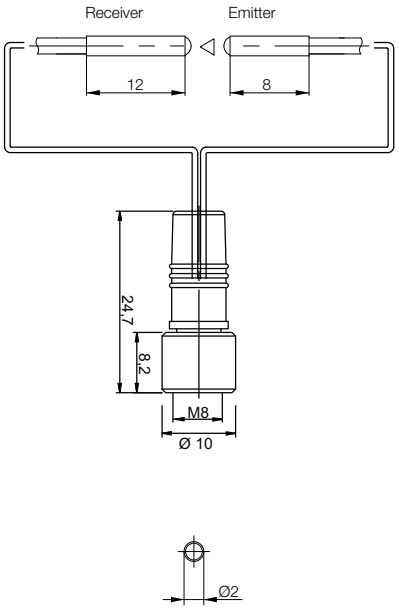


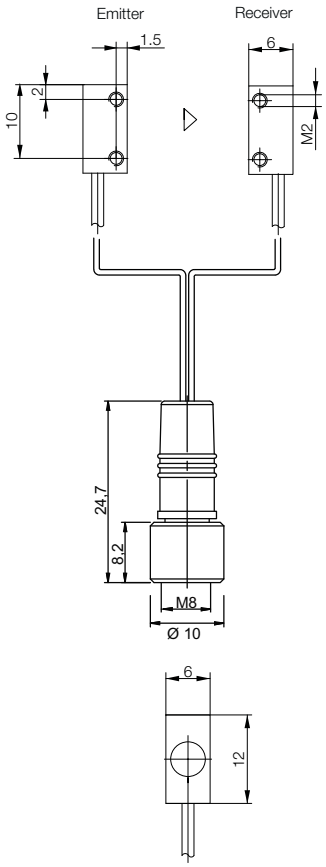
MICROmote® Sensors

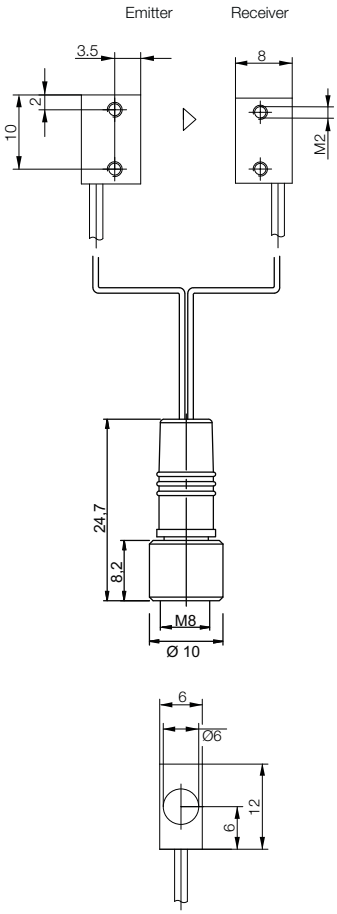
Through-beam sensors BOH for water detection for separate amplifiers BAE



	Through-beam sensor Detection of water Emitter Ø 2×8 mm Receiver Ø 2×12 mm	Through-beam sensor Detection of water 6×6×12 mm	Through-beam sensor Detection of water 6×8×12 mm
	250 mm	**500 mm**	**900 mm**
	BOH000J	**BOH000R**	**BOH007A**
	BOH TJ-G02-001-01-S49F	BOH TJ-Q06-001-01-S49F	BOH TJ-R010-008-01-S49F
	Infrared	Infrared	Infrared
	1480 Nm	**1480 Nm**	**1480 Nm**
	IP 67	IP 67	IP 67
	–10...+55 °C	–10...+55 °C	–10...+55 °C
	Stainless steel	Nickel-plated brass	Nickel-plated brass
	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin







Through-beam sensors BOH for separate amplifiers BAE
Block designs

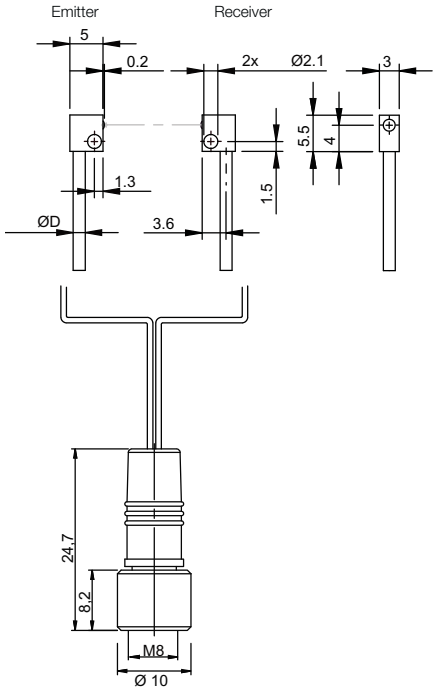
Model	Through-beam sensor	Through-beam sensor	
Housing size	**3×6×5.5 mm**	**6×6×12 mm**	
Range	**500 mm**		
Order code	**BOH001Z**	**BOH006P**	
Part number	BOH TK-R003-007-01-S49F	BOH TI-Q06-001-01-S49F	
Light type	Red light microSPOT	Infrared	
Wavelength	645 Nm	880 Nm	
Light spot diameter	10 mm (at 100 mm)		
Resolution (smallest detectable part)	0.2 mm	0.1 mm	
Degree of protection as per IEC 60529	IP 65	IP 65	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	
Housing material	Nickel-plated brass	Nickel-plated brass	
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	

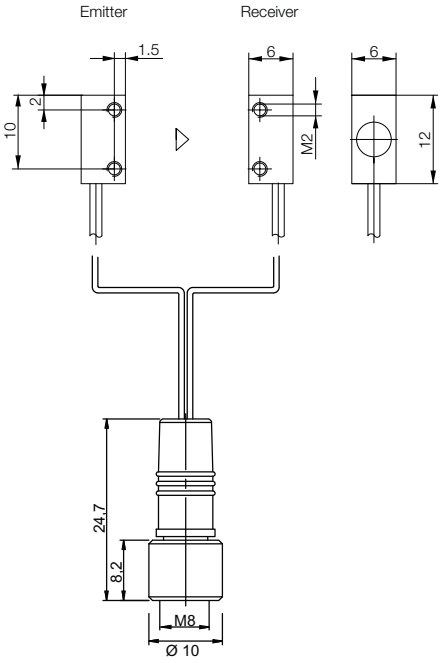
Reference object: white, 90% reflection, 100×100 mm

Included in the scope of delivery: Emitter and receiver

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

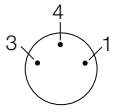
Function diagrams beginning on page 62.





Connection configuration
M8 connector, 3-pin

3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)

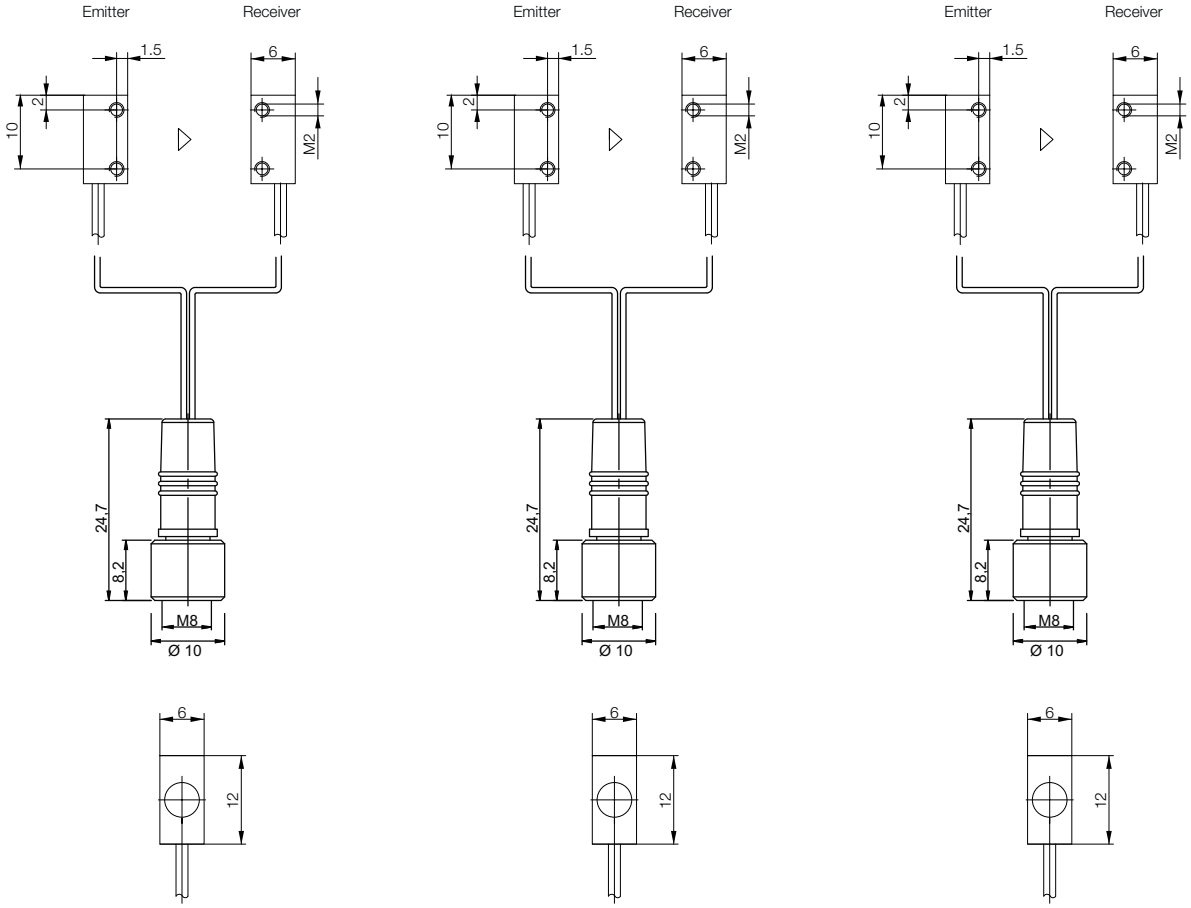


MICROmote® Sensors

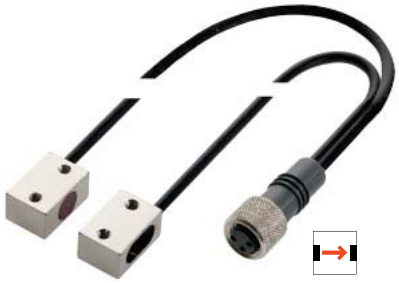
Through-beam sensors BOH for separate amplifiers BAE

Block designs

	Through-beam sensor 6×6×12 mm 2000 mm	Through-beam sensor 6×6×12 mm 1000 mm	Through-beam sensor 6×6×12 mm 2000 mm
	BOH006W	**BOH000N**	**BOH000P**
	BOH TI-Q06-002-01-S49F	BOH TR-Q06-001-01-S49F	BOH TK-Q06-001-01-S49F
	Infrared	Red light	Red light microSPOT
	880 Nm	660 Nm	645 Nm
			8 mm (at 100 mm)
	0.4 mm	0.3 mm	0.4 mm
	IP 65	IP 65	IP 65
	–10...+55 °C	–10...+55 °C	–10°C... +55°C
	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin



Through-beam sensors BOH for separate amplifiers BAE
Block designs



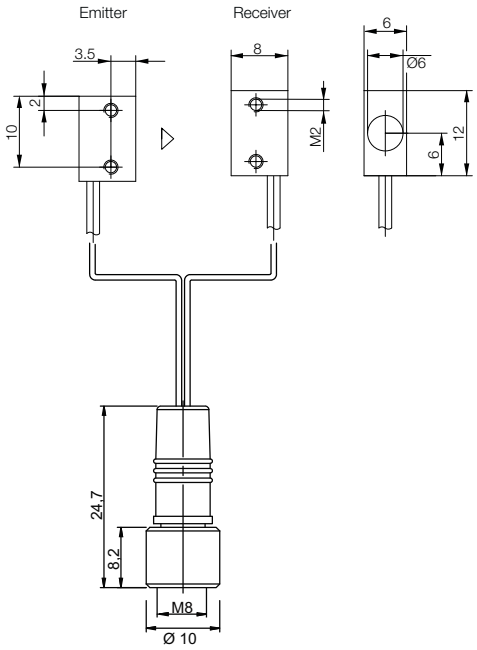
Model	**Through-beam sensor**		
Housing size	**6×8×12 mm**		
Range			
Order code	**BOH006Z**		
Part number	BOH TI-R90-008-01-S49F		
Light type	Infrared		
Wavelength	880 mm		
Light spot diameter			
Resolution (smallest detectable part)	0.4 mm		
Degree of protection as per IEC 60529	IP 65		
Ambient temperature T_a	–10...+55 °C		
Housing material	Nickel-plated brass		
Connection	PUR cable with M8 connector, 3-pin		

Reference object: white, 90% reflection, 100×100 mm

Included in the scope of delivery: Emitter and receiver

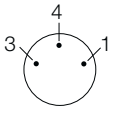
Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

Function diagrams beginning on page 62.



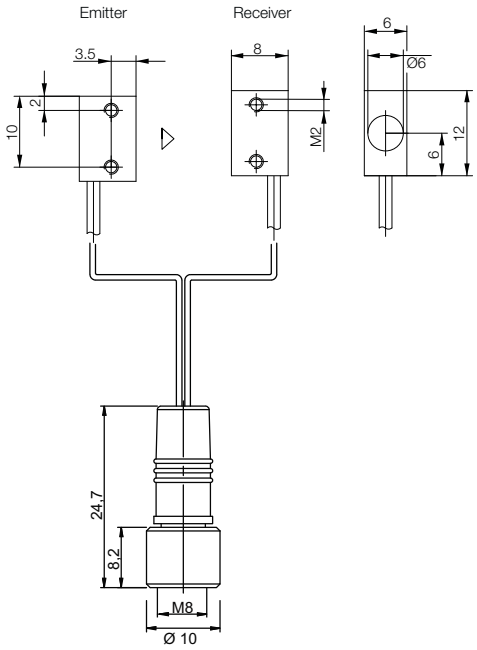
Connection configuration
M8 connector, 3-pin

3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)



Through-beam sensors BOH for separate amplifiers BAE
Block designs

	Through-beam sensor		
	6×8×12 mm		
	4000 mm		
	BOH0020		
	BOH TR-R010-008-02-S49F		
	Red light		
	660 Nm		
	0.4 mm		
	IP 65		
	–10...+55 °C		
	Nickel-plated brass		
	PUR cable with M8 connector, 3-pin		



Through-beam sensors BOH for separate amplifiers BAE
Block designs

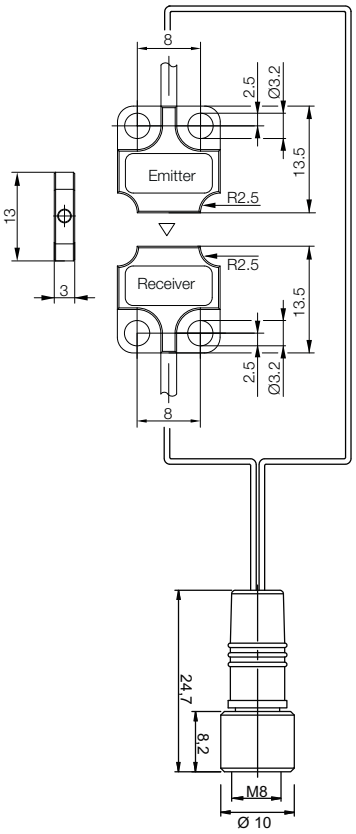
Type	**Through-beam sensor**	**Through-beam sensor**	
Housing size	**13.5×13×3 mm**	**13.5×13×3 mm**	
Range	**500 mm**	**500 mm**	
Order code	**BOH002C**	**BOH002E**	
Part number	BOH TK-R018-001-01-S49F	BOH TK-R018-002-01-S49F	
Light type	Red light microSPOT	Red light microSPOT	
Wavelength	645 Nm	645 Nm	
Light spot diameter	10 mm (at 100 mm)	10 mm (at 100 mm)	
Resolution (smallest detectable part)	0.2 mm	0.2 mm	
Degree of protection as per IEC 60529	IP 67	IP 67	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	
Housing material	Naturally anodized aluminum	Naturally anodized aluminum	
Connection	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	

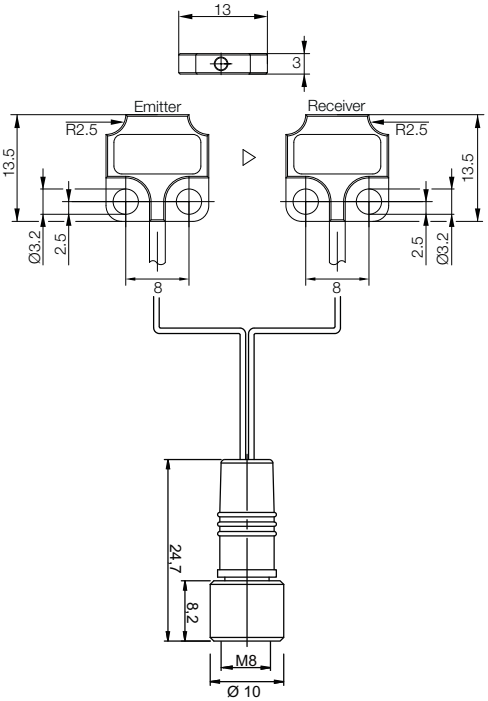
Reference object: white, 90% reflection, 100×100 mm

Included in the scope of delivery: Emitter and receiver

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

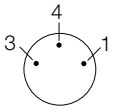
Function diagrams beginning on page 62.





Connection configuration
M8 connector, 3-pin

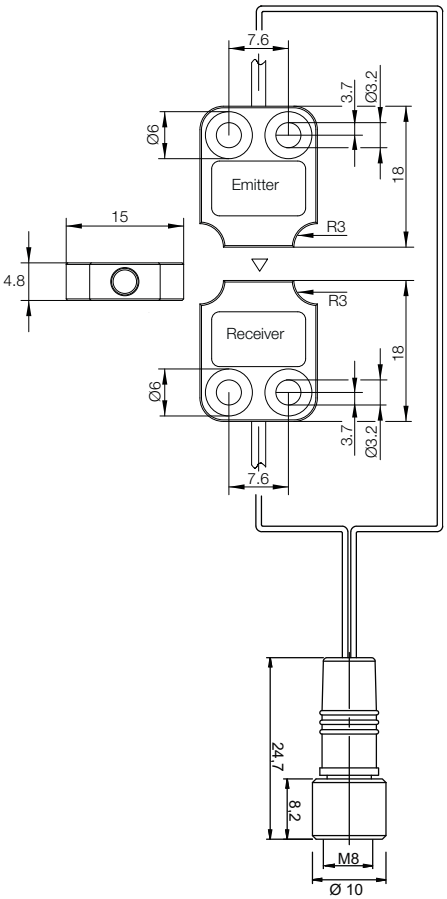
3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)

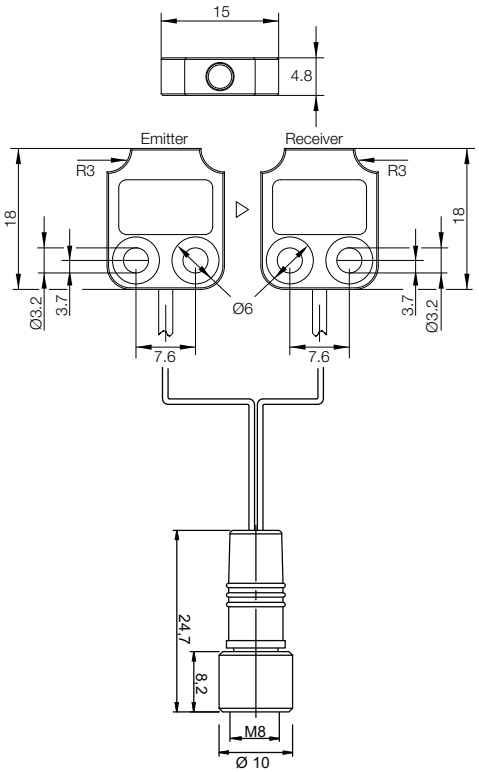


MICROmote® Sensors

Through-beam sensors BOH for separate amplifiers BAE
Block designs

	Through-beam sensor	Through-beam sensor	
	18×15×4.8 mm	**18×15×4.8 mm**	
	2000 mm	**2000 mm**	
	BOH002F	**BOH002H**	
	BOH TK-R027-003-01-S49F	BOH TK-R027-004-01-S49F	
	Red light microSPOT	Red light microSPOT	
	645 nm	645 Nm	
	8 mm (at 100 mm)	8 mm (at 100 mm)	
	0.4 mm	0.4 mm	
	IP 67	IP 67	
	–10...+55 °C	–10...+55 °C	
	Naturally anodized aluminum	Naturally anodized aluminum	
	PUR cable with M8 connector, 3-pin	PUR cable with M8 connector, 3-pin	





The vacuum-compatible
MICROmote® photoelectric sensors are the only classic photoelectric sensors that are suitable for direct use in a high or ultra-high vacuum.

Versions for direct use in the chamber wall with an integrated sealing function and versions meant for complete installation in the chamber are available. These versions have electric signals that are guided to outside electronics via a conventional vacuum feed through. The outgassing properties of these sensors are optimized by selecting appropriate materials. The minimum size saves valuable chamber space.

Here you will find a representative selection of possible versions. The modular design enables extraordinarily fast implementation of customer-specific solutions.


Emitter Receiver

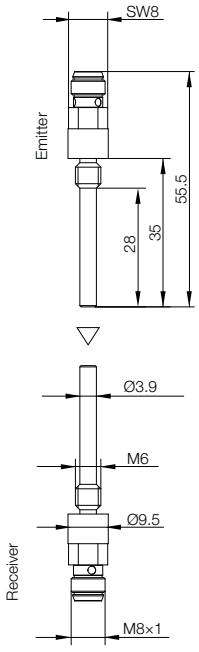
Type	**Through-beam sensor**
Housing size	**M6×55.5 mm**
Fork opening	
Range	**300 mm**
Sensing distance	
Order code	**BOH009U**
Part number	BOH TR-M06V-009-S49/S75-SA3
Light type	Red light
Wavelength	650 Nm
Resolution (smallest discernible part)	0.2 mm
Degree of protection as per IEC 60529	IP 65
Ambient temperature T_a	–10...+55 °C
Housing material	Stainless steel
Connection	M8 connector, 4-pin, **emitter**
	M8 connector, 3-pin, **receiver**

Reference object: white, 90% reflection, 100×100 mm

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02

Function diagrams beginning on page 62.

