

BALLUFF

PRODUCTS FOR EFFICIENT AUTOMATION

Products and
Services



B *innovating automation*

Sensors 1
Inductive Sensors, Capacitive Sensors,
Photoelectric Sensors, Magnetic Field Sensors,
Mechanical Cam Switches

1

Innovative solutions

TO MEET YOUR AUTOMATION NEEDS

Steel and
Metallurgical
Industry

Life Science

Semiconductor
Industry

Metal Working



Plastics, Rubber
and Tires

Mobility

Packaging,
Foods and Beverages

Energy Generation



INNOVATIVE SOLUTIONS FOR ANY REQUIREMENT

To give you an overview of our range of offerings we have condensed our product portfolio into five volumes. This overview provides a list of topics contained in each volume.

1



Sensors 1

- Inductive Sensors
- Capacitive Sensors
- Photoelectric Sensors
- Magnetic Sensors
- Mechanical Cam Switches

2



Sensors 2

- Ultrasonic Sensors
- Magnetically Coded Sensors
- Magnetostrictive Sensors
- Inclination Sensors
- Pressure Sensors
- Temperature Sensors
- Microwave Sensors
- Flow Sensors

3

4

5



- RFID
- Machine Vision and Optical Identification
- Human Machine Interfaces
- Systems



- Safety
- Industrial Networking
- Power Supplies



- Connectivity
- Accessories

Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



CONTENTS

8

SENSORS



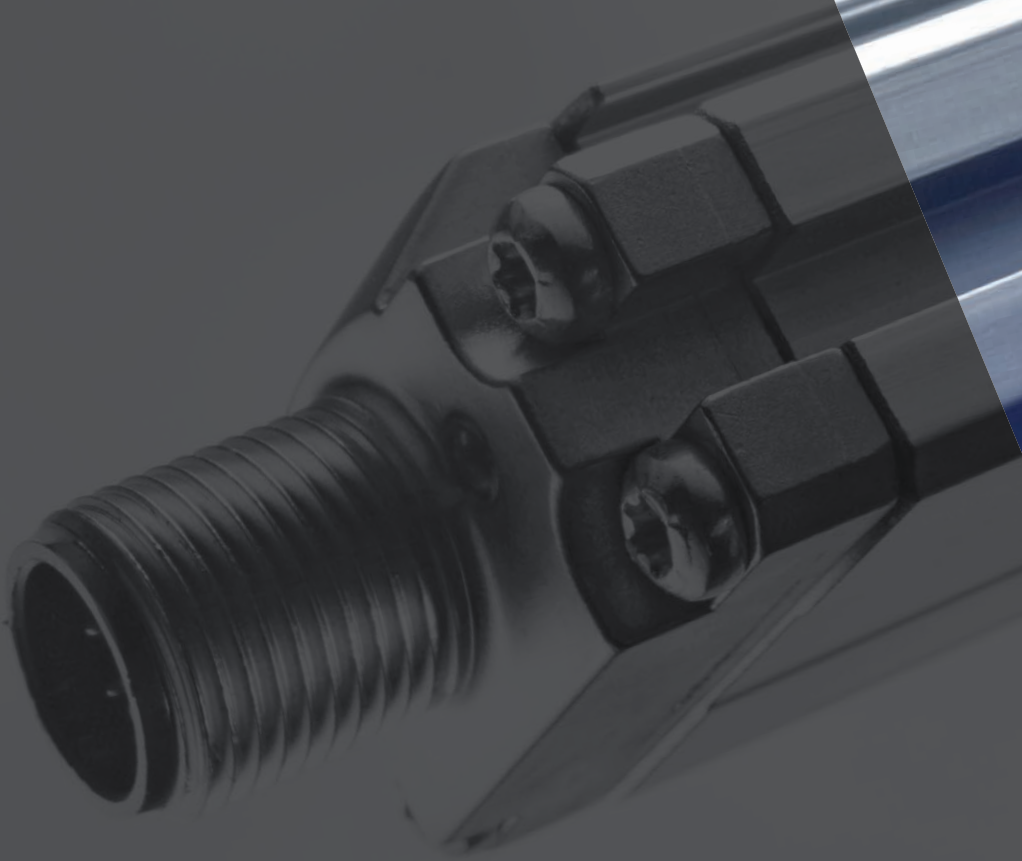
Sensors 1

- 12 Inductive Sensors
- 290 Capacitive Sensors
- 354 Photoelectric Sensors
- 632 Magnetic Field Sensors
- 690 Mechanical Cam Switches

ALPHANUMERIC INDEX 772

GLOBAL PROJECT MANAGEMENT 796

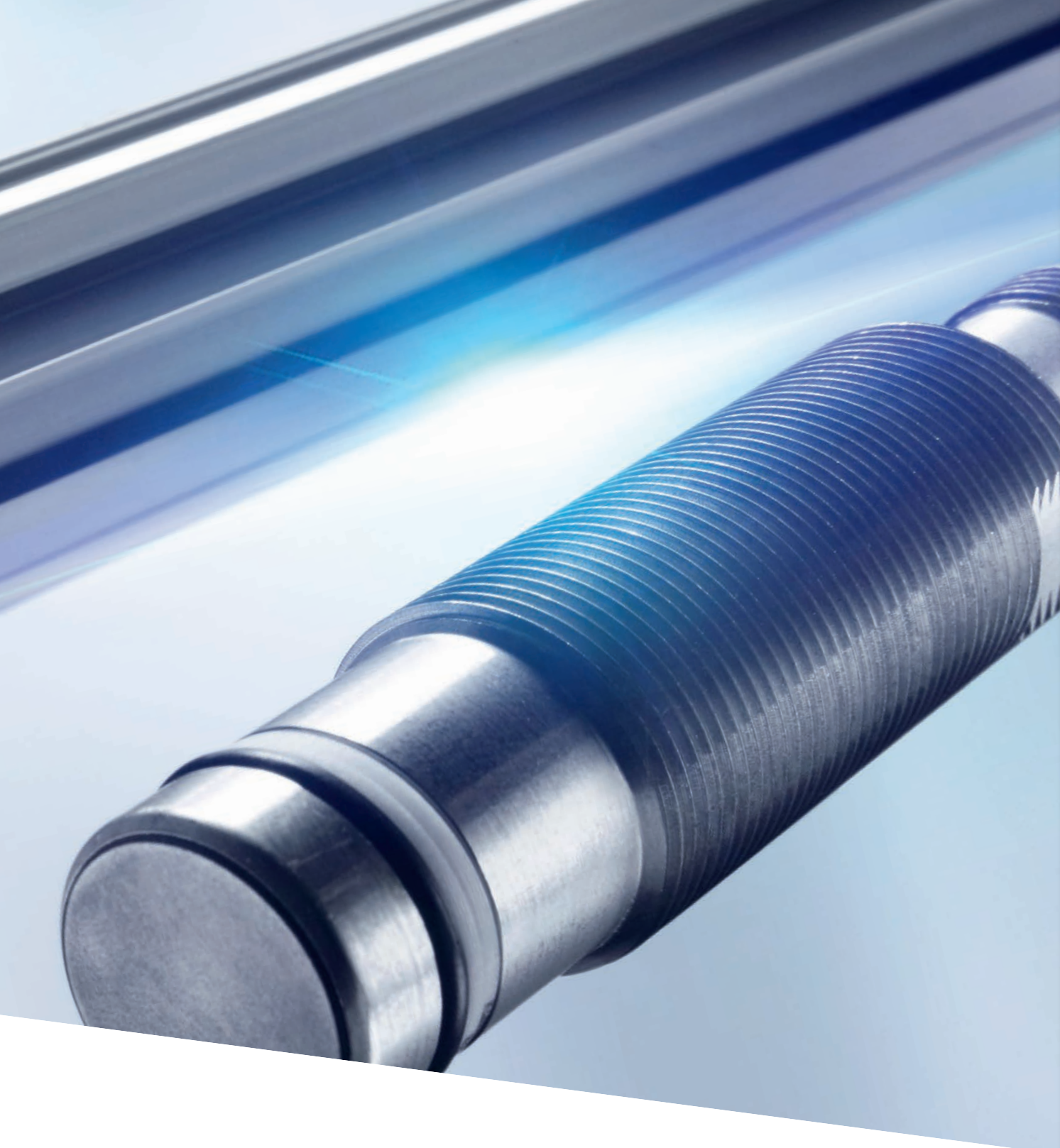
ABOUT BALLUFF 798



Comprehensive solutions for industrial automation

SENSORS

 *innovating automation*



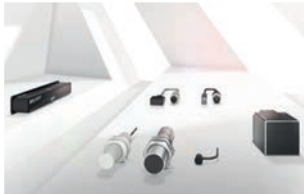
In the field of sensor technology, Balluff handles the entire range of technological diversity with its various operating principles. We provide you with high-quality sensors for any application or requirement: from distance measurement to object detection and level, temperature and pressure monitoring. For everyday industrial uses as well for tough applications in critical environments.

Our quality management regime is DIN EN ISO 9001:2015 certified. All Balluff sensors are tested in our in-house, accredited laboratory. Balluff sensors meet regional as well as international standards and are used throughout the world.

Your Balluff solutions

- Inductive Sensors
- Photoelectric Sensors
- Capacitive Sensors
- Magnetic Sensors
- Ultrasonic Sensors
- Mechanical Cam Switches
- Magnetostrictive Sensors
- Magnetically Coded Sensors
- Inclination Sensors
- Pressure Sensors
- Temperature Sensors
- Flow Sensors
- Microwave Sensors

SENSORS 1



12

INDUCTIVE SENSORS

- 14 Inductive standard sensors with preferred types
- 138 Inductive 2-wire sensors
- 156 Pressure-rated inductive sensors
- 184 Hygienic inductive sensors
- 188 Inductive Factor 1 sensors
- 202 Inductive full-metal sensors
- 210 Magnetic-field-resistant inductive sensors
- 216 Weld-immune inductive sensors
- 222 Temperature-rated inductive sensors
- 236 Inductive sensors for hazardous areas
- 254 Inductive NAMUR sensors
- 260 Inductive ring and tube sensors
- 264 Inductive distance sensors
- 278 Inductive positioning systems
- 288 Inductive transducer



290

CAPACITIVE SENSORS

- 292 Capacitive sensors for object detection
- 310 Capacitive level sensors without media contact
- 316 Capacitive level sensors with media contact
- 334 Capacitive sensor heads for amplifiers
- 342 Amplifiers for capacitive sensor heads
- 346 Capacitive sensors with special properties



354

PHOTOELECTRIC SENSORS

- 356 Diffuse and through-beam sensors
- 358 Diffuse sensor
- 374 Function diagrams diffuse sensor
- 382 Diffuse sensor with background suppression
- 404 Function diagrams diffuse sensor with background suppression
- 406 Retroreflective sensors
- 426 Function diagrams retroreflective sensors
- 432 Through-beam sensors
- 460 Function diagrams through-beam sensors
- 464 Fork sensors
- 490 Angle sensors
- 502 Optical windows
- 512 Light grid
- 516 Light bands
- 520 Color sensors
- 524 Contrast sensors
- 530 Luminescence sensor
- 534 Fiber-based devices for plastic and glass fibers
- 540 Plastic and glass fibers for fiber-based devices
- 586 Micromote - optical sensor heads
- 608 Micromote - amplifiers for optical sensor heads
- 614 Photoelectric distance sensors



632

MAGNETIC FIELD SENSORS

- 634 Magnetic field sensors for T-slot
- 644 Magnetic field sensors for C-slot
- 654 Magnetic field sensors for multiple slot shapes
- 672 Magnetic field sensors for tie rod cylinders
- 676 Single-connector version with two BMF magnetic field sensors
- 686 Tubular magnetic field sensors



690

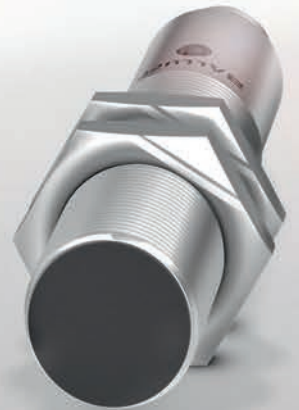
MECHANICAL CAM SWITCHES

- 692 Mechanical position switches
- 694 Mechanical multiple position switches
- 700 Mechanical multiple position switches with quick-change plunger block
- 702 Mechanical position switches with safety switch positions
- 704 Mechanical multiple position limit switches with safety switch positions
- 708 Mechanical multiple position limit switches with safety switch positions and quick-change plunger block
- 710 Mechanical position switches with positive opening
- 712 Mechanical multiple position switches with positive opening
- 714 High-temperature multiple position switches
- 716 Inductive position switches
- 718 Inductive multiple position switches
- 723 Inductive switch elements with sensing head and hybrid switch element with mechanical plunger and inductive processing



738

BASICS AND GLOSSARY



Highest quality and
accuracy for automation

INDUCTIVE SENSORS



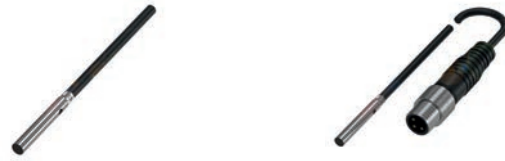
Automation is almost inconceivable without inductive sensors. Wherever processes are automated, non-contact position detection of metallic objects, freedom from wear, and reliability are in demand. Whether in machine building, electronics production, in the automobile, foods or plastics industry.

At Balluff you are offered a wide range of inductive sensors in various form factors for virtually any application: from standard sensors to sensors with extended switching distance, hygiene-approved, high-pressure and Ex sensors, Factor 1 or all-metal sensors. They are also available with additional ceramic or PTFE coating, for example to prevent weld splatter from adhering. You will also find all-metal with Factor 1 in our range.

Balluff inductive sensors are used to monitor, control and automate your processes and conditions. With the highest level of quality – even in extreme environments.

The most important benefits

- Suitable for a variety of applications
- Contact-free and therefore wear-free
- Resistant to dirt
- Short-circuit protected
- In configurations from 3 mm Ø to 80 x 80 mm square dimensions



	BES0376 BES G03EC-PSC10B-EP02	BES0409 BES G03EC-PSC10B-EP00,3-GS49	
PNP normally open			
PNP normally closed			
Dimension	Ø 3 x 22 mm	Ø 3 x 22 mm	
Style	D3.0	D3.0	
Installation	for flush mounting	for flush mounting	
Range	1 mm	1 mm	
Switching frequency	3500 Hz	3500 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 114	Page 114	



	BES0122 BES G04EC-PSC08B-S26G	BES012F BES G04ED-PSC15B-S26G	BES012H BES G04ED-PSC50F-EP02	BES012J BES G04ED-PSC50F-EP05
	BES0120 BES G04EC-POC08B-S26G			
	Ø 4 x 29 mm	Ø 4 x 35 mm	Ø 4 x 35 mm	Ø 4 x 35 mm
	D4.0	D4.0	D4.0	D4.0
	for flush mounting	for flush mounting	non-flush	non-flush
	0.8 mm	1.5 mm	5 mm	5 mm
	3000 Hz	3000 Hz	3000 Hz	3000 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	PBT	PBT	PET-C	PET-C
	Connector, M5x0.5 plug	Connector, M5x0.5 plug	Cable, 2.00 m, PUR	Cable, 5.00 m, PUR
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 114	Page 114	Page 114	Page 114

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

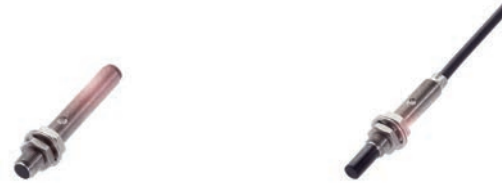
Accessories



PNP normally open	BES012K BES G04ED-PSC50F-S26G	BES01P0 BES M04EC-PSD06B-BP02	
PNP normally closed			
NPN normally open		BES03ZJ BES M04EC-NSC10B-EP02	
Dimension	Ø 4 x 44 mm	Ø 4 x 22 mm	
Style	D4.0	M4x0.5	
Installation	non-flush	for flush mounting	
Range	5 mm	0.6 mm	
Switching frequency	3000 Hz	3500 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PET-C	PBT	
Connection	Connector, M5x0.5 plug	Cable, 2.00 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 114	Page 114	



	BES03Z8 BES M04EC-PSC10B-EP02	BES040R BES M04EC-PSC10B-EP00,3-GS49	BES051J BES M05ED-PSC10B-EP00,2-097	BES012Z BES M05EC-PSC08B-S26G
			BES051L BES M05ED-POC10B-EP00,3-097	
				BES012W BES M05EC-NSC08B-S26G
	Ø 4 x 22 mm	Ø 4 x 22 mm	Ø 5 x 27 mm	Ø 5 x 29 mm
	M4x0.5	M4x0.5	M5x0.5	M5x0.5
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	1 mm	1 mm	1 mm	0.8 mm
	3500 Hz	3500 Hz	5000 Hz	3000 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	PBT	PBT	PBT	PBT
	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Cable, 0.20 m, PUR	Connector, M5x0.5 plug
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 114	Page 115	Page 115	Page 115



PNP normally open	BES013A BES M05ED-PSC15B-S26G	BES013E BES M05ED-PSC50F-EP02	
PNP normally closed	BES0137 BES M05ED-POC15B-S26G		
NPN normally closed	BES0130 BES M05ED-NOC15B-S26G		
Dimension	Ø 5 x 35 mm	Ø 5 x 35 mm	
Style	M5x0.5	M5x0.5	
Installation	for flush mounting	non-flush	
Range	1.5 mm	5 mm	
Switching frequency	3000 Hz	3000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PET-C	
Connection	Connector, M5x0.5 plug	Cable, 2.00 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 115	Page 115	



	BES013F BES M05ED-PSC50F-EP05	BES013C BES M05ED-PSC50F-EP00,3-GS04	BES013H BES M05ED-PSC50F-S26G	BES025U BES G06K40-PSC15B-FP02
			BES0139 BES M05ED-POC50F-S26G	
	Ø 5 x 35 mm	Ø 5 x 35 mm	Ø 5 x 44 mm	Ø 6.5 x 6 mm
	M5x0.5	M5x0.5	M5x0.5	D6.5
	non-flush	non-flush	non-flush	for flush mounting
	5 mm	5 mm	5 mm	1.5 mm
	3000 Hz	3000 Hz	3000 Hz	3000 Hz
	Stainless steel	Stainless steel	Stainless steel	PBT
	—	—	—	—
	PET-C	PET-C	PET-C	PBT
	Cable, 5.00 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	Connector, M5x0.5 plug	Cable, 2.00 m, PUR
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP65
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 115	Page 115	Page 115	Page 116



PNP normally open	BES0256 BES G06E60-PSC15B-EP02	BES025L BES G06EA-PSC15B-EP01	
PNP normally closed	BES0251 BES G06E60-POC15B-EP02		
Dimension	Ø 6.5 x 6 mm	Ø 6.5 x 10 mm	
Style	D6.5	D6.5	
Installation	for flush mounting	for flush mounting	
Range	1.5 mm	1.5 mm	
Switching frequency	3000 Hz	3000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Cable, 2.00 m, PUR	Cable, 1.00 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 115	Page 116	



	BES025M BES G06EA-PSC15B-EP02	BES0258 BES G06E60-PSC20B-EP02	BES03ZA BES G06K40-PSC20B-FP02	BES0254 BES G06E60-PSC15B-EP00,3-GS49
	BES025H BES G06EA-POC15B-EP02			
	Ø 6.5 x 10 mm	Ø 6.5 x 6 mm	Ø 6.5 x 6 mm	Ø 6.5 x 6 mm
	D6.5	D6.5	D6.5	D6.5
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	1.5 mm	2 mm	2 mm	1.5 mm
	3000 Hz	3000 Hz	1500 Hz	3000 Hz
	Stainless steel	Stainless steel	PBT	Stainless steel
	—	—	—	—
	PBT	PBT	PBT	PBT
	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP65	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 116	Page 115	Page 116	Page 116



PNP normally open		BES0257 BES G06E60-PSC20B-EP00,3-GS49	
PNP normally closed	BES051H BES G06E60-POC15B-EP01-GS49		
Dimension	Ø 6.5 x 6 mm	Ø 6.5 x 6 mm	
Style	D6.5	D6.5	
Installation	for flush mounting	for flush mounting	
Range	1.5 mm	2 mm	
Switching frequency	3000 Hz	3000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Cable with connector, M8x1 connector, 3-pin, 1.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 116	Page 116	



	BES025N BES G06EA-PSD15B-S49G	BES03R9 BES G06EE-PSC20B-S49G-003	BES03P4 BES G06EH-PSC20B-S49G	BES038Y BES G06EI-PSC30B-S49G
	Ø 6.5 x 18 mm	Ø 6.5 x 40 mm	Ø 6.5 x 55 mm	Ø 6.5 x 60 mm
	D6.5	D6.5	D6.5	D6.5
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	1.5 mm	2 mm	2 mm	3 mm
	3000 Hz	700 Hz	1500 Hz	1200 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	PBT	PBT	PBT	PBT
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP68
	CE, cULus, EAC	cULus, CE, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 116	Page 116	Page 116	Page 116



PNP normally open	BES000E BES G06ED-PSC40F-BP02	BES0005 BES G06EB-PSC40F-S49G	
NPN normally open	BES0008 BES G06ED-NSC40F-BP02		
Dimension	Ø 6.5 x 30 mm	Ø 6.5 x 30 mm	
Style	D6.5	D6.5	
Installation	non-flush	non-flush	
Range	4 mm	4 mm	
Switching frequency	1500 Hz	1500 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PA 12	
Connection	Cable, 2.00 m, PUR	Connector, M8x1 connector, 3-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP68	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 116	Page 117	



	BES01NP BES G06EF-PSC40F-S49G	BES03P5 BES G06EH-PSC40F-S49G	BES03EJ BES G06MH-PSC30B-BP00,3-GS49	BES02UR BES G06MH1-PSC30B-S04G
	Ø 6.5 x 49.5 mm	Ø 6.5 x 60 mm	Ø 6.5 x 45 mm	Ø 6.5 x 66 mm
	D6.5	D6.5	D6.5	D6.5
	non-flush	non-flush	quasi-flush	quasi-flush
	4 mm	4 mm	3 mm	3 mm
	1500 Hz	1500 Hz	1000 Hz	1000 Hz
	Stainless steel	Stainless steel	Brass	Brass
	—	—	Chrome-plated	Chrome-plated
	PBT	PBT	PBT	PBT
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, EAC	CE, EAC
	Page 117	Page 117	Page 117	Page 117



PNP normally open	BES01NT BES G06MI-PSC40B-S49G	BES012R BES G08EG-PSC15B-BP05	
Dimension	Ø 6.5 x 59 mm	Ø 8 x 45 mm	
Style	D6.5	D8.0	
Installation	quasi-flush	for flush mounting	
Range	4 mm	1.5 mm	
Switching frequency	700 Hz	3000 Hz	
Housing material	Brass	Stainless steel	
Surface protection	nickel plated	—	
Material sensing surface	PBT	PBT	
Connection	Connector, M8x1 connector, 3-pin	Cable, 5.00 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	0...60 °C	-25...70 °C	
Protection degree	IP65	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 117	Page 117	



	BES01NY BES G08EG-PSC15B-BV02	BES012T BES G08EG-PSC15B-BV05	BES012L BES G08EE-PSC20B-BP02	BES026M BES M08E60-PSC15B-EP02
	Ø 8 x 45 mm	Ø 8 x 45 mm	Ø 8 x 35 mm	Ø 8 x 6 mm
	D8.0	D8.0	D8.0	M8x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	1.5 mm	1.5 mm	2 mm	1.5 mm
	3000 Hz	3000 Hz	1500 Hz	3000 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	PBT	PBT	PBT	PBT
	Cable, 2.00 m, PVC	Cable, 5.00 m, PVC	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP68	IP68	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 117	Page 117	Page 117	Page 118



PNP normally open	BES0275 BES M08EA-PSC15B-EP02		
PNP normally closed		BES00CR BES M08EF-POC15B-BP02-003	
NPN normally open		BES00CN BES M08EF-NSC15B-BP02-003	
Dimension	Ø 8 x 10 mm	Ø 8 x 40 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	1.5 mm	1.5 mm	
Switching frequency	3000 Hz	1000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 118	Page 118	



	BES014K BES M08EF-PSC15B-BP02	BES0034 BES M08MI-PSC15B-BP02	BES0036 BES M08MI-PSC15B-BP05	
				BES0031 BES M08MI-POC15B-BV03
		BES002H BES M08MI-NSC15B-BV03		
	Ø 8 x 40 mm	Ø 8 x 50 mm	Ø 8 x 50 mm	Ø 8 x 50 mm
	M8x1	M8x1	M8x1	M8x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	1.5 mm	1.5 mm	1.5 mm	1.5 mm
	3000 Hz	1000 Hz	1000 Hz	5000 Hz
	Stainless steel	Brass	Brass	Brass
	—	nickel plated	nickel plated	Nickel-free coated
	PBT	PA 12	PA 12	PBT
	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	Cable, 5.00 m, PUR	Cable, 3.00 m, PVC
	10...30 VDC	12...30 VDC	12...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP67	IP67	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 118	Page 118	Page 118	Page 118

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
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Systems