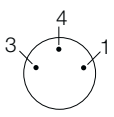
***Required cable: BCC0FTN**
BCC M313-M314-M313-U2063-020



Included in the scope of delivery:
Emitter and receiver

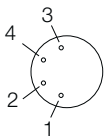
M8 connector, 3-pin, **receiver**

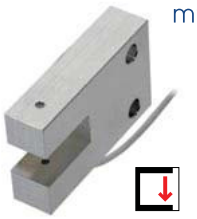
1	(green)	FT –
3		Not assigned
4	(black)	FT +



Connection configuration
M8 connector, 4-pin, **emitter**

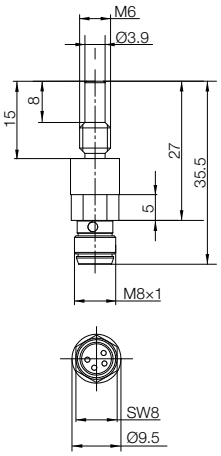
1		Not assigned
2		Not assigned
3	(Red)	LED +
4	(white)	LED

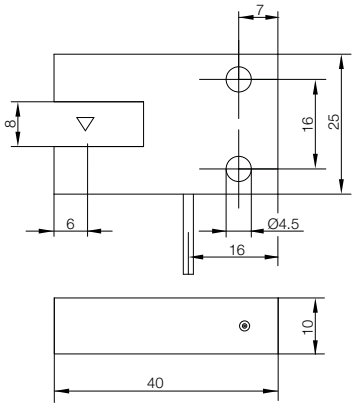


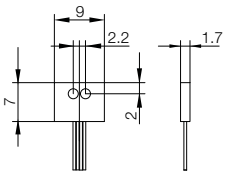


	Diffuse sensor **M6×35.5 mm** **12 mm**	**Fork sensor** **40×25×10 mm** **8 mm**	**Diffuse sensor** **9×7×1.7 mm** **10 mm**
	BOH009R	**BOH001J**	**BOH0021**
	BOH DI-M06V-008-S75-SA3	BOH TK-F08V-004-TF-01	BOH DI-R006V-009-TL-01
	Infrared	Red light microSPOT	Infrared
	880 Nm	645 Nm	880 Nm
		Ø 1.5 mm	
	IP 67	IP 67	IP 67
	–10...+55 °C	–10...+55 °C	–10...+55 °C
	Stainless steel	Aluminum	Stainless steel
	M8 connector, 4-pin	1 m cable PFA encapsulated, 4×AWG36	1 m cable PFA coated wires, 4×AWG36

***Required cable: BCC0FTJ**
BCC M314-M313-50-712-PS0402-020

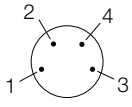






Connection configuration
M8 connector, 4-pin

1 + Receiver (green)
2 – Receiver (black)
3 – Emitter (white)
4 + Emitter (red)



Connection configuration

Emitter:	Red:	LED +
	White:	LED
Receiver:	green:	FT +
	Black:	FT –

Connection configuration

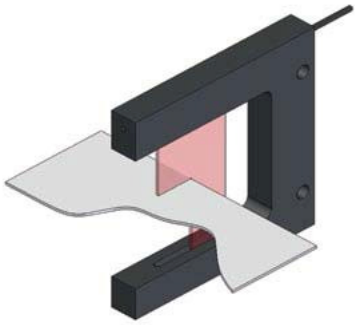
Emitter:	Red:	LED +
	White:	LED
Receiver:	Green:	FT +
	Black:	FT –

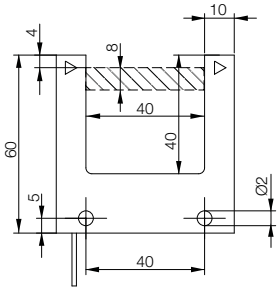
Light band fork sensors BOH for separate amplifiers BAE

Type		**Light band fork sensor**	
Light band width		**8 mm**	
Fork opening		**40 mm**	
Order code		**BOH001M**	
Part number		BOH AR-F40-001-01-S49F	
Light type		LED, red light	
Wavelength		645 Nm	
Edge resolution		0.05 mm	
Resolution (smallest discernible part)		0.5 mm	
Reproducibility		< 0.03 mm	
Linearity		Range 0...8 mm: 8% Range 1...7 mm: 2% Range 2...6 mm: 1%	
Degree of protection as per IEC 60529		IP 65	
Ambient temperature T_a		–10...+55 °C	
Housing material		Anodized aluminum	
Connection		1 m PUR cable with M8 connector, 3-pin	

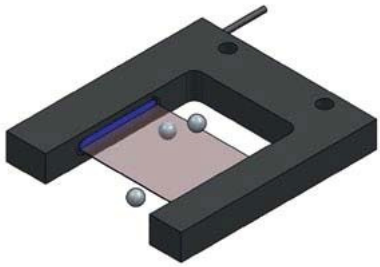
Function diagrams
beginning on page 62.

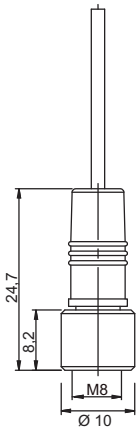
Recommended amplifier for edge control:
BAE00NH, BAE SA-OH-038-UA-DV02
or **BAE00N4,** BAE SA-OH-038-IC-DV02





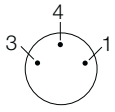
Recommended amplifier for counting window:
BAE00NJ, BAE SA-OH-040-PP-DV02





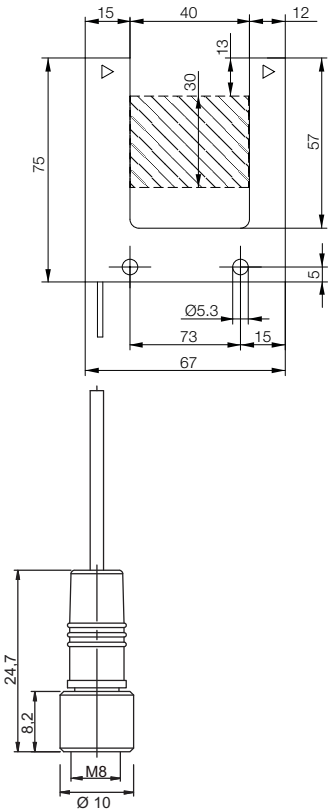
Connection configuration
M8 connector, 3-pin

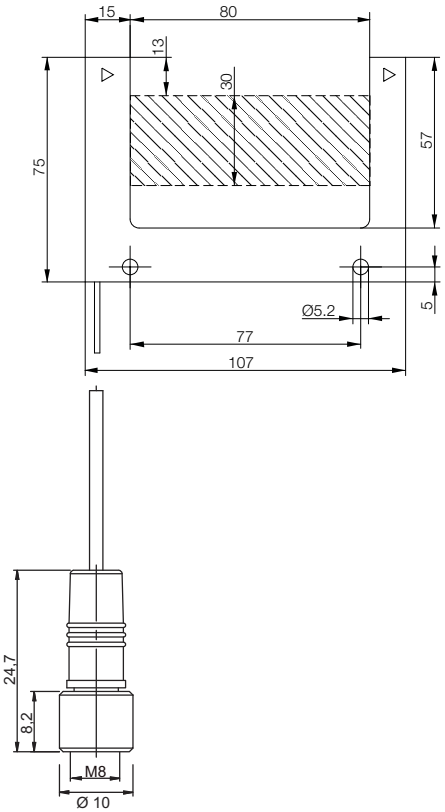
3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)



Light band fork sensors BOH for separate amplifiers BAE

Light band fork sensor	Light band fork sensor
30 mm	**30 mm**
40 mm	**80 mm**
BOH001N	**BOH001P**
BOH AR-F40-002-01-S49F	BOH AR-F80-003-01-S49F
LED, red light	LED, red light
645 Nm	645 Nm
0.1 mm	0.15 mm
0.5 mm	0.5 mm
0.05 mm	0.05 mm
Range 0...30 mm: 10%	Range 0...30 mm: 10%
Range 3...27 mm: 5%	Range 3...27 mm: 5%
Range 6...24 mm: 3.2%	Range 6...24 mm: 3.4%
IP 65	IP 65
–10...+55 °C	–10...+55 °C
Anodized aluminum	Anodized aluminum
1 m PUR cable with M8 connector, 3-pin	1 m PUR cable with M8 connector, 3-pin



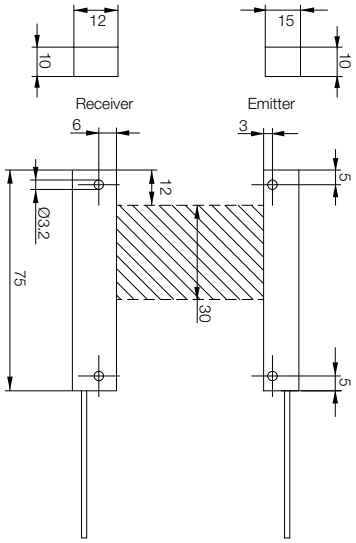


Light band sensors BOH for separate amplifiers BAE

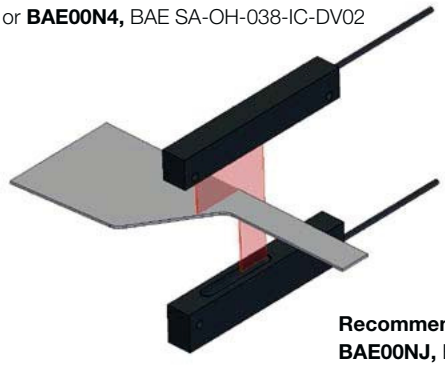
Type	**Light band sensor**	
Light band width	**30 mm**	
Working distance	**40...200 mm**	
Order code	**BOH0024**	
Part number	BOH AR-R113-010-01-S49F	
Light type	LED, red light	
Wavelength	645 Nm	
Edge resolution	0.1 mm	
Resolution (smallest discernible part)	0.5 mm	
Reproducibility	0.05 mm	
Degree of protection as per IEC 60529	IP 65	
Ambient temperature T_a	–10...+55 °C	
Housing material	Anodized aluminum	
Connection	1 m PUR cable with M8 connector, 3-pin	

Included in the scope of delivery:
Emitter and receiver

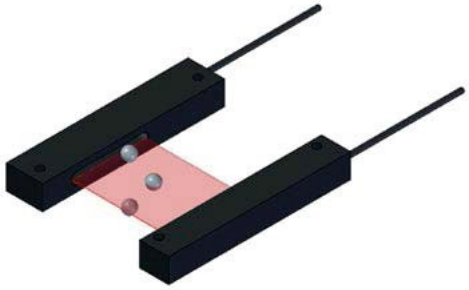
Function diagrams
beginning on page 62.

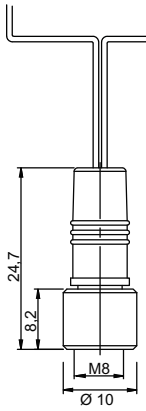


Recommended amplifier for edge control:
BAE00NH, BAE SA-OH-038-UA-DV02
or **BAE00N4,** BAE SA-OH-038-IC-DV02



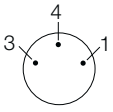
Recommended amplifier for counting window:
BAE00NJ, BAE SA-OH-040-PP-DV02





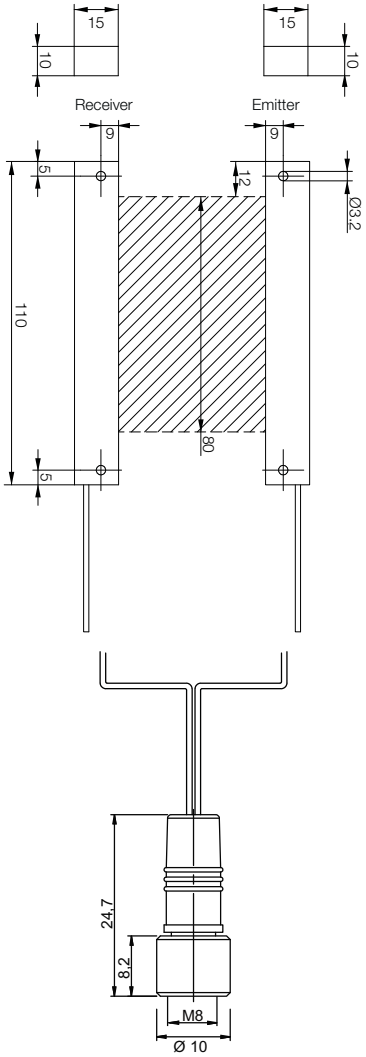
Connection configuration
M8 connector, 3-pin

3 + Receiver (green)
4 GND/Shield (white, black)
1 + Emitter (red)



Light band sensors BOH for separate amplifiers BAE

Light band sensor	
80 mm	
50...500 mm	
BOH002M	
BOH AI-R165-011-01-S49F	
LED, infrared	
950 Nm	
0.15 mm	
1.5 mm	
0.05 mm	
IP 65	
–10...+55 °C	
Anodized aluminum	
1 m PUR cable with M8 connector, 3-pin	

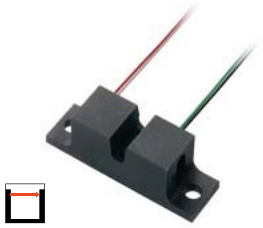


Precision tube sensors BOH for separate amplifiers BAE
Detection of liquids/bubbles

Detection of liquids/bubbles
Precision tube sensors for detecting liquids/bubbles use the differing light refraction in the air or liquid column within the tube. Therefore they are very reliable even for clear liquids.

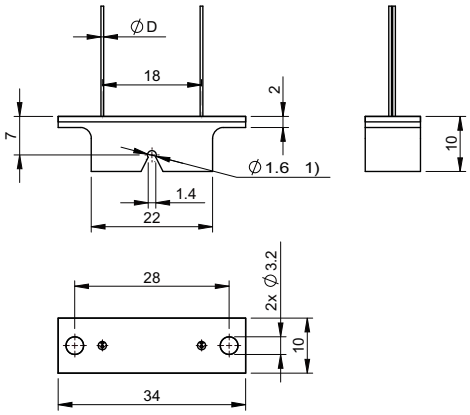
Built-in micro-optics detect the air-to-liquid transitions with high accuracy. The high reproducibility of the signal jump makes the tube sensors excellent for precisely determining volume.

The optical properties and thickness of the tube can affect the magnitude of the resulting signal swings.

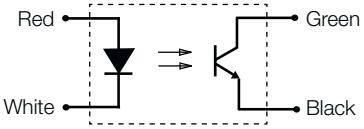


Type	**Precision tube sensor**
Tube diameter	**1.6 mm (1/16")**
Use	**Detection of liquids/bubbles**
Order code	**BOH001T**
Part number	BOH TR-T16-001-TL-00,1
Light type	Red light
Wavelength	665 Nm
Functional principle	Light refraction
Degree of protection as per IEC 60529	IP 54
Ambient temperature T_a	–10...+60 °C
Housing material	Black anodized aluminum
Connection	**100 mm stranded wire PFTE encapsulated, 4×AWG32**

Function diagrams beginning on page 62.

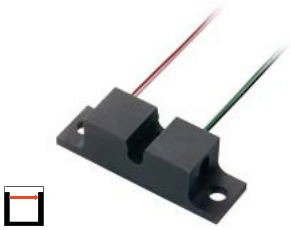


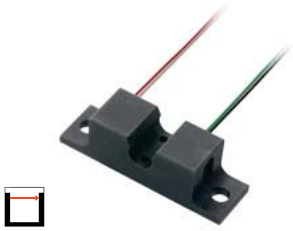
Connection configuration for all Stranded wire variants

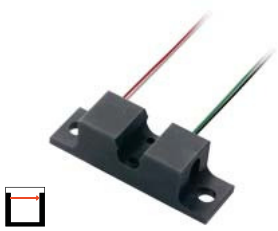


MICROmote® Sensors

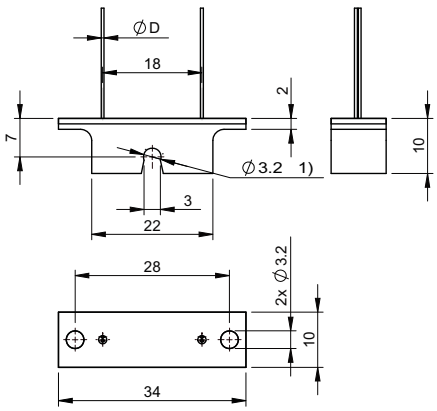
Precision tube sensors BOH for separate amplifiers BAE
Detection of liquids/bubbles

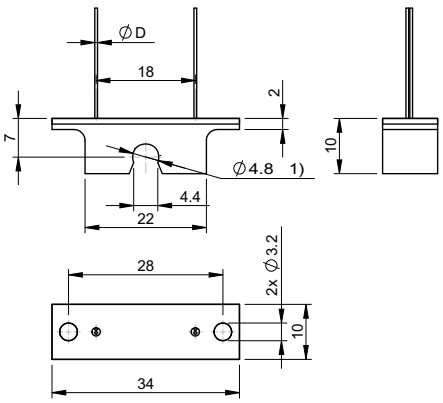


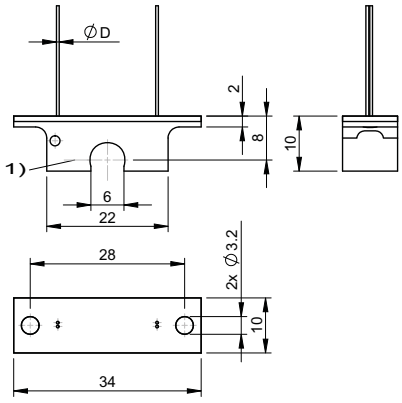




	Precision tube sensor 3.2 mm (1/8") Detection of liquids/bubbles	Precision tube sensor 4.8 mm (3/16") Detection of liquids/bubbles	Precision tube sensor 6.4 mm (1/4") Detection of liquids/bubbles
	BOH001C	**BOH001E**	**BOH001F**
	BOH TR-T32-001-TL-00,1	BOH TR-T48-001-TL-00,1	BOH TR-T64-001-TL-00,1
	Red light	Red light	Red light
	665 Nm	665 Nm	665 Nm
	Light refraction	Light refraction	Light refraction
	IP 54	IP 54	IP 54
	–10...+60 °C	–10...+60 °C	–10...+60 °C
	Black anodized aluminum	Black anodized aluminum	Black anodized aluminum
	100 mm stranded wire PFTE encapsulated, 4×AWG32	**100 mm stranded wire PFTE encapsulated, 4×AWG32**	**100 mm stranded wire PFTE encapsulated, 4×AWG32**





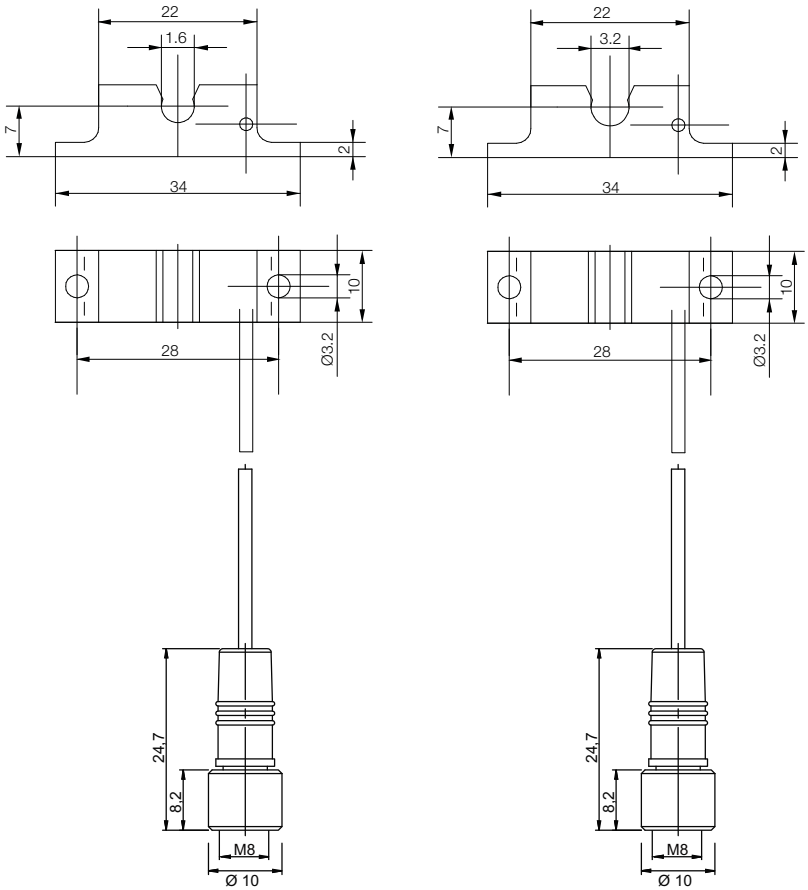


Precision tube sensors BOH for separate amplifiers BAE
Detection of liquids/bubbles

Type	**Precision tube sensor**	**Precision tube sensor**
Tube diameter	**1.6 mm (1/16")**	**3.2 mm (1/8")**
Use	**Detection of liquids/bubbles**	**Detection of liquids/bubbles**
Order code	**BOH001R**	**BOH001Y**
Part number	BOH TR-T16-001-01-S49F	BOH TR-T32-001-01-S49F
Light type	Red light	Red light
Wavelength	665 Nm	665 Nm
Functional principle	Light refraction	Light refraction
Degree of protection as per IEC 60529	IP 54	IP 54
Ambient temperature T_a	–10...+60 °C	–10...+60 °C
Housing material	Black anodized aluminum	Black anodized aluminum
Connection	**PUR cable with M8 connector, 3-pin**	**PUR cable with M8 connector, 3-pin**

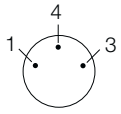
Function diagrams
beginning on page 62.

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02



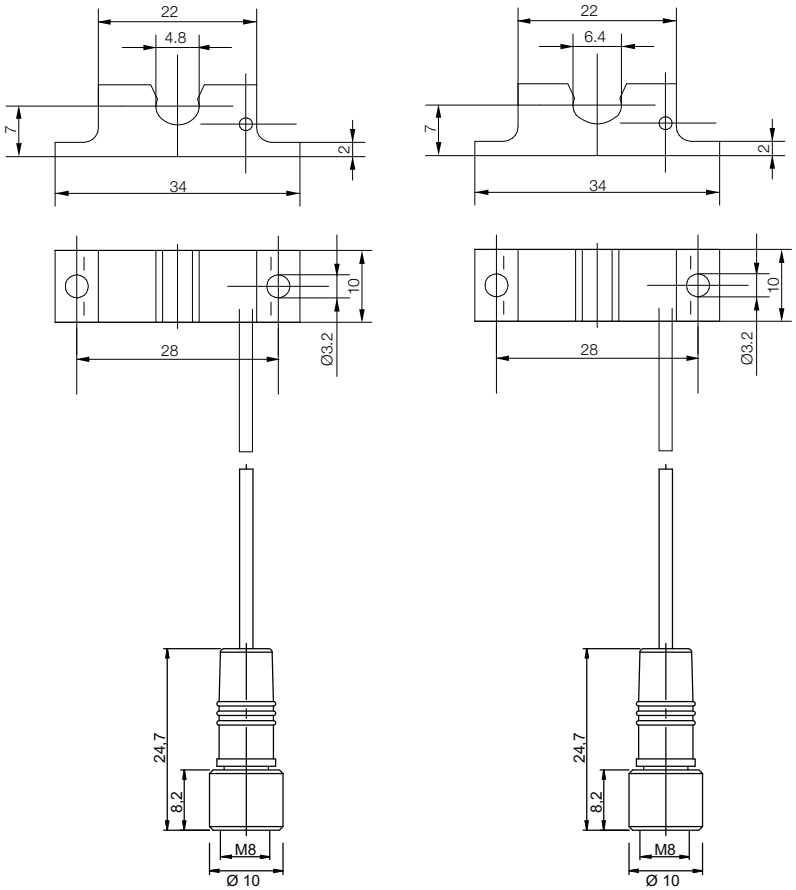
Connection configuration
M8 connector, 3-pin

1	(red)	LED +
4	(white/black)	LED – /FT–
3	(green)	FT +



Precision tube sensors BOH for separate amplifiers BAE
Detection of liquids/bubbles

	Precision tube sensor	**Precision tube sensor**	
	4.8 mm (3/16")	**6.4 mm (1/4")**	
	Detection of liquids/bubbles	**Detection of liquids/bubbles**	
	BOH0019	**BOH001A**	
	BOH TR-T48-001-01-S49F	BOH TR-T64-001-01-S49F	
	Red light	Red light	
	665 Nm	665 Nm	
	Light refraction	Light refraction	
	IP 54	IP 54	
	–10...+60 °C	–10...+60 °C	
	Black anodized aluminum	Black anodized aluminum	
	PUR cable with	**PUR cable with**	
	M8 connector, 3-pin	**M8 connector, 3-pin**	



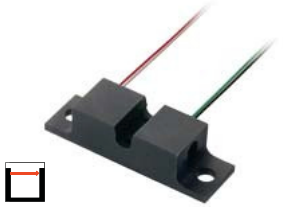
Precision tube sensors BOH for separate amplifiers BAE
Detection of water/bubbles and aqueous liquids

Detection of water and aqueous liquids
Precision tube sensors for detecting water and aqueous liquids use the light attenuation in the liquid column within the tube. They use a special wavelength so that the water absorbs the light. This makes them perfect for applications involving water and aqueous liquids.

Built-in micro-optics detect the air-to-liquid transitions with high accuracy. The high reproducibility of the signal jump makes the tube sensors excellent for precisely determining volume.

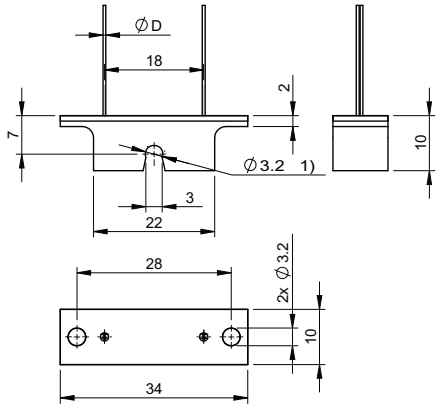
Together with the microprocessor-controlled MICROmote® amplifiers with either switching or analog output, they form a complete measurement system with diverse application possibilities in laboratory, analysis and medical technology.

The optical properties and thickness of the tube can affect the magnitude of the resulting signal swings.

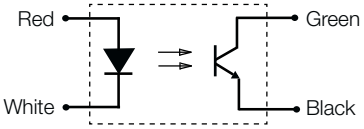


Type	**Precision tube sensor**
Tube diameter	**3.2 mm (1/8")**
Use	**Detection of water/bubbles and aqueous liquids**
Order code	**BOH001W**
Part number	BOH TJ-T32-001-TL-00,1
Light type	Infrared
Wavelength	1480 Nm
Functional principle	Absorption
Degree of protection as per IEC 60529	IP 54
Ambient temperature T_a	–10...+60 °C
Housing material	Black anodized aluminum
Connection	**100 mm stranded wire PFTE encapsulated, 4×AWG32**

Function diagrams beginning on page 62.



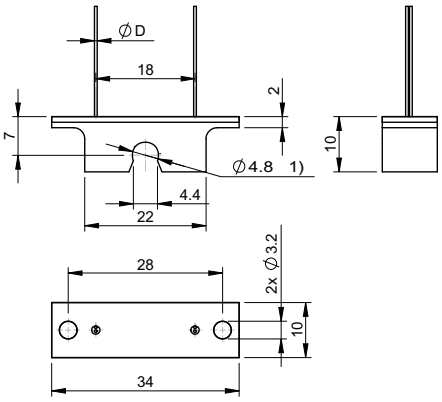
Connection configuration for all Stranded wire variants

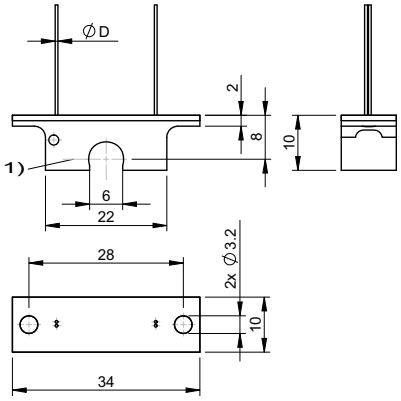


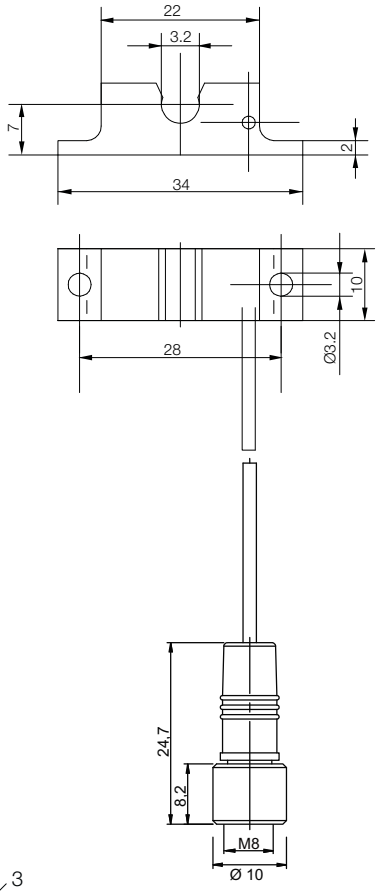
MICROmote® Sensors

Precision tube sensors BOH for separate amplifiers BAE
Detection of water/bubbles and aqueous liquids

	Precision tube sensor 4.8 mm (3/16") Detection of water/bubbles and aqueous liquids	Precision tube sensor 6.4 mm (1/4") Detection of water/bubbles and aqueous liquids	Precision tube sensor 3.2 mm (1/8") Detection of water/bubbles and aqueous liquids
	BOH0017	**BOH0018**	**BOH001U**
	BOH TJ-T48-001-TL-00,1	BOH TJ-T64-001-TL-00,1	BOH TJ-T32-001-01-S49F
	Infrared	Infrared	Infrared
	1480 Nm	1480 Nm	1480 Nm
	Absorption	Absorption	Absorption
	IP 54	IP 54	IP 54
	–10...+60 °C	–10...+60 °C	–10...+60 °C
	Black anodized aluminum	Black anodized aluminum	Black anodized aluminum
	100 mm stranded wire PFTE encapsulated, 4×AWG32	**100 mm stranded wire PFTE encapsulated, 4×AWG32**	**PUR cable with M8 connector, 3-pin**

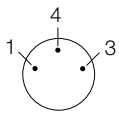






Connection configuration
M8 connector, 3-pin

1	(red)	LED +
4	(white/black)	LED– /FT–
3	(green)	FT +

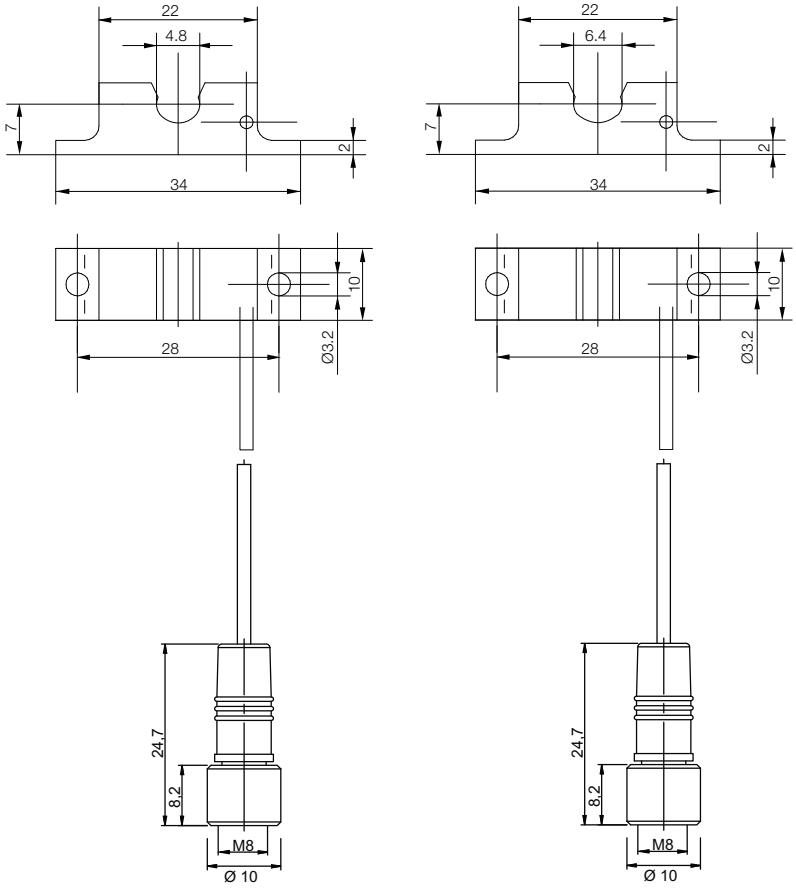


Precision tube sensors BOH for separate amplifiers BAE
Detection of water and aqueous liquids

Type	**Precision tube sensor**	**Precision tube sensor**
Tube diameter	**4.8 mm (3/16")**	**6.4 mm (1/4")**
Use	**Detection of water/bubbles and aqueous liquids**	**Detection of water/bubbles and aqueous liquids**
Order code	**BOH0015**	**BOH0016**
Part number	BOH TJ-T48-001-01-S49F	BOH TJ-T64-001-01-S49F
Light type	Infrared	Infrared
Wavelength	1480 Nm	1480 Nm
Functional principle	Absorption	Absorption
Degree of protection as per IEC 60529	IP 54	IP 54
Ambient temperature T_a	–10...+60 °C	–10...+60 °C
Housing material	Black anodized aluminum	Black anodized aluminum
Connection	**PUR cable with M8 connector, 3-pin**	**PUR cable with M8 connector, 3-pin**

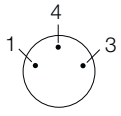
Function diagrams beginning on page 62.

Recommended amplifier:
BAE00NE
BAE-SA-OH-035-PP-DV02



Connection configuration
M8 connector, 3-pin

1	(red)	LED +
4	(white/black)	LED – /FT–
3	(green)	FT +



Precision tube sensors BOH for separate amplifiers BAE
Detection of microbubbles

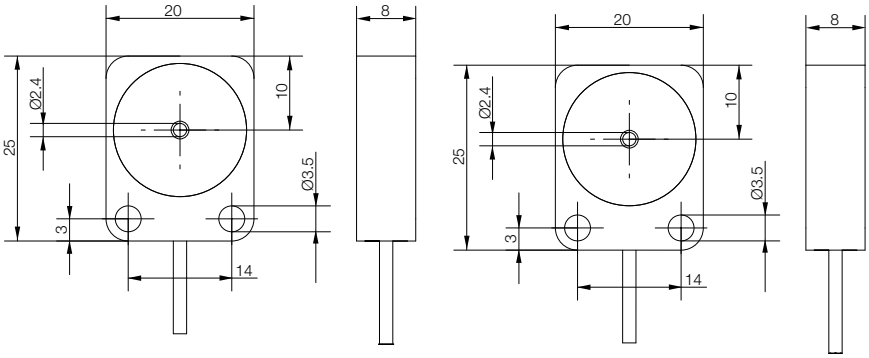
Detection of microbubbles
This series of precision tube sensors is designed to free-floating microbubbles in transparent liquids. Microbubbles refer to little gas bubbles with dimensions smaller than the inside diameter of the tube.

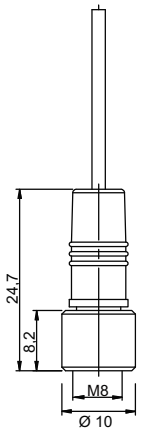
Uniform lighting is achieved in the liquid column by using a concentrated arrangement of multiple light beams with very uniform intensity distribution. Gas bubbles that move through this field induce a signal jump in the built-in photoelectric receiver elements.

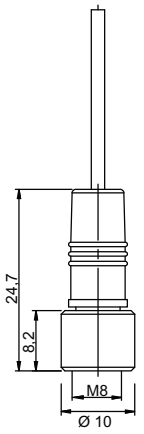
Together with the microprocessor-controlled MICROmote® amplifiers with either switching or analog output, these tube sensors form a complete detection system with diverse application possibilities for laboratory, analysis and medical technology.

The optical properties and thickness of the tube can affect the magnitude of the resulting signal swings.

Type	**Precision tube sensor**	**Precision tube sensor**
Tube diameter	**1.6 mm (1/16")**	**2.4 mm (1/11")**
Use	**Detection of microbubbles**	**Detection of microbubbles**
Order code	**BOH001H**	**BOH009J**
Part number	BOH ZR-T16-002-S49F-SA1	BOH ZR-T24-002-01-S49F-SA1
Light type	Red light	Red light
Wavelength	665 Nm	665 Nm
Functional principle	Light refraction	Light refraction
Degree of protection as per IEC 60529	IP 54	IP 54
Ambient temperature T_a	–10...+60 °C	–10...+60 °C
Housing material	PEEK black	PEEK black
Connection	**PUR cable with M8 connector, 3-pin**	**PUR cable with M8 connector, 3-pin**

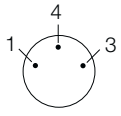






Connection configuration
M8 connector, 3-pin

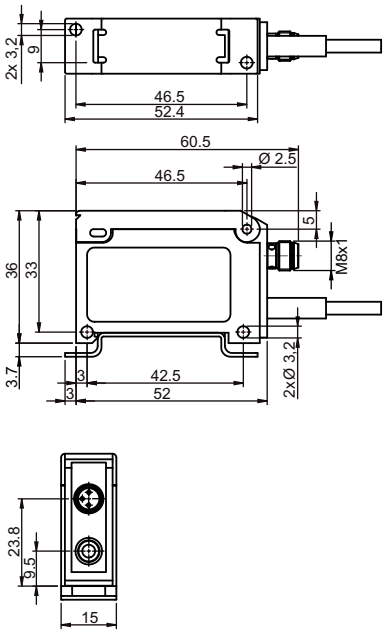
1	(red)	LED +
4	(white/black)	LED – /FT–
3	(green)	FT +

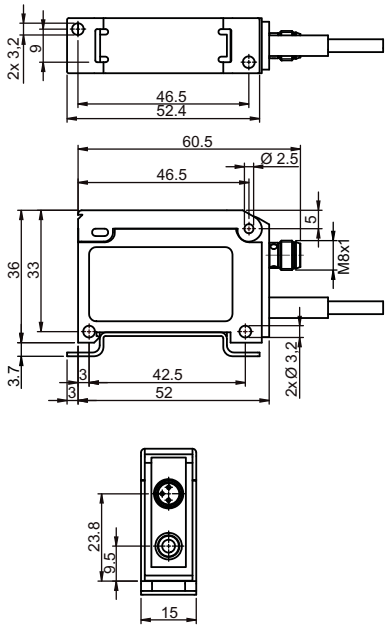


Sensor amplifiers BAE with display
Premium

Type	Premium switching amplifier	Premium switching amplifier	
Order code	**BAE00NE**	**BAE00PR**	
Part number	BAE SA-OH-035-PP-DV02	BAE SA-OH-035-NP-DV02	
Supply voltage U_S	10 to 30 V DC	10 to 30 V DC	
Output current	200 mA	200 mA	
Max. response time	1 ms	1 ms	
Polarity reversal protected/ Short-circuit protected	Yes/Yes	Yes/Yes	
Power indicator	Green LED	Green LED	
Function indicator	Yellow LED / 3-digit display	Yellow LED / 3-digit display	
Function principle	Clocked	Clocked	
Pulse stretching (Off delay)	0...250 ms selectable	0...250 ms selectable	
Output	**PNP**	**NPN**	
Limit frequency	500 Hz	500 Hz	
Intrinsic current consumption	45 mA	45 mA	
Degree of protection as per IEC 60529	IP 54	IP 54	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	
Housing Material	ABS	ABS	
Supply connection	**2 m PVC cable, 5x26 AWG**	**2 m PVC cable, 5x26 AWG**	

Function diagrams beginning on page 62.



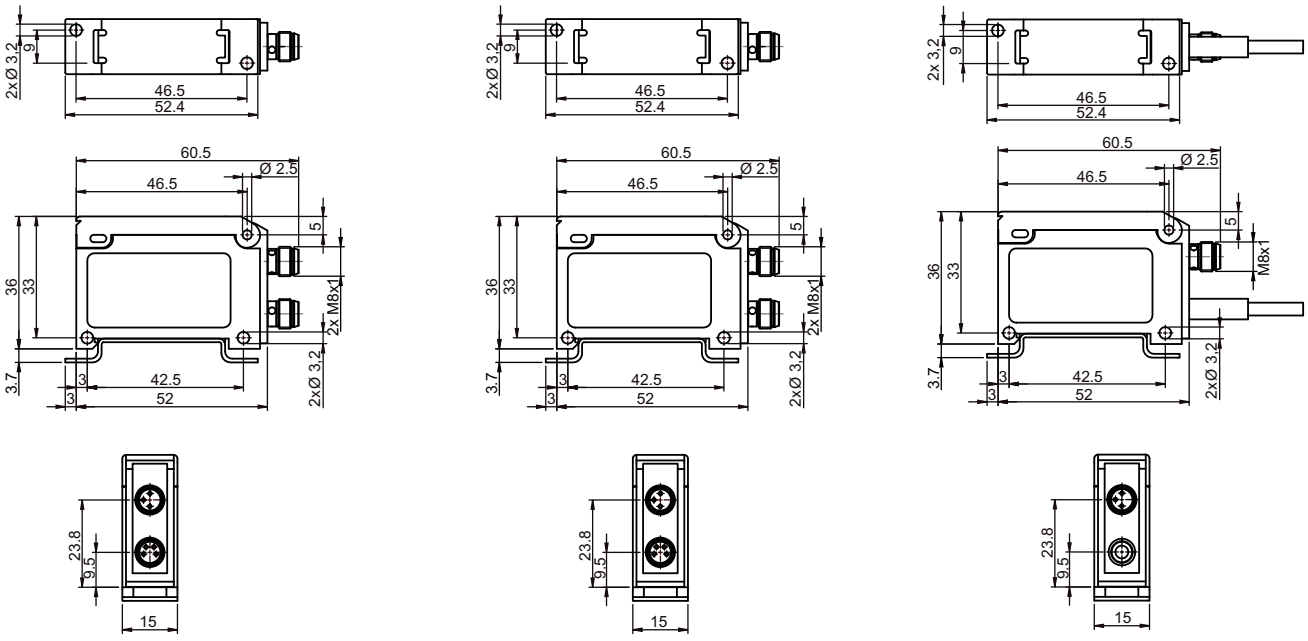


MICROmote® Sensors

Sensor amplifiers BAE with display

Premium

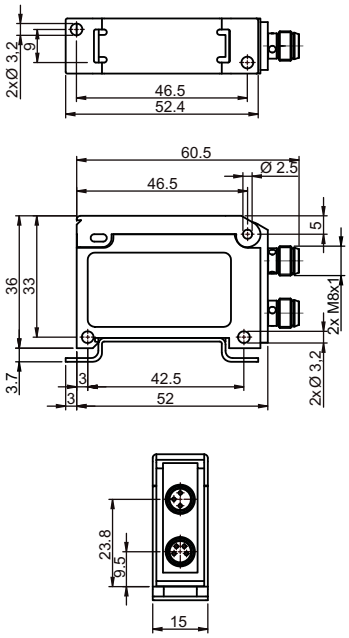
	Premium switching amplifier	Premium switching amplifier	Premium switching amplifier
	BAE00NF	**BAE00PT**	**BAE00NL**
	BAE SA-OH-035-PP-S75G	BAE SA-OH-035-NP-S75G	BAE SA-OH-039-PP-DV02
	10 to 30 V DC	10 to 30 V DC	10 to 30 V DC
	200 mA	200 mA	200 mA
	1 ms	1 ms	1 ms
	Yes/Yes	Yes/Yes	Yes/Yes
	Green LED	Green LED	Green LED
	Yellow LED / 3-digit display	Yellow LED / 3-digit display	Yellow LED / 3-digit display
	Clocked	Clocked	**Clocked, self-synchronized**
	0...250 ms selectable	0...250 ms selectable	0...250 ms selectable
	PNP	**NPN**	**PNP**
	500 Hz	500 Hz	500 Hz
	45 mA	45 mA	45 mA
	IP 54	IP 54	IP 54
	–10...+55 °C	–10...+55 °C	–10...+55 °C
	ABS	ABS	ABS
	M8 connector, 4-pin	**M8 connector, 4-pin**	**2 m PVC cable, 5x26 AWG**

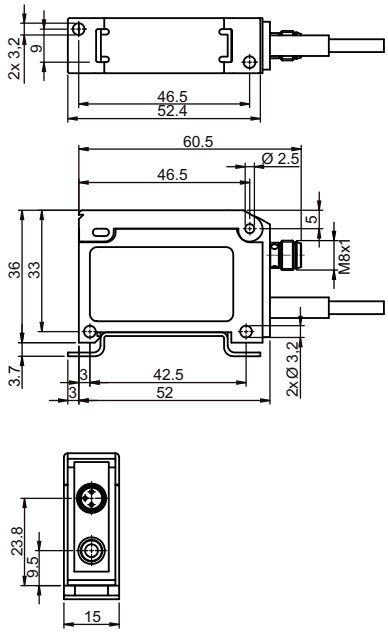


Sensor amplifiers BAE with display
Premium

Type	Premium switching amplifier	Premium switching amplifier
Order code	**BAE00NK**	**BAE00R2**
Part number	BAE SA-OH-039-PP-S75G	BAE SA-OH-036-PP-DV02
Supply voltage U_S	10 to 30 V DC	10 to 30 V DC
Output current	200 mA	200 mA
Max. response time	1 ms	170 µs
Polarity reversal protected/ Short-circuit protected	Yes/Yes	Yes/Yes
Power indicator	Green LED	Green LED
Function indicator	Yellow LED / 3-digit display	Yellow LED / 3-digit display
Function principle	**Clocked, self-synchronized**	Clocked
Pulse stretching (Off delay)	0...250 ms selectable	0...250 ms selectable
Output	**PNP**	**PNP**
Limit frequency	500 Hz	3 kHz
Intrinsic current consumption	45 mA	45 mA
Degree of protection as per IEC 60529	IP 54	IP 54
Ambient temperature T_a	–10...+55 °C	–10...+55 °C
Housing Material	ABS	ABS
Supply connection	**M8 connector, 4-pin**	**2m PVC cable, 5x26 AWG**

Function diagrams beginning on page 62.