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Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open		BES0037 BES M08MI-PSC15B-BV02	
PNP normally closed	BES0032 BES M08MI-POC15B-BV05		
NPN normally open			
Dimension	Ø 8 x 50 mm	Ø 8 x 50 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	1.5 mm	1.5 mm	
Switching frequency	1000 Hz	5000 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	Nickel-free coated	
Material sensing surface	PA 12	PBT	
Connection	Cable, 5.00 m, PVC	Cable, 2.00 m, PVC	
Operating voltage U _b	12...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 118	Page 118	



	BES0389 BES M08EE-PSC20B-EP05-511	BES00CW BES M08EF-PSC20B-BP02-003	BES003F BES M08MI-PSC20B-BP02	BES003J BES M08MI-PSC20B-BP05
			BES002P BES M08MI-NSC20B-BV02	
	Ø 8 x 30 mm	Ø 8 x 40 mm	Ø 8 x 50 mm	Ø 8 x 50 mm
	M8x1	M8x1	M8x1	M8x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	2 mm	2 mm	2 mm	2 mm
	1000 Hz	700 Hz	700 Hz	700 Hz
	Stainless steel	Stainless steel	Brass	Brass
	—	—	nickel plated	nickel plated
	PBT	PBT	PA 12	PA 12
	Cable, 5.00 m, PUR	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	Cable, 5.00 m, PUR
	10...30 VDC	10...30 VDC	12...30 VDC	12...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 118	Page 118	Page 118	Page 118



PNP normally open	BES03TL BES M08MI-PSC20B-BP10	BES003K BES M08MI-PSC20B-BV02	
PNP normally closed			
Dimension	Ø 8 x 50 mm	Ø 8 x 50 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	2 mm	2 mm	
Switching frequency	700 Hz	5000 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	Nickel-free coated	
Material sensing surface	PA 12	PBT	
Connection	Cable, 10.00 m, PUR	Cable, 2.00 m, PVC	
Operating voltage U_b	12...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 118	Page 118	



BES003M BES M08MI-PSC20B-BV05	BES03TH BES M08MI-POC20B-BV02	BES0276 BES M08EA-PSC20B-EP00,3-GS49	BES0277 BES M08EA-PSD15B-S49G
Ø 8 x 50 mm	Ø 8 x 50 mm	Ø 8 x 10 mm	Ø 8 x 18 mm
M8x1	M8x1	M8x1	M8x1
for flush mounting	for flush mounting	for flush mounting	for flush mounting
2 mm	2 mm	2 mm	1.5 mm
700 Hz	5000 Hz	3000 Hz	3000 Hz
Brass	Brass	Stainless steel	Stainless steel
nickel plated	Nickel-free coated	—	—
PA 12	PBT	PBT	PBT
Cable, 5.00 m, PVC	Cable, 2.00 m, PVC	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Connector, M8x1 connector, 3-pin
12...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP67	IP68	IP67	IP67
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 118	Page 118	Page 118	Page 118



PNP normally open	BES013N BES M08EC-PSC15B-S49G	BES013M BES M08EC-PSC15B-S04G	
PNP normally closed	BES013K BES M08EC-POC15B-S49G		
NPN normally open	BES013J BES M08EC-NSC15B-S49G		
Dimension	Ø 8 x 30 mm	Ø 8 x 33 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	1.5 mm	1.5 mm	
Switching frequency	3000 Hz	3000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 118	Page 119	



	BES0147 BES M08EE-PSC15B-S49G	BES0146 BES M08EE-PSC15B-S04G	BES01P7 BES M08EG-PSC15B-S49G	
	BES0143 BES M08EE-POC15B-S49G	BES0142 BES M08EE-POC15B-S04G		BES01PE BES M08EH-POC15B-S04G
		BES013Y BES M08EE-NSC15B-S04G		BES01PC BES M08EH-NSC15B-S04G
	Ø 8 x 40 mm	Ø 8 x 43 mm	Ø 8 x 50 mm	Ø 8 x 58 mm
	M8x1	M8x1	M8x1	M8x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	1.5 mm	1.5 mm	1.5 mm	1.5 mm
	3000 Hz	3000 Hz	3000 Hz	3000 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	PBT	PBT	PBT	PBT
	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP68	IP68	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 119	Page 119	Page 119	Page 119



PNP normally open		BES003C BES M08MI-PSC15B-S49G	
PNP normally closed	BES03P6 BES M08MI-POC15B-S49G		
NPN normally open	BES002K BES M08MI-NSC15B-S49G		
Dimension	Ø 8 x 59 mm	Ø 8 x 60 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	1.5 mm	1.5 mm	
Switching frequency	1000 Hz	5000 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	Nickel-free coated	
Material sensing surface	PA 12	PBT	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Operating voltage U_b	12...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 119	Page 119	



		BES0027 BES M08MH1-PSC15B-S04G	BES0278 BES M08EA-PSD20B-S49G	BES013P BES M08EC-PSC20B-S49G
	BES0026 BES M08MH1-POC15B-S04G			BES013L BES M08EC-POC20B-S49G
	BES0024 BES M08MH1-NSC15B-S04G			
	Ø 8 x 65 mm	Ø 8 x 65 mm	Ø 8 x 18 mm	Ø 8 x 30 mm
	M8x1	M8x1	M8x1	M8x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	1.5 mm	1.5 mm	2 mm	2 mm
	1000 Hz	1000 Hz	3000 Hz	1500 Hz
	Brass	Brass	Stainless steel	Stainless steel
	nickel plated	nickel plated	—	—
	PA 12	PA 12	PBT	PBT
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin
	12...30 VDC	12...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 119	Page 119	Page 118	Page 118



PNP normally open	BES014A BES M08EE-PSC20B-S49G	BES0149 BES M08EE-PSC20B-S04G-101	
PNP normally closed	BES0145 BES M08EE-POC20B-S49G		
NPN normally open			
Dimension	Ø 8 x 40 mm	Ø 8 x 43 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	2 mm	2 mm	
Switching frequency	1500 Hz	1500 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	ceramic coated	
Connection	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 119	Page 119	



	BES01PH BES M08EH-PSC20B-S04G		BES003P BES M08MI-PSC20B-S49G	BES0028 BES M08MH1-PSC20B-S04G
			BES0033 BES M08MI-POC20B-S49G	BES03T5 BES M08MH1-POC20B-S04G
		BES002U BES M08MI-NSC20B-S49G		BES0025 BES M08MH1-NSC20B-S04G
	Ø 8 x 58 mm	Ø 8 x 59 mm	Ø 8 x 60 mm	Ø 8 x 65 mm
	M8x1	M8x1	M8x1	M8x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	2 mm	2 mm	2 mm	2 mm
	1500 Hz	700 Hz	5000 Hz	700 Hz
	Stainless steel	Brass	Brass	Brass
	—	nickel plated	Nickel-free coated	nickel plated
	PBT	PA 12	PBT	PA 12
	Connector, M12x1 connector, 4-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	12...30 VDC	10...30 VDC	12...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP67	IP68	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 119	Page 119	Page 119	Page 119

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BES0427 BES M08EE-PSC25B-S49G	BES054N BES M08MI-PSC30B-S49G	
PNP normally open			
PNP normally closed			
NPN normally open			
Dimension	Ø 8 x 40 mm	Ø 8 x 60 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	2.5 mm	3 mm	
Switching frequency	1000 Hz	1200 Hz	
Housing material	Stainless steel	Brass	
Surface protection	—	Nickel-free coated	
Material sensing surface	PBT	PBT	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	0...60 °C	-25...70 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 119	Page 119	



	BES02W9 BES M08MH1-PSC30B-S04G	BES000Y BES M08ED-PSC40F-BP02		BES0016 BES M08EG-PSC40F-BP02
				BES0014 BES M08EG-POC40F-BP02
	BES02W7 BES M08MH1-NSC30B-S04G	BES000T BES M08ED-NSC40F-BV02	BES0013 BES M08EG-NSC40F-BV02	
	Ø 8 x 63 mm	Ø 8 x 30 mm	Ø 8 x 50 mm	Ø 8 x 50 mm
	M8x1	M8x1	M8x1	M8x1
	for flush mounting	non-flush	non-flush	non-flush
	3 mm	4 mm	4 mm	4 mm
	1200 Hz	1500 Hz	1500 Hz	1500 Hz
	Brass	Stainless steel	Stainless steel	Stainless steel
	Nickel-free coated	—	—	—
	PBT	PA 12	PBT	PBT
	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PUR	Cable, 2.00 m, PVC	Cable, 2.00 m, PUR
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP68	IP68	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 120	Page 120	Page 120	Page 120

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open	BES01P3 BES M08ED-PSC25F-S04G	BES01P8 BES M08EG-PSC25F-S04G	
PNP normally closed		BES01P6 BES M08EG-POC25F-S04G	
NPN normally open		BES01P5 BES M08EG-NSC25F-S04G	
Dimension	Ø 8 x 43 mm	Ø 8 x 58 mm	
Style	M8x1	M8x1	
Installation	non-flush	non-flush	
Range	2.5 mm	2.5 mm	
Switching frequency	2000 Hz	2000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 120	Page 120	



	BES000M BES M08EB-PSC40F-S49G	BES014M BES M08EF-PSC40F-S49G	BES001J BES M08EH-PSC40F-S49G	BES01P9 BES M08EG1-PSC40F-S04G
	BES000L BES M08EB-POC40F-S49G		BES001F BES M08EH-POC40F-S49G	
			BES001C BES M08EH-NSC40F-S49G	
	Ø 8 x 30 mm	Ø 8 x 49.5 mm	Ø 8 x 60 mm	Ø 8 x 64 mm
	M8x1	M8x1	M8x1	M8x1
	non-flush	non-flush	non-flush	non-flush
	4 mm	4 mm	4 mm	4 mm
	1500 Hz	1500 Hz	1500 Hz	5000 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	PBT	PBT	PBT	PBT
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP68	IP68	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 120	Page 120	Page 120	Page 121



PNP normally open	BES001H BES M08EH-PSC40F-S04G	BES054Z BES M08EH1-PSC60F-S49G	
PNP normally closed	BES001E BES M08EH-POC40F-S04G	BES0550 BES M08EH1-POC60F-S49G	
NPN normally open	BES001A BES M08EH-NSC40F-S04G		
Dimension	Ø 8 x 65.5 mm	Ø 8 x 60 mm	
Style	M8x1	M8x1	
Installation	non-flush	non-flush	
Range	4 mm	6 mm	
Switching frequency	1500 Hz	1200 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Connector, M12x1 connector, 4-pin	Connector, M8x1 connector, 3-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 121	Page 121	



	BES02W4 BES M08MG1-PSC60F-S49G	BES058J BES M08EH1-PSC60F-S04G	BES02W3 BES M08MG1-PSC60F-S04G	BES01ZU BES M08MI-PSC40B-BP00,2-GS04
			BES02W0 BES M08MG1-NSC60F-S04G	BES01ZR BES M08MI-NSC40B-BP00,2-GS04
	Ø 8 x 60 mm	Ø 8 x 63 mm	Ø 8 x 66 mm	Ø 8 x 51.5 mm
	M8x1	M8x1	M8x1	M8x1
	non-flush	non-flush	non-flush	quasi-flush
	6 mm	6 mm	6 mm	4 mm
	500 Hz	1200 Hz	500 Hz	800 Hz
	Brass	Stainless steel	Brass	Brass
	Chrome-plated	—	Chrome-plated	nickel plated
	PBT	PBT	PBT	PBT
	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Cable with connector, M12x1 connector, 4-pin, 0.20 m, PUR
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	0...60 °C
	IP67	IP68	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 121	Page 121	Page 121	Page 121



PNP normally open	BES003R BES M08MI-PSC40B-BP00,3-GS49	BES01ZW BES M08MI-PSC40B-S49G	
NPN normally open		BES01ZT BES M08MI-NSC40B-S49G	
normally open			
Dimension	Ø 8 x 51.5 mm	Ø 8 x 59 mm	
Style	M8x1	M8x1	
Installation	quasi-flush	quasi-flush	
Range	4 mm	4 mm	
Switching frequency	800 Hz	800 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	nickel plated	
Material sensing surface	PBT	PBT	
Connection	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Connector, M8x1 connector, 3-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	0...60 °C	0...60 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 121	Page 119	



	BES02W6 BES M08MH-PSC40B-S49G-507	BES04TU BES G10ED-PSC08B-EP00,3-GS49		
			BES02C9 BES 516-449-B0-L-05	BES027M BES 516-207-B0-E-03
	Ø 8 x 60 mm	Ø 10 x 27 mm	Ø 12 x 60 mm	Ø 12 x 60 mm
	M8x1	D10.0	M12x1	M12x1
	quasi-flush	for flush mounting	for flush mounting	for flush mounting
	4 mm	0.8 mm	2 mm	2 mm
	500 Hz	5000 Hz	25 Hz	1000 Hz
	Brass	Stainless steel	Brass	Stainless steel
	Chrome-plated	—	nickel plated	—
	PBT	PBT	PA 12	PA 12
	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Cable, 5.00 m, PVC	Cable, 3.00 m, PVC
	10...30 VDC	10...30 VDC	20...250 VAC	20...250 VDC/20...250 VAC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 122	Page 122	Page 122	Page 122



PNP normally open		BES00E5 BES M12MD-PSC40B-BP02-003	
NPN normally open			
Normally open	BES027N BES 516-207-B0-E-05		
Dimension	Ø 12 x 60 mm	Ø 12 x 33 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	2 mm	4 mm	
Switching frequency	1000 Hz	300 Hz	
Housing material	Stainless steel	Brass	
Surface protection	—	Nickel-free coated	
Material sensing surface	PA 12	LCP	
Connection	Cable, 5.00 m, PVC	Cable, 2.00 m, PUR	
Operating voltage U _b	20...250 VDC/20...250 VAC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 122	Page 122	



			BES0062 BES M12MI-PSC40B-BP03	BES0064 BES M12MI-PSC40B-BV02
	BES0057 BES M12MI-NSC40B-BV03	BES0058 BES M12MI-NSC40B-BV05		
	Ø 12 x 53 mm	Ø 12 x 53 mm	Ø 12 x 53 mm	Ø 12 x 53 mm
	M12x1	M12x1	M12x1	M12x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	4 mm	4 mm	4 mm	4 mm
	2500 Hz	2500 Hz	2500 Hz	2500 Hz
	Brass	Brass	Brass	Brass
	Nickel-free coated	Nickel-free coated	Nickel-free coated	Nickel-free coated
	PBT	PBT	PBT	PBT
	Cable, 3.00 m, PVC	Cable, 5.00 m, PVC	Cable, 3.00 m, TPU	Cable, 2.00 m, PVC
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP68	IP68	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 122	Page 122	Page 122	Page 122



	BES0001 BES M12MI-PSC40B-BV03	BES0065 BES M12MI-PSC40B-BV05	
PNP normally open			
PNP normally closed			
PNP normally open/normally closed			
Dimension	Ø 12 x 53 mm	Ø 12 x 53 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	4 mm	4 mm	
Switching frequency	2500 Hz	2500 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	Nickel-free coated	
Material sensing surface	PBT	PBT	
Connection	Cable, 3.00 m, PVC	Cable, 5.00 m, PVC	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 122	Page 122	



	BES00PW BES 516-325-G-E4-C-S4-00,5		BES035E BES 516-325-SA45	BES00PK BES 516-325-E5-C-S4
				BES00YT BES 516-370-E5-C-S4
		BES032M BES 516-113-SA3-S4-C		
	Ø 12 x 33 mm	Ø 12 x 70 mm	Ø 12 x 31 mm	Ø 12 x 45 mm
	M12x1	M12x1	M12x1	M12x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	4 mm	1.5 mm	2 mm	2 mm
	2500 Hz	2000 Hz	1000 Hz	5000 Hz
	Brass	Stainless steel	Brass	Brass
	Nickel-free coated	—	nickel plated	Nickel-free coated
	LCP	PA 12	PA 12	PBT
	Cable with connector, M12x1 connector, 4-pin, 0.50 m, PUR	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...85 °C	-25...70 °C	-25...70 °C
	IP68	IP68	IP67	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, EAC	CE, cULus, EAC
	Page 122	Page 122	Page 122	Page 123



PNP normally open	BES0060 BES M12MI-PSC20B-S04G		
Normally open			
IO-Link		BES04FK BES M12MI-PSIC20C-S04G	
Dimension	Ø 12 x 65 mm	Ø 12 x 65 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	2 mm	0.5...2 mm	
Switching frequency	5000 Hz	2000 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	Nickel-free coated	
Material sensing surface	PBT	LCP	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	12...30 VDC	
Ambient temperature	-25...70 °C	-25...85 °C	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 123	Page 123	



				BES01C8 BES 516-325-S4-C
	BES02FP BES 515-449-SA7-S21	BES027U BES 516-207-S21-E	BES027W BES 516-207-S27-E	
	Ø 12 x 70 mm	Ø 12 x 70 mm	Ø 12 x 70 mm	Ø 12 x 70 mm
	M12x1	M12x1	M12x1	M12x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	2 mm	2 mm	2 mm	2 mm
	10 Hz	1000 Hz	1000 Hz	5000 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	PA 12	PA 12	PA 12	PBT
	Connector, 1/2"-20 UNF2A-Male	Connector, 1/2"-20 UNF2A-Male	Connector, M12x1 connector	Connector, M12x1 connector, 4-pin
	35...250 VAC	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-40...85 °C
	IP67	IP67	IP67	IP68
	CE, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 123	Page 123	Page 123	Page 123



PNP normally open			
PNP normally closed		BES01K6 BES 516-370-S4-C	
PNP normally open/normally closed	BES0161 BES 516-113-S4-C		
Dimension	Ø 12 x 70 mm	Ø 12 x 70 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	2 mm	2 mm	
Switching frequency	5000 Hz	5000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-40...85 °C	-40...85 °C	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 123	Page 123	



	BES00PZ BES 516-325-G-E5-C-S49	BES00EF BES M12ME-PSC40B-S04G-003	BES00PY BES 516-325-G-E5-C-S4	BES014W BES M12EE-PSC40B-S04G
	Ø 12 x 44 mm	Ø 12 x 45 mm	Ø 12 x 45 mm	Ø 12 x 45 mm
	M12x1	M12x1	M12x1	M12x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	4 mm	4 mm	4 mm	4 mm
	2500 Hz	2500 Hz	2500 Hz	2000 Hz
	Brass	Brass	Brass	Stainless steel
	Nickel-free coated	Nickel-free coated	Nickel-free coated	—
	LCP	PBT	PBT	LCP
	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...85 °C
	IP67	IP68	IP68	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 123	Page 123	Page 123	Page 124

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open		BES0068 BES M12MI-PSC40B-S04G	
PNP normally closed	BES0070 BES 516-370-G-E5-C-S4	BES005N BES M12MI-POC40B-S04G	
NPN normally open		BES0059 BES M12MI-NSC40B-S04G	
Normally open			
Dimension	Ø 12 x 45 mm	Ø 12 x 65 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	4 mm	4 mm	
Switching frequency	2500 Hz	2500 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	Nickel-free coated	
Material sensing surface	PBT	PBT	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 3-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 123	Page 123	



	BES02FU BES M12EI-PSC40B-S04G		BES01C7 BES 516-325-G-S4-C	BES03AR BES 516-325-G-S4-L
		BES027T BES 516-207-G-S21-E		
	Ø 12 x 65 mm	Ø 12 x 70 mm	Ø 12 x 70 mm	Ø 12 x 70 mm
	M12x1	M12x1	M12x1	M12x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	4 mm	4 mm	4 mm	4 mm
	1000 Hz	500 Hz	2500 Hz	600 Hz
	Stainless steel	Stainless steel	Brass	Brass
	—	—	Nickel-free coated	nickel plated
	LCP	PA 12	PBT	LCP
	Connector, M12x1 connector, 4-pin	Connector, 1/2"-20 UNF2A-Male	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	20...250 VDC/20...250 VAC	10...30 VDC	10...30 VDC
	-25...85 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP67	IP68	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 124	Page 123	Page 123	Page 124



PNP normally open			
Normally open	BES0285 BES 516-209-B0-E-03	BES0286 BES 516-209-B0-E-05	
Normally closed	BES028F BES 516-210-B0-E-03		
Dimension	Ø 12 x 60 mm	Ø 12 x 60 mm	
Style	M12x1	M12x1	
Installation	non-flush	non-flush	
Range	4 mm	4 mm	
Switching frequency	600 Hz	600 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PA 12	PA 12	
Connection	Cable, 3.00 m, PVC	Cable, 5.00 m, PVC	
Operating voltage U _b	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 124	Page 124	



BES00UY BES 516-356-E5-C-S4	BES036T BES 516-356-SA26-S4-C		BES028A BES 516-209-S21-E	BES0330 BES 516-209-SA1-S21-E
Ø 12 x 50 mm	Ø 12 x 61 mm		Ø 12 x 70 mm	Ø 12 x 70 mm
M12x1	M12x1		M12x1	M12x1
non-flush	non-flush		non-flush	non-flush
4 mm	4 mm		4 mm	4 mm
2500 Hz	1000 Hz		600 Hz	600 Hz
Brass	Stainless steel		Stainless steel	Stainless steel
Nickel-free coated	—		—	—
PBT	PA 12		PA 12	PA 12
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin		Connector, 1/2"-20 UNF2A-Male	Connector, 1/2"-20 UNF2A-Male
10...30 VDC	10...30 VDC		20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC
-25...70 °C	-25...70 °C		-25...70 °C	-25...70 °C
IP68	IP68		IP67	IP67
CE, cULus, EAC	CE, EAC		CE, cULus, EAC	CE, EAC
Page 124	Page 124		Page 124	Page 124



PNP normally open	BES01H6 BES 516-356-S4-C	BES036R BES 516-356-SA24-S4-C	
PNP normally open/normally closed			
Dimension	Ø 12 x 70 mm	Ø 12 x 70 mm	
Style	M12x1	M12x1	
Installation	non-flush	non-flush	
Range	4 mm	4 mm	
Switching frequency	2500 Hz	1500 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PA 12	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-40...85 °C	-40...85 °C	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, EAC	
Productview	Page 125	Page 125	



	BES0178 BES 516-131-S4-C	BES01PY BES M12MD-PSC80F-S04G	BES01PN BES M12EG-PSC80F-S04G	BES004N BES M12MG-PSC80F-S04G
	Ø 12 x 70 mm	Ø 12 x 45 mm	Ø 12 x 60 mm	Ø 12 x 60 mm
	M12x1	M12x1	M12x1	M12x1
	non-flush	non-flush	non-flush	non-flush
	4 mm	8 mm	8 mm	8 mm
	2500 Hz	1000 Hz	1000 Hz	1000 Hz
	Stainless steel	Brass	Stainless steel	Brass
	—	Nickel-free coated	—	Nickel-free coated
	PBT	PBT	PBT	PBT
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-40...85 °C	-25...70 °C	-40...85 °C	-25...70 °C
	IP68	IP68	IP68	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 125	Page 125	Page 125	Page 125



PNP normally open		BES02WK BES M12MC1-PSC10F-S04G	
PNP normally closed			
Normally open	BES0289 BES 516-209-G-S21-E		
Dimension	Ø 12 x 70 mm	Ø 12 x 45 mm	
Style	M12x1	M12x1	
Installation	non-flush	non-flush	
Range	8 mm	10 mm	
Switching frequency	600 Hz	600 Hz	
Housing material	Stainless steel	Brass	
Surface protection	—	Nickel-free coated	
Material sensing surface	PA 12	PBT	
Connection	Connector, 1/2"-20 UNF2A-Male	Connector, M12x1 connector, 3-pin	
Operating voltage U_b	20...250 VDC/20...250 VAC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...85 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 124	Page 125	



	BES02WR BES M12MF1-PSC10F-S04G	BES02WM BES M12MD1-PSC60B-S04G	BES02WZ BES M12MG1-PSC60B-S04G	BES01ZN BES M12MI-PSH80B-S04G
			BES02WY BES M12MG1-POC60B-S04G	
	Ø 12 x 60 mm	Ø 12 x 45 mm	Ø 12 x 60 mm	Ø 12 x 65 mm
	M12x1	M12x1	M12x1	M12x1
	non-flush	quasi-flush	quasi-flush	quasi-flush
	10 mm	6 mm	6 mm	8 mm
	600 Hz	1000 Hz	1000 Hz	300 Hz
	Brass	Brass	Brass	Brass
	Nickel-free coated	Nickel-free coated	Nickel-free coated	nickel plated
	PBT	PBT	PBT	LCP
	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...55 VDC
	-25...85 °C	-25...85 °C	-25...85 °C	0...60 °C
	IP68	IP68	IP68	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, EAC
	Page 125	Page 123	Page 125	Page 125

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open			
Normally open	BES02AU BES 516-420-E4-L-02	BES02AW BES 516-420-E4-L-05	
Dimension	Ø 18 x 56 mm	Ø 18 x 56 mm	
Style	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Range	5 mm	5 mm	
Switching frequency	25 Hz	25 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	nickel plated	
Material sensing surface	PA 12	PA 12	
Connection	Cable, 2.00 m, PVC	Cable, 5.00 m, PVC	
Operating voltage U _b	20...250 VAC	20...250 VAC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 126	Page 126	