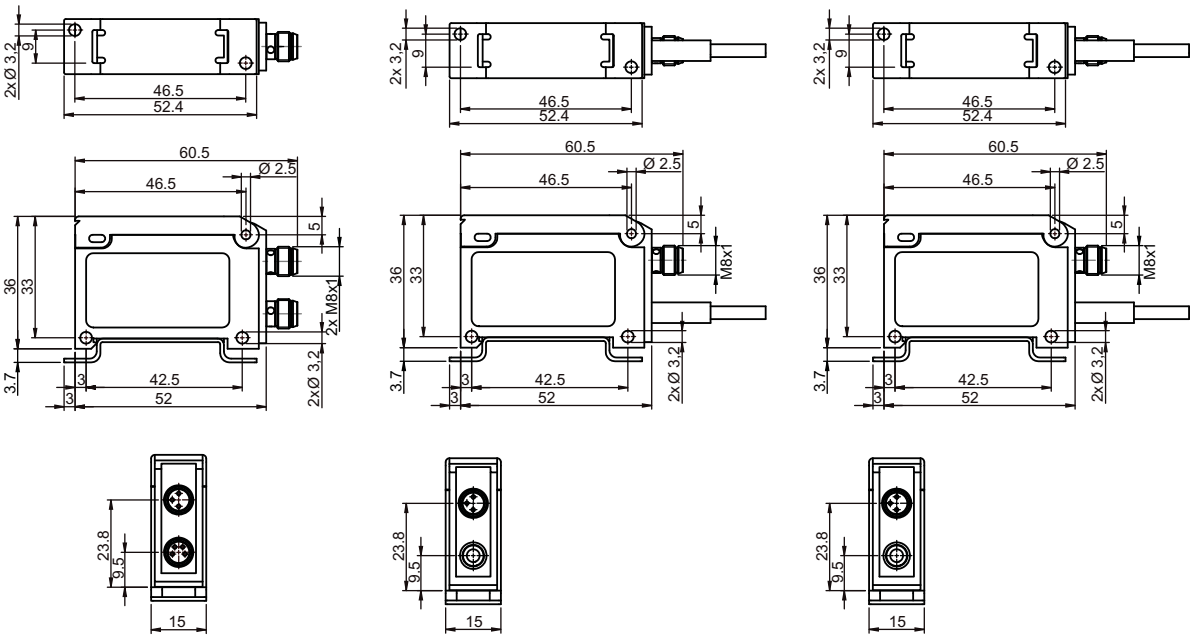


MICROmote® Sensors

Sensor amplifiers BAE with display

Premium

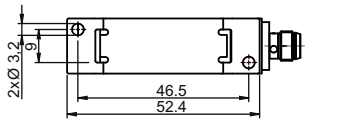
	Premium switching amplifier	Premium switching amplifier	Premium switching amplifier
	BAE00R3	**BAE00R5**	**BAE00R4**
	BAE SA-OH-036-PP-S75G	BAE SA-OH-037-PP-DV02	BAE SA-OH-037-NP-DV02
	10 to 30 V DC	10 to 30 V DC	10 to 30 V DC
	200 mA	200 mA	200 mA
	170 µs	50 µs	50 µs
	Yes/Yes	Yes/Yes	Yes/Yes
	Green LED	Green LED	Green LED
	Yellow LED / 3-digit display	Yellow LED / 3-digit display	Yellow LED / 3-digit display
	Clocked		
	0...250 ms selectable	0...250 ms selectable	0...250 ms selectable
	PNP	**PNP**	**NPN**
	3 kHz	10 kHz	10 kHz
	45 mA	50 mA	50 mA
	IP 54	IP 54	IP 54
	–10...+55 °C	–10...+55 °C	–10...+55 °C
	ABS	ABS	ABS
	M8 connector, 4-pin	**2m PVC cable, 5x26 AWG**	**2m PVC cable, 5x26 AWG**

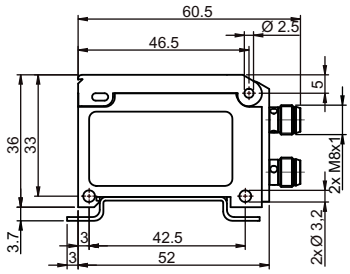


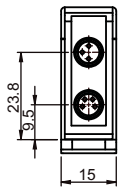
Sensor amplifiers BAE with display
Premium

Type	**Premium switching amplifier**	
Order code	**BAE00R6**	
Part number	BAE SA-OH-037-PP-S75G	
Supply voltage U_S	10 to 30 VDC	
Output current	200 mA	
Max. response time	50 µs	
Polarity reversal protected/ Short-circuit protected	Yes/Yes	
Power indicator	Green LED	
Function indicator	Yellow LED / 3-digit display	
Function principle		
Pulse stretching (Off delay)	0...250 ms	
Output	**PNP**	
Limit frequency	10 kHz	
Intrinsic current consumption	50 mA	
Degree of protection as per IEC 60529	IP 54	
Ambient temperature T_a	–10...+55 °C	
Housing Material	ABS	
Supply connection	**M8 connector, 4-pin**	

Function diagrams
beginning on page 62.

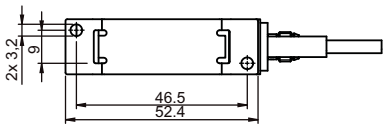


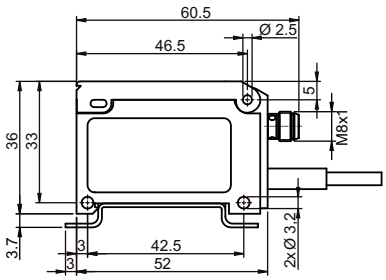


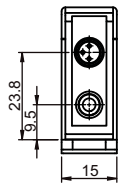


MICROmote® Sensors
Sensor amplifiers BAE with display
Premium

	Premium analog amplifier	
	BAE00NH	
	BAE SA-OH-038-UA-DV02	
	15...30 VDC	
	200 mA	
	0.5 ms	
	Yes/Yes	
	Green LED	
	Yellow LED / 3-digit display	
	Clocked	
	0...10 V (analog)	
	1 kHz	
	45 mA	
	IP 54	
	–10...+55 °C	
	ABS	
	2 m PVC cable, 5x26 AWG	







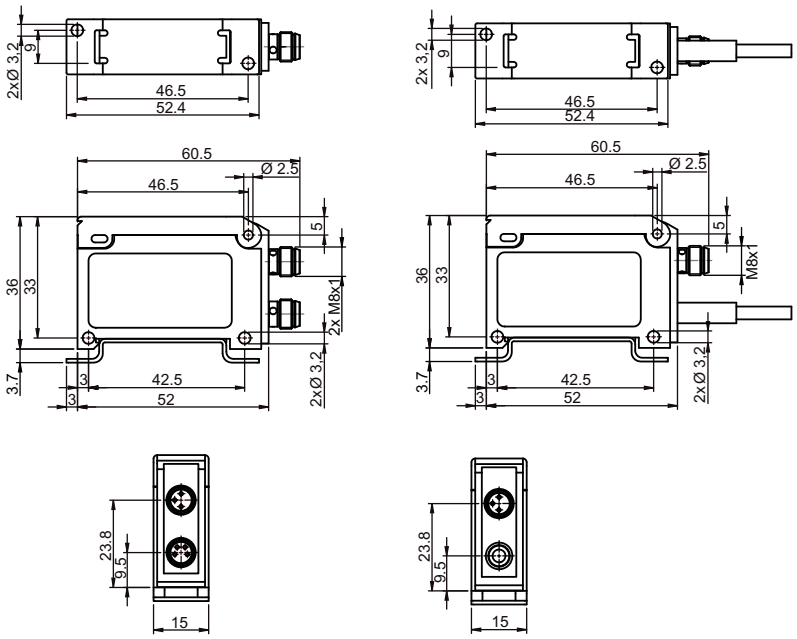
MICROmote® Sensors

Sensor amplifiers BAE with display

Premium

Type	Premium analog amplifier	Premium analog amplifier	
Order code	**BAE00N6**	**BAE00N4**	
Part number	BAE SA-OH-038-UA-S75G	BAE SA-OH-038-IC-DV02	
Supply voltage U_S	15...30 VDC	15...30 VDC	
Output current	200 mA	200 mA	
Max. response time	0.5 ms	0.5 ms	
Polarity reversal protected/ Short-circuit protected	Yes/Yes	Yes/Yes	
Power indicator	Green LED	Green LED	
Function indicator	Yellow LED / 3-digit display	Yellow LED / 3-digit display	
Function principle	Clocked	Clocked	
Pulse stretching (Off delay)			
Output	**0...10 V (analog)**	**4...20 mA (analog)**	
Limit frequency	1 kHz	1 kHz	
Intrinsic current consumption	45 mA	45 mA	
Degree of protection as per IEC 60529	IP 54	IP 54	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	
Housing material	ABS	ABS	
Supply connection	**M8 connector, 4-pin**	**2 m PVC cable, 5x26 AWG**	

Function diagrams beginning on page 62.

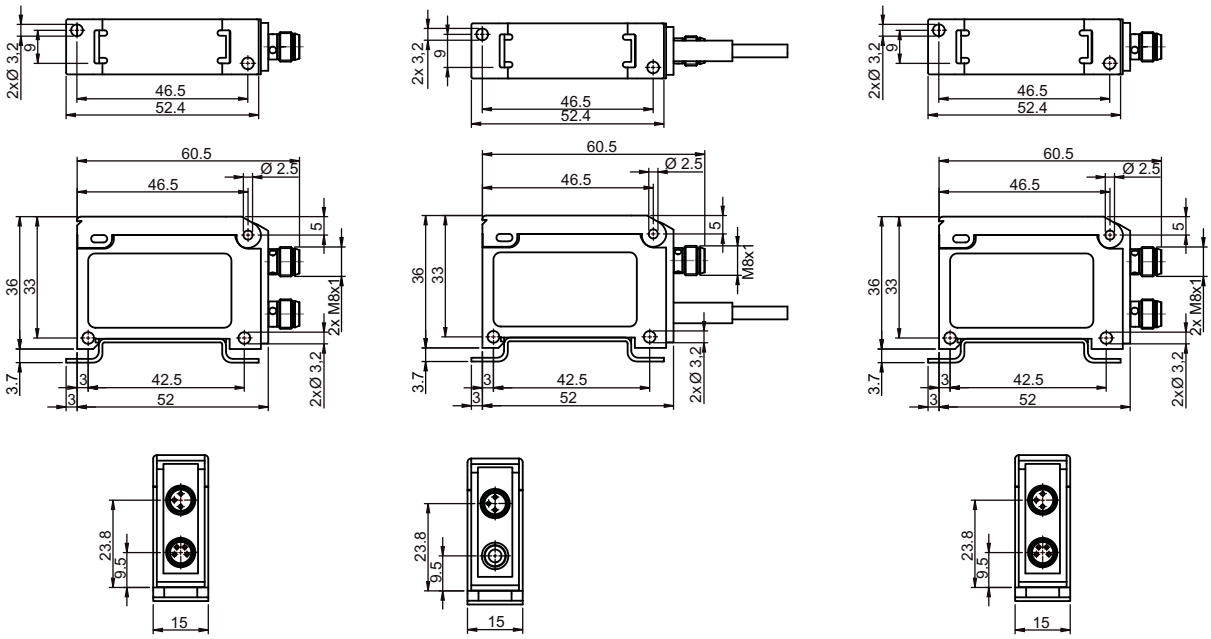


MICROmote® Sensors

Sensor amplifiers BAE with display

Premium

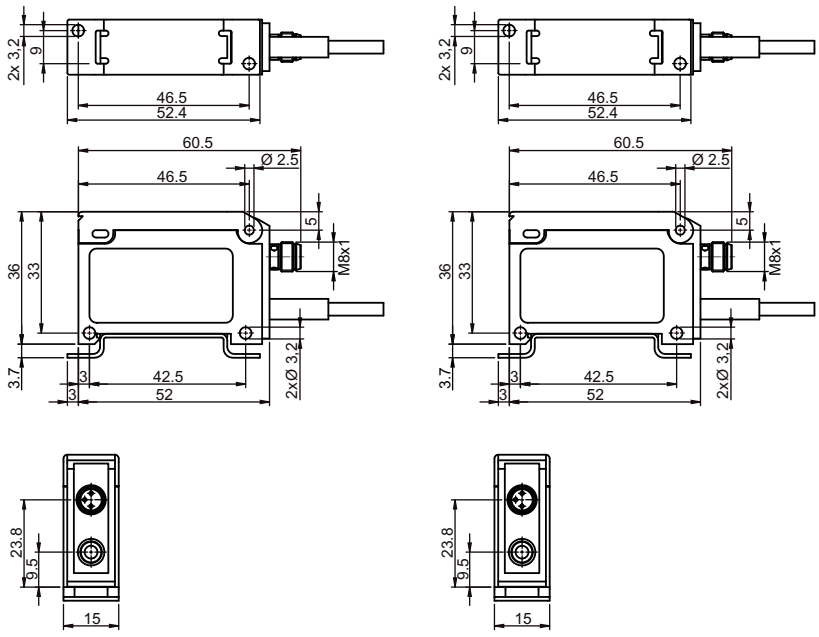
Premium analog amplifier	Premium dynamic amplifier	Premium dynamic amplifier
BAE00N5	**BAE00NJ**	**BAE00N7**
BAE SA-OH-038-IC-S75G	BAE SA-OH-040-PP-DV02	BAE SA-OH-040-PP-S75G
15...30 VDC	10 to 30 V DC	10 to 30 V DC
200 mA	200 mA	200 mA
0.5 ms	1 ms	1 ms
Yes/Yes	Yes/Yes	Yes/Yes
Green LED	Green LED	Green LED
Yellow LED / 3-digit display	Yellow LED / 3-digit display	Yellow LED / 3-digit display
Clocked	**Clocked, dynamic**	**Clocked, dynamic**
	0...250 ms	0...250 ms
4...20 mA (analog)	**PNP**	**PNP**
1 kHz	2 kHz (scan rate)	3 kHz
45 mA	45 mA	45 mA
IP 54	IP 54	IP 54
–10...+55 °C	–10...+55 °C	–10...+55 °C
ABS	ABS	ABS
M8 connector, 4-pin	**2 m PVC cable, 5x26 AWG**	**M8 connector, 4-pin**



Sensor amplifiers BAE
Advanced

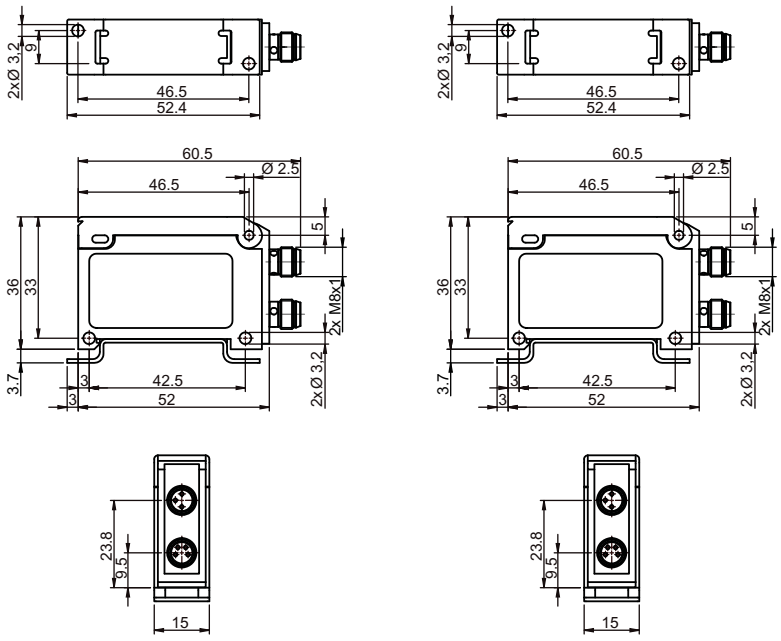
Type	Advanced switching amplifier	Advanced switching amplifier	
Order code	**BAE00N8**	**BAE00PC**	
Part number	BAE SA-OH-032-PP-DV02	BAE SA-OH-032-NP-DV02	
Supply voltage U_S	10 to 30 V DC	10 to 30 V DC	
Output current	100 mA	100 mA	
Max. response time	1.1 ms	1.1 ms	
Polarity reversal protected/ Short-circuit protected	Yes/Yes	Yes/Yes	
Power indicator	Green LED	Green LED	
Function indicator	Yellow LED	Yellow LED	
Function principle	Clocked	Clocked	
Pulse stretching (Off delay)	0/50 ms (selectable)	0/50 ms (selectable)	
Output	**PNP**	**NPN**	
Limit frequency	500 Hz	500 Hz	
Intrinsic current consumption	40 mA	40 mA	
Degree of protection as per IEC 60529	IP 54	IP 54	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	
Housing material	ABS	ABS	
Supply connection	**2 m PVC cable, 3x26 AWG**	**2 m PVC cable, 3x26 AWG**	

Function diagrams
beginning on page 62.



MICROmote® Sensors
Sensor amplifiers BAE
Advanced

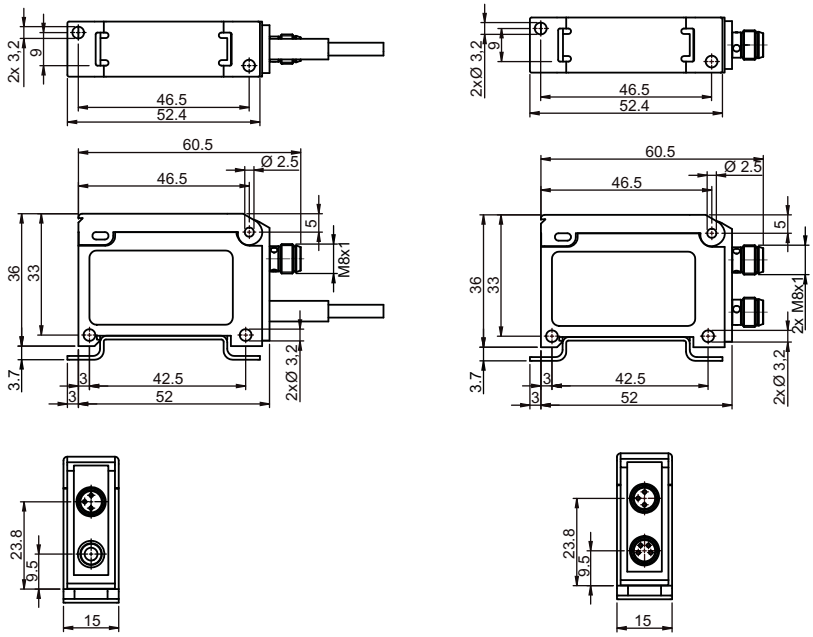
	Advanced switching amplifier	Advanced switching amplifier	
	BAE00N9	**BAE00PE**	
	BAE SA-OH-032-PP-S75G	BAE SA-OH-032-NP-S75G	
	10 to 30 V DC	10 to 30 V DC	
	100 mA	100 mA	
	1.1 ms	1.1 ms	
	Yes/Yes	Yes/Yes	
	Green LED	Green LED	
	Yellow LED	Yellow LED	
	Clocked	Clocked	
	0/50 ms (selectable)	0/50 ms (selectable)	
	PNP	**NPN**	
	500 Hz	500 Hz	
	40 mA	40 mA	
	IP 54	IP 54	
	–10...+55 °C	–10...+55 °C	
	ABS	ABS	
	M8 connector, 4-pin	**M8 connector, 4-pin**	



Sensor amplifiers BAE
Basic

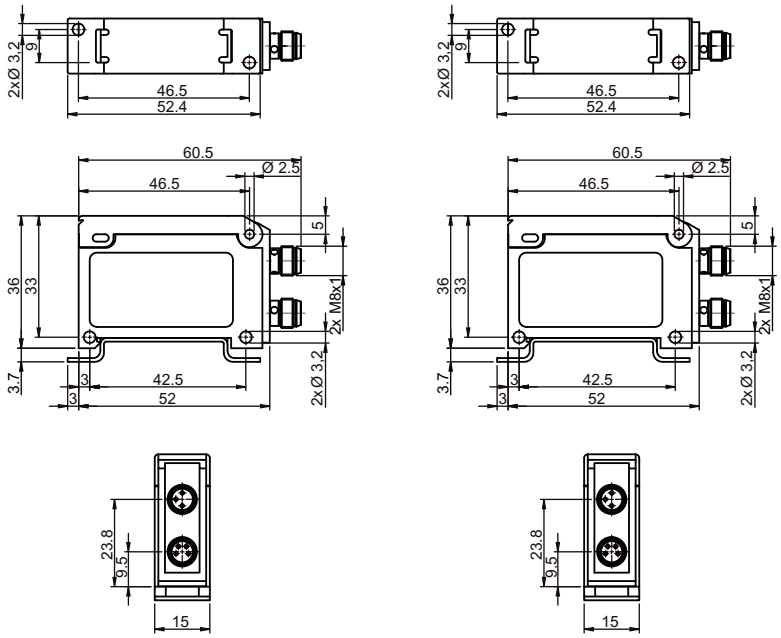
Type	Basic switching amplifier	Basic switching amplifier	
Order code	**BAE00NA**	**BAE00NC**	
Part number	BAE SA-OH-029-YP-DV02	BAE SA-OH-029-YP-S75G	
Supply voltage U_S	15...30 VDC	15...30 VDC	
Output current	100 mA	100 mA	
Max. response time	1.1 ms	1.1 ms	
Polarity reversal protected/ Short-circuit protected	Yes/Yes	Yes/Yes	
Power indicator	Green LED	Green LED	
Function indicator	Yellow LED	Yellow LED	
Function principle	Clocked	Clocked	
Pulse stretching (Off delay)	0/50 ms (selectable)	0/50 ms (selectable)	
Output	**PNP/NPN**	**PNP/NPN**	
Limit frequency	500 Hz	500 Hz	
Intrinsic current consumption	40 mA	40 mA	
Degree of protection as per IEC 60529	IP 54	IP 54	
Ambient temperature T_a	–10...+55 °C	–10...+55 °C	
Housing material	ABS	ABS	
Supply connection	**2 m PVC cable, 4x26 AWG**	**M8 connector, 4-pin**	

Function diagrams
beginning on page 62.



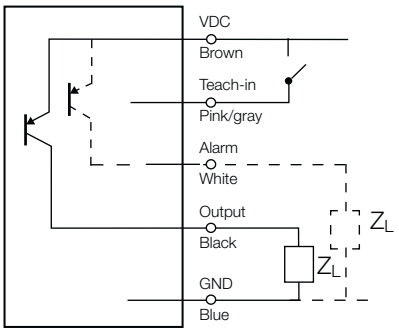
MICROmote® Sensors
Sensor amplifiers BAE
Basic

	Basic switching amplifier	Basic switching amplifier	
	BAE00P7	**BAE00PA**	
	BAE SA-OH-030-YP-S75G	BAE SA-OH-031-YP-S75G	
	15...30 VDC	15...30 VDC	
	100 mA	100 mA	
	200 µs	70 µs	
	Yes/Yes	Yes/Yes	
	Green LED	Green LED	
	Yellow LED	Yellow LED	
	Clocked	Clocked	
	0/50 ms (selectable)	0/50 ms (selectable)	
	PNP/NPN	**PNP/NPN**	
	3 kHz	5 kHz	
	40 mA	45 mA	
	IP 54	IP 54	
	–10...+55 °C	–10...+55 °C	
	ABS	ABS	
	M8 connector, 4-pin	**M8 connector, 4-pin**	



Switching amplifiers BAE for sensor heads BOH
Wiring diagrams

Switching amplifier and premium dynamic amplifier

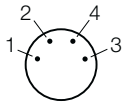


2 m PVC cable, 5×0.14 mm²

Brown	+ VDC
White	Alarm output
Blue	– GND
Black	Signal output
Pink	Teach input

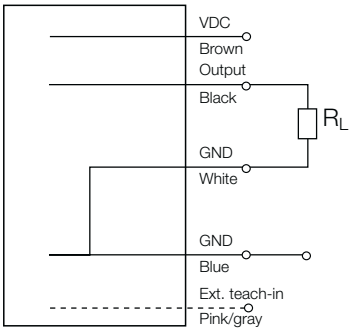
M8 connector, 4-pin

1 (brown)	+ VDC
2 (white)	Alarm output
3 (blue)	– GND
4 (black)	Signal output



NPN on request.

Premium analog amplifier with current output

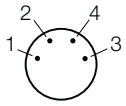


2 m PVC cable, 5×0.14 mm²

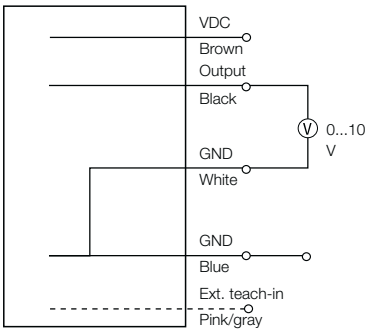
Brown	+ VDC
White	Analog GND
Blue	– GND
Black	Analog +
Pink	External teach

M8 connector, 4-pin

1 (brown)	+ VDC
2 (white)	Analog GND
3 (blue)	– GND
4 (black)	Analog +



Premium analog amplifier with voltage output

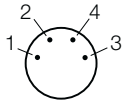


2 m PVC cable, 5×0.14 mm²

Brown	+ VDC
White	Analog GND
Blue	– GND
Black	Analog +
Pink	External teach

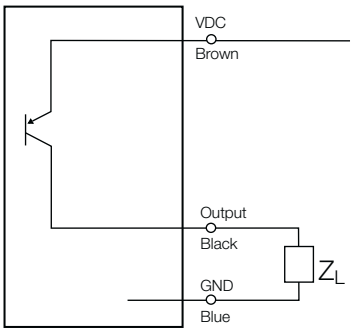
M8 connector, 4-pin

1 (brown)	+ VDC
2 (white)	Analog GND
3 (blue)	– GND
4 (black)	Analog +



Switching amplifiers BAE for sensor heads BOH
Wiring diagrams

Advanced switching amplifier



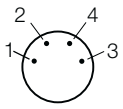
NPN on request.