BES0083 BES M18MI-PSC50B-BV03		BES028L BES 516-211-E4-E-03	BES028N BES 516-211-E4-E-PU-05	BES028U BES 516-211-E6-E-05
Ø 18 x 56 mm		Ø 18 x 61.5 mm	Ø 18 x 61.5 mm	Ø 18 x 71 mm
M18x1		M18x1	M18x1	M18x1
for flush mounting		for flush mounting	for flush mounting	for flush mounting
5 mm		5 mm	5 mm	5 mm
700 Hz		250 Hz	250 Hz	250 Hz
Brass		Brass	Brass	Brass
nickel plated		nickel plated	nickel plated	nickel plated
PA 12		PA 12	PA 12	PA 12
Cable, 3.00 m, PVC		Cable, 3.00 m, PVC	Cable, 5.00 m, PUR	Cable, 5.00 m, PVC
12...30 VDC		20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC
-25...70 °C		-25...70 °C	-25...70 °C	-25...70 °C
IP68		IP67	IP67	IP67
CE, cULus, EAC		CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 126		Page 126	Page 126	Page 126

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open	BES04F1 BES M18MD-PSC80B-BP05-003	BES008E BES M18MI-PSC80B-BV02	
NPN normally open			
Dimension	Ø 18 x 36 mm	Ø 18 x 56 mm	
Style	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Range	8 mm	8 mm	
Switching frequency	150 Hz	150 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	nickel plated	
Material sensing surface	PBT	PA 12	
Connection	Cable, 5.00 m, PUR	Cable, 2.00 m, PVC	
Operating voltage U_b	10...30 VDC	12...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 126	Page 126	



			BES0089 BES M18MI-PSC80B-BP03	BES008F BES M18MI-PSC80B-BV03
	BES007H BES M18MI-NSC80B-BP03	BES007J BES M18MI-NSC80B-BV03		
	Ø 18 x 56 mm	Ø 18 x 56 mm	Ø 18 x 56 mm	Ø 18 x 56 mm
	M18x1	M18x1	M18x1	M18x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	8 mm	8 mm	8 mm	8 mm
	150 Hz	150 Hz	150 Hz	150 Hz
	Brass	Brass	Brass	Brass
	nickel plated	nickel plated	nickel plated	nickel plated
	PA 12	PA 12	PA 12	PA 12
	Cable, 3.00 m, PUR	Cable, 3.00 m, PVC	Cable, 3.00 m, PUR	Cable, 3.00 m, PVC
	12...30 VDC	12...30 VDC	12...30 VDC	12...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP68	IP68	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 126	Page 126	Page 126	Page 126



PNP normally open	BES008H BES M18MI-PSC80B-BV05	BES00R5 BES 516-326-E4-C-S4-00,2	
Dimension	Ø 18 x 56 mm	Ø 18 x 36 mm	
Style	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Range	8 mm	5 mm	
Switching frequency	150 Hz	1000 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	nickel plated	
Material sensing surface	PA 12	PA 12	
Connection	Cable, 5.00 m, PVC	Cable with connector, M12x1 connector, 4-pin, 0.20 m, PUR	
Operating voltage U_b	12...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP68	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 126	Page 126	



BES00EY BES M18ME-PSC50B-S04G-003	BES00R6 BES 516-326-E5-C-S4	BES02ET BES 515-326-E5-T-S4	BES0086 BES M18MI-PSC50B-S04G
Ø 18 x 44.5 mm	Ø 18 x 44.5 mm	Ø 18 x 45 mm	Ø 18 x 65 mm
M18x1	M18x1	M18x1	M18x1
for flush mounting	for flush mounting	for flush mounting	for flush mounting
5 mm	5 mm	5 mm	5 mm
700 Hz	1000 Hz	500 Hz	700 Hz
Brass	Brass	Stainless steel	Brass
nickel plated	nickel plated	—	nickel plated
PBT	PBT	PA 12	PA 12
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
10...30 VDC	10...30 VDC	10...30 VDC	12...30 VDC
-25...70 °C	-25...70 °C	-40...105 °C	-25...70 °C
IP67	IP67	IP68	IP68
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 126	Page 126	Page 127	Page 127

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



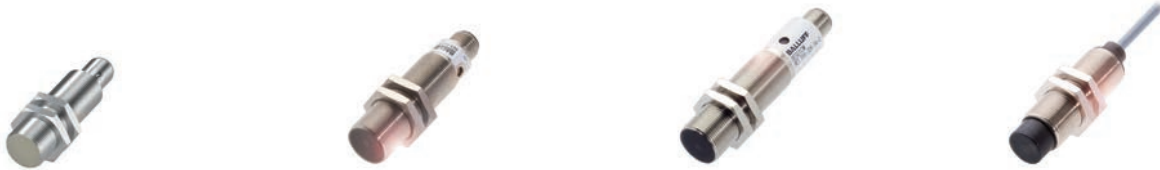
PNP normally open		BES02EU BES 515-326-S4-C	
PNP normally closed			
PNP normally open/normally closed			
Normally open	BES028R BES 516-211-E5-E-S27		
Dimension	Ø 18 x 70.5 mm	Ø 18 x 83 mm	
Style	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Range	5 mm	5 mm	
Switching frequency	400 Hz	900 Hz	
Housing material	Brass	Stainless steel	
Surface protection	nickel plated	—	
Material sensing surface	PA 12	PA 12	
Connection	Connector, M12x1 connector	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	20...250 VDC/20...250 VAC	10...30 VDC	
Ambient temperature	-25...70 °C	-40...85 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 127	Page 127	



	BES01CW BES 516-326-S4-C		BES00RC BES 516-326-G-E5-C-S4	BES02P3 BES 516-326-SA96-G-E5-Y-S4
	BES01JW BES 516-367-S4-C			
		BES015N BES 516-105-S4-C		
	Ø 18 x 83 mm	Ø 18 x 83 mm	Ø 18 x 44.5 mm	Ø 18 x 44.5 mm
	M18x1	M18x1	M18x1	M18x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	5 mm	5 mm	8 mm	8 mm
	900 Hz	500 Hz	200 Hz	200 Hz
	Brass	Brass	Brass	Brass
	nickel plated	nickel plated	nickel plated	nickel plated
	PA 12	PA 12	PBT	ceramic coated
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP68	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 127	Page 127	Page 126	Page 126



PNP normally open	BES008L BES M18MI-PSC80B-S04G	BES008M BES M18MI-PSC80B-S04K	
PNP normally closed		BES007Y BES M18MI-POC80B-S04K	
NPN normally open		BES007M BES M18MI-NSC80B-S04K	
Normally open			
Dimension	Ø 18 x 65 mm	Ø 18 x 65 mm	
Style	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Range	8 mm	8 mm	
Switching frequency	1000 Hz	150 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	nickel plated	
Material sensing surface	PBT	PA 12	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	12...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 127	Page 128	



	BES02H0 BES M18EI-PSC80B-S04G		BES0496 BES M18MI2-PSC80B-S04G	
		BES02ZE BES M18MN-USU80B-S21G		BES02C5 BES 516-437-E4-L-02
	Ø 18 x 65 mm	Ø 18 x 70 mm	Ø 18 x 83 mm	Ø 18 x 61.5 mm
	M18x1	M18x1	M18x1	M18x1
	for flush mounting	for flush mounting	for flush mounting	non-flush
	8 mm	8 mm	8 mm	8 mm
	700 Hz	30 Hz	1000 Hz	25 Hz
	Stainless steel	Brass	Brass	Brass
	Ceramic	nickel plated	Nickel-free coated	nickel plated
	PBT	PBT	PBT	PA 12
	Connector, M12x1 connector, 4-pin	Connector, 1/2"-20 UNF2A-Male	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PVC
	10...30 VDC	20...300 VDC/20...250 VAC	10...30 VDC	20...250 VAC
	-40...85 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP67	IP68	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 127	Page 128	Page 128	Page 128

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open		BES00WM BES 516-360-E5-Y-S4	
Normally open	BES0292 BES 516-213-E4-E-03		
Dimension	Ø 18 x 61.5 mm	Ø 18 x 54 mm	
Style	M18x1	M18x1	
Installation	non-flush	non-flush	
Range	8 mm	8 mm	
Switching frequency	250 Hz	200 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	nickel plated	
Material sensing surface	PA 12	PA 12	
Connection	Cable, 3.00 m, PVC	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	20...250 VDC/20...250 VAC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 128	Page 128	



	BES02C7 BES 516-437-E5-L-S21	BES0296 BES 516-213-E5-E-S21	BES0297 BES 516-213-E5-E-S27	BES0298 BES 516-213-E5-E-S5
	Ø 18 x 65 mm	Ø 18 x 70.5 mm	Ø 18 x 70.5 mm	Ø 18 x 80 mm
	M18x1	M18x1	M18x1	M18x1
	non-flush	non-flush	non-flush	non-flush
	8 mm	8 mm	8 mm	8 mm
	25 Hz	250 Hz	250 Hz	250 Hz
	Brass	Brass	Brass	Brass
	nickel plated	nickel plated	nickel plated	nickel plated
	PA 12	PA 12	PA 12	PA 12
	Connector, 1/2"-20 UNF2A-Male	Connector, 1/2"-20 UNF2A-Male	Connector, M12x1 connector	Connector, 7/8"-16 UN plug
	20...250 VAC	20...250 VAC	20...250 VAC	20...250 VDC/20...250 VAC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 128	Page 128	Page 128	Page 129

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open	BES01HY BES 516-360-S4-C	BES03RM BES M18MG-PSC16F-S04G	
PNP normally open/normally closed			
Normally open			
Dimension	Ø 18 x 83 mm	Ø 18 x 65 mm	
Style	M18x1	M18x1	
Installation	non-flush	non-flush	
Range	8 mm	16 mm	
Switching frequency	600 Hz	800 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	Nickel-free coated	
Material sensing surface	PA 12	PBT	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP68	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 129	Page 129	



	BES0070 BES M18MG-PSC16F-S04K		BES01HW BES 516-360-G-S4-H	
				BES016W BES 516-123-G-S4-H
	BES029A BES 516-213-G-E5-E-S21			
Ø 18 x 65 mm	Ø 18 x 70.5 mm	Ø 18 x 70.5 mm	Ø 18 x 83 mm	Ø 18 x 83 mm
M18x1	M18x1	M18x1	M18x1	M18x1
non-flush	non-flush	non-flush	non-flush	non-flush
16 mm	16 mm	16 mm	16 mm	16 mm
800 Hz	250 Hz	250 Hz	80 Hz	80 Hz
Brass	Brass	Brass	Brass	Brass
Nickel-free coated	nickel plated	nickel plated	nickel plated	nickel plated
PBT	PA 12	PA 12	PA 12	PA 12
Connector, M12x1 connector, 4-pin	Connector, 1/2"-20 UNF2A-Male	Connector, 1/2"-20 UNF2A-Male	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
10...30 VDC	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC	10...55 VDC	10...55 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP67	IP67	IP67	IP68	IP68
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, EAC	CE, EAC
Page 129	Page 128	Page 128	Page 129	Page 129



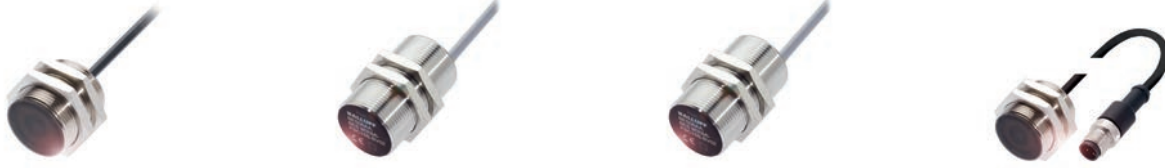
	BES02Y7 BES M18ME1-PSC20F-S04G	BES02Y5 BES M18MD1-PSC12B-S04G	
PNP normally open			
NPN normally open			
Normally open			
Dimension	Ø 18 x 63.5 mm	Ø 18 x 48.5 mm	
Style	M18x1	M18x1	
Installation	non-flush	quasi-flush	
Range	20 mm	12 mm	
Switching frequency	200 Hz	500 Hz	
Housing material	Brass	Brass	
Surface protection	Chrome-plated	Chrome-plated	
Material sensing surface	PBT	PBT	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 129	Page 129	



	BES02Y9 BES M18MG1-PSC12B-S04G	BES00RE BES 516-327-E4-Y-01,5	BES00A1 BES M30MI-PSC10B-BV03	
			BES009E BES M30MI-NSC10B-BV03	
				BES029L BES 516-215-E4-E-03
	Ø 18 x 63.5 mm	Ø 30 x 36 mm	Ø 30 x 56 mm	Ø 30 x 61.5 mm
	M18x1	M30x1.5	M30x1.5	M30x1.5
	quasi-flush	for flush mounting	for flush mounting	for flush mounting
	12 mm	10 mm	10 mm	10 mm
	500 Hz	200 Hz	400 Hz	150 Hz
	Brass	Brass	Brass	Brass
	Chrome-plated	nickel plated	nickel plated	nickel plated
	PBT	PA 12	PA 12	PA 12
	Connector, M12x1 connector, 4-pin	Cable, 1.50 m, PVC	Cable, 3.00 m, PVC	Cable, 3.00 m, PVC
	10...30 VDC	10...30 VDC	12...30 VDC	20...250 VDC/20...250 VAC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP68	IP68	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 129	Page 129	Page 130	Page 130



PNP normally open		BES00RT BES 516-327-G-E4-Y-03	
PNP normally closed			
Normally open	BES029M BES 516-215-E4-E-05		
Dimension	Ø 30 x 61.5 mm	Ø 30 x 36 mm	
Style	M30x1.5	M30x1.5	
Installation	for flush mounting	for flush mounting	
Range	10 mm	15 mm	
Switching frequency	150 Hz	100 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	nickel plated	
Material sensing surface	PA 12	PA 12	
Connection	Cable, 5.00 m, PVC	Cable, 3.00 m, PVC	
Operating voltage Ub	20...250 VDC/20...250 VAC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 130	Page 129	



	BES00LR BES 516-3028-G-E4-Y-PU-05	BES00AA BES M30MI-PSC15B-BV02	BES00AC BES M30MI-PSC15B-BV03	BES00LT BES 516-3028-G-E4-Y-S4-01
	Ø 30 x 36 mm	Ø 30 x 53 mm	Ø 30 x 53 mm	Ø 30 x 36 mm
	M30x1.5	M30x1.5	M30x1.5	M30x1.5
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	15 mm	15 mm	15 mm	15 mm
	100 Hz	100 Hz	100 Hz	100 Hz
	Brass	Brass	Brass	Brass
	nickel plated	Nickel-free coated	Nickel-free coated	nickel plated
	PA 12	PA 12	PA 12	PA 12
	Cable, 5.00 m, TPU	Cable, 2.00 m, PVC	Cable, 3.00 m, PVC	Cable with connector, M12x1 connector, 4-pin, 1.00 m, PUR
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP67	IP67	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 129	Page 130	Page 130	Page 130



PNP normally open	BES00RP BES 516-327-E5-Y-S4	BES02F0 BES 515-327-E5-T-S4	
Normally open			
Dimension	Ø 30 x 44.5 mm	Ø 30 x 45 mm	
Style	M30x1.5	M30x1.5	
Installation	for flush mounting	for flush mounting	
Range	10 mm	10 mm	
Switching frequency	200 Hz	200 Hz	
Housing material	Brass	Stainless steel	
Surface protection	nickel plated	—	
Material sensing surface	PA 12	PA 12	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-40...105 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 130	Page 130	



BES00A3 BES M30MI-PSC10B-S04G	BES00A4 BES M30MI-PSC10B-S04K		BES0316 BES 516-418-E5-L-S27	BES02E9 BES 515-215-E5-E-S21
Ø 30 x 65 mm	Ø 30 x 65 mm		Ø 30 x 65 mm	Ø 30 x 70.5 mm
M30x1.5	M30x1.5		M30x1.5	M30x1.5
for flush mounting	for flush mounting		for flush mounting	for flush mounting
10 mm	10 mm		10 mm	10 mm
400 Hz	400 Hz		25 Hz	150 Hz
Brass	Brass		Brass	Stainless steel
nickel plated	nickel plated		nickel plated	—
PA 12	PA 12		PA 12	PA 12
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin		Connector, M12x1 connector	Connector, 1/2"-20 UNF2A-Male
12...30 VDC	12...30 VDC		20...250 VAC	20...250 VDC/20...250 VAC
-25...70 °C	-25...70 °C		-25...70 °C	-25...70 °C
IP67	IP68		IP67	IP67
CE, cULus, EAC	CE, cULus, EAC		CE, cULus, EAC	CE, cULus, EAC
Page 130	Page 130		Page 131	Page 131



PNP normally open		BES02F1 BES 515-327-S4-C	
PNP normally closed			
PNP normally open/normally closed			
Normally open	BES029W BES 516-215-E5-E-S5		
Dimension	Ø 30 x 80 mm	Ø 30 x 83 mm	
Style	M30x1.5	M30x1.5	
Installation	for flush mounting	for flush mounting	
Range	10 mm	10 mm	
Switching frequency	150 Hz	300 Hz	
Housing material	Brass	Stainless steel	
Surface protection	nickel plated	—	
Material sensing surface	PA 12	PA 12	
Connection	Connector, 7/8"-16 UN plug	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	20...250 VDC/20...250 VAC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 131	Page 131	



	BES01EE BES 516-327-S4-C		BES00RW BES 516-327-G-E5-Y-S4	BES00AF BES M30MI-PSC15B-S04G
			BES00LU BES 516-3028-G-E5-Y-S4	
		BES0167 BES 516-114-S4-C		
	Ø 30 x 83 mm	Ø 30 x 83 mm	Ø 30 x 44.5 mm	Ø 30 x 65 mm
	M30x1.5	M30x1.5	M30x1.5	M30x1.5
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	10 mm	10 mm	15 mm	15 mm
	300 Hz	300 Hz	100 Hz	100 Hz
	Brass	Brass	Brass	Brass
	nickel plated	nickel plated	nickel plated	Nickel-free coated
	PA 12	PA 12	PA 12	PA 12
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP68	IP68	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 131	Page 131	Page 130	Page 131



	BES01EA BES 516-327-G-S4-C	BES01EC BES 516-327-G-S4-H	
PNP normally open			
PNP normally open/normally closed			
Normally open			
Dimension	Ø 30 x 83 mm	Ø 30 x 83 mm	
Style	M30x1.5	M30x1.5	
Installation	for flush mounting	for flush mounting	
Range	15 mm	15 mm	
Switching frequency	100 Hz	150 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	Nickel-free coated	
Material sensing surface	PA 12	PA 12	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...55 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, EAC	
Productview	Page 131	Page 131	



			BES00AY BES M30MM-PSC30F-BV02	BES00Y0 BES 516-362-E5-Y-S4
	BES0166 BES 516-114-G-S4-H			
		BES02A5 BES 516-217-E4-E-03		
	Ø 30 x 83 mm	Ø 30 x 61.5 mm	Ø 30 x 76.5 mm	Ø 30 x 57 mm
	M30x1.5	M30x1.5	M30x1.5	M30x1.5
	for flush mounting	non-flush	non-flush	non-flush
	15 mm	15 mm	30 mm	15 mm
	150 Hz	100 Hz	300 Hz	100 Hz
	Brass	Brass	Brass	Brass
	Nickel-free coated	nickel plated	Nickel-free coated	nickel plated
	PA 12	PA 12	PBT	PA 12
	Connector, M12x1 connector, 4-pin	Cable, 3.00 m, PVC	Cable, 2.00 m, PVC	Connector, M12x1 connector, 4-pin
	10...55 VDC	20...250 VDC/20...250 VAC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP67	IP67	IP67
	CE, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 131	Page 131	Page 131	Page 131

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open			
Normally open	BES02AC BES 516-217-E5-E-S27	BES02AE BES 516-217-E5-E-S5	
Dimension	Ø 30 x 70.5 mm	Ø 30 x 80 mm	
Style	M30x1.5	M30x1.5	
Installation	non-flush	non-flush	
Range	15 mm	15 mm	
Switching frequency	100 Hz	100 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	nickel plated	
Material sensing surface	PA 12	PA 12	
Connection	Connector, M12x1 connector	Connector, 7/8"-16 UN plug	
Operating voltage U_b	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 132	Page 132	



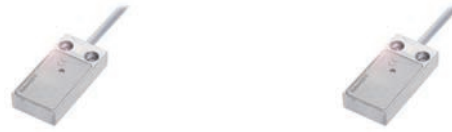
	BES02FN BES 515-362-S4-C	BES01JE BES 516-362-S4-C	BES00AZ BES M30MM-PSC30F-S04K	BES01JC BES 516-362-G-S4-H
	Ø 30 x 83 mm	Ø 30 x 83 mm	Ø 30 x 83 mm	Ø 30 x 83 mm
	M30x1.5	M30x1.5	M30x1.5	M30x1.5
	non-flush	non-flush	non-flush	non-flush
	15 mm	15 mm	30 mm	30 mm
	100 Hz	100 Hz	300 Hz	70 Hz
	Stainless steel	Brass	Brass	Brass
	—	nickel plated	Nickel-free coated	nickel plated
	PA 12	PA 12	PBT	PA 12
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...55 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP68	IP68	IP67	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, EAC
	Page 132	Page 132	Page 132	Page 132



PNP normally open	BES02YJ BES M30MG1-PSC40F-S04G	BES02YM BES M30MI1-PSC22B-S04G	
PNP normally closed		BES02YL BES M30MI1-POC22B-S04G	
Dimension	Ø 30 x 73.5 mm	Ø 30 x 73.5 mm	
Style	M30x1.5	M30x1.5	
Installation	non-flush	quasi-flush	
Range	40 mm	22 mm	
Switching frequency	100 Hz	200 Hz	
Housing material	Brass	Brass	
Surface protection	Chrome-plated	Chrome-plated	
Material sensing surface	PBT	PBT	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP54	IP67	
Approval/Conformity	CE, cULus, EAC	cULus, CE, EAC	
Productview	Page 132	Page 132	



	BES0341 BES 516-3009-SA2-M0-C-05	BES01FJ BES 516-347-M0-C-03	BES01FK BES 516-347-M0-C-05	BES01FM BES 516-347-M0-C-PU-05
	50 x 25 x 10 mm	50 x 25 x 10 mm	50 x 25 x 10 mm	50 x 25 x 10 mm
	block style	block style	block style	block style
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	2.5 mm	5 mm	5 mm	5 mm
	1000 Hz	500 Hz	500 Hz	500 Hz
	Aluminum	Aluminum, die-cast	Aluminum, die-cast	Aluminum
	—	—	—	—
	PBT	PBT	PBT	PBT
	Cable, 5.00 m, PUR	Cable, 3.00 m, PVC	Cable, 5.00 m, PVC	Cable, 5.00 m, PUR
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP67
	CE, EAC	CE, EAC	CE, EAC	CE, EAC
	Page 132	Page 132	Page 132	Page 132



PNP normally open			
PNP normally open/normally closed	BES017H BES 516-133-M0-C-PU-05	BES032R BES 516-133-SA3-C-PU-04	
Dimension	50 x 25 x 10 mm	50 x 25 x 10 mm	
Style	block style	block style	
Installation	for flush mounting	for flush mounting	
Range	5 mm	5.6 mm	
Switching frequency	500 Hz	500 Hz	
Housing material	Aluminum	Aluminum	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Cable, 5.00 m, PUR	Cable, 4.00 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 132	Page 132	



BES01FN BES 516-347-M0-C-S4-00,2	BES01FT BES 516-347-M0-C-S49-00,2	BES0153 BES 516-133-M0-C-S4-00,2	BES01FR BES 516-347-M0-C-S49
50 x 25 x 10 mm	50 x 25 x 10 mm	50 x 25 x 10 mm	59 x 25 x 10 mm
block style	block style	block style	block style
for flush mounting	for flush mounting	for flush mounting	for flush mounting
5 mm	5 mm	5 mm	5 mm
500 Hz	500 Hz	500 Hz	500 Hz
Aluminum	Aluminum	Aluminum	Aluminum
—	—	—	—
PBT	PBT	PBT	PBT
Cable with connector, M12x1 connector, 4-pin, 0.20 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.20 m, PUR	Connector, M8x1 connector, 3-pin
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP67	IP67	IP67	IP65
CE, EAC	CE, EAC	CE, EAC	CE, EAC
Page 133	Page 133	Page 133	Page 133



PNP normally open			
NPN normally open			
Normally open	BES02CT BES R05KB-USU20B-EV02	BES02CU BES R05KB-USU20B-EV03	
Dimension	40 x 12 x 26 mm	40 x 12 x 26 mm	
Style	block style	block style	
Installation	for flush mounting	for flush mounting	
Range	2 mm	2 mm	
Switching frequency	400 Hz	400 Hz	
Housing material	PA 12	PA 12	
Surface protection	—	—	
Material sensing surface	PA 12	PA 12	
Connection	Cable, 2.00 m, PVC	Cable, 3.00 m, PVC	
Operating voltage U _b	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 133	Page 133	



	BES01YZ BES R05KB-NSC20B-EP05	BES01Z5 BES R05KB-PSC20B-EP05		BES01ZA BES R05KB-PSC40B-EV02
			BES02CY BES R05KB-USU40B-EV02	
	40 x 12 x 26 mm	40 x 12 x 26 mm	40 x 12 x 26 mm	40 x 12 x 26 mm
	block style	block style	block style	block style
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	2 mm	2 mm	4 mm	4 mm
	2000 Hz	400 Hz	400 Hz	400 Hz
	PA 12	PA 12	PA 12	PA 12
	—	—	—	—
	PA 12	PA 12	PA 12	PA 12
	Cable, 5.00 m, PUR	Cable, 5.00 m, PUR	Cable, 2.00 m, PVC	Cable, 2.00 m, PVC
	10...30 VDC	10...30 VDC	20...250 VDC/20...250 VAC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, EAC	CE, cULus, EAC
	Page 133	Page 133	Page 133	Page 133



	BES01ZC BES R05KB-PSC40B-EV03	BES01Z8 BES R05KB-PSC40B-EP00,3-GS04	
PNP normally open			
PNP normally closed			
NPN normally open			
Dimension	40 x 12 x 26 mm	40 x 12 x 26 mm	
Style	block style	block style	
Installation	for flush mounting	for flush mounting	
Range	4 mm	4 mm	
Switching frequency	400 Hz	400 Hz	
Housing material	PA 12	PA 12	
Surface protection	—	—	
Material sensing surface	PA 12	PA 12	
Connection	Cable, 3.00 m, PVC	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 133	Page 133	



	BES01Z7 BES R05KB-PSC20B-S49A	BES01ZE BES R05KB-PSC40B-S49A	BES01N5 BES 517-398-N0-C-03	BES01N6 BES 517-398-N0-C-05
	BES048A BES R05KB-POC20B-S49A	BES01Z2 BES R05KB-POC40B-S49A		
			BES01NH BES 517-399-N0-C-03	
	40 x 12 x 26 mm	40 x 12 x 26 mm	30 x 10.5 x 16.5 mm	30 x 10.5 x 16.5 mm
	block style	block style	block style	block style
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	2 mm	4 mm	2 mm	2 mm
	400 Hz	400 Hz	2500 Hz	2500 Hz
	PA 12	PA 12	PBT, GF20	PBT, GF20
	—	—	—	—
	PA 12	PA 12	PBT, GF20	PBT, GF20
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Cable, 3.00 m, PVC	Cable, 5.00 m, PVC
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP65	IP65
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 134	Page 134	Page 134	Page 134

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

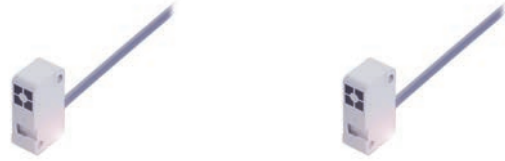
Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open	BES01N8 BES 517-398-N0-C-PU-03	BES01N9 BES 517-398-N0-C-PU-05	
PNP normally closed			
Dimension	30 x 10.5 x 16.5 mm	30 x 10.5 x 16.5 mm	
Style	block style	block style	
Installation	for flush mounting	for flush mounting	
Range	2 mm	2 mm	
Switching frequency	2500 Hz	2500 Hz	
Housing material	PBT, GF20	PBT, GF20	
Surface protection	—	—	
Material sensing surface	PBT, GF20	PBT, GF20	
Connection	Cable, 3.00 m, PUR	Cable, 5.00 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP65	IP65	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 134	Page 134	



	BES01NA BES 517-398-N0-C-S49-00,2	BES01N1 BES 517-398-N1-C	BES01N2 BES 517-398-N2-C
BES01MM BES 517-351-N0-C-03	BES01MT BES 517-351-N0-C-S49-00,2		
30 x 10.5 x 16.5 mm	30 x 10.5 x 16.5 mm	30 x 10.5 x 16.5 mm	30 x 10.5 x 16.5 mm
block style	block style	block style	block style
for flush mounting	for flush mounting	for flush mounting	for flush mounting
2 mm	2 mm	2 mm	2 mm
2500 Hz	2500 Hz	2500 Hz	2500 Hz
PBT, GF20	PBT, GF20	PBT, GF20	PBT, GF20
—	—	—	—
PBT, GF20	PBT, GF20	PBT, GF20	PBT, GF20
Cable, 3.00 m, PVC	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Connector, DIN 46244	Connector, DIN 46244
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP65	IP65	IP00	IP00
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, EAC
Page 134	Page 134	Page 134	Page 134



PNP normally open	BES033J BES 516-300-S279		
PNP normally open/normally closed			
NPN normally open	BES033H BES 516-300-S255		
NPN normally open/normally closed		BES01W0 BES R01ZC-NAC70B-BP05	
Dimension	30 x 20 x 10 mm	32 x 20 x 8 mm	
Style	block style	block style	
Installation	for flush mounting	for flush mounting	
Range	2 mm	7 mm	
Switching frequency	1500 Hz	150 Hz	
Housing material	Aluminum	Zinc, die-cast	
Surface protection	—	—	
Material sensing surface	PBT	PA 12	
Connection	Cable, 5.00 m, PVC	Cable, 5.00 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP65	IP67	
Approval/Conformity	CE, EAC	CE, cULus, EAC	
Productview	Page 134	Page 134	



	BES01WE BES R01ZC-PSC70B-BP00.2-GS49	BES01WF BES R01ZC-PSC70B-BP00.3-GS49	BES048Z BES R01ZC-PSC70B-BZ00.2-GS04-110
BES01W4 BES R01ZC-PAC70B-BP03			
32 x 20 x 8 mm	32 x 20 x 8 mm	32 x 20 x 8 mm	32 x 20 x 8 mm
block style	block style	block style	block style
for flush mounting	for flush mounting	for flush mounting	for flush mounting
7 mm	7 mm	7 mm	7 mm
150 Hz	150 Hz	150 Hz	150 Hz
Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast
—	—	—	—
PA 12	PA 12	PA 12	ceramic coated
Cable, 3.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.20 m, TPU
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP67	IP67	IP67	IP67
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 134	Page 135	Page 135	Page 135



PNP normally open			
PNP normally open/normally closed	BES01W2 BES R01ZC-PAC70B-BP00.2-GS04	BES0314 BES R01ZC-PAC70B-BP00.2-GS04-107	
Polarized normally open			
Dimension	32 x 20 x 8 mm	32 x 20 x 8 mm	
Style	block style	block style	
Installation	for flush mounting	for flush mounting	
Range	7 mm	7 mm	
Switching frequency	150 Hz	150 Hz	
Housing material	Zinc, die-cast	Zinc, die-cast	
Surface protection	—	—	
Material sensing surface	PA 12	ceramic coated	
Connection	Cable with connector, M12x1 connector, 4-pin, 0.20 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.20 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 135	Page 135	



				BES022Z BES 517-3036-I02-C-S4
BES01W3 BES R01ZC-PAC70B-BP00.5-GS04				
	BES030E BES Z03K-GSS10B-EP00,15-GS04-006	BES030F BES Z03K-GSS10B-EP00,8-GS04-006		
32 x 20 x 8 mm	26 x 26 x 26 mm	26 x 26 x 26 mm		68.5 x 26 x 26 mm
block style	block style	block style		block style
for flush mounting	for flush mounting	for flush mounting		for flush mounting
7 mm	10 mm	10 mm		10 mm
150 Hz	250 Hz	250 Hz		500 Hz
Zinc, die-cast	PA	PA		PA 12
—	—	—		—
PA 12	PA	PA		PA 12
Cable with connector, M12x1 connector, 4-pin, 0.50 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.15 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.80 m, PUR		Connector, M12x1 connector, 4-pin
10...30 VDC	10...36 VDC	10...36 VDC		10...30 VDC
-25...70 °C	-25...70 °C	-25...70 °C		-25...70 °C
IP67	IP67	IP67		IP67
CE, cULus, EAC	CE, EAC	CE, EAC		CE, EAC
Page 135	Page 135	Page 135		Page 135



PNP normally open		BES052M BES Q40KFA-PSY20B-DV02	
PNP normally open/normally closed	BES02TN BES IKU-031.28-S4		
Normally open/normally closed			
Dimension	300 x 35 x 47 mm	40 x 40 x 54.5 mm	
Style	block style	block style	
Installation	non-flush	for flush mounting	
Range	30 mm	20 mm	
Switching frequency	50 Hz	40 Hz ±15 Hz	
Housing material	Plastic	PBT	
Surface protection	—	—	
Material sensing surface	Plastic	PBT	
Connection	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PVC	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP65	IP67	
Approval/Conformity	CE, EAC	CE, cULus, EAC	
Productview	Page 135	Page 135	



BES0555 BES Q40KFC-PSY20B-DV02				
				BES0201 BES 517-132-M3-H
		BES020Y BES 517-223-M3-E	BES0241 BES 517-223-U3-E	
40 x 40 x 54.5 mm	120 x 40 x 40 mm	120 x 40 x 40 mm	120 x 40 x 40 mm	120 x 40 x 40 mm
block style	block style	block style	block style	block style
for flush mounting	for flush mounting	for flush mounting	for flush mounting	for flush mounting
20 mm	15 mm	15 mm	15 mm	15 mm
40 Hz ±15 Hz	100 Hz	100 Hz	100 Hz	100 Hz
PBT	PBT	Aluminum, Die casting PBT	PBT	PBT
—	—	—	—	—
PBT	PBT	PBT	PBT	PBT
Cable, 2.00 m, PVC	Screw terminal	Screw terminal	Screw terminal	Screw terminal
10...30 VDC	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC	10...55 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP67	IP67	IP67	IP67	IP67
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, EAC
Page 136	Page 136	Page 136	Page 136	Page 136



PNP normally open			
PNP normally open/normally closed	BES0209 BES 517-132-M6-H	BES020A BES 517-132-M6-H-S4	
Normally open/normally closed			
Dimension	120 x 40 x 40 mm	132.5 x 40 x 40 mm	
Style	block style	block style	
Installation	for flush mounting	for flush mounting	
Range	20 mm	20 mm	
Switching frequency	50 Hz	50 Hz	
Housing material	PBT	PBT	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Screw terminal	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...55 VDC	10...55 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 136	Page 136	



BES021W BES Q40KFU-PSC20B-S04G			
	BES0217 BES Q40KFU-PAC20B-S04G	BES03PN BES Q40KHU-PAC20B-S04G	
			BES020Z BES 517-223-M4-E
40 x 40 x 62 mm	40 x 40 x 62 mm	40 x 40 x 65 mm	120 x 40 x 40 mm
block style	block style	block style	block style
for flush mounting	for flush mounting	for flush mounting	non-flush
20 mm	20 mm	20 mm	20 mm
50 Hz	50 Hz	50 Hz	100 Hz
PBT	PBT	Zinc, Die casting PBT	PBT
—	—	—	—
PBT	PBT	PBT	PBT
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Screw terminal
10...30 VDC	10...30 VDC	10...30 VDC	20...250 VDC/20...250 VAC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP67	IP67	IP67	IP67
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 136	Page 136	Page 136	Page 136



PNP normally open			
PNP normally open/normally closed			
Normally open/normally closed	BES0244 BES 517-223-U4-E	BES023Y BES 517-223-M5-E	
Dimension	120 x 40 x 40 mm	120 x 40 x 40 mm	
Style	block style	block style	
Installation	non-flush	non-flush	
Range	20 mm	30 mm	
Switching frequency	100 Hz	100 Hz	
Housing material	Aluminum, Die casting PBT	PBT	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Screw terminal	Screw terminal	
Operating voltage U_b	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 136	Page 136	



				BES0236 BES 517-385-V-C-S4
		BES0206 BES 517-132-M5-H	BES020C BES 517-132-M7-H	
BES0247 BES 517-223-U5-E				
120 x 40 x 40 mm	120 x 40 x 40 mm	120 x 40 x 40 mm	120 x 40 x 40 mm	132.5 x 40 x 40 mm
block style	block style	block style	block style	block style
non-flush	non-flush	non-flush	non-flush	non-flush
30 mm	30 mm	40 mm	40 mm	25 mm
100 Hz	60 Hz	50 Hz	50 Hz	50 Hz
Aluminum, Die casting PBT	PBT	PBT	PBT	PBT
—	—	—	—	—
PBT	PBT	PBT	PBT	PBT
Screw terminal	Screw terminal	Screw terminal	Screw terminal	Connector, M12x1 connector, 4-pin
20...250 VDC/20...250 VAC	10...55 VDC	10...55 VDC	10...55 VDC	10...30 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP67	IP67	IP67	IP67	IP67
CE, cULus, EAC	CE, EAC	CE, EAC	CE, EAC	CE, EAC
Page 136	Page 136	Page 136	Page 136	Page 136



PNP normally open	BES021Z BES Q40KFU-PSC30F-S04G		
PNP normally open/normally closed		BES021E BES Q40KFU-PAC30F-S04G	
Dimension	40 x 40 x 62 mm	40 x 40 x 62 mm	
Style	block style	block style	
Installation	non-flush	non-flush	
Range	30 mm	30 mm	
Switching frequency	50 Hz	50 Hz	
Housing material	PBT	PBT	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 136	Page 136	



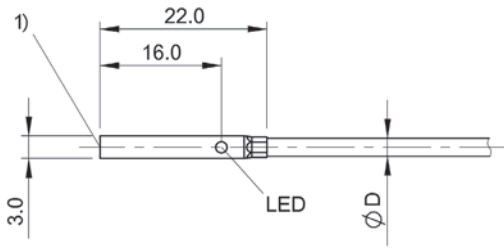
	BES020E BES 517-132-M7-H-S4	BES0308 BES Q40KFU-PSC40F-S04G-012	BES030C BES Q80KA-PAC50B-S04Q-U	
	132.5 x 40 x 40 mm	40 x 40 x 66 mm	112 x 80 x 40 mm	
	block style	block style	block style	
	non-flush	non-flush	for flush mounting	
	40 mm	40 mm	50 mm	
	50 Hz	60 Hz	70 Hz	
	PBT	PA	PPE	
	—	—	—	
	PBT	PA	PPE	
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
	10...55 VDC	10...30 VDC	10...36 VDC	
	-25...70 °C	-25...70 °C	-25...70 °C	
	IP67	IP67	IP67	
	CE, EAC	CE, cULus, EAC	CE, cULus, EAC	
	Page 136	Page 137	Page 137	



PNP normally open/normally closed	BES023P BES 517-139-M4-H		
Normally open/normally closed		BES022R BES 517-460-U5-L-D	
Dimension	80 x 80 x 40 mm	80 x 80 x 40 mm	
Style	block style	block style	
Installation	for flush mounting	non-flush	
Range	40 mm	50 mm	
Switching frequency	50 Hz	10 Hz	
Housing material	PBT	PBT	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Screw terminal	Screw terminal	
Operating voltage U_b	10...55 VDC	20...250 VAC	
Ambient temperature	-15...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 137	Page 137	

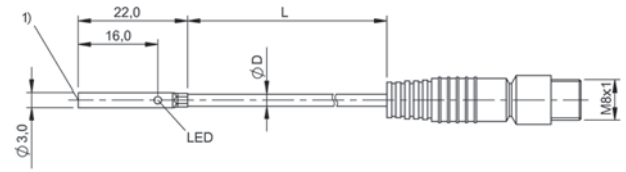


	BES023R BES 517-139-M5-H	BES024F BES 517-224-M5-E	BES023W BES 517-139-U5-H-S4	
	80 x 80 x 40 mm	40 x 80 x 80 mm	80 x 80 x 40 mm	
	block style	block style	block style	
	non-flush	non-flush	non-flush	
	50 mm	50 mm	50 mm	
	100 Hz	10 Hz	100 Hz	
	PBT	PBT	PBT	
	—	—	—	
	PBT	PBT	PBT	
	Screw terminal	Screw terminal	Connector, M12x1 connector, 4-pin	
	10...55 VDC	20...250 VAC	10...55 VDC	
	-25...70 °C	-25...70 °C	-25...70 °C	
	IP67	IP67	IP67	
	CE, EAC	CE, cULus, EAC	CE, cULus, EAC	
	Page 137	Page 137	Page 137	



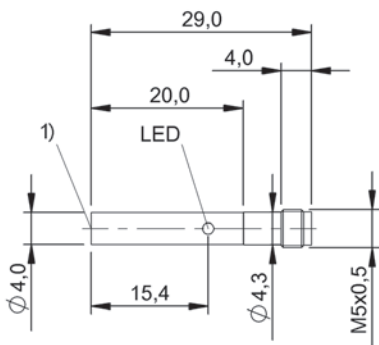
1) Sensing surface

BES03Z6



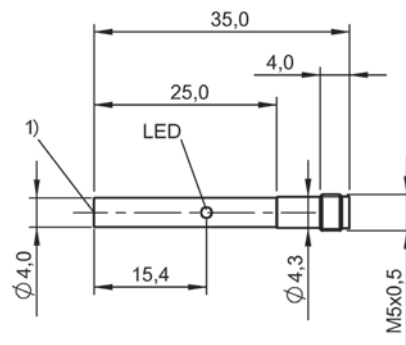
1) Sensing surface

BES0409



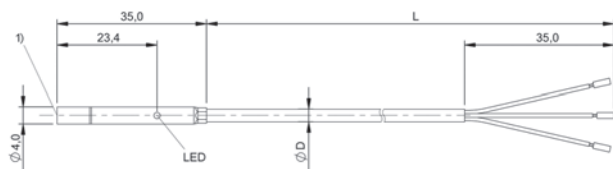
1) Sensing surface

BES0122, BES0120



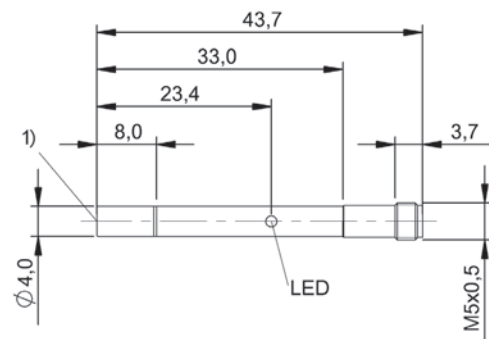
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BES012F



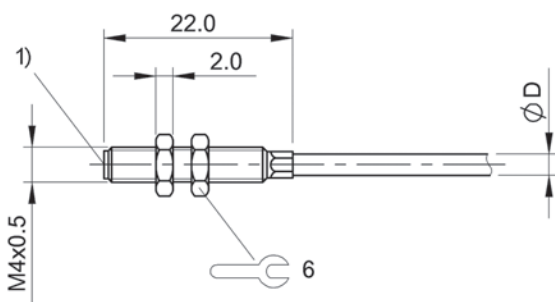
1) Sensing surface

BES012H, BES012J



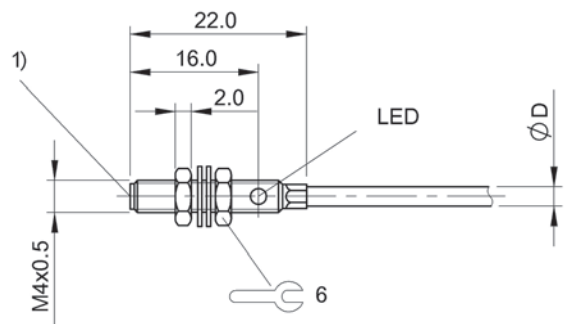
1) Sensing surface

BES012K

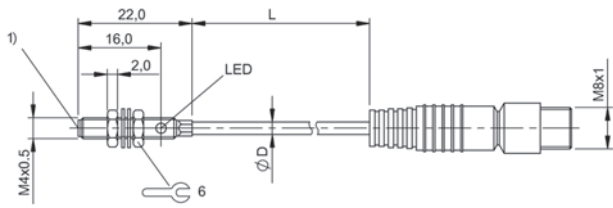


1) Sensing surface

BES01P0

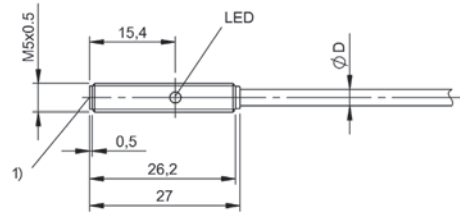


BES03ZJ, BES03Z8



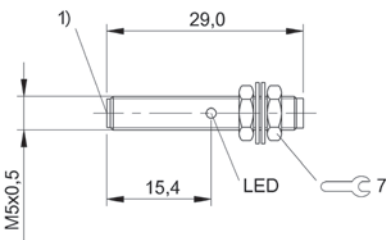
1) Sensing surface

BES040R



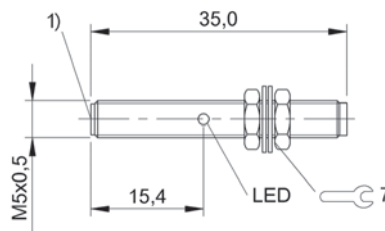
1) Sensing surface

BES051J, BES051L



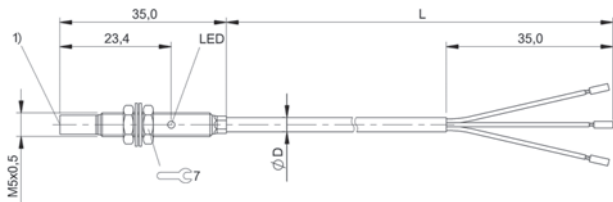
1) Sensing surface

BES012W, BES012Z



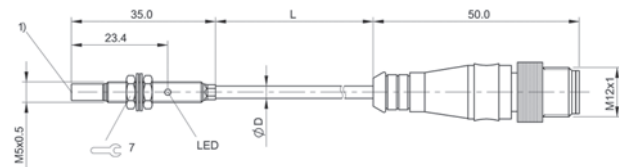
1) Sensing surface

BES0130, BES013A, BES0137



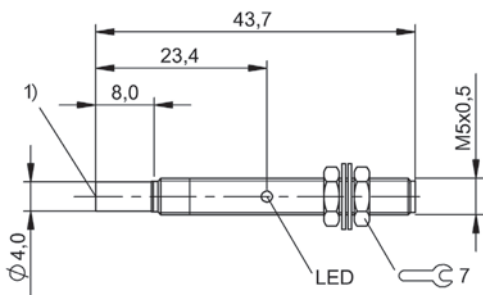
1) Sensing surface

BES013E, BES013F



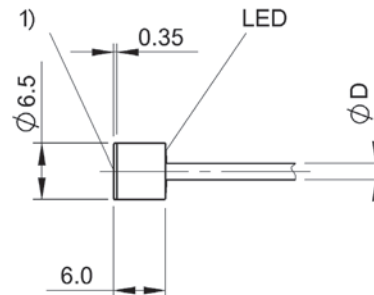
1) Sensing surface

BES013C



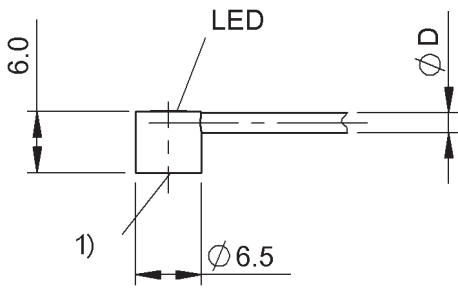
1) Sensing surface

BES013H, BES0139



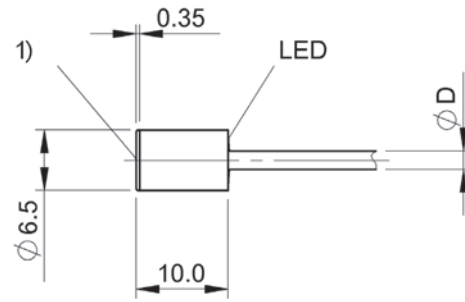
1) Sensing surface

BES0256, BES0251, BES0258



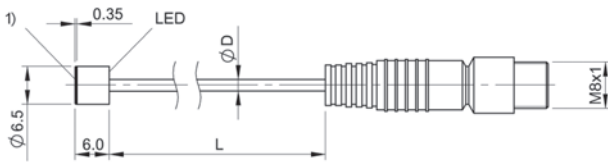
1) Sensing surface

BES025U, BES03ZA



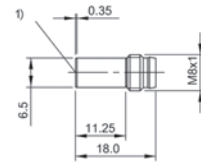
1) Sensing surface

BES025L, BES025M, BES025H



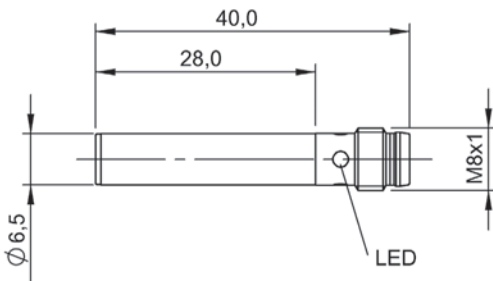
1) Sensing surface

BES0254, BES051H, BES0257

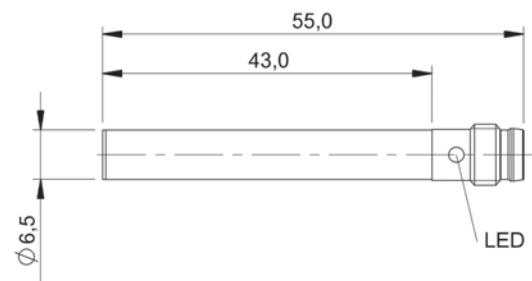


1) Sensing surface

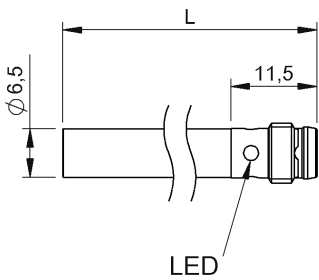
BES025N



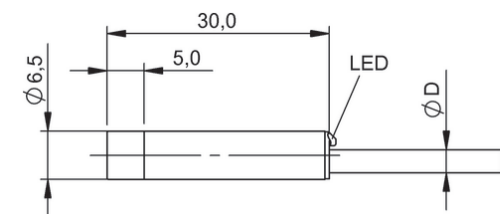
BES03R9



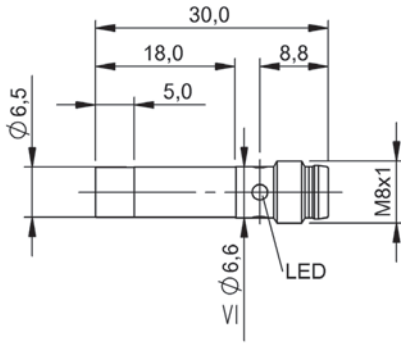
BES03P4



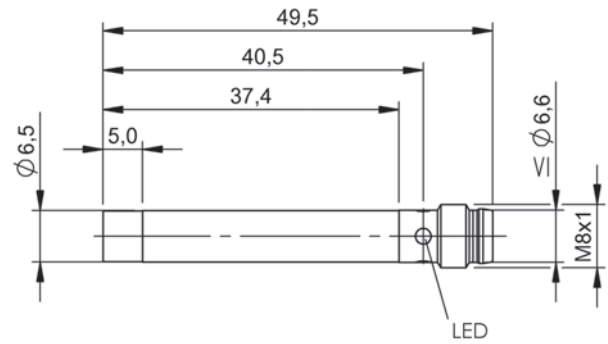
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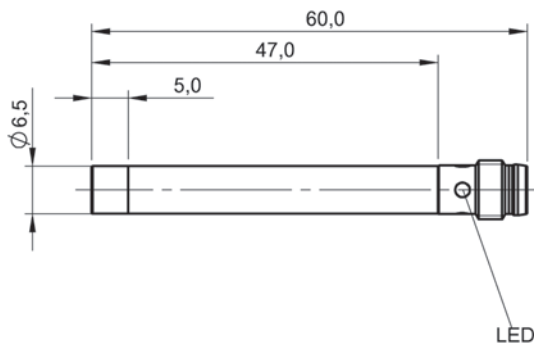
BES0008, BES000E