2 m PVC cable, 3×0.14 mm²

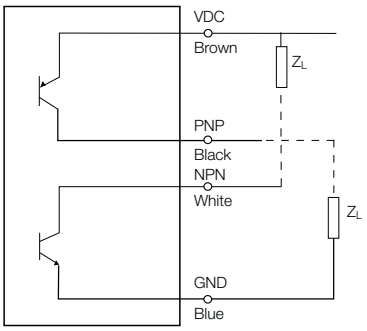
Brown	+ VDC
Blue	– GND
Black	Signal output

M8 connector, 4-pin

1 (brown)	+ VDC
2 (white)	Not assigned
3 (blue)	– GND
4 (black)	Signal output



Basic switching amplifier

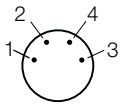


2 m PVC cable, 4×0.14 mm²

Brown	+ VDC
White	NPN signal output
Blue	– GND
Black	PNP signal output

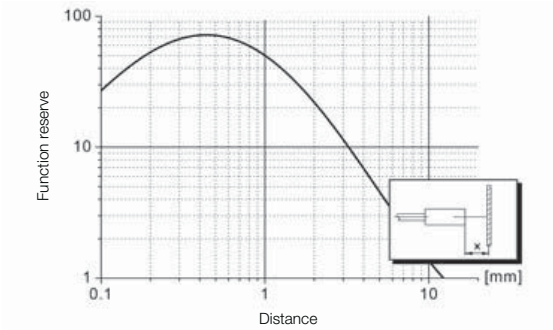
M8 connector, 4-pin

1 (brown)	+ VDC
2 (white)	NPN signal output
3 (blue)	– GND
4 (black)	PNP signal output



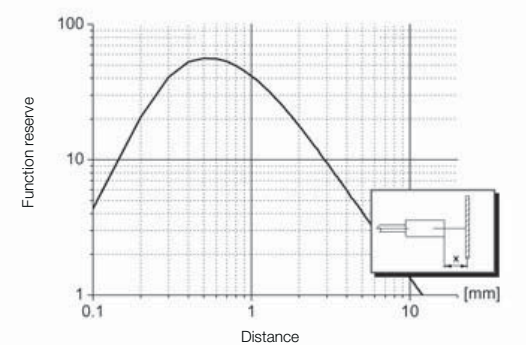
Diffuse sensors BOH for separate amplifiers BAE
Function diagrams

BOH0002, BOH DI-G02-001-01-S49F
BOH0004, BOH DI-M03-001-01-S49F
BOH009R, BOH DI-M06V-008-S75-SA3

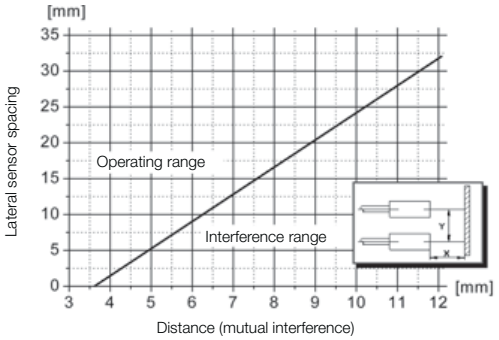


Function reserve depending on distance

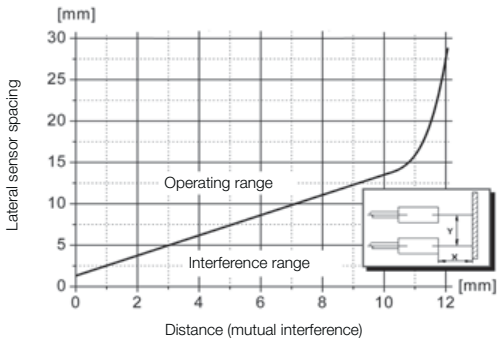
BOH0003, BOH DR-G02-001-01-S49F
BOH0009, BOH DR-M03-001-01-S49F



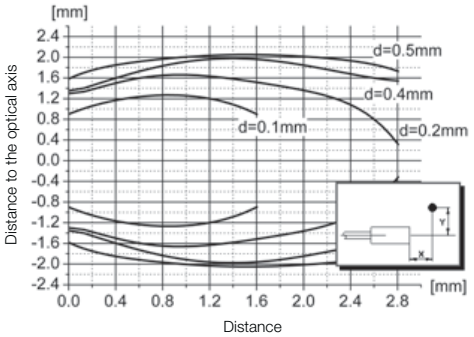
Function reserve depending on distance



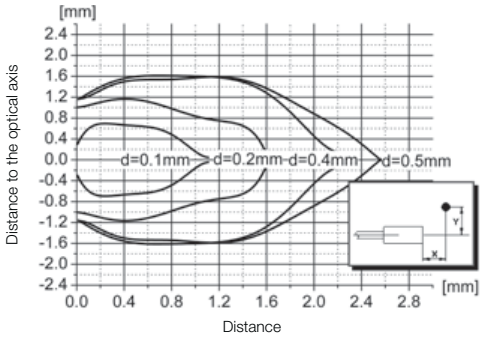
Minimum distance between two sensors for avoiding mutual interference



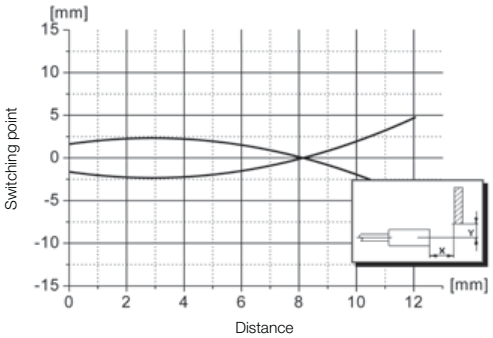
Minimum distance between two sensors for avoiding mutual interference



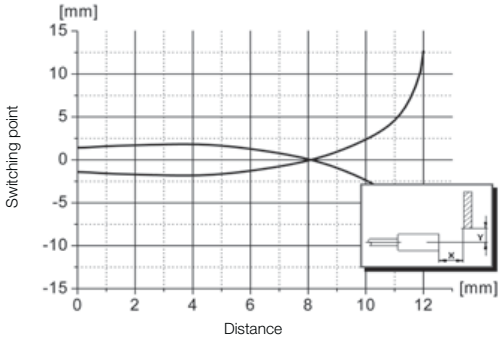
Resolution depending on distance



Resolution depending on distance

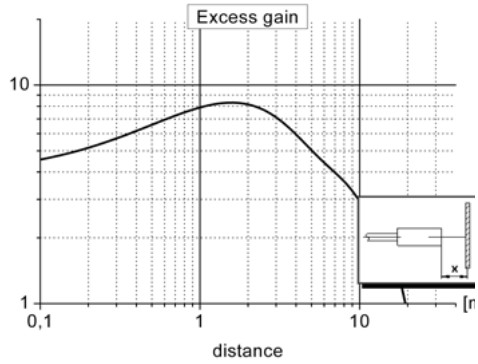


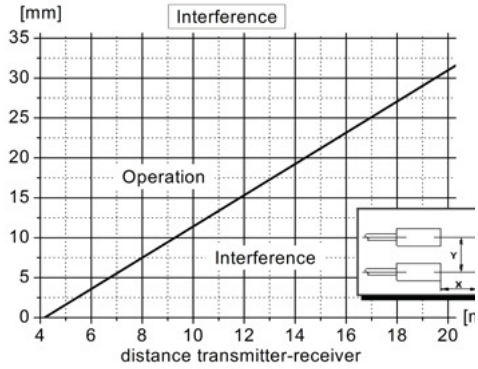
Detection range depending on distance

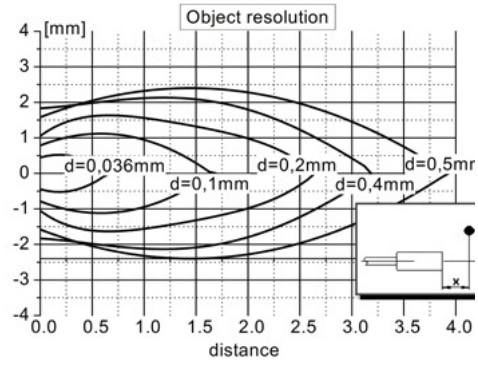


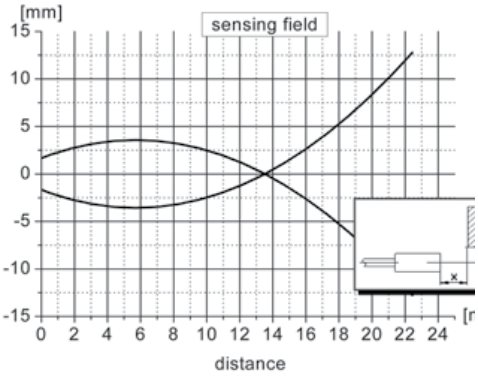
Detection range depending on distance

BOH0035, BOH DI-G02-006-01-S49F

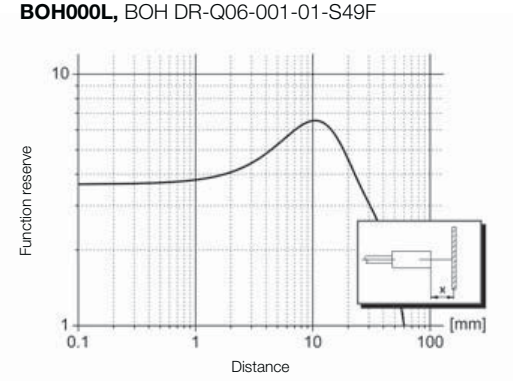




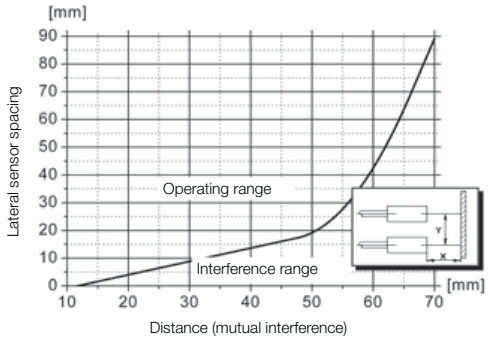




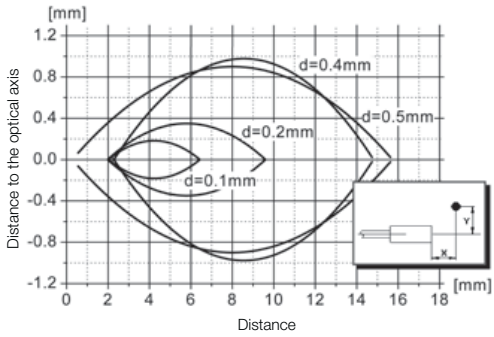
BOH0005, BOH DR-G05-002-01-S49F
BOH0007, BOH DR-M06-002-01-S49F
BOH000L, BOH DR-Q06-001-01-S49F



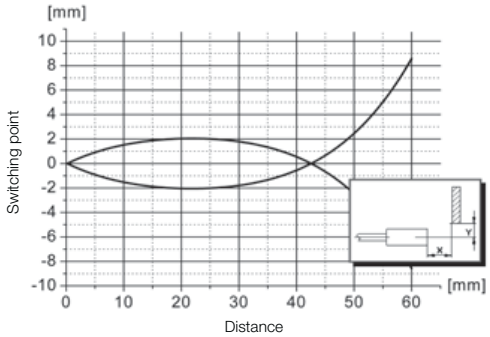
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference



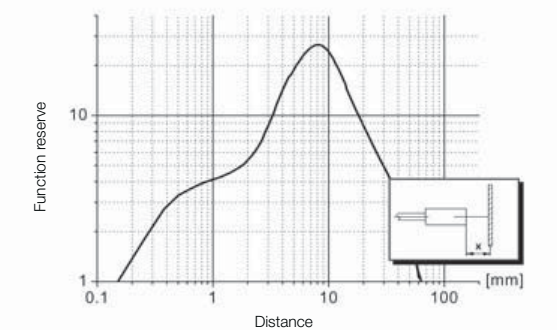
Resolution depending on distance



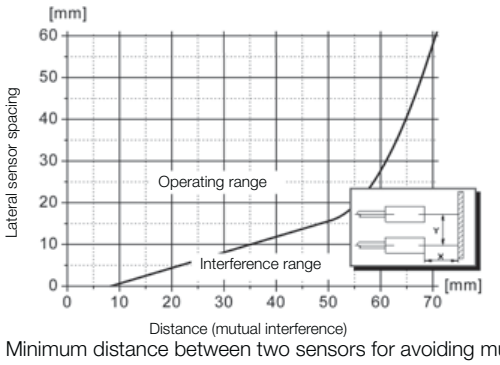
Detection range depending on distance

Diffuse sensors BOH for separate amplifiers BAE
Function diagrams

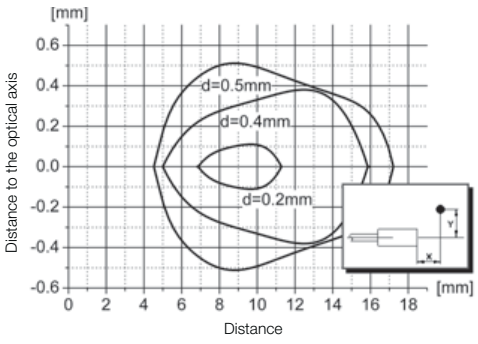
BOH0006, BOH DK-G05-002-01-S49F
BOH0008, BOH DK-M06-002-01-S49F
BOH000M, BOH DK-Q06-001-01-S49F



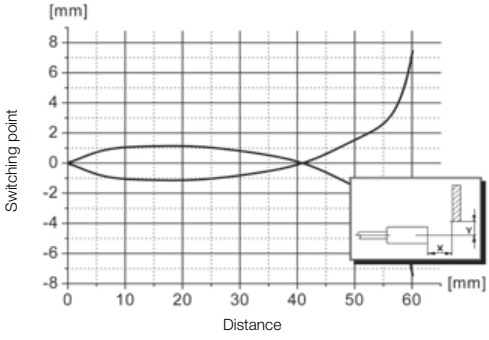
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference

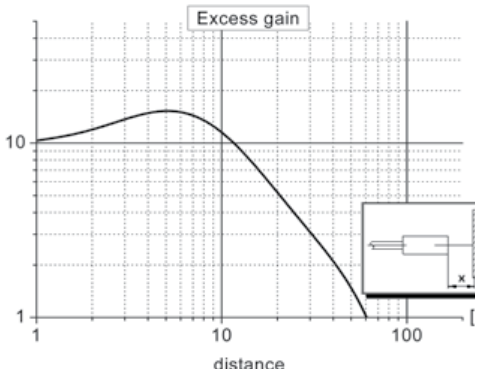


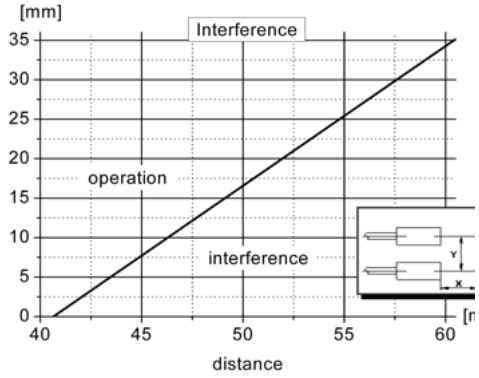
Resolution depending on distance

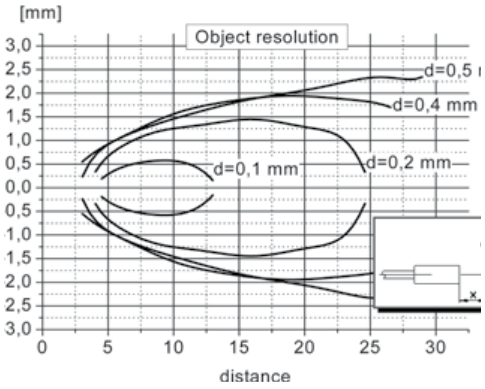


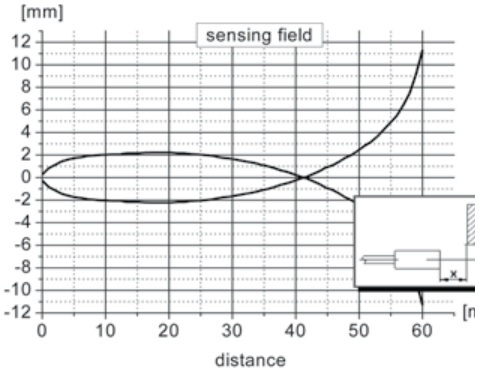
Detection range depending on distance

BOH003C, BOH DI-G05-002-01-S49F
BOH003M, BOH DI-G06-002-01-S49F



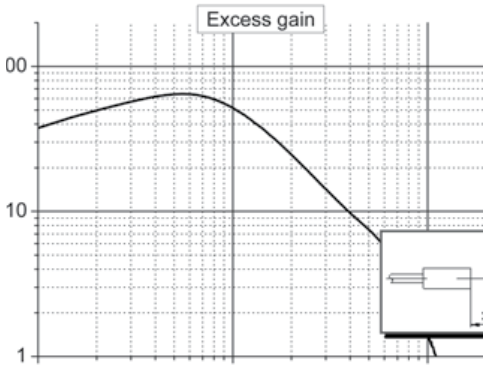


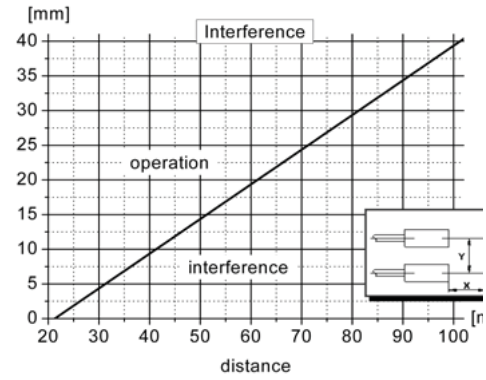


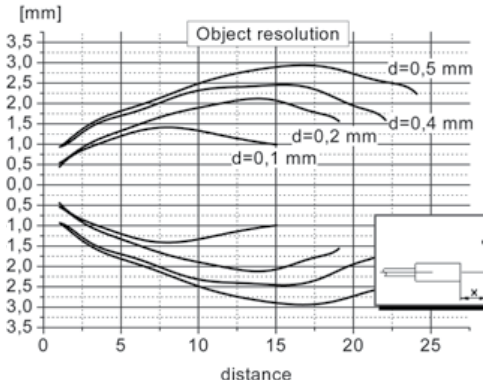


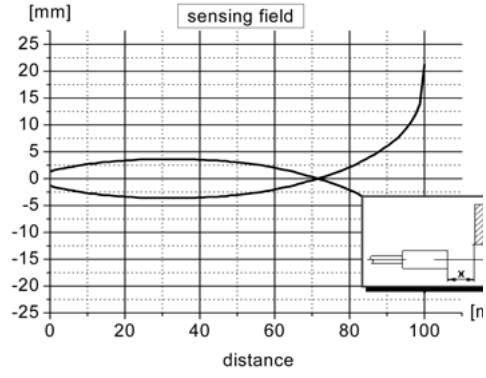
Diffuse sensors BOH for separate amplifiers BAE
Function diagrams

BOH003F, BOH DI-G05-007-01-S49F

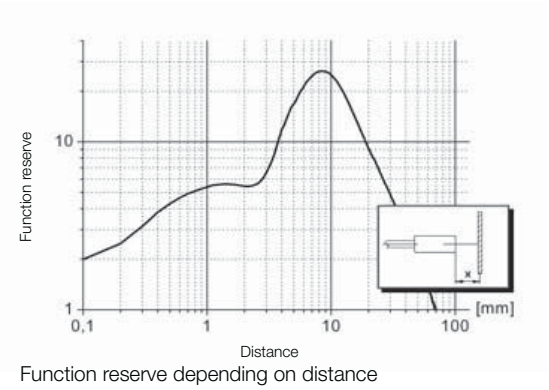




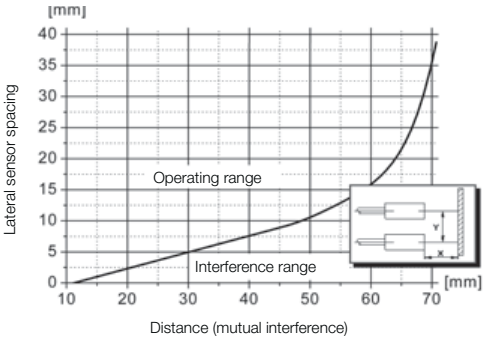




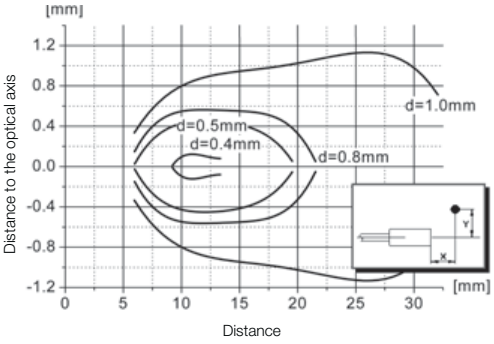
BOH002K, BOH DK-R002-006-01-S49F



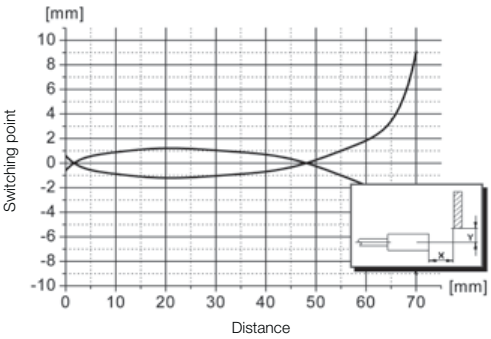
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference



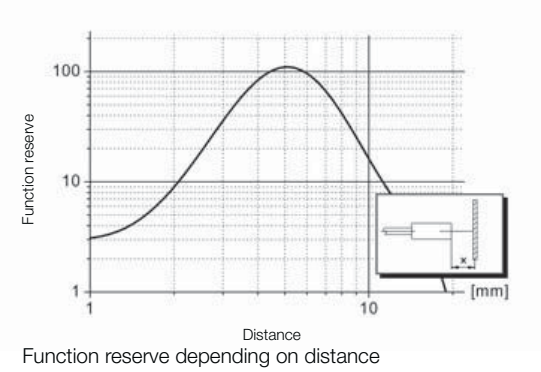
Resolution depending on distance



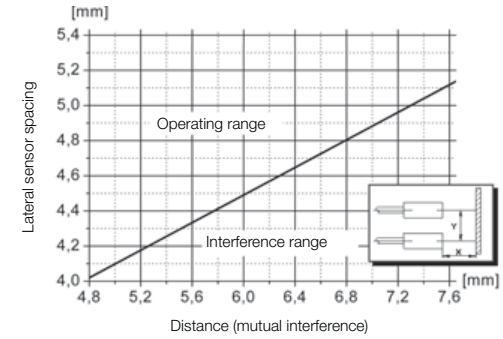
Detection range depending on distance

Diffuse sensors BOH for separate amplifiers BAE
Function diagrams

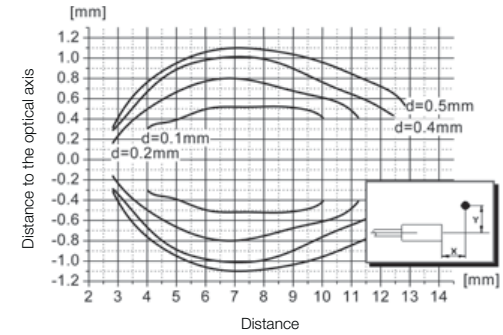
BOH002L, BOH FK-Z001-001-01-S49F



Function reserve depending on distance

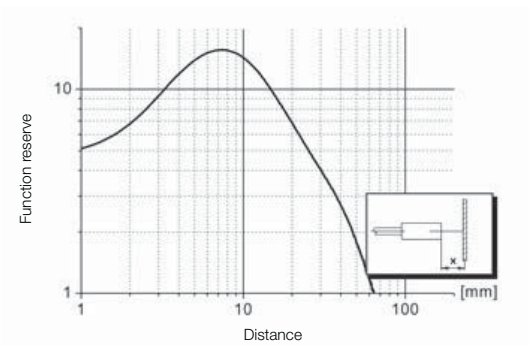


Minimum distance between two sensors for avoiding mutual interference

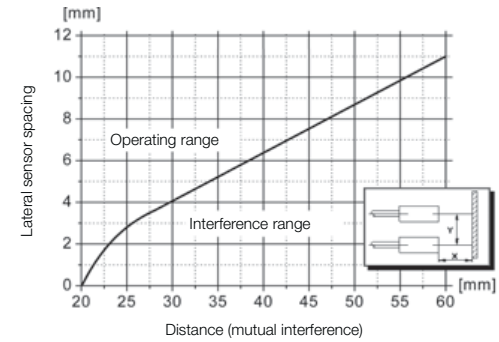


Resolution depending on distance

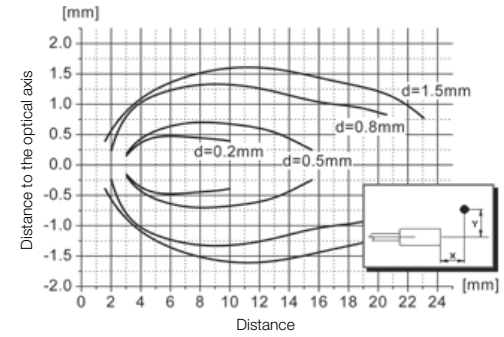
BOH0027, BOH DK-R018-001-01-S49F
BOH0028, BOH DK-R018-002-01-S49F



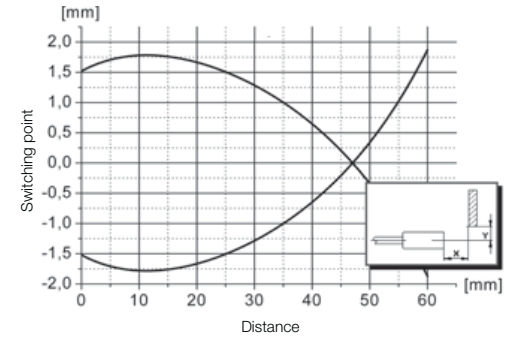
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference



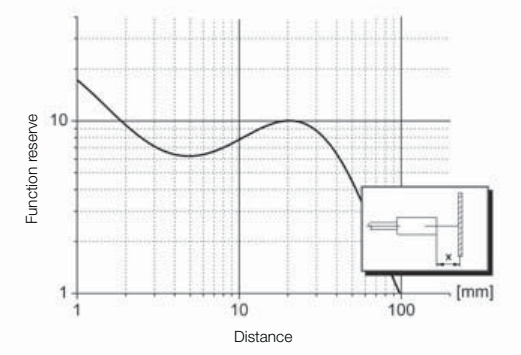
Resolution depending on distance



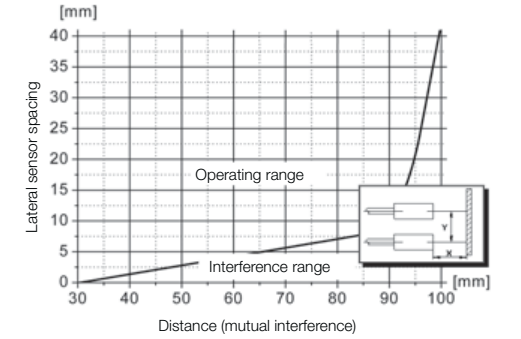
Detection range depending on distance

Diffuse sensors BOH for separate amplifiers BAE
Function diagrams

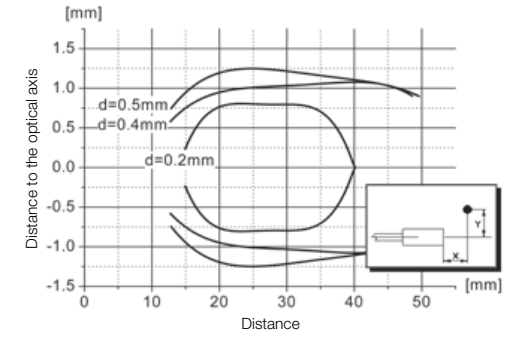
BOH0029, BOH DK-R027-003-01-S49F
BOH002A, BOH DK-R027-004-01-S49F



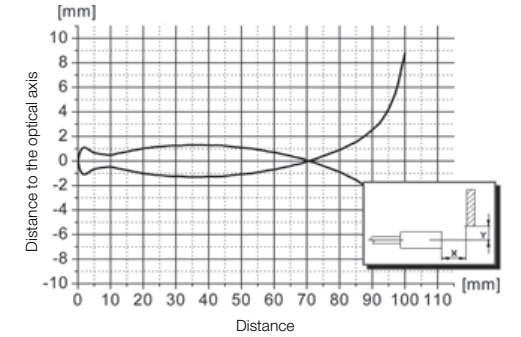
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference

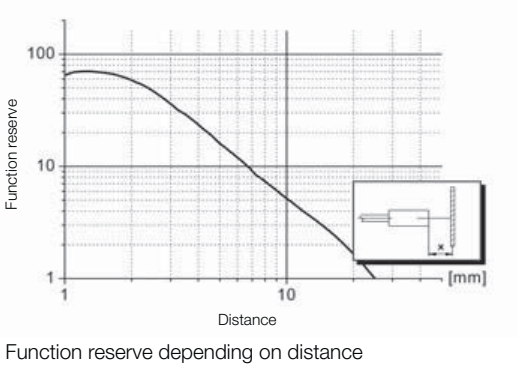


Resolution depending on distance

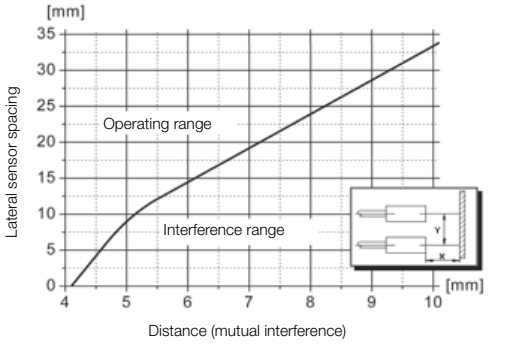


Detection range depending on distance

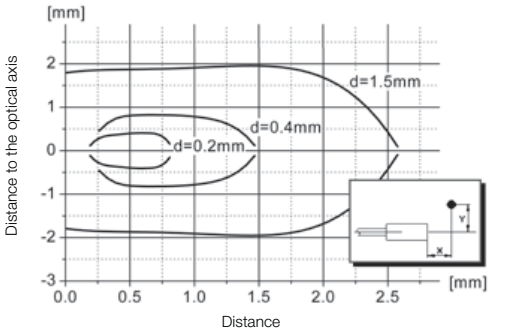
BOH0021, BOH DI-R006V-009-TL-01
BOH00A0. BOH DI-R006-009-TF-01-S49F



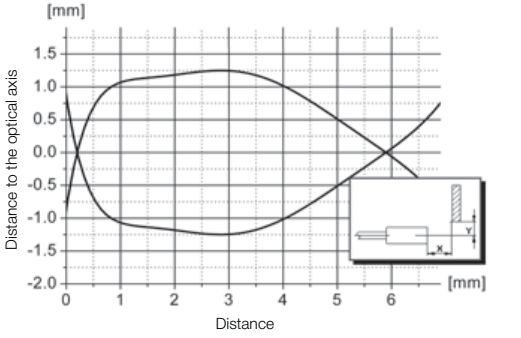
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference



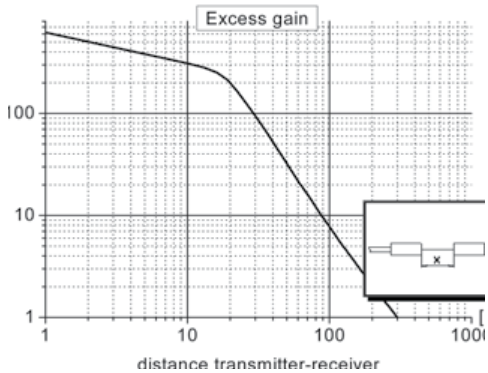
Resolution depending on distance

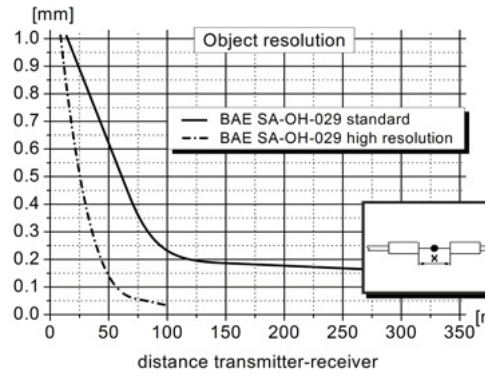


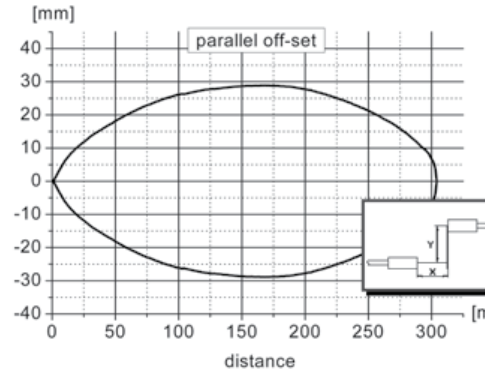
Detection range depending on distance

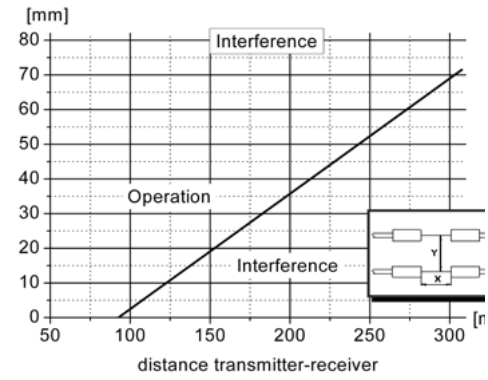
Diffuse sensors BOH for separate amplifiers BAE
Function diagrams

BOH005J, BOH TI-G02-001-01-S49F
BOH0061, BOH TI-M03-001-01-S49F

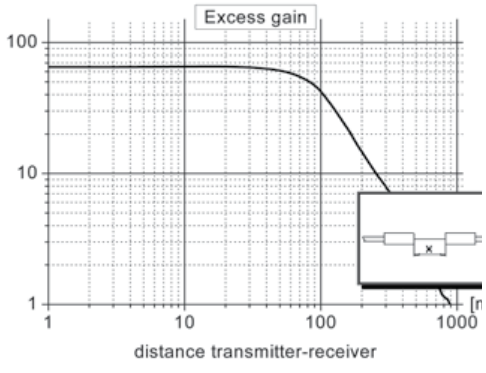


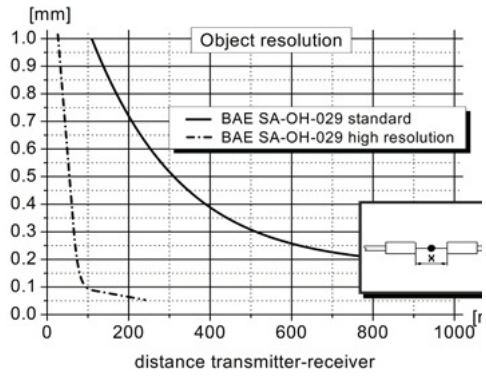


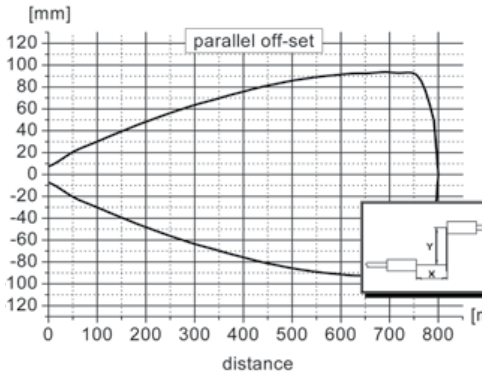


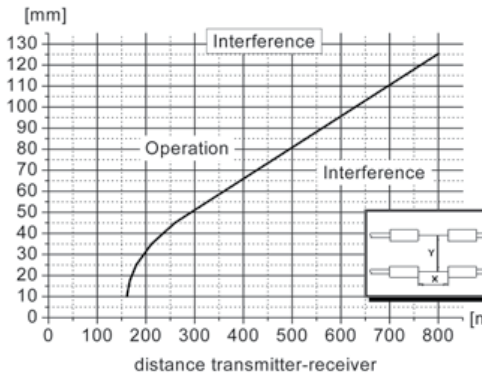


BOH005N, BOH TI-G02-008-01-S49F
BOH0064, BOH TI-MO3-012-01-S49F



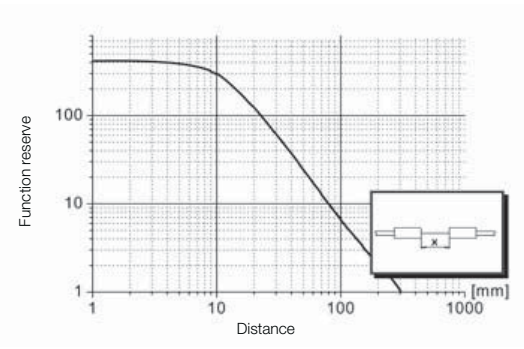




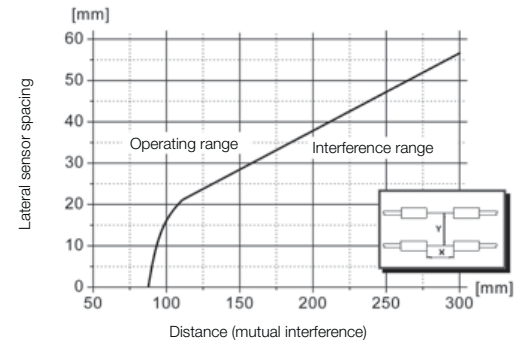


Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

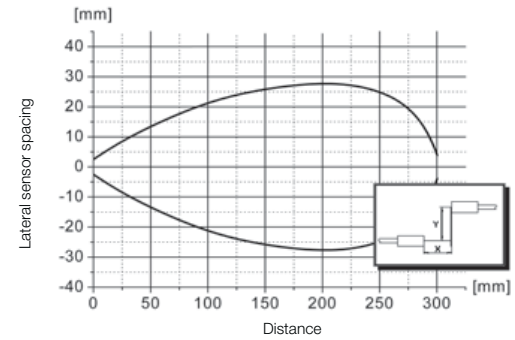
BOH000A, BOH TR-G02-001-01-S49F
BOH009U, BOH TR-M06V-009-S49-S75



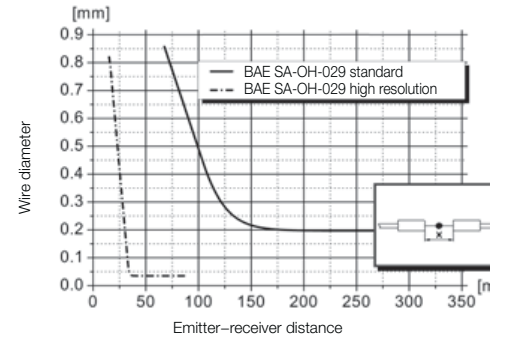
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference

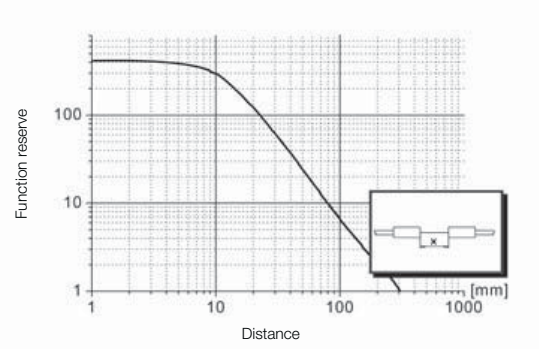


Lateral offset depending on distance

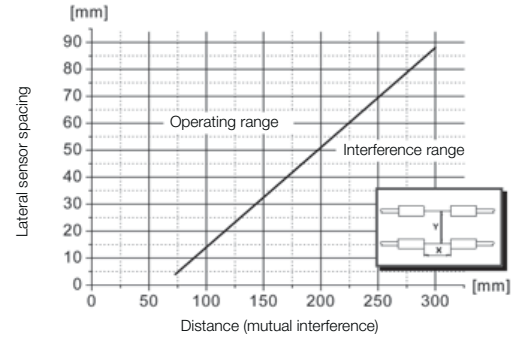


Resolution depending on distance

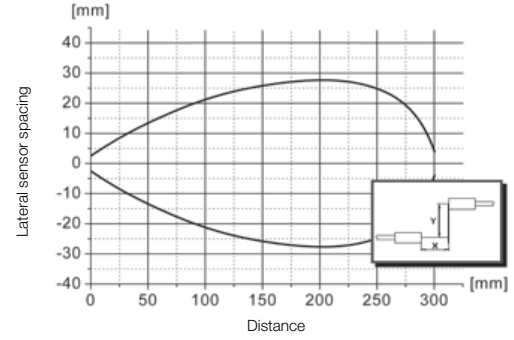
BOH000T, BOH TR-M03-001-01-S49F



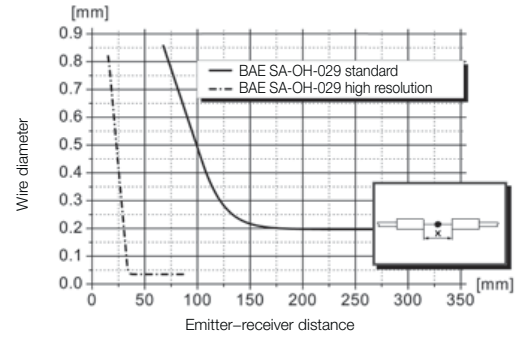
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference



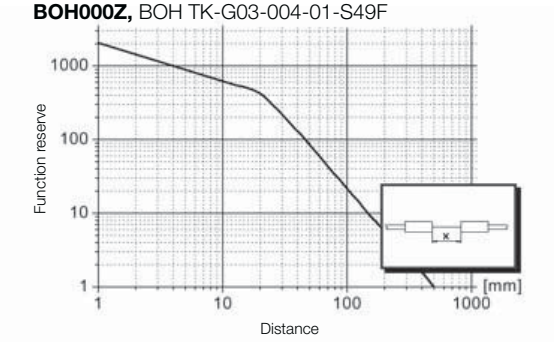
Lateral offset depending on distance



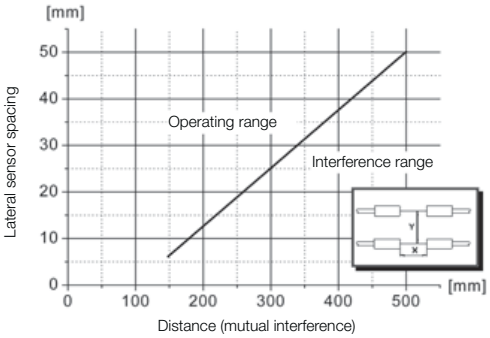
Resolution depending on distance

Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

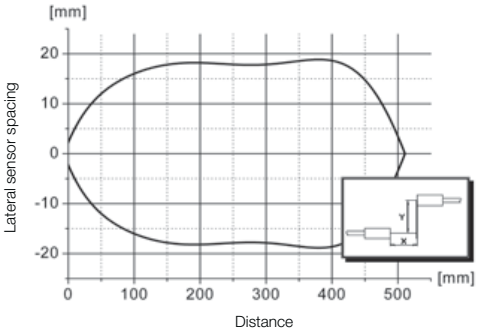
BOH000U, BOH TK-M03-001-01-S49F
BOH000E, BOH TK-M03-005-01-S49F
BOH000C, BOH TK-G02-001-01-S49F
BOH000Z, BOH TK-G03-004-01-S49F



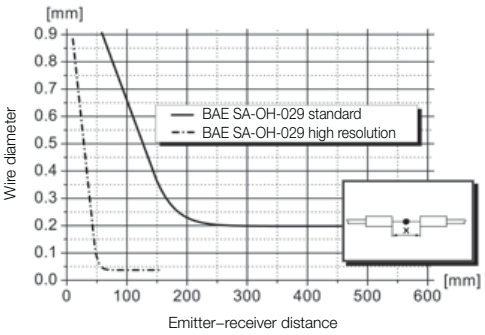
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference

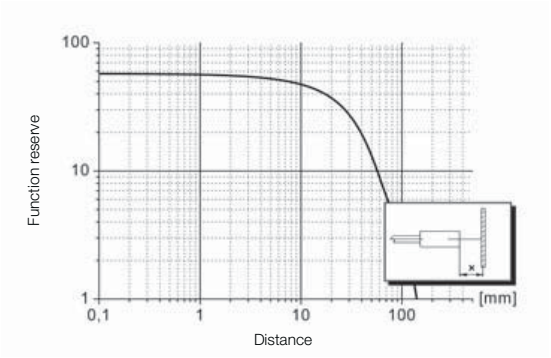


Lateral offset depending on distance

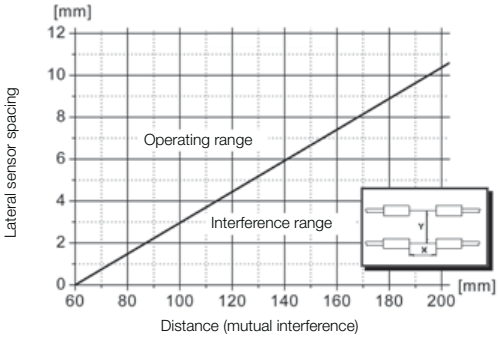


Resolution depending on distance

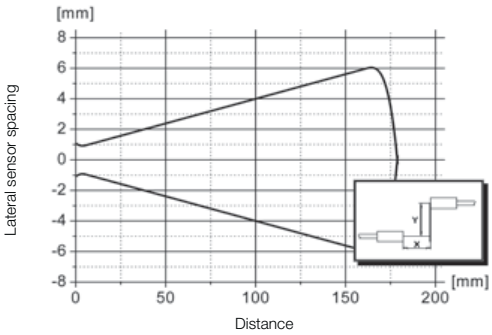
BOH001L, BOH TZ-M03-001-01-S49F-SA2
BOH001K, BOH TZ-G02-001-01-S49F-SA2



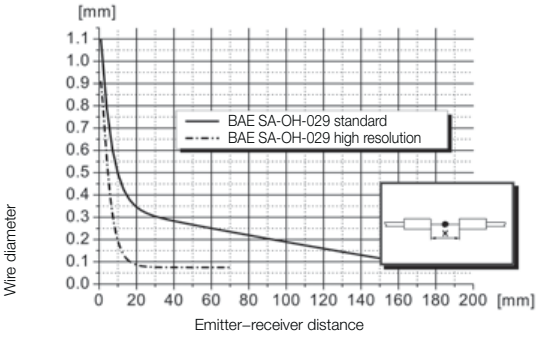
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference