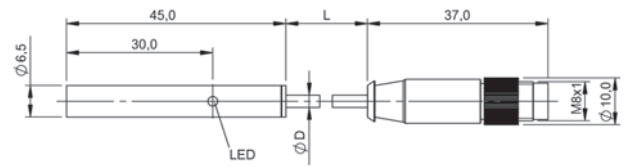
BES0005



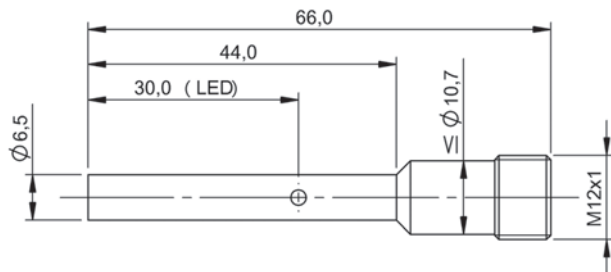
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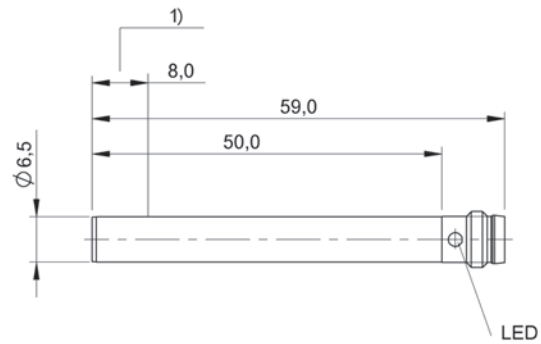
BES03P5



BES03EJ

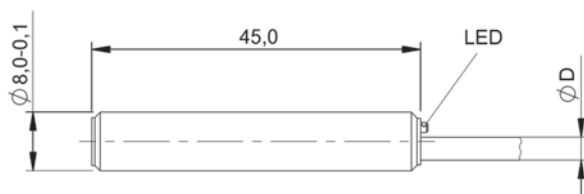


BES02UR

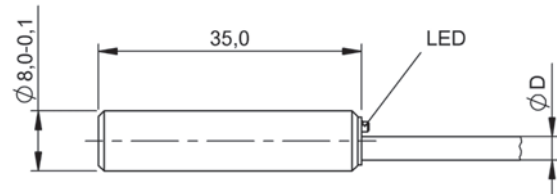


1) siehe Bemerkungen

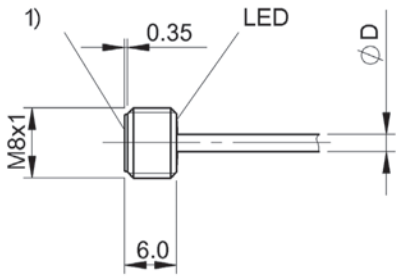
BES01NT



BES012R, BES01NY, BES012T

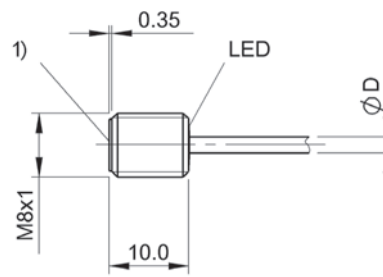


BES012L



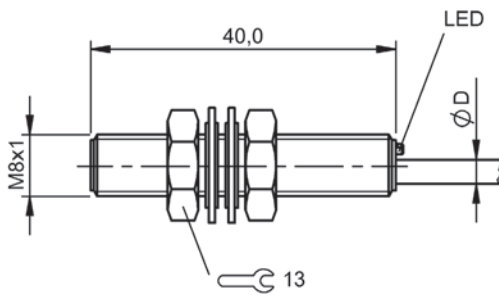
1) Sensing surface

BES026M

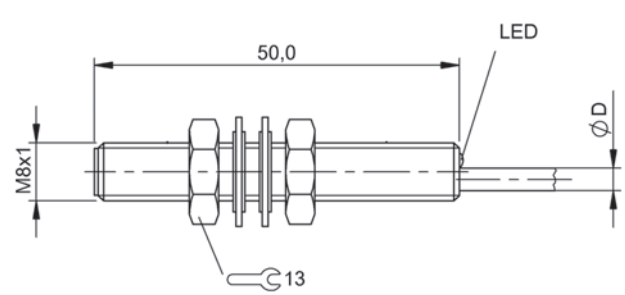


1) Sensing surface

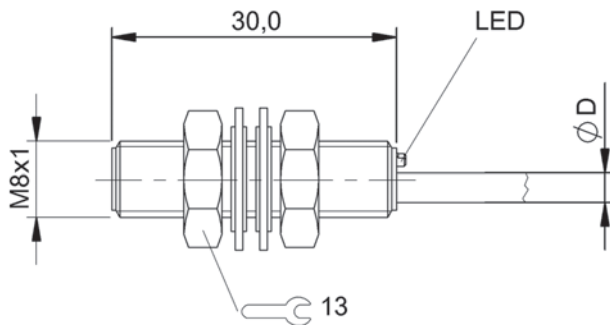
BES0275



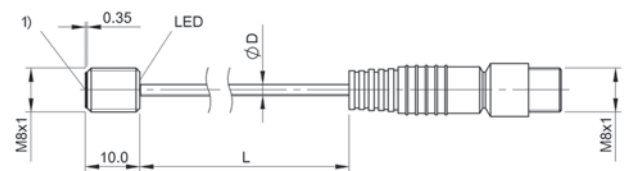
BES00CN, BES014K, BES00CR, BES00CW



BES002H, BES0034, BES0036, BES0031, BES0032, BES0037, BES002P, BES003F, BES003J, BES03TL, BES003K, BES003M, BES03TH

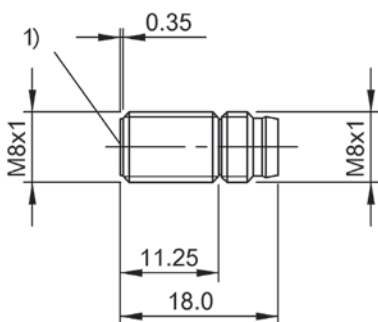


BES0389



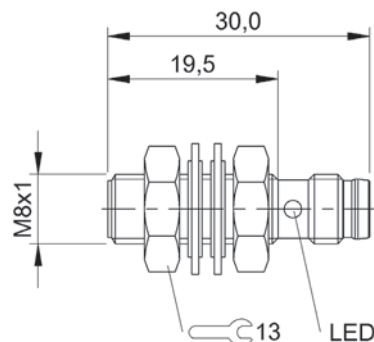
1) Sensing surface

BES0276

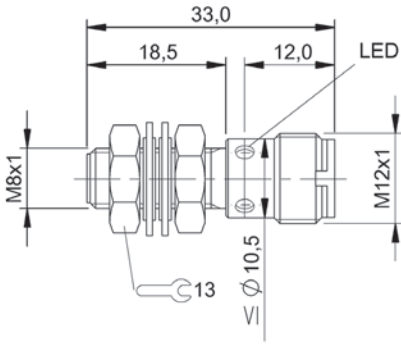


1) Sensing surface

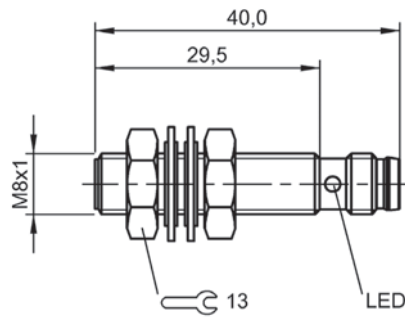
BES0277, BES0270, BES0278



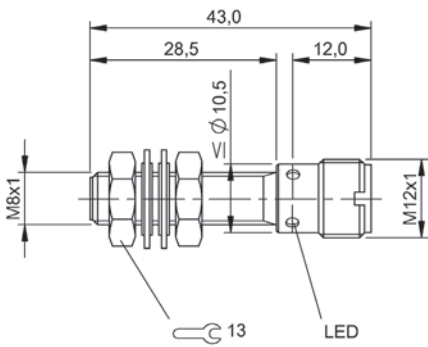
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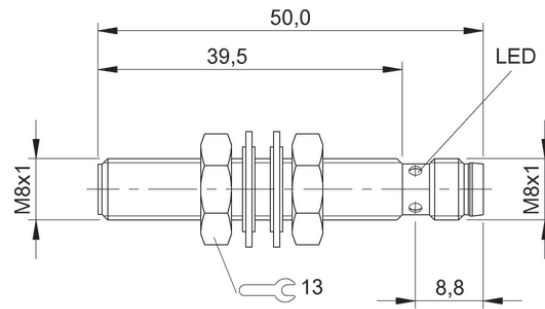
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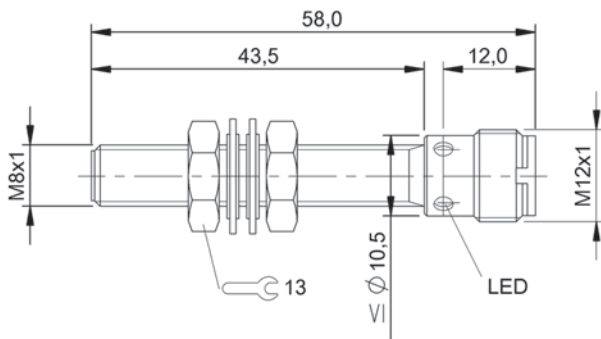
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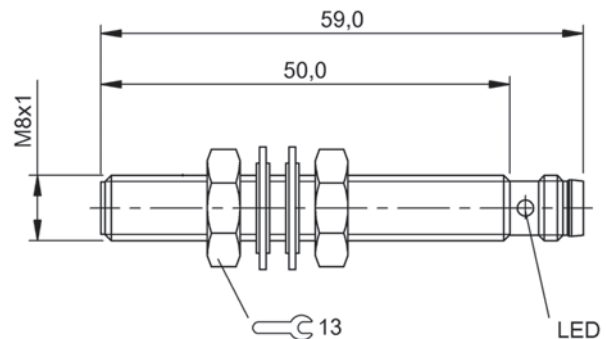
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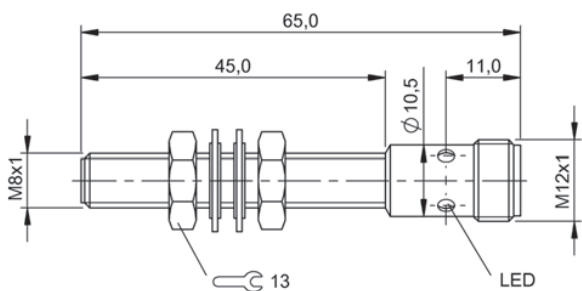
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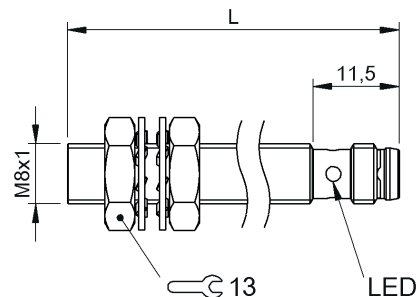
BES01PC, BES01PE, BES01PH



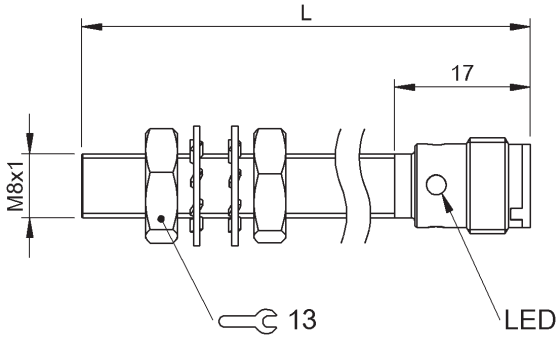
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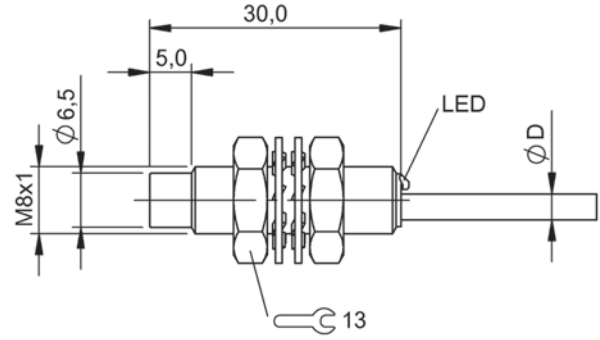
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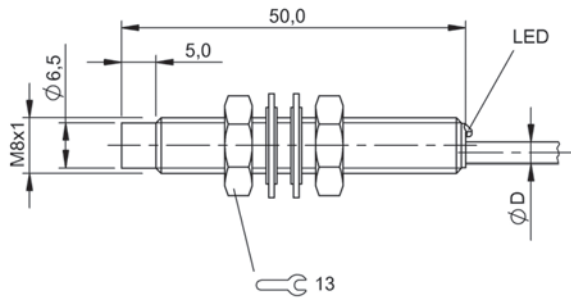
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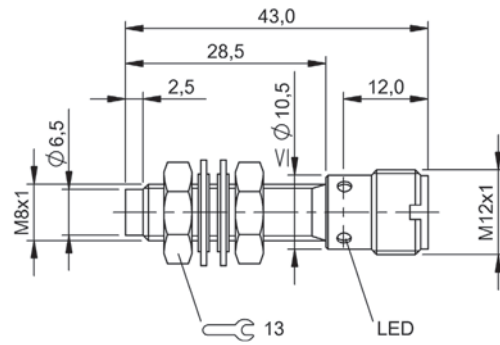
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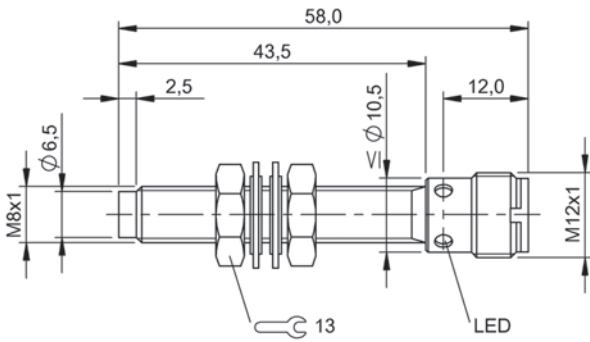
BES000T, BES000Y



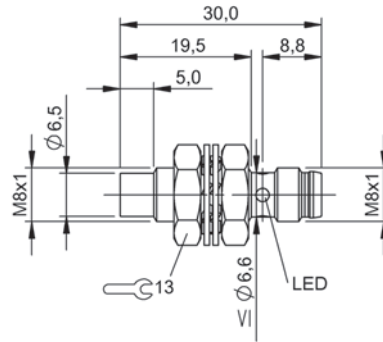
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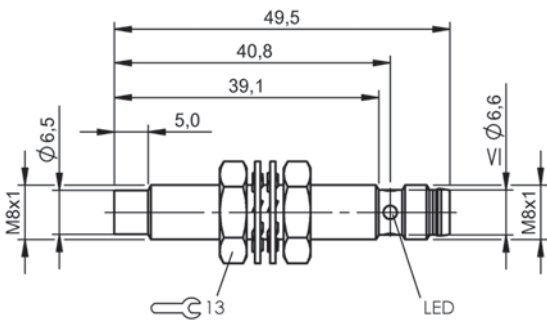
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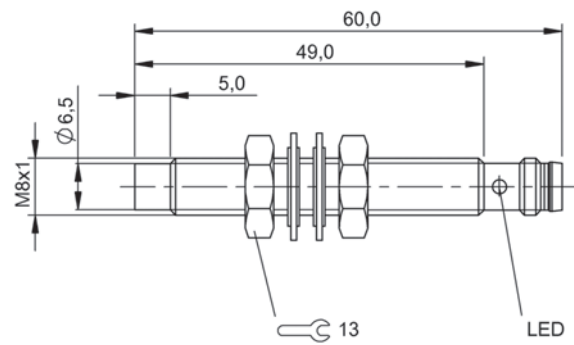
BES01P5, BES01P8, BES01P6



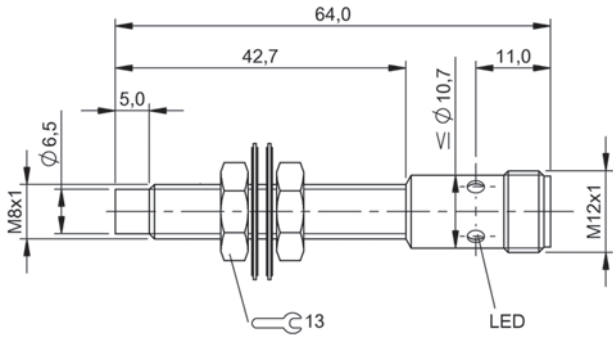
BES000M, BES000L



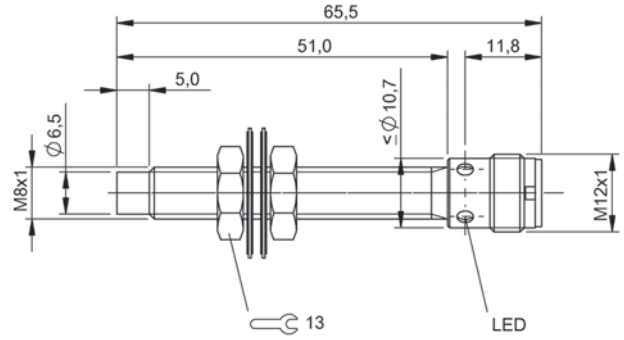
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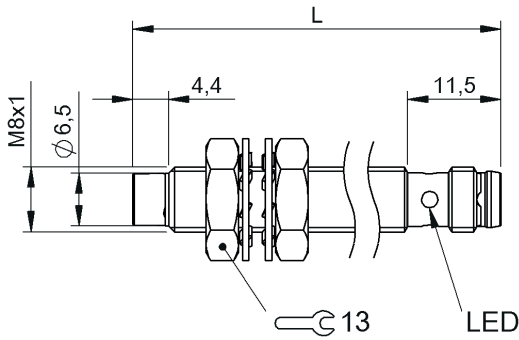
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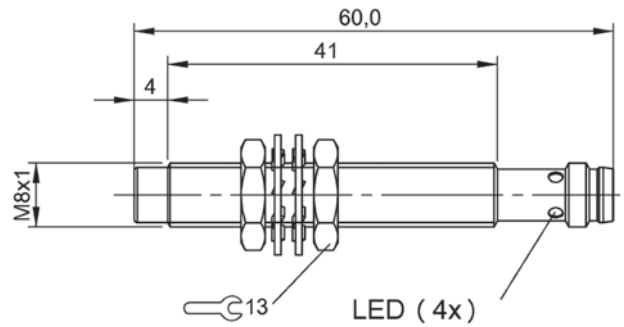
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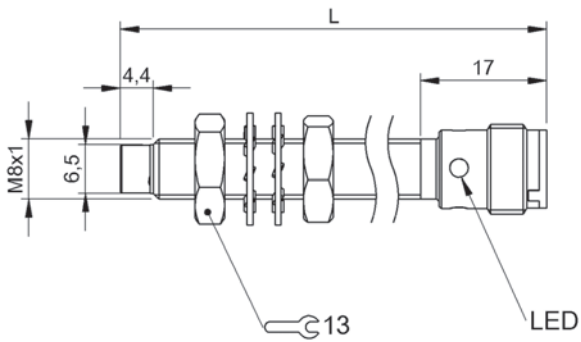
BES001A, BES001H, BES001E



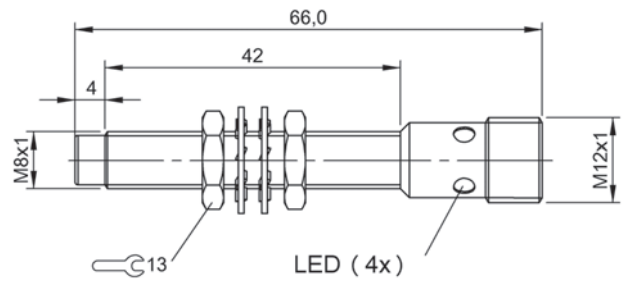
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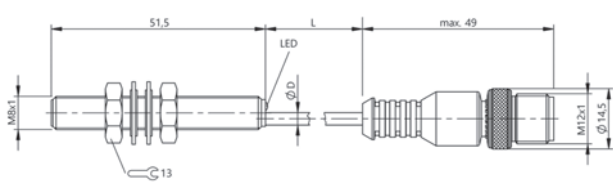
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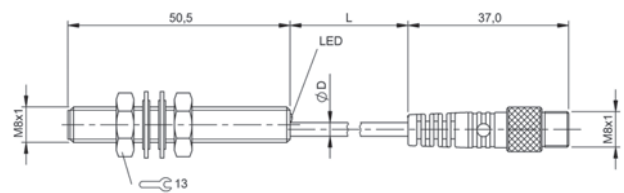
BES058J



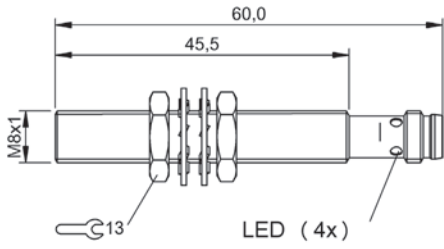
BES02W0, BES02W3



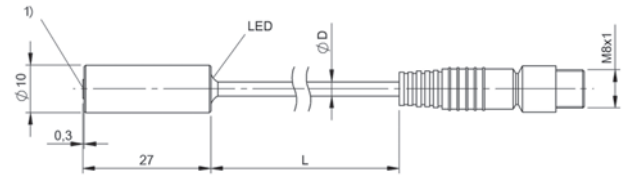
BES01ZR, BES01ZU



BES003R

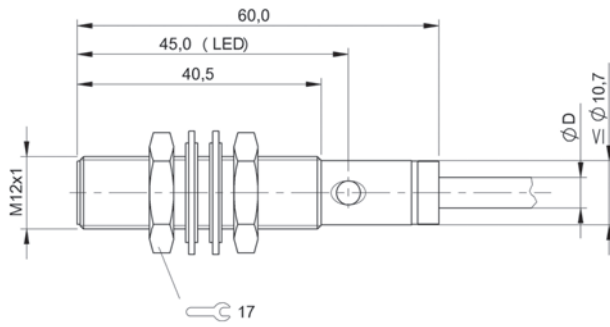


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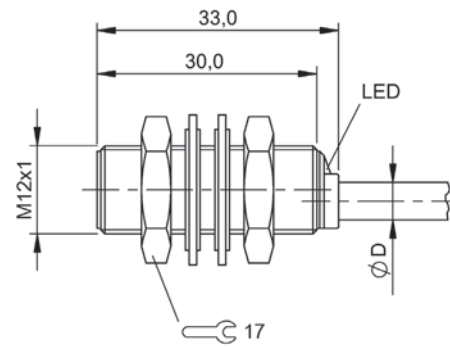