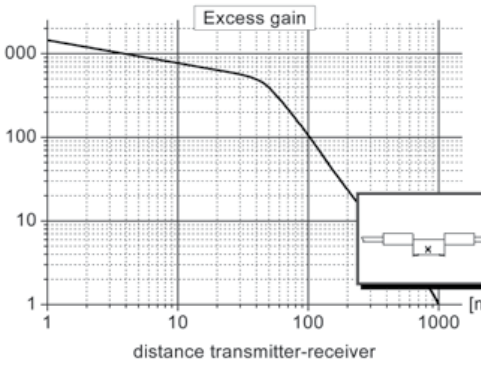


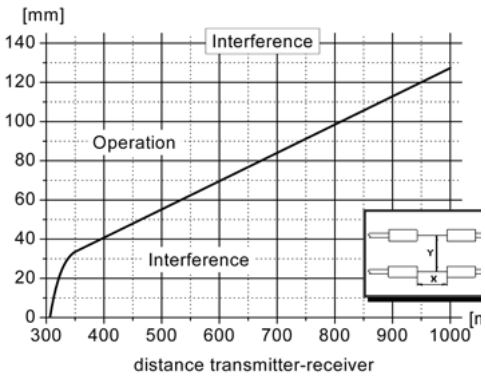
Lateral offset depending on distance

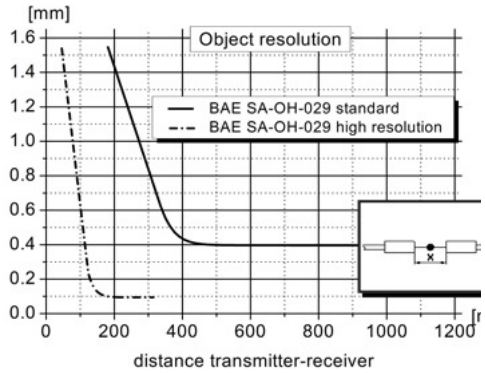


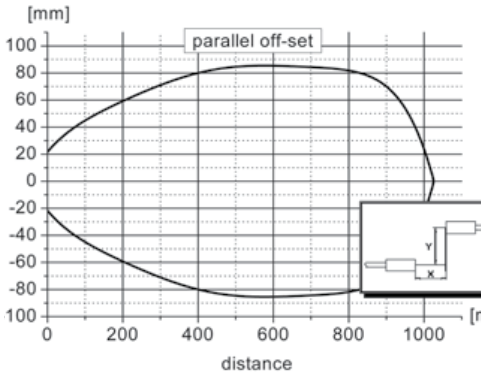
Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

BOH005P, BOH TI-G04-003-01-S49F
BOH0065, BOH TI-M05-003-01-S49F
BOH006P, BOH TI-Q06-001-01-S49F





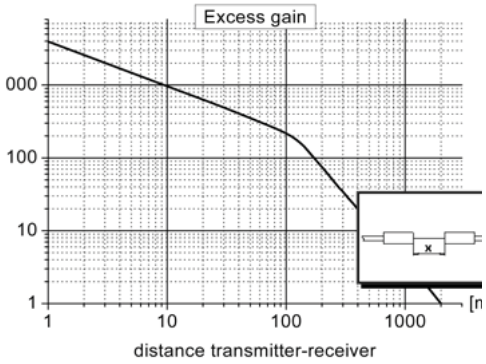


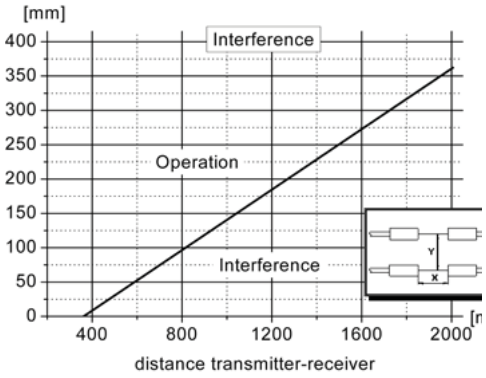


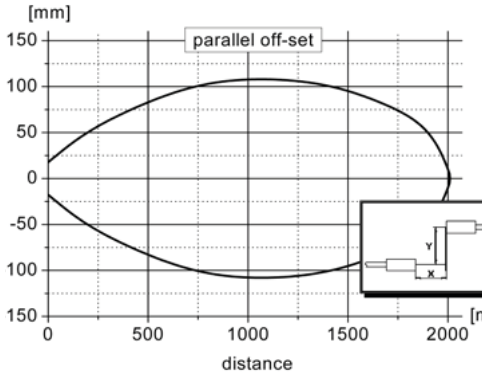
Resolution depending on distance

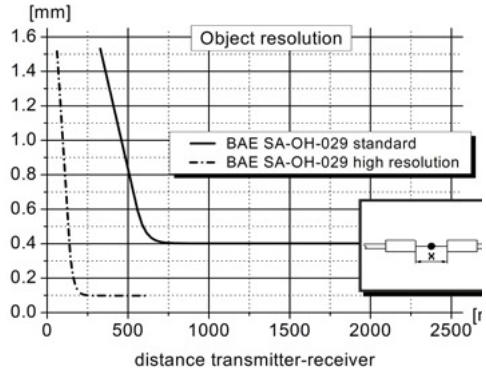
Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

BOH005T, BOH TI-G04-010-01-S49F
BOH006A, BOH TI-M05-013-01-S49F
BOH006W, BOH TI-Q06-002-01-S49F

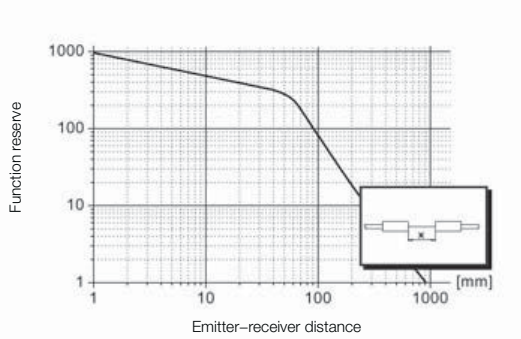




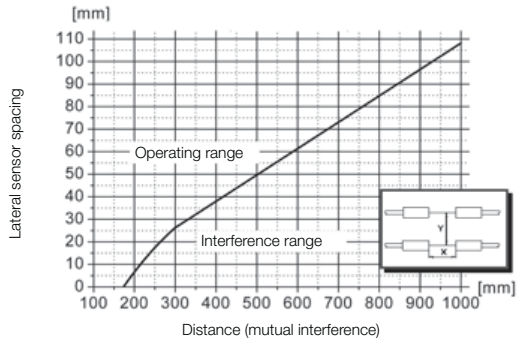




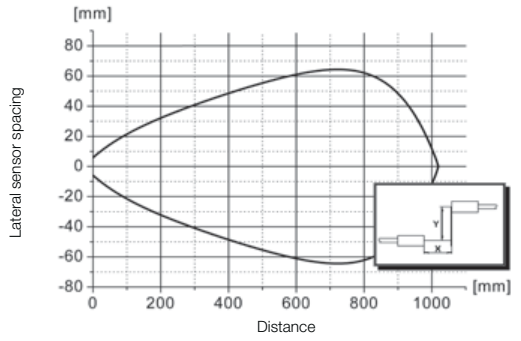
BOH000W, BOH TR-G04-003-01-S49F



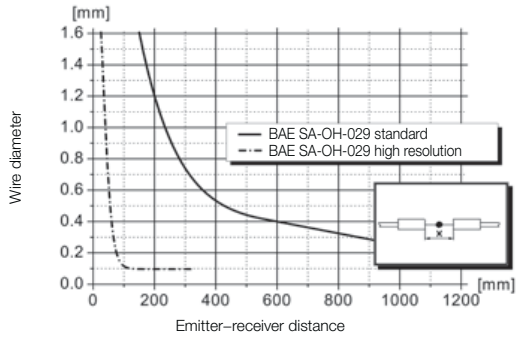
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference



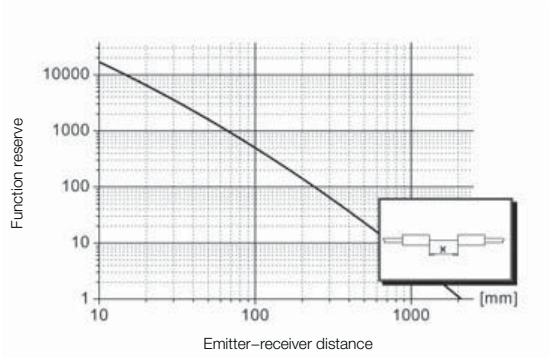
Lateral offset depending on distance



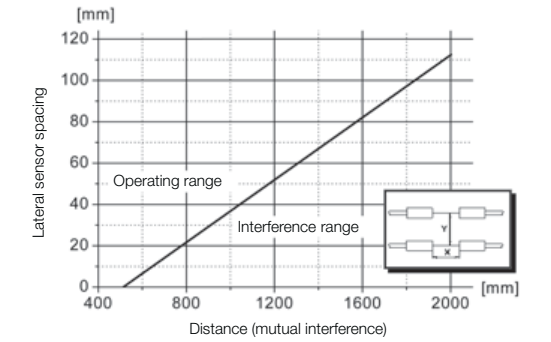
Resolution depending on distance

Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

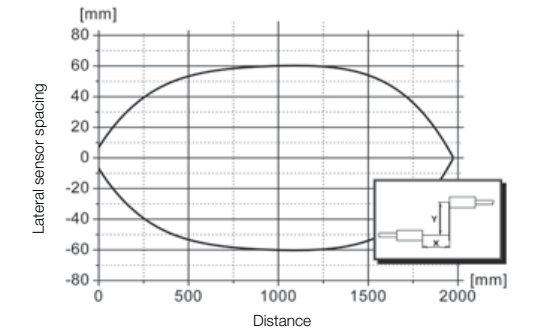
BOH0014, BOH TK-G04-003-01-S49F
BOH000P, BOH TK-Q06-001-01-S49F



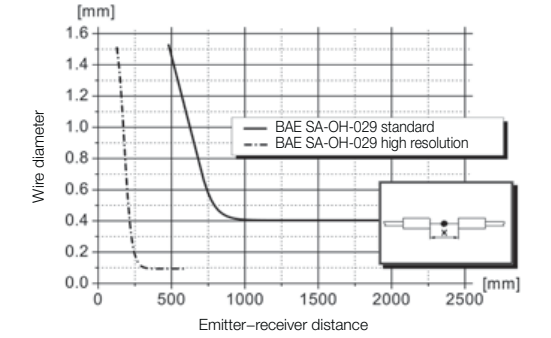
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference

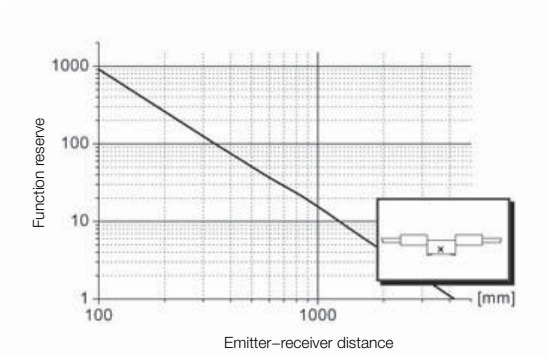


Lateral offset depending on distance

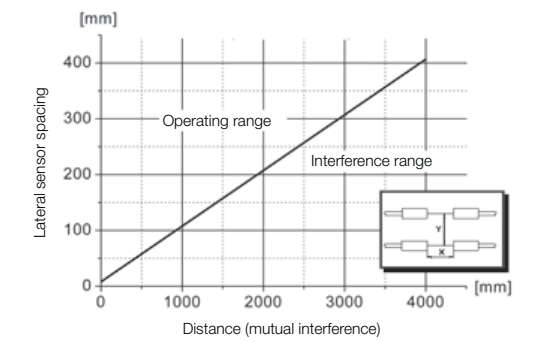


Resolution depending on distance

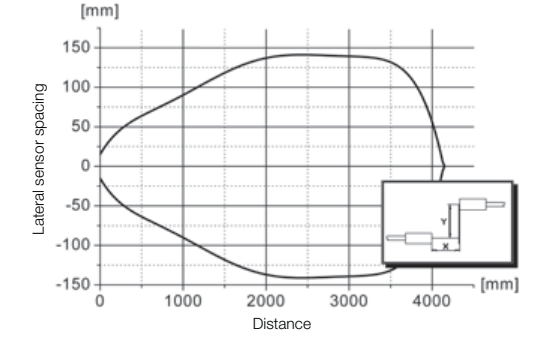
BOH0010, BOH TR-G05-005-02-S49F



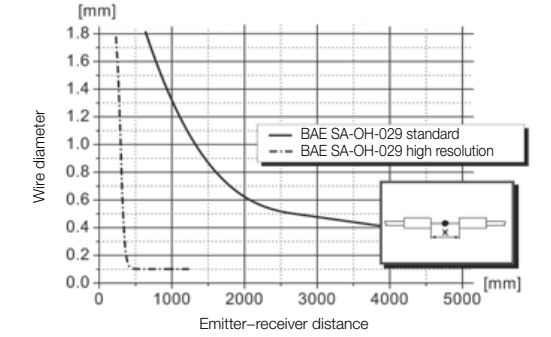
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference



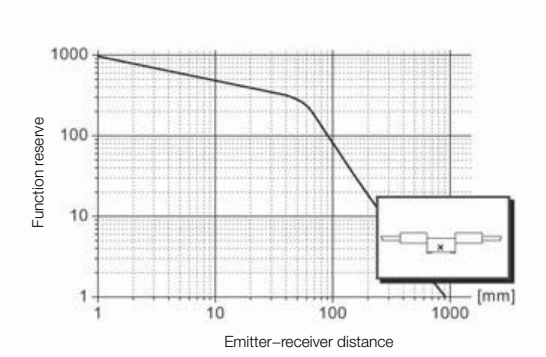
Lateral offset depending on distance



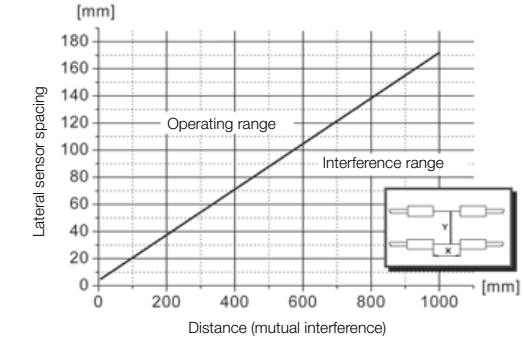
Resolution depending on distance

Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

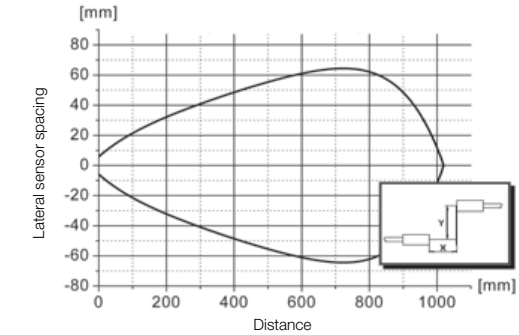
BOH000Y, BOH TR-M05-003-01-S49F
BOH000N, BOH TR-Q06-001-01-S49F



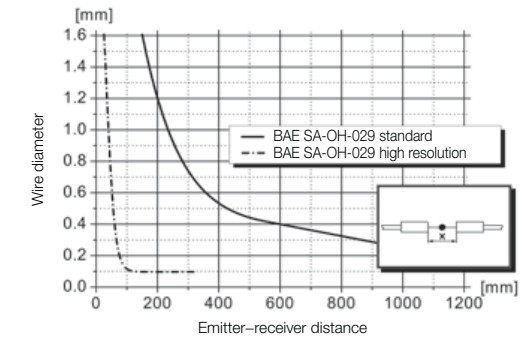
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference

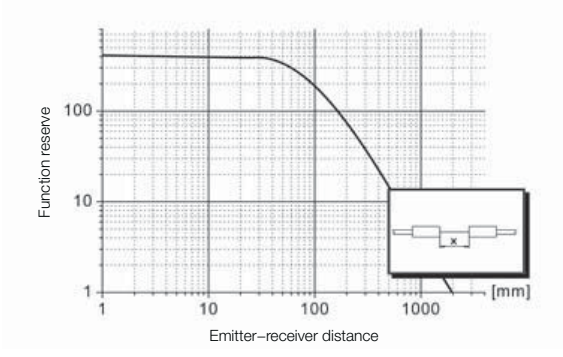


Lateral offset depending on distance

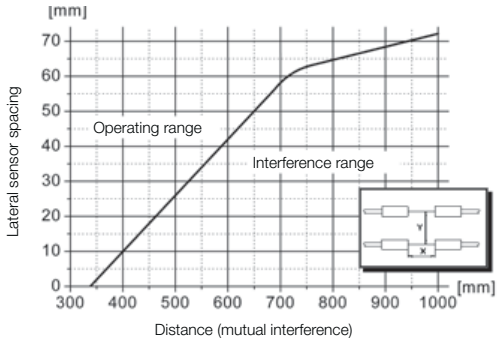


Resolution depending on distance

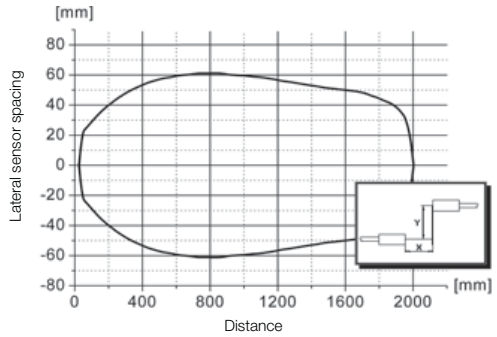
BOH0013, BOH TK-M05-003-01-S49F
BOH000F, BOH TK-M05-006-01-S49F



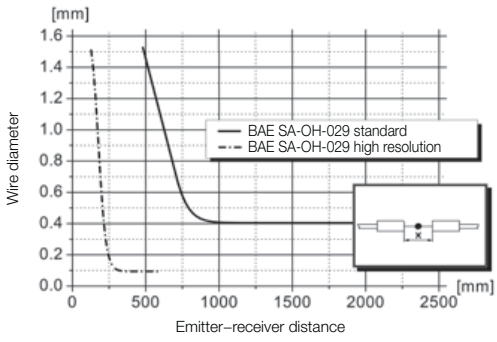
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference



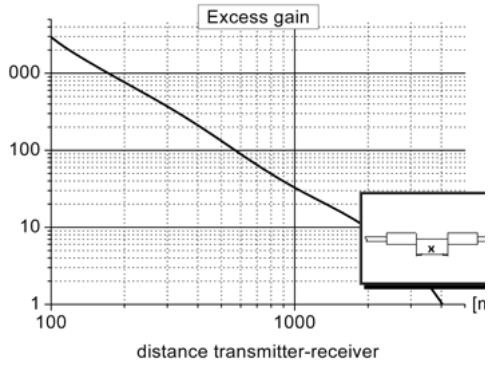
Lateral offset depending on distance

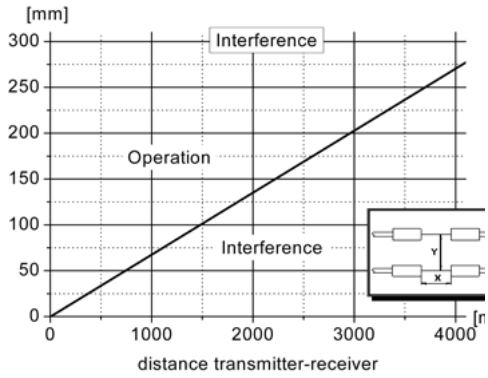


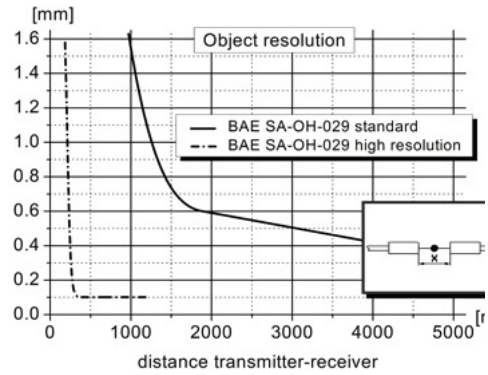
Resolution depending on distance

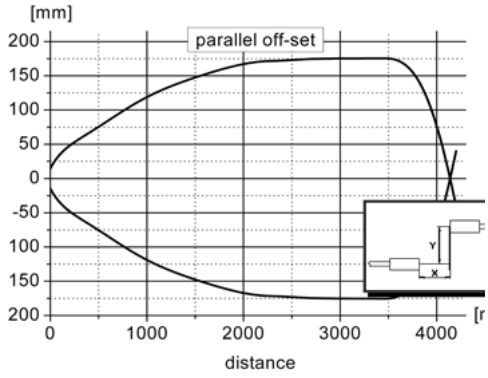
Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

BOH006H, BOH TI-M06-002-01-S49F

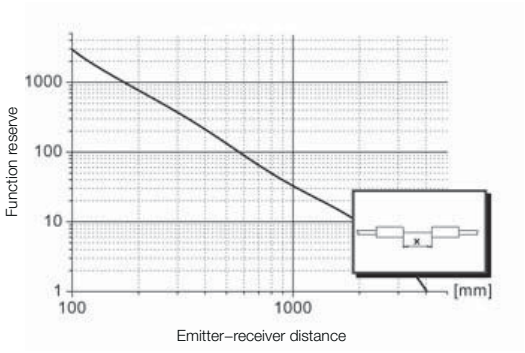




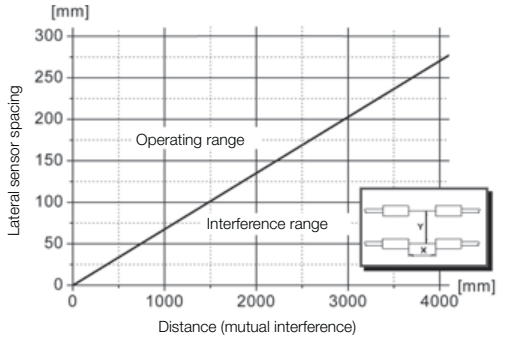




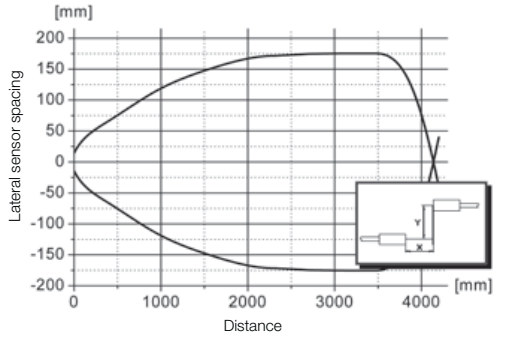
BOH000K, BOH TR-M06-002-02-S49F
BOH0020, BOH TR-R010-008-01-S49F



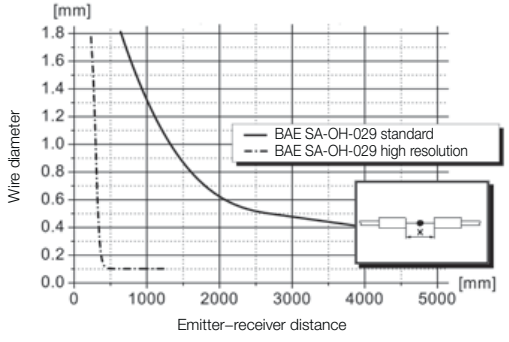
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference



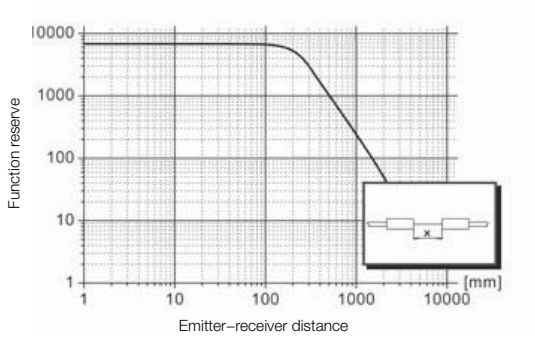
Lateral offset depending on distance



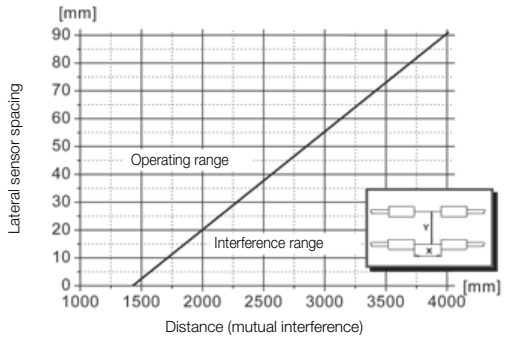
Resolution depending on distance

Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

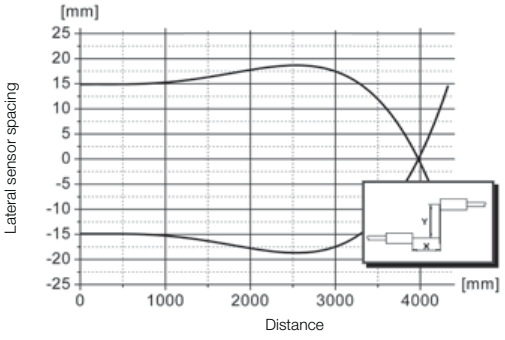
BOH0012, BOH TK-M08-004-02-S49F



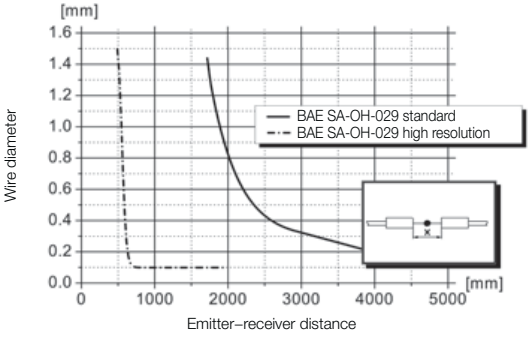
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference

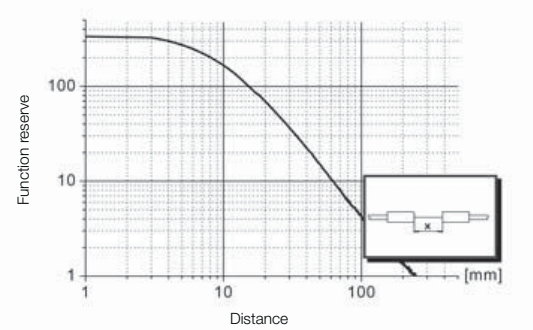


Lateral offset depending on distance

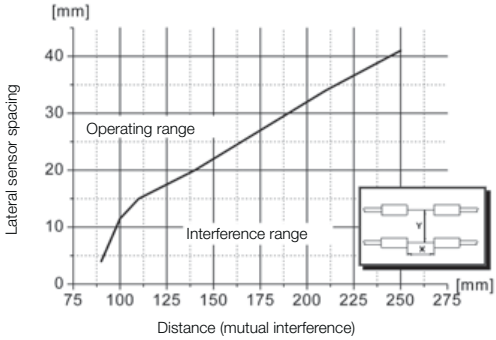


Resolution depending on distance

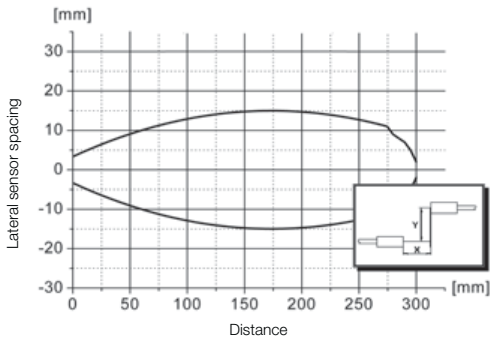
BOH000J, BOH TJ-G02-001-01-S49F



Function reserve depending on distance



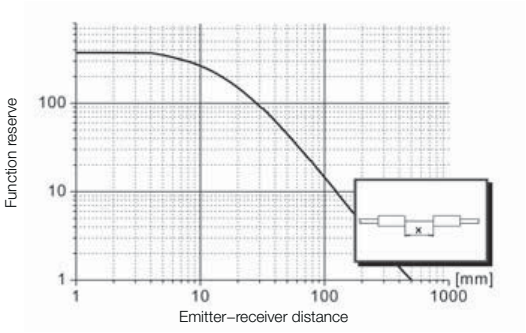
Minimum distance between two sensors for avoiding mutual interference



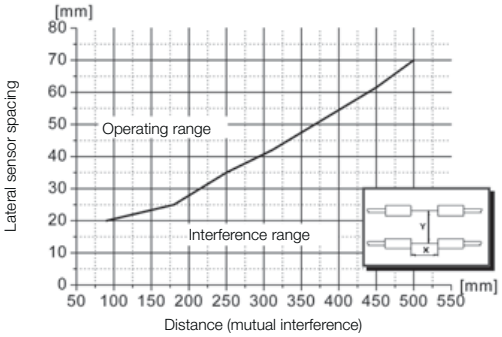
Lateral offset depending on distance

Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

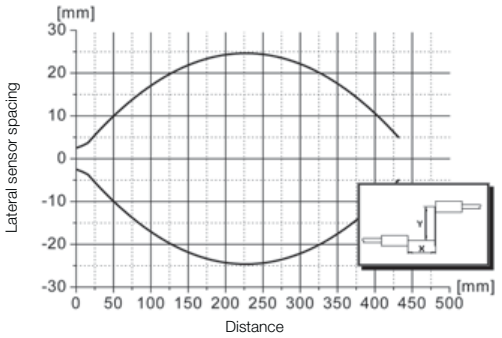
BOH000R, BOH TJ-Q06-001-01-S49F



Function reserve depending on distance

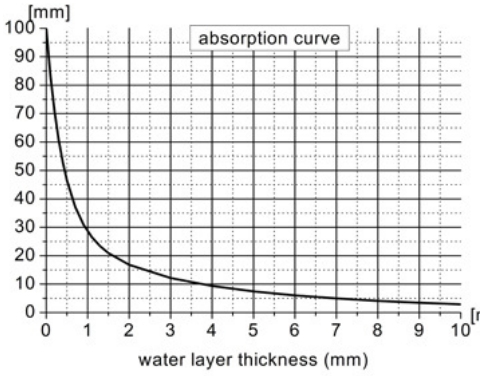


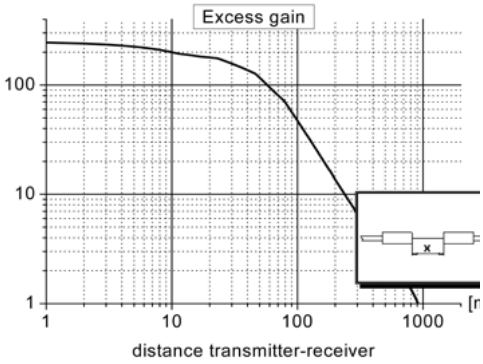
Minimum distance between two sensors for avoiding mutual interference

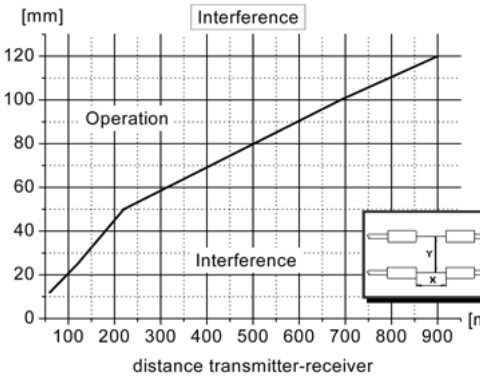


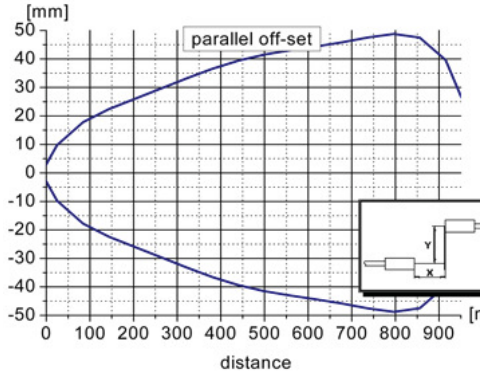
Lateral offset depending on distance

BOH007A, BOH TJ-R010-008-01-S49F



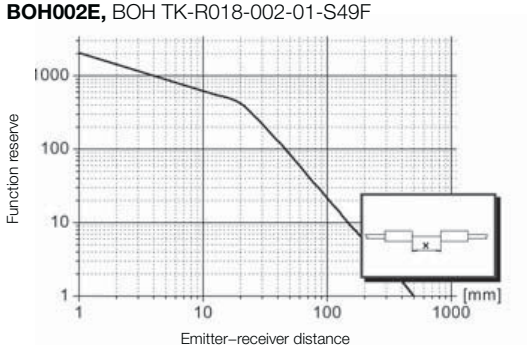




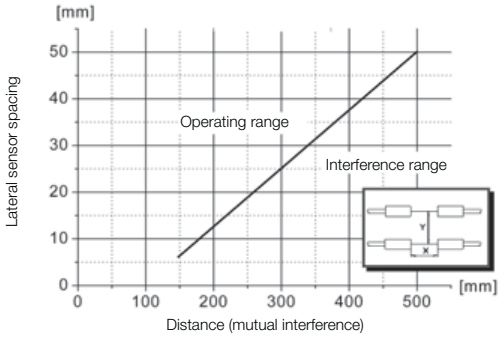


Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

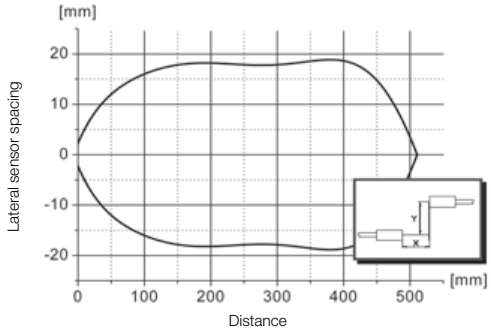
BOH001Z, BOH TK-R003-007-01-S49F
BOH002C, BOH TK-R018-001-01-S49F
BOH002E, BOH TK-R018-002-01-S49F



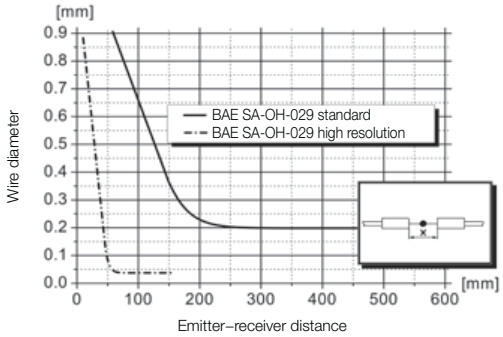
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference

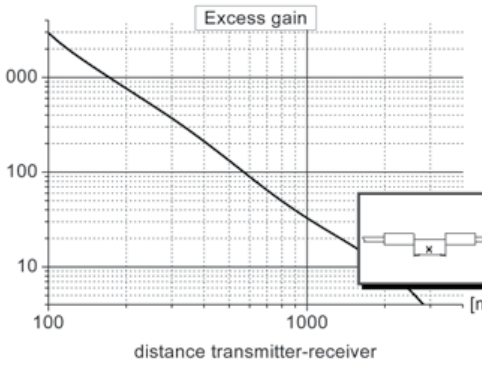


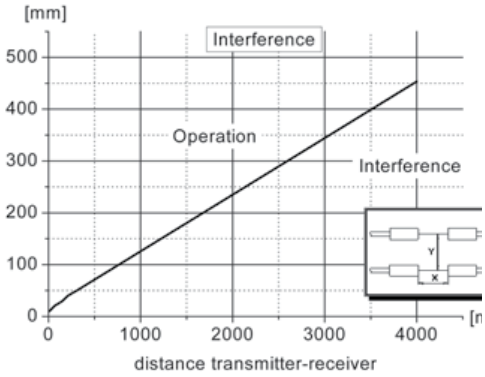
Lateral offset depending on distance

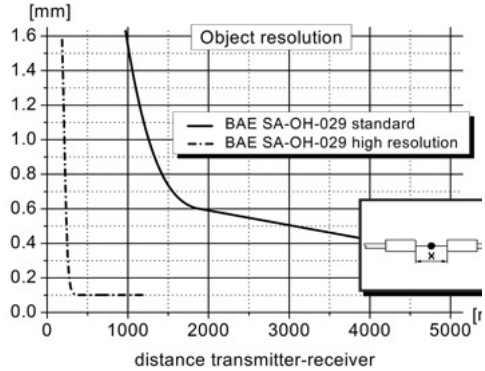


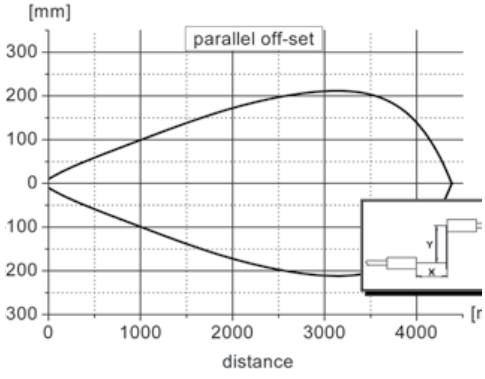
Resolution depending on distance

BOH006Z, BOH TI-R010-008-01-S49F



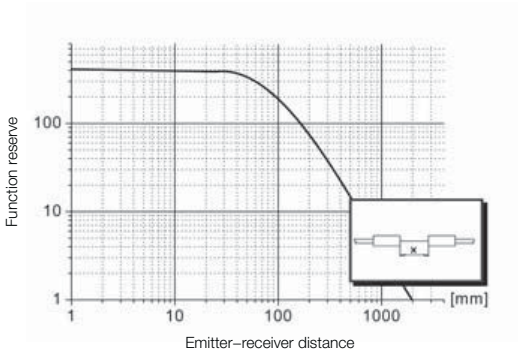




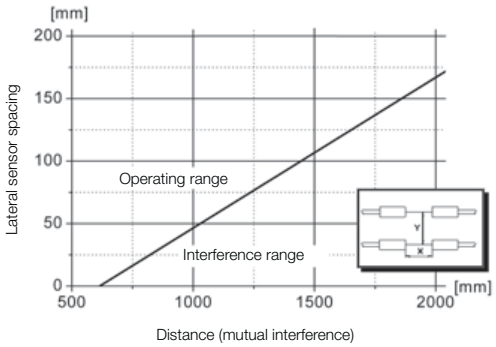


Through-beam sensors BOH for separate amplifiers BAE
Function diagrams

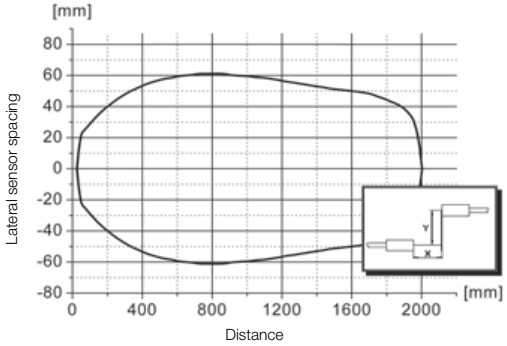
BOH002F, BOH TK-R027-003-01-S49F
BOH002H, BOH TK-R027-004-01-S49F



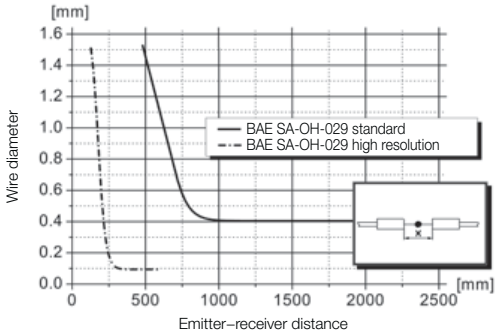
Function reserve depending on distance



Minimum distance between two sensors for avoiding mutual interference

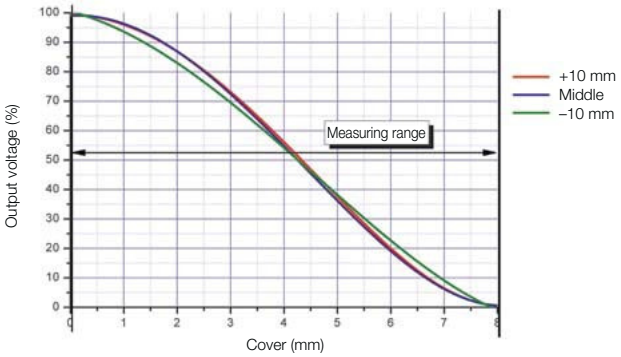


Lateral offset depending on distance



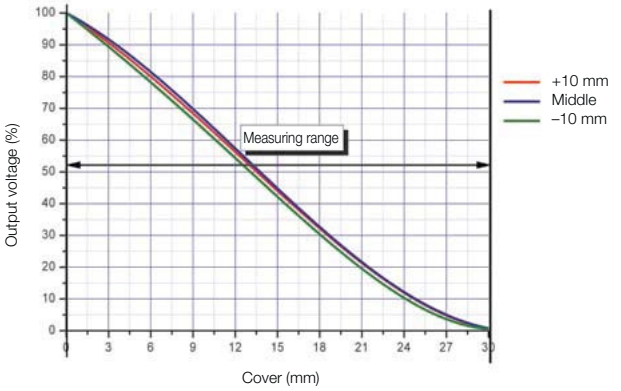
Resolution depending on distance

BOH001M, BOH AR-F40-001-01-S49F



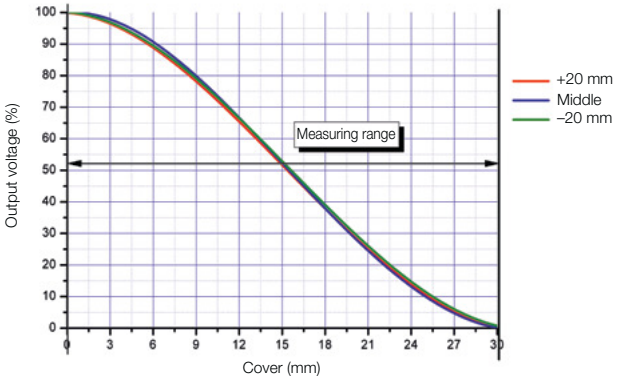
Output voltage dependent on the cover

BOH001N, BOH AR-F40-002-01-S49F



Output voltage dependent on the cover

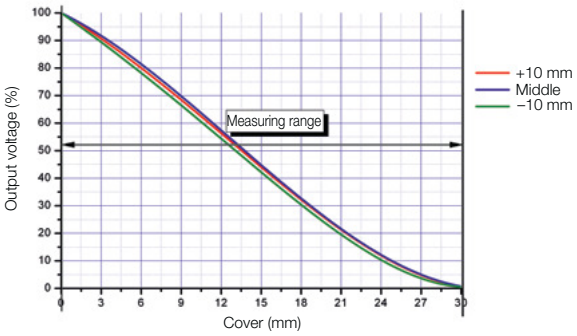
BOH001P, BOH AR-F80-003-01-S49F



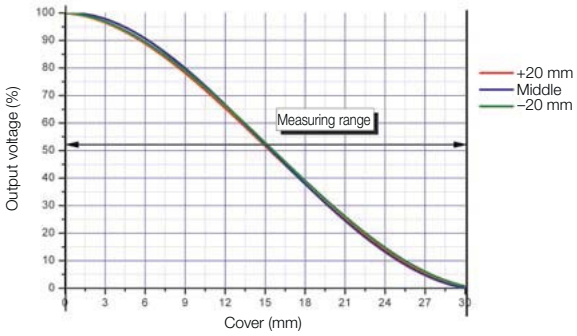
Output voltage dependent on the cover

Through-beam sensors and light band fork sensors BOH for separate amplifiers BAE, function diagrams

BOH0024, BOH AR-R113-010-01-S49F

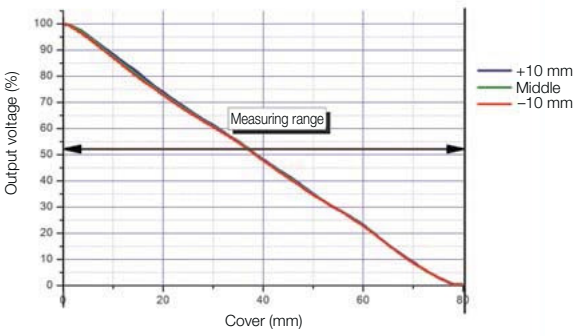


Emitter–receiver distance: 40 mm
Output voltage dependent on the cover

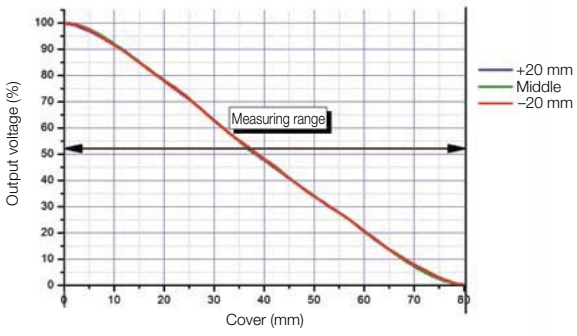


Emitter–receiver distance: 80 mm
Output voltage dependent on the cover

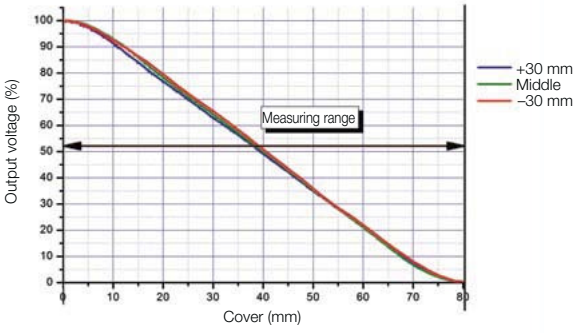
BOH002M, BOH AI-R165-011-01-S49F



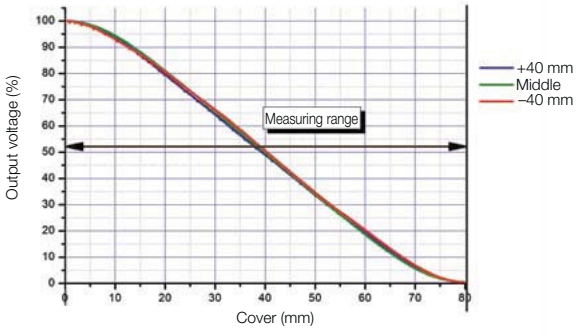
Emitter–receiver distance: 50 mm
Output voltage dependent on the cover



Emitter–receiver distance: 80 mm
Output voltage dependent on the cover



Emitter–receiver distance: 120 mm
Output voltage dependent on the cover



Emitter–receiver distance: 180 mm
Output voltage dependent on the cover

The depicted signal characteristics result if the sensor is used with an analog amplifier. More information can be found in the amplifier data sheets.

In combination with an analog amplifier, the sensor returns a linear output signal analogous to the cover of the measuring range (for example, with voltage or current output).

This makes the sensor ideally suited for high-resolution web edge control systems.

In combination with a dynamic amplifier, the sensor detects quick processes (such as numbers and identification of objects) within the entire measuring range.