1) Sensing surface

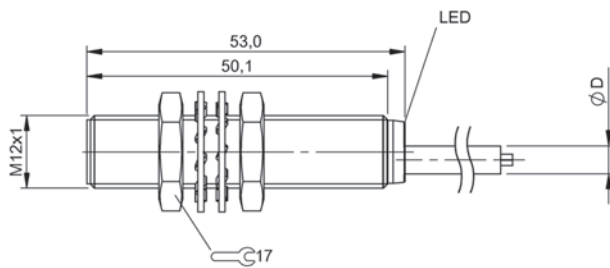
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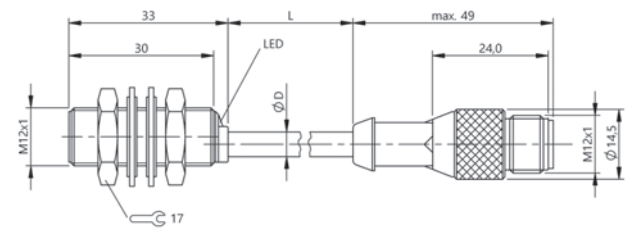
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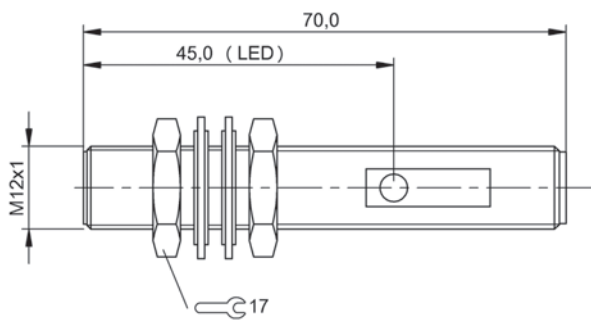
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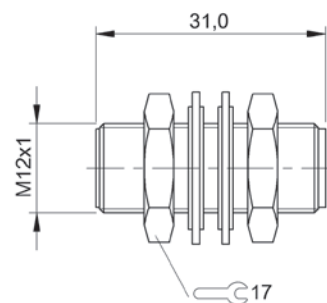
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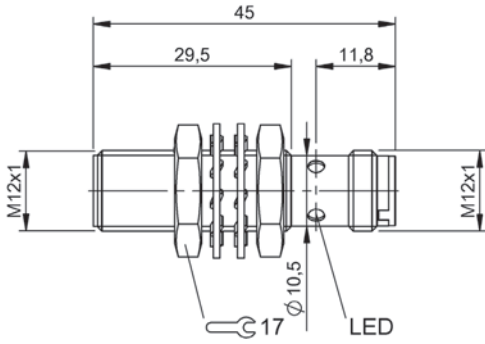
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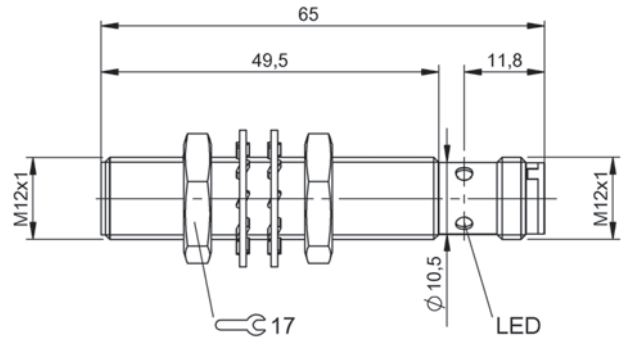
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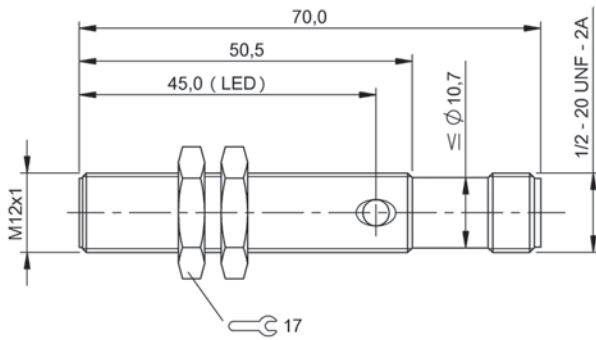
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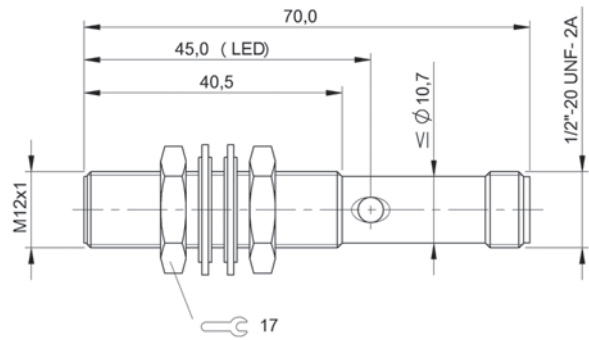
BES00PK, BES00YT, BES00EF, BES00PY, BES00ZO, BES02WM



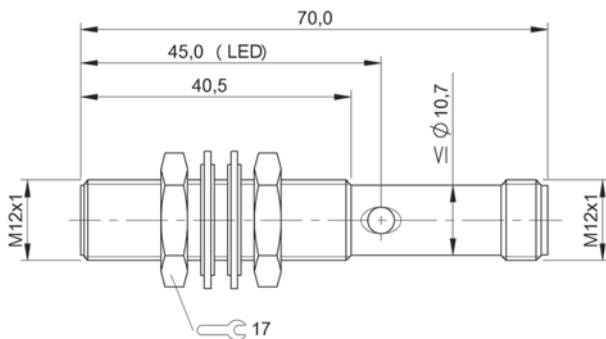
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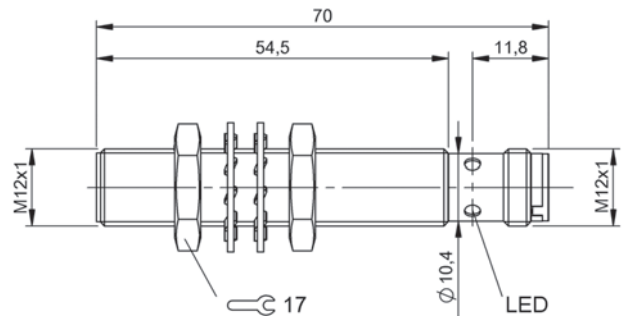
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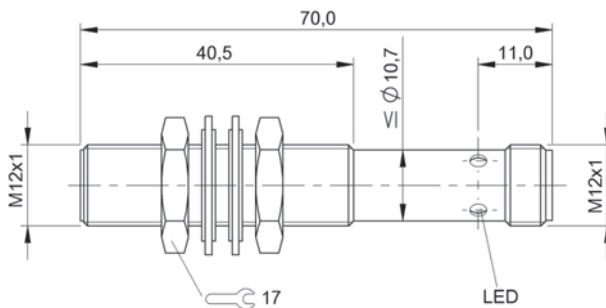
BES027U, BES027T



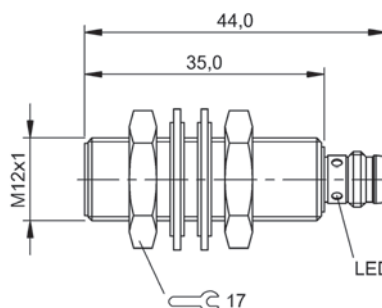
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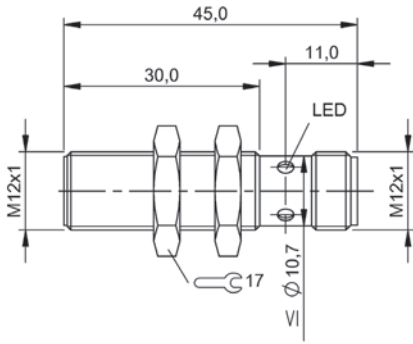
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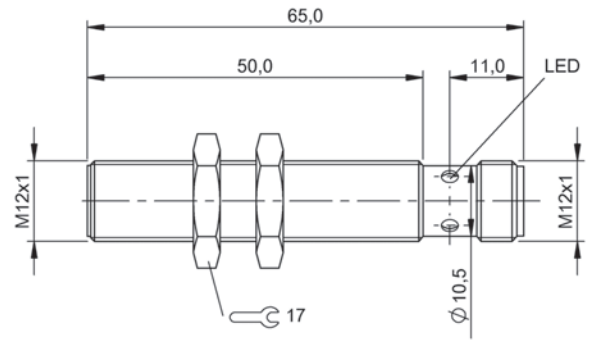
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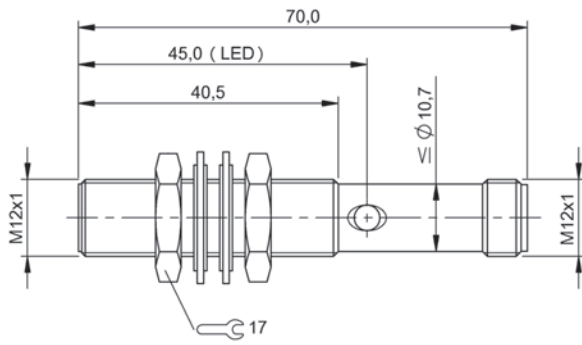
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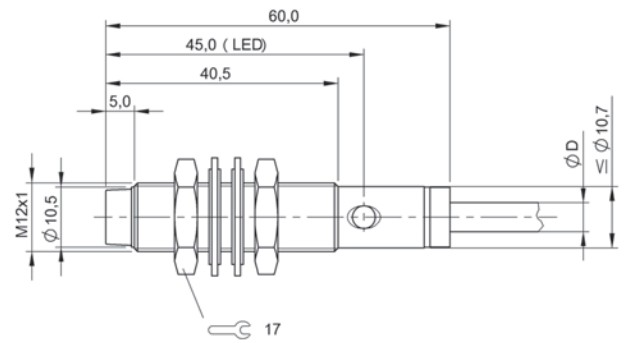
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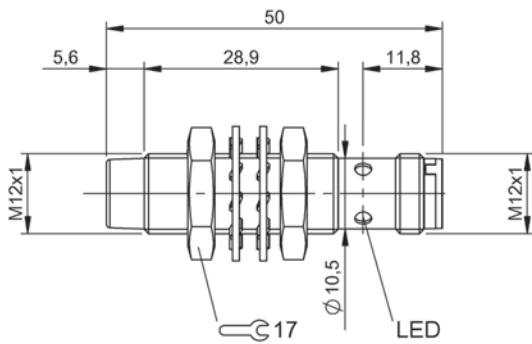
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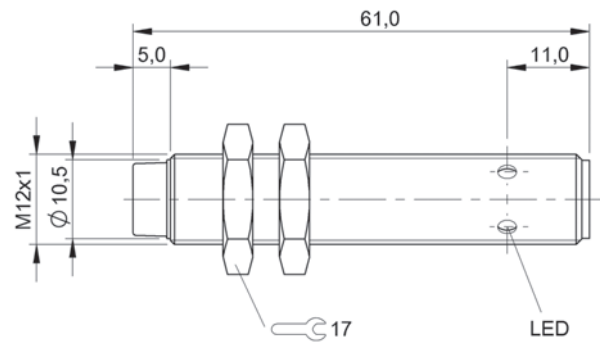
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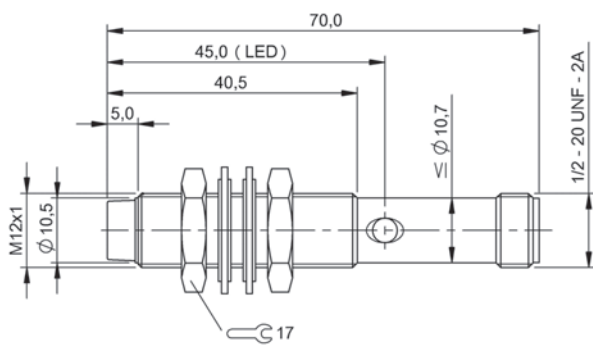
BES0285, BES0286, BES028F



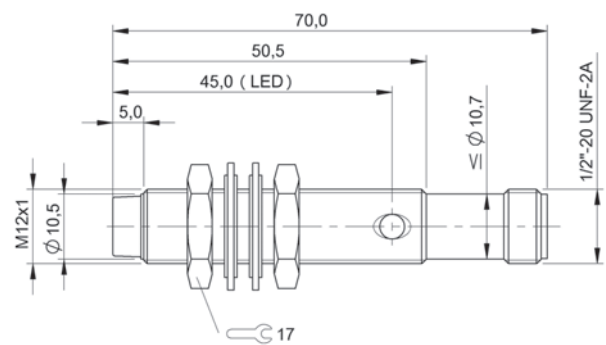
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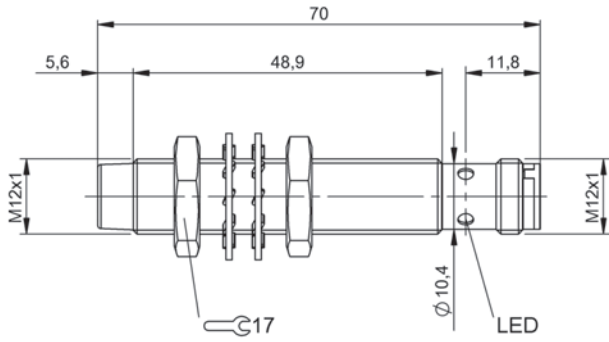
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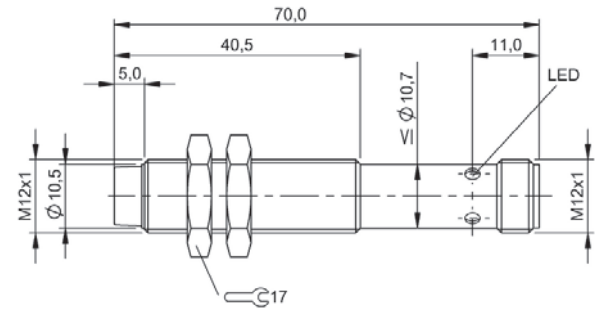
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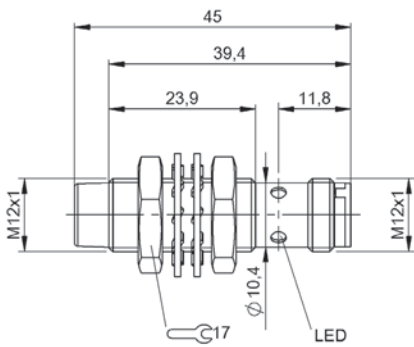
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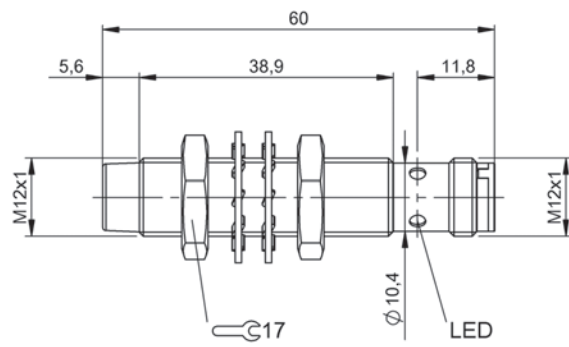
BES01H6, BES0178



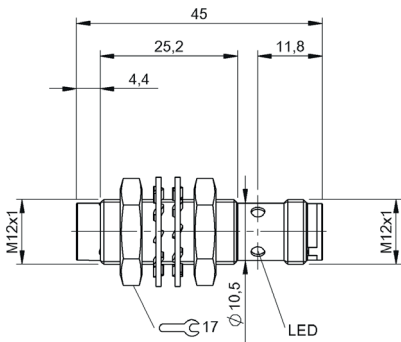
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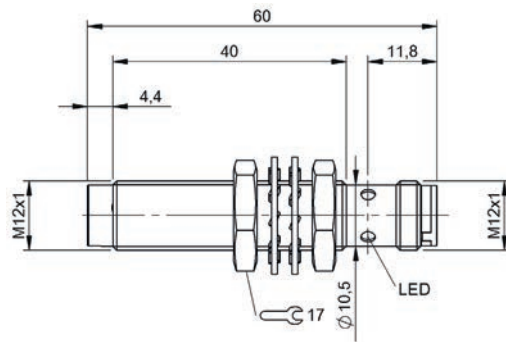
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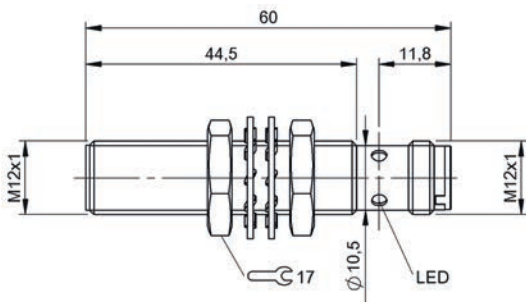
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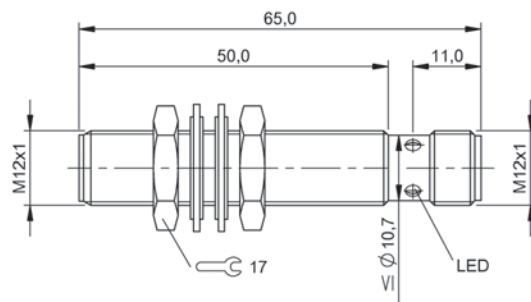
BES02WK



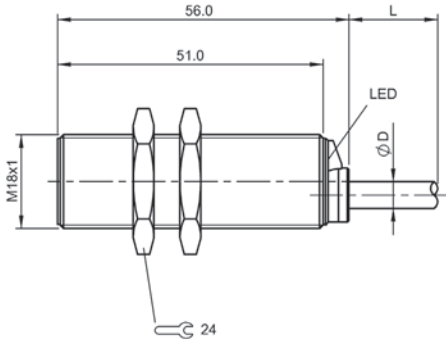
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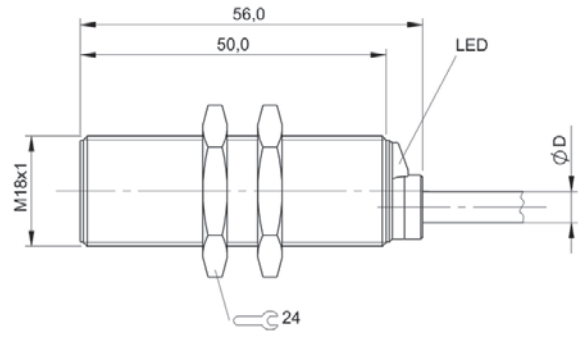
BES02WZ, BES02WY



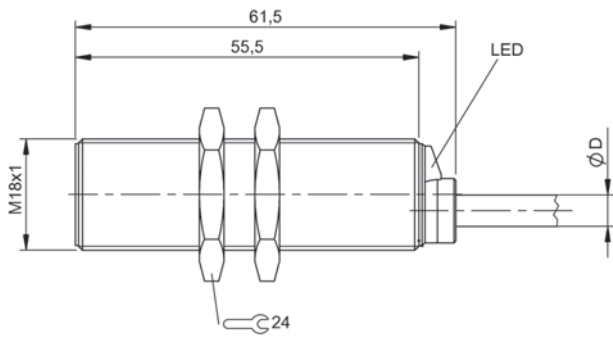
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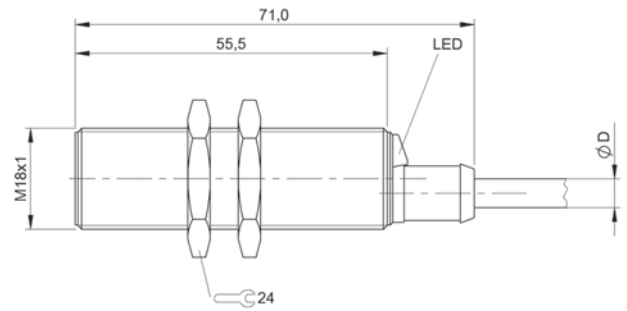
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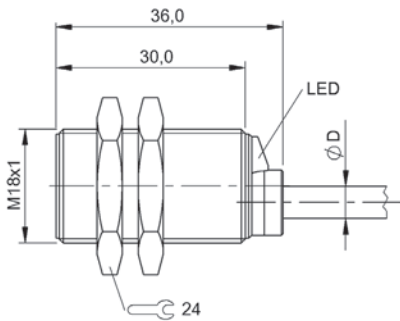
BES0083, BES007H, BES007J



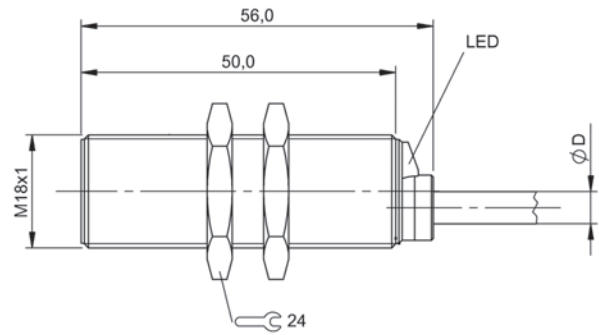
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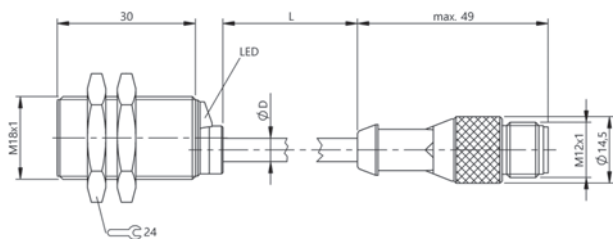
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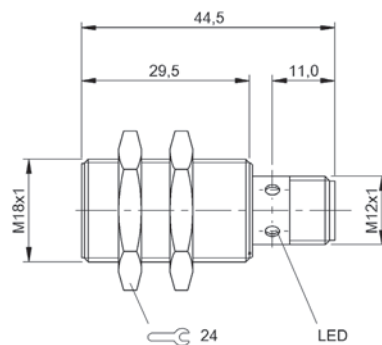
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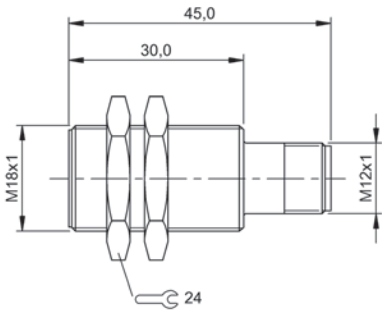
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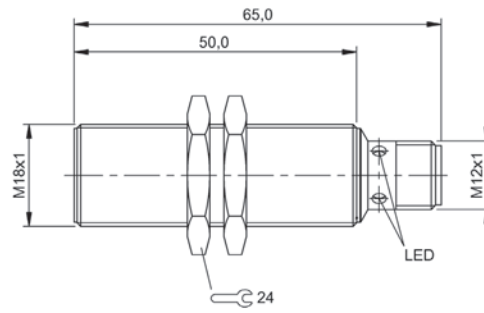
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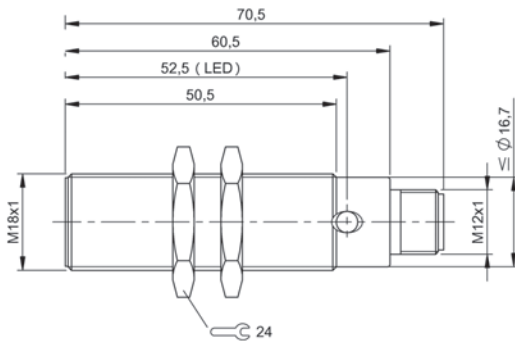
BES00EY, BES00R6, BES00RC, BES02P3



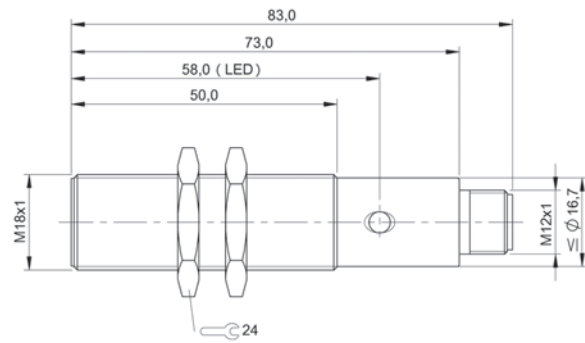
BES02ET



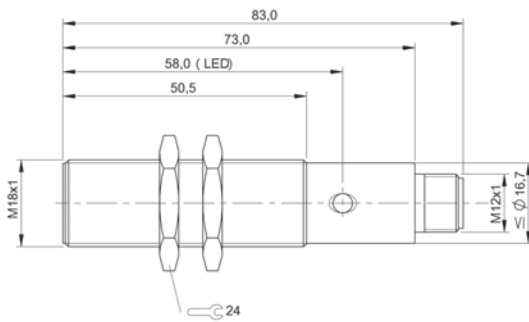
BES0086



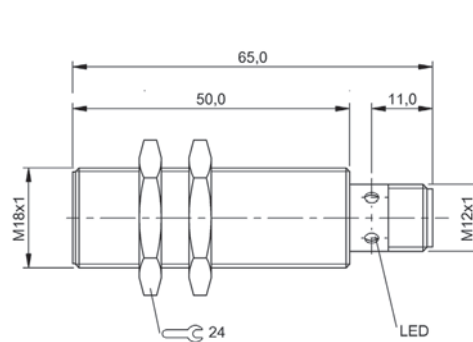
BES028R



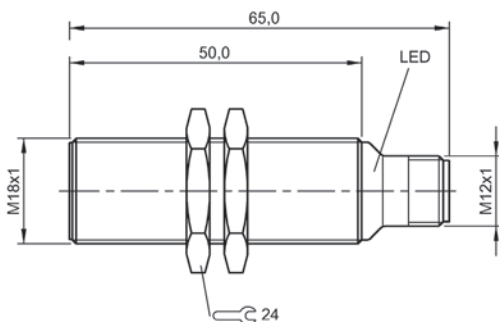
BES02EU



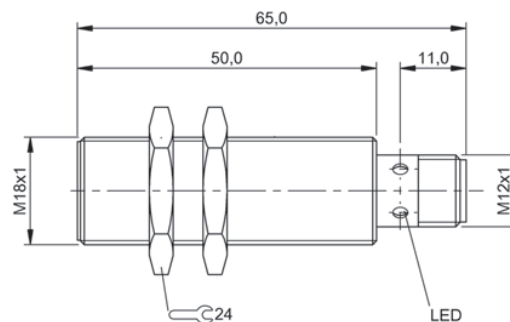
BES01CW, BES015N, BES01JW



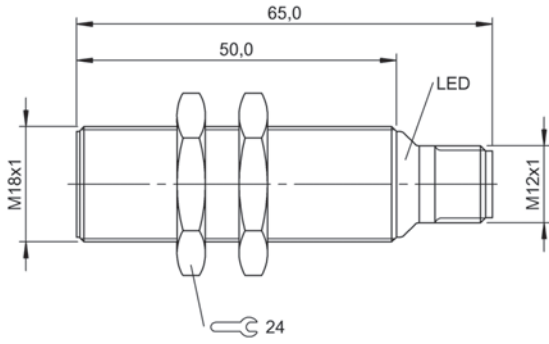
BES008L



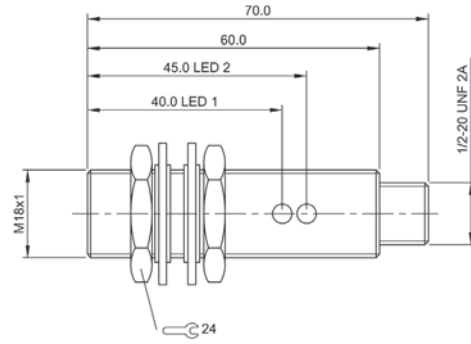
BES007M



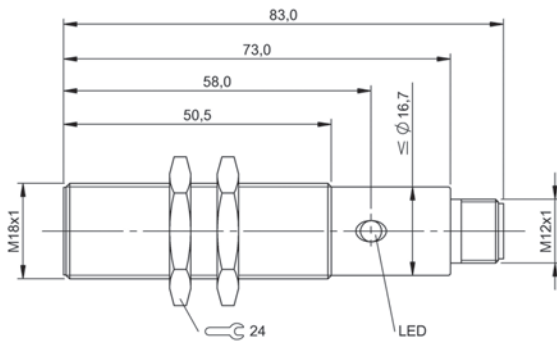
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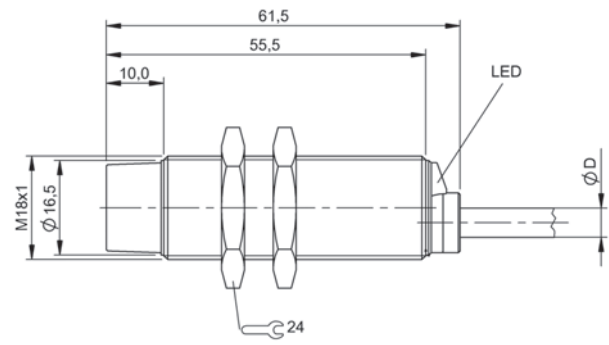
BES008M, BES007Y



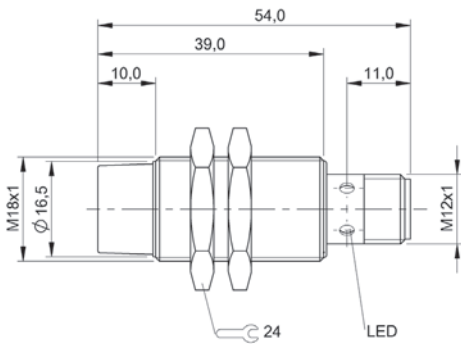
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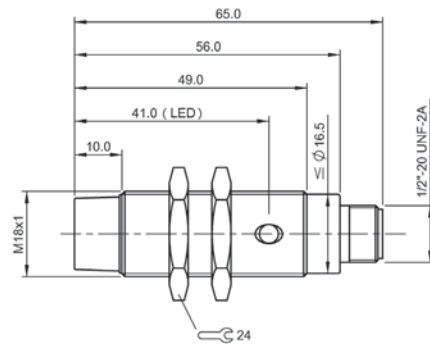
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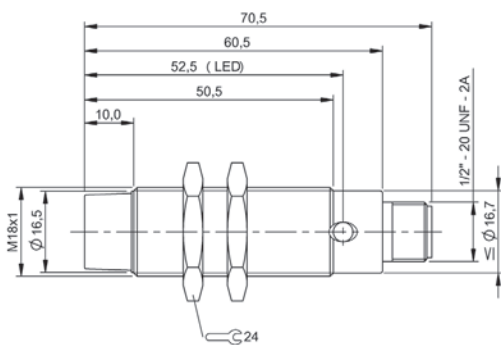
BES02C5, BES0292



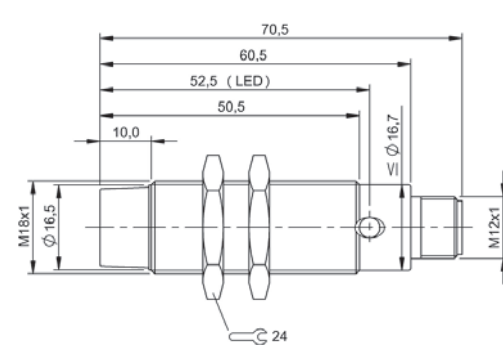
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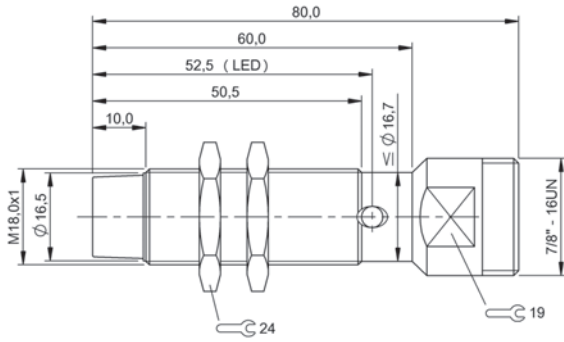
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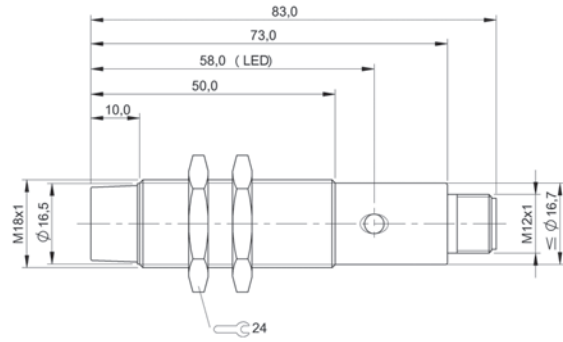
BES0296, BES029A



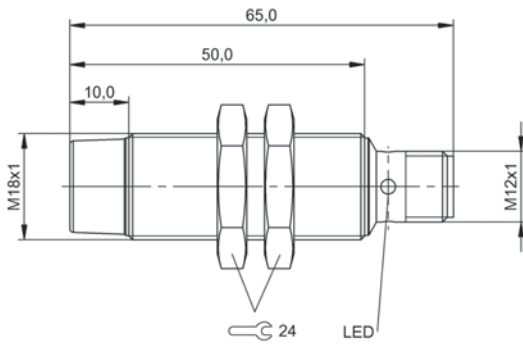
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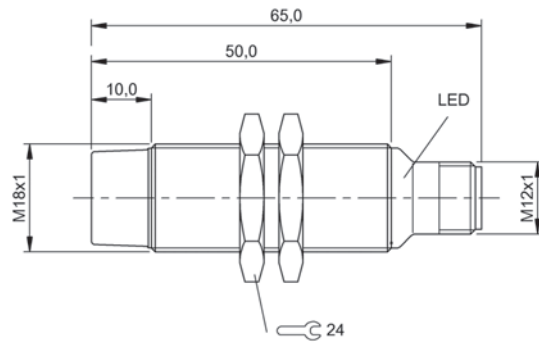
BES0298



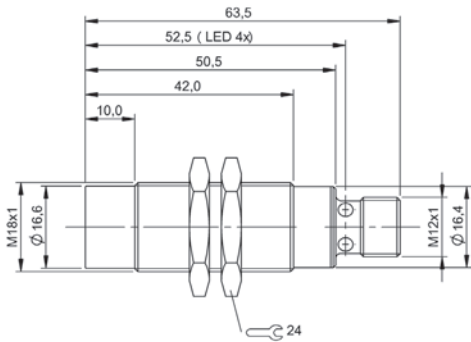
BES01HY, BES01HW, BES016W



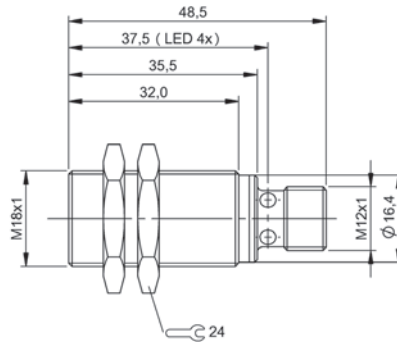
BES03RM



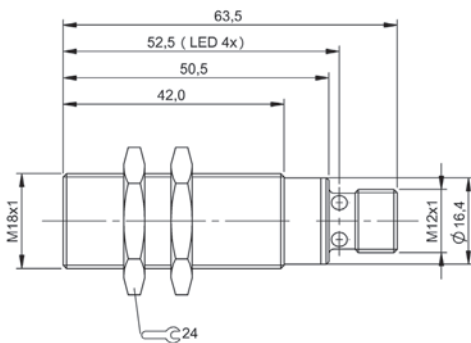
BES0070



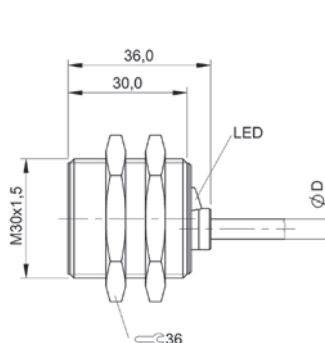
BES02Y7



BES02Y5

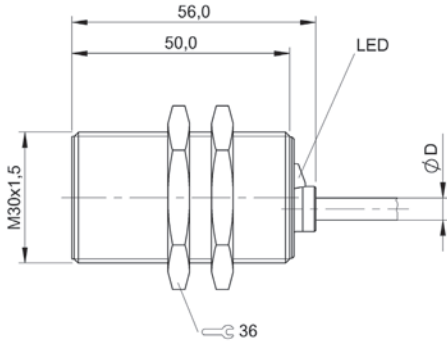


BES02Y9

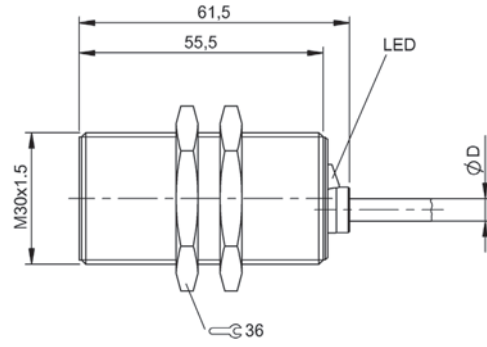


BES00RE, BES00RT, BES00LR

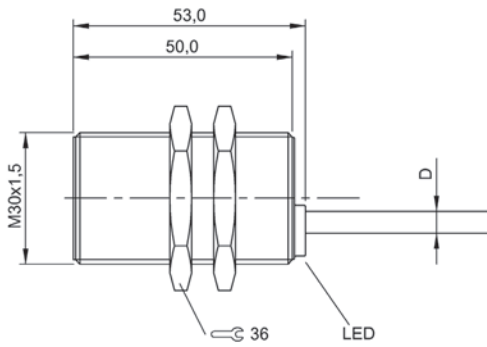
130 | Sensors | Inductive Sensors



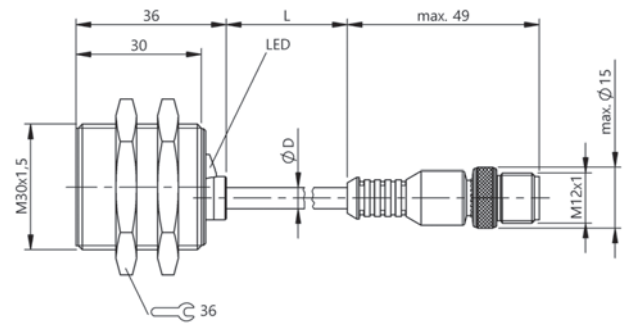
BES009E, BES00A1



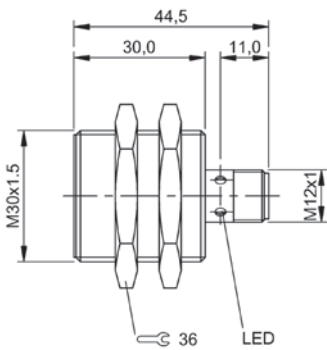
BES029L, BES029M



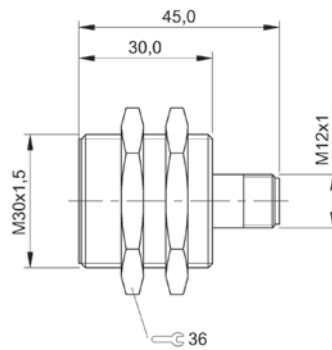
BES00AA, BES00AC



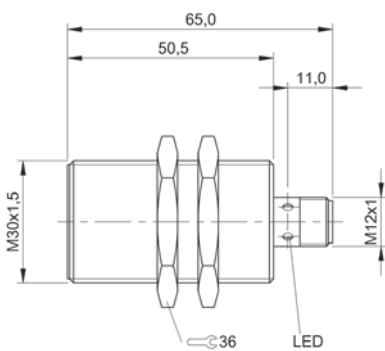
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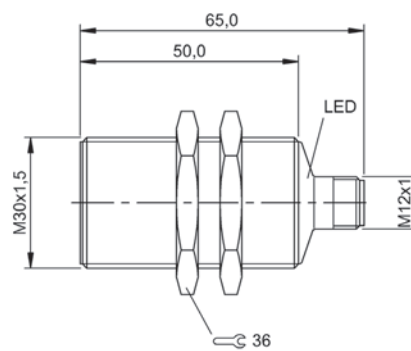
BES00RP, BES00RW, BES00LU



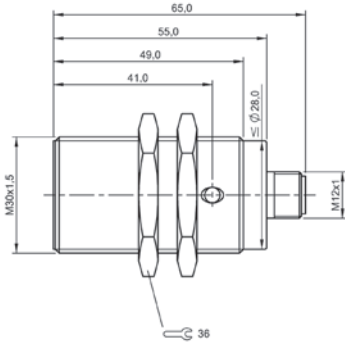
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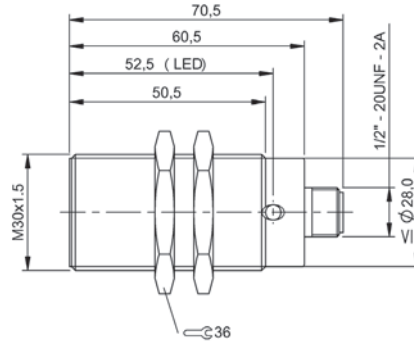
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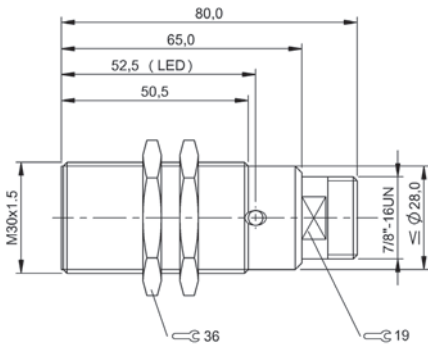
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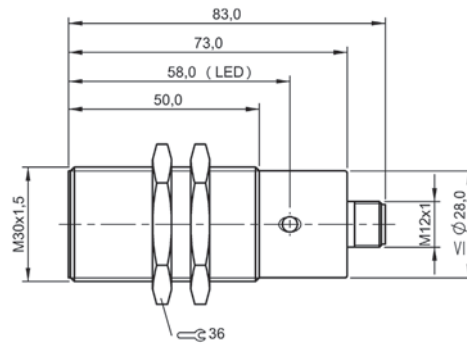
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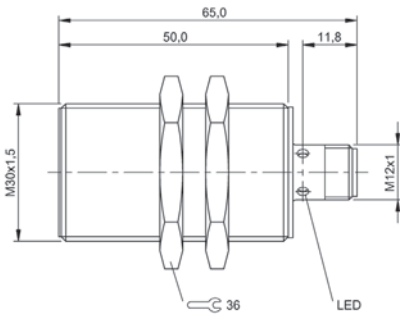
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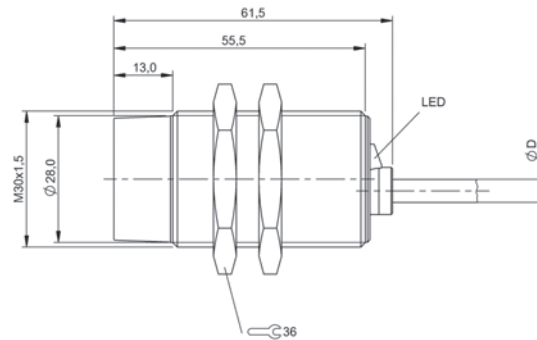
BES029W



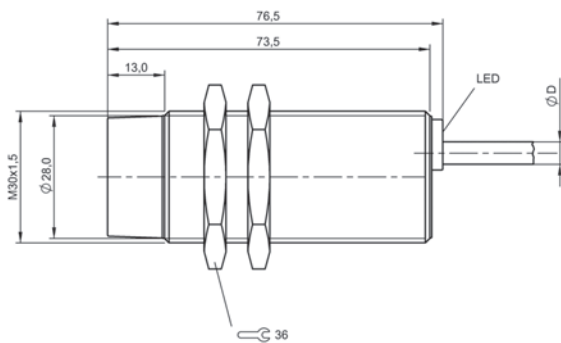
BES02F1, BES01EE, BES0167, BES01EA, BES01EC, BES0166



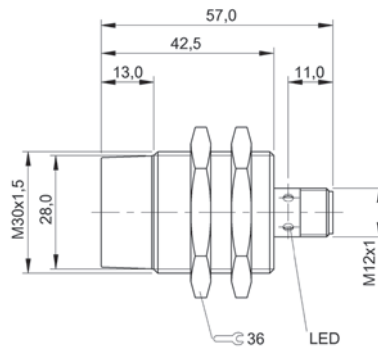
BES00AF



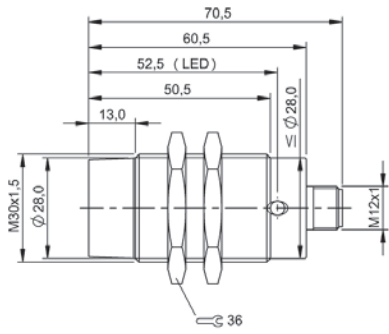
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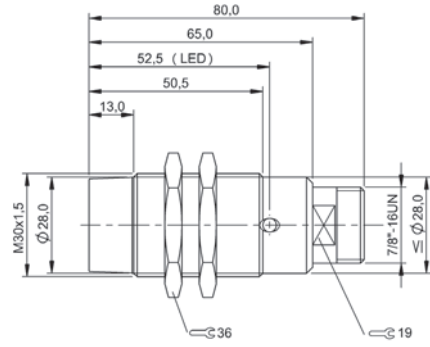
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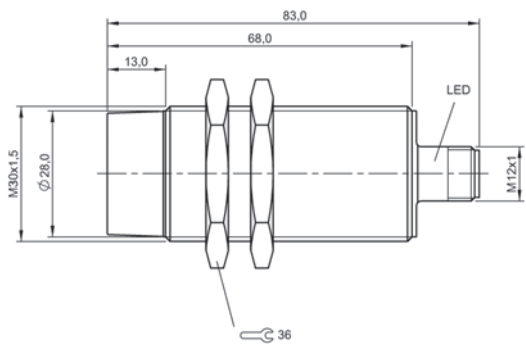
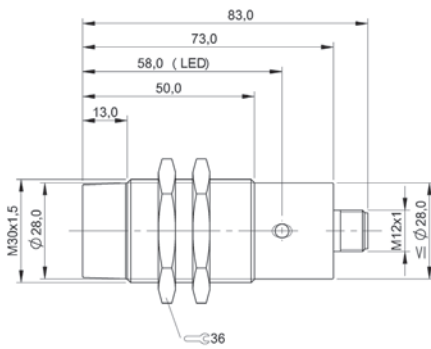
BES00Y0



BES02AC

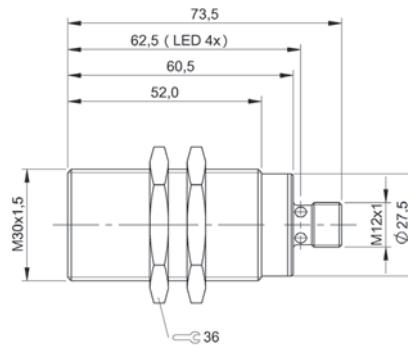
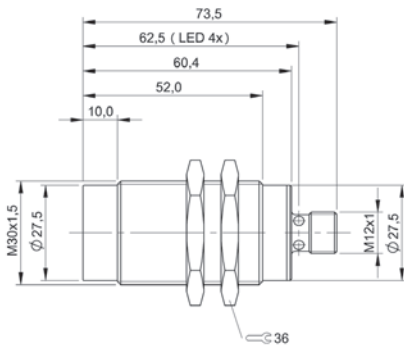


BES02AE



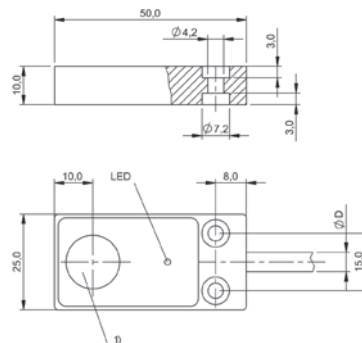
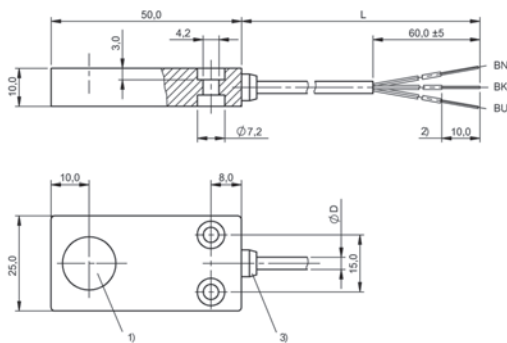
BES02FN, BES01JE, BES01JC

BES00AZ



BES02YJ

BES02YM, BES02YL

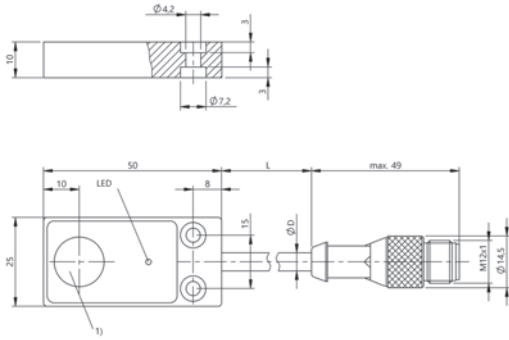


1) Sensing surface, 2) verzinkt, 3) LED rot

1) Sensing surface

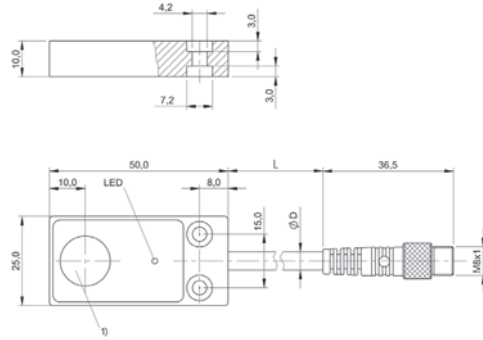
BES0341

BES01FJ, BES01FK, BES01FM, BES017H, BES032R



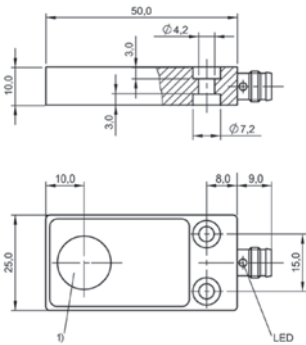
1) Sensing surface

BES01FN, BES0153



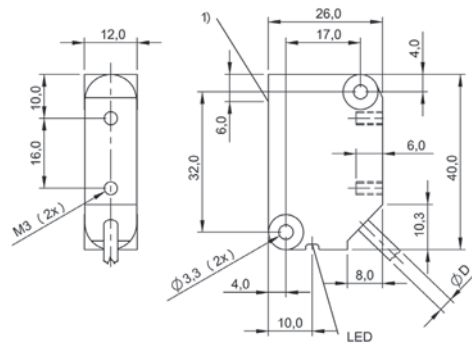
1) Sensing surface

BES01FT



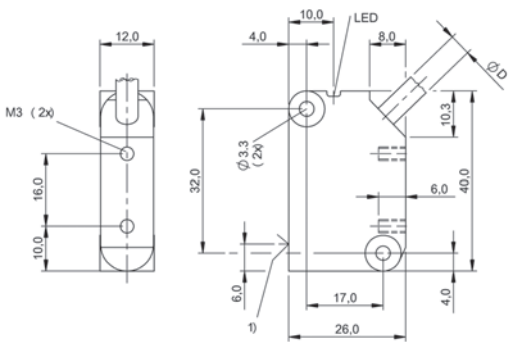
1) Sensing surface

BES01FR



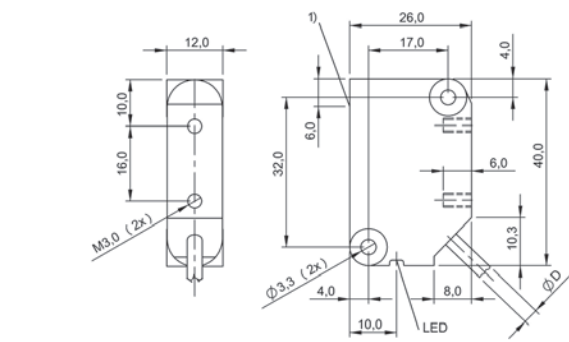
1) Sensing surface Ø8

BES02CT, BES02CU, BES01Z5



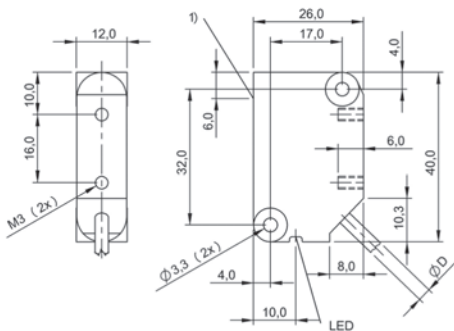
1) Sensing surface Ø8

BES01YZ



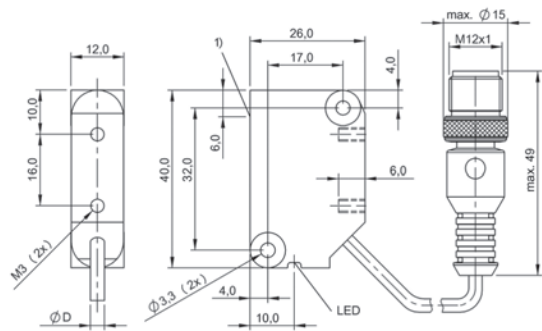
1) Sensing surface Ø8

BES02CY



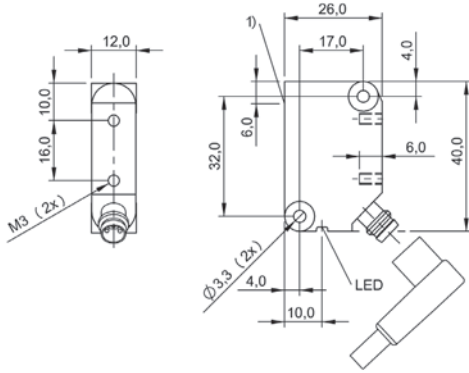
1) Sensing surface Ø8

BES01ZA, BES01ZC



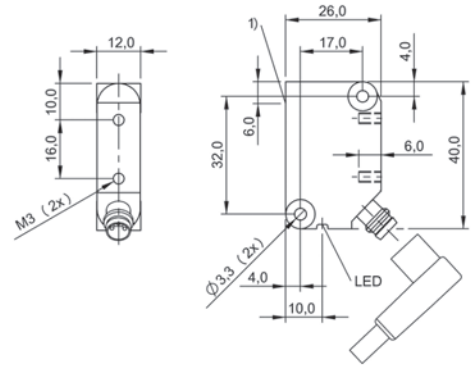
1) Sensing surface Ø8

BES01Z8



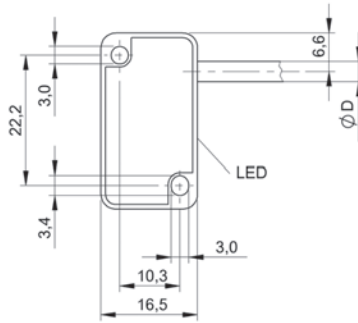
1) Sensing surface Ø8

BES01Z7, BES048A



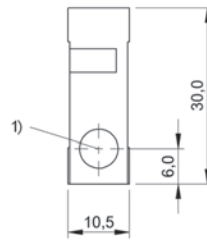
1) Sensing surface Ø8

BES01ZE, BES01Z2



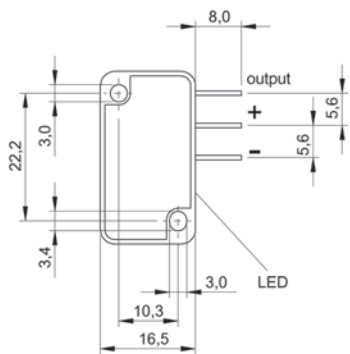
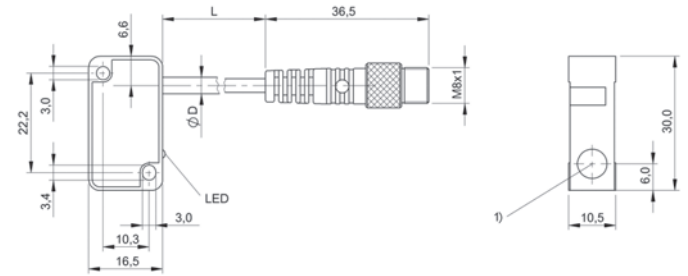
1) Sensing surface

BES01NH, BES01N5, BES01N6, BES01N8, BES01N9, BES01MM



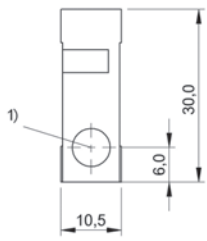
1) Sensing surface

BES01NA, BES01MT



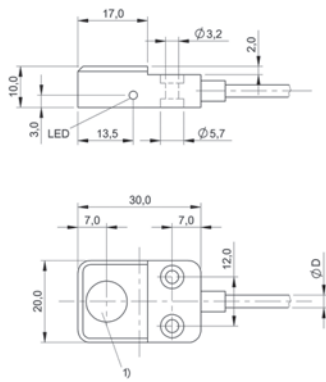
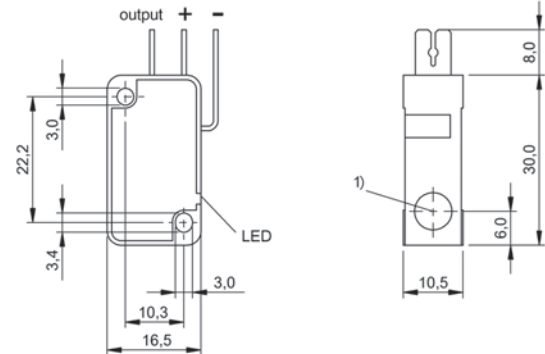
1) Sensing surface

BES01N1



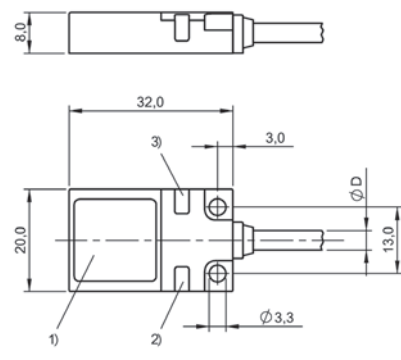
1) Sensing surface

BES01N2



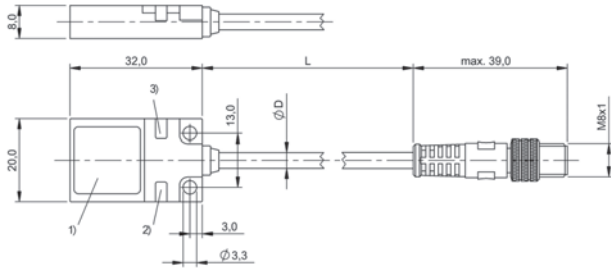
1) Sensing surface

BES033H, BES033J



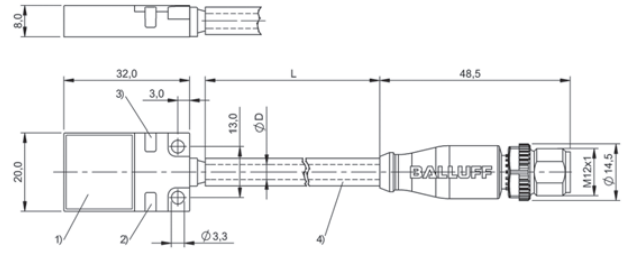
1) Sensing surface, 2) LED green, 3) LED yellow

BES01W0, BES01W4



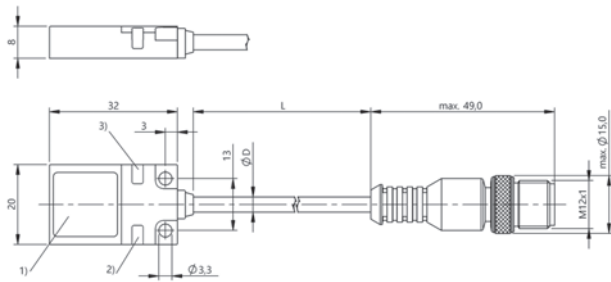
1) Sensing surface, 2) LED green 3) LED yellow

BES01WE, BES01WF



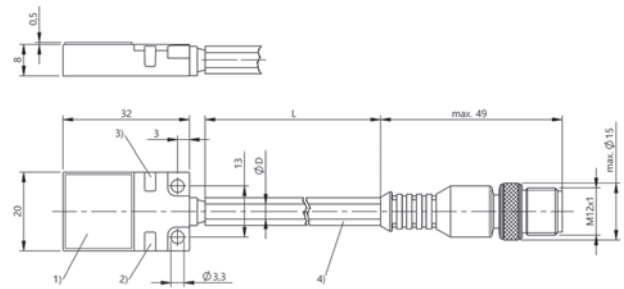
1) Sensing surface, 2) LED green, 3) LED yellow, 4) Silicon tube D=7mm

BES048Z



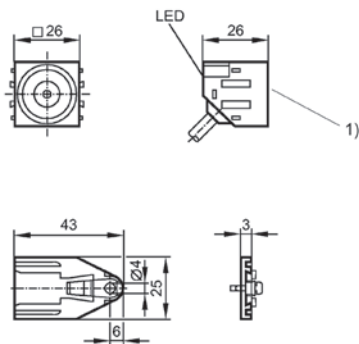
1) Sensing surface, 2) LED green, 3) LED yellow

BES01W2, BES01W3



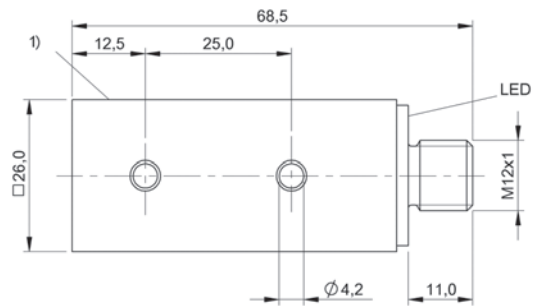
1) Sensing surface, 2) LED green, 3) LED yellow, 4) Silicon tube D=7mm

BES0314



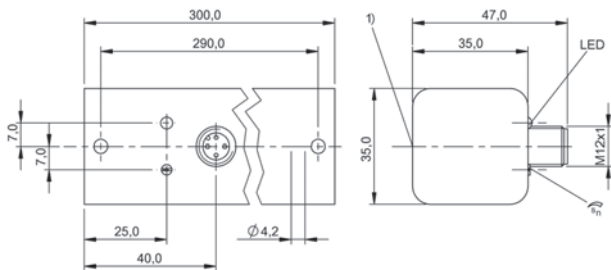
1) Sensing surface

BES030E, BES030F



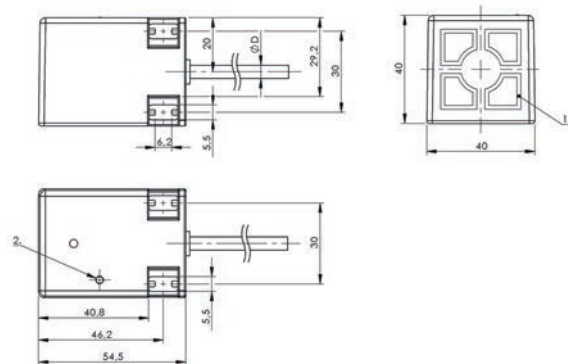
1) Sensing surface

BES022Z



1) Sensing surface

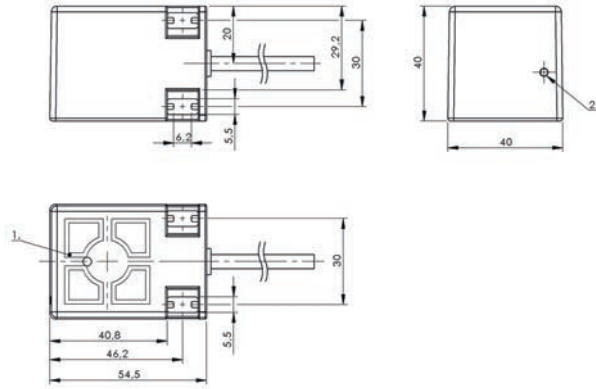
BES02TN



1) Sensing surface, 2) LED yellow

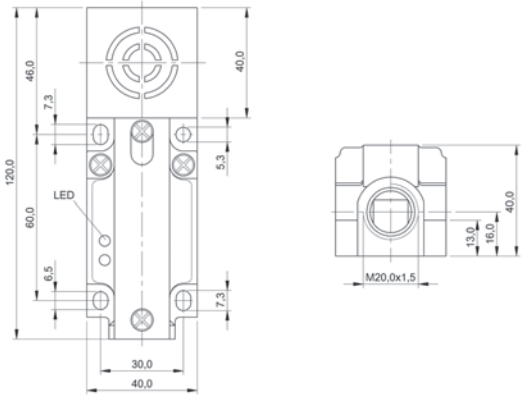
BES052M

136 | Sensors | Inductive Sensors

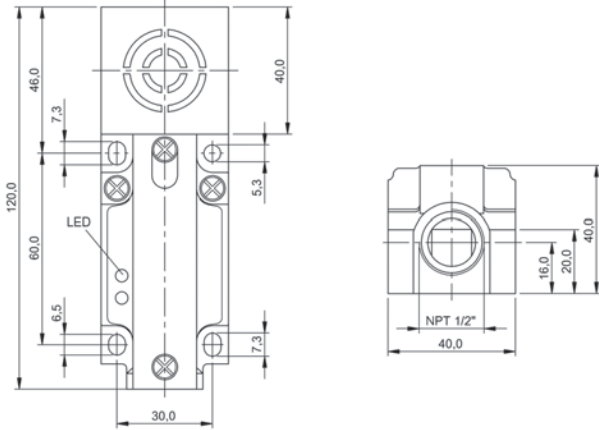


1) Sensing surface, 2) LED yellow

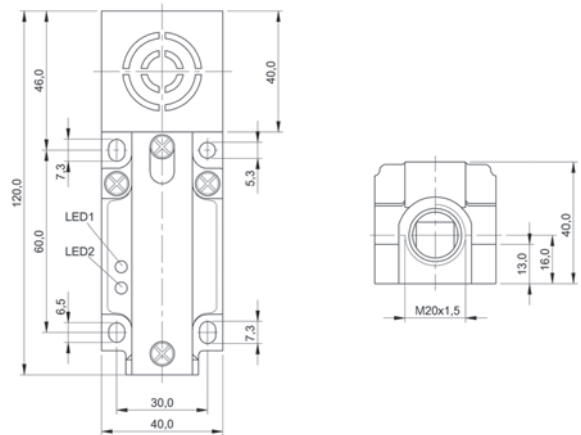
BES0555



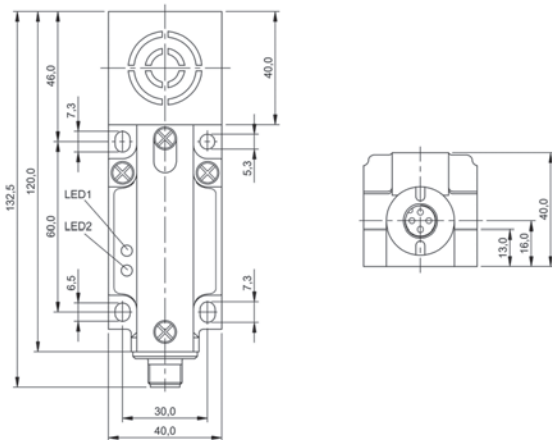
BES020Y, BES020Z, BES023Y



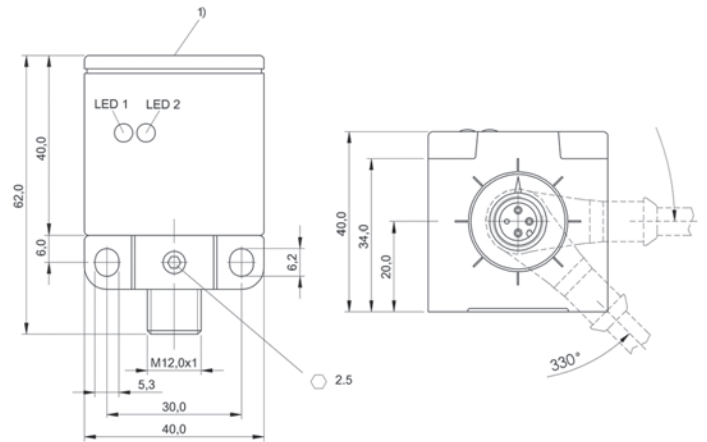
BES0241, BES0244, BES0247



BES0201, BES0209, BES0206, BES020C

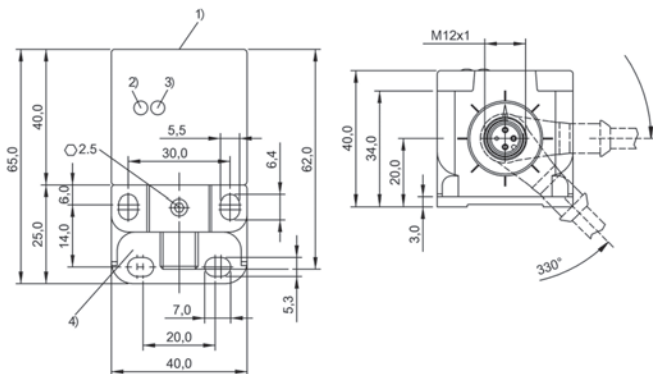


BES020A, BES0236, BES020E



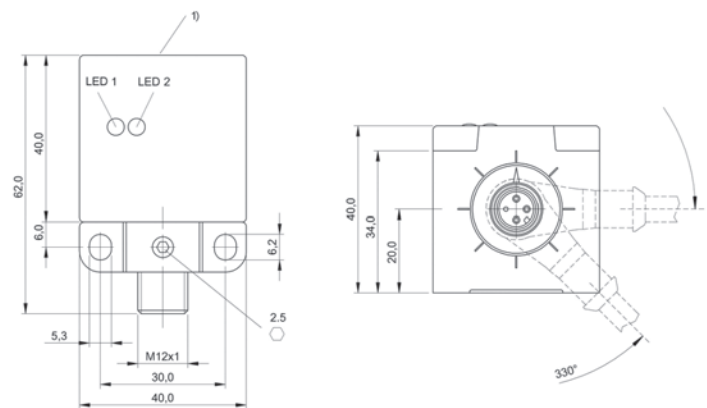
1) Sensing surface

BES021W, BES0217



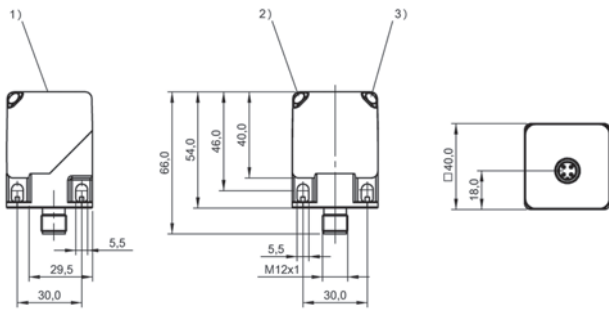
1) Sensing surface, 2) LED function indicator, 3) LED Power 4) Metal

BES03PN



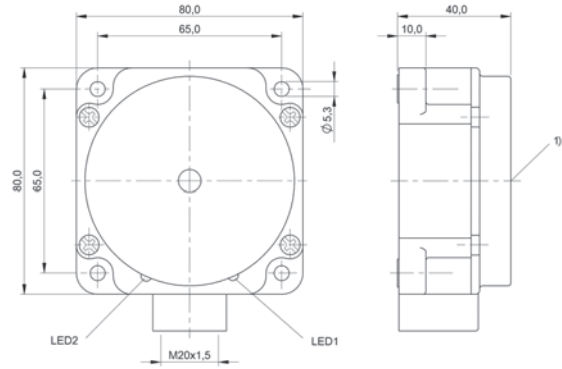
1) Sensing surface

BES021Z, BES021E



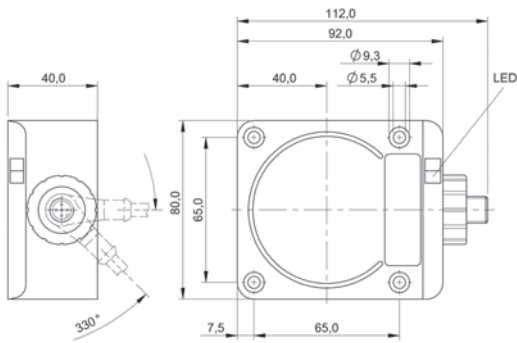
1) Sensing surface, 2) LED yellow, 3) LED green

BES0308



1) Sensing surface

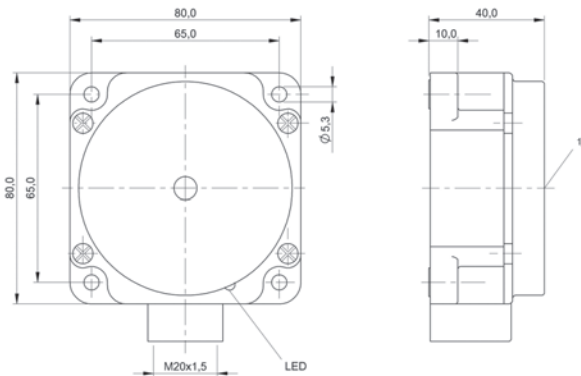
BES023P, BES023R



1) Sensing surface

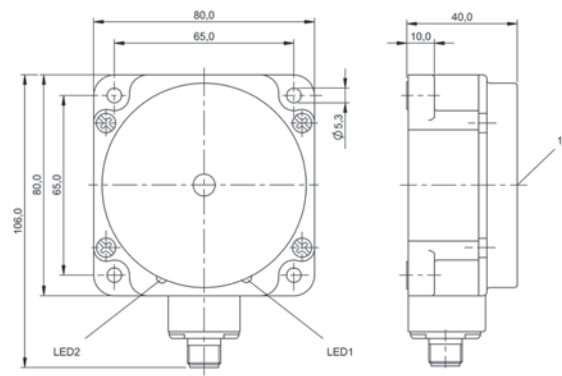
BES022R

BES030C



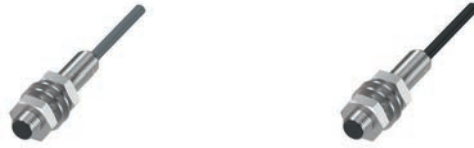
1) Sensing surface

BES024F



1) Sensing surface

BES023W



Polarized normally open	BES001L BES M08MG-GSC20B-BV02		
Non-polarized normally open		BES001P BES M08MG-USC20B-BP03	
Dimension	Ø 8 x 40 mm	Ø 8 x 40 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	2 mm	2 mm	
Switching output	polarized normally open (NO)	non-polarized normally open (NO)	
Switching frequency	1500 Hz	1500 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	Nickel-free coated	
Material sensing surface	PBT	PBT	
Connection	Cable, 2.00 m, PVC	Cable, 3.00 m, PUR	
Operating voltage U_b	10...36 VDC	10...36 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP66	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 152	Page 152	



			BES0021 BES M08MG-GSC20B-BP03	
	BES001T BES M08MG-USC20B-BV02	BES001U BES M08MG-USC20B-BV03		BES001W BES M08MG-USC20B-BV05
	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 8 x 40 mm
	M8x1	M8x1	M8x1	M8x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	2 mm	2 mm	2 mm	2 mm
	non-polarized normally open (NO)	non-polarized normally open (NO)	polarized normally open (NO)	non-polarized normally open (NO)
	1500 Hz	1500 Hz	1500 Hz	1500 Hz
	Brass	Brass	Brass	Brass
	Nickel-free coated	Nickel-free coated	Nickel-free coated	Nickel-free coated
	PBT	PBT	PBT	PBT
	Cable, 2.00 m, PVC	Cable, 3.00 m, PVC	Cable, 3.00 m, PUR	Cable, 5.00 m, PVC
	10...36 VDC	10...36 VDC	10...36 VDC	10...36 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP66	IP66	IP67	IP66
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 152	Page 152	Page 152	Page 152

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



Polarized normally open			
Non-polarized normally open			
Non-polarized normally closed	BES004T BES M12MG-USC30B-BV02	BES03HH BES M08MG-UOC20B-BV03	
Dimension	Ø 12 x 43 mm	Ø 8 x 40 mm	
Style	M12x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	3 mm	2 mm	
Switching output	non-polarized normally open (NO)	non-polarized normally closed (NC)	
Switching frequency	1300 Hz	1500 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	Nickel-free coated	
Material sensing surface	PA 12	PBT	
Connection	Cable, 2.00 m, PVC	Cable, 3.00 m, PVC	
Operating voltage U_b	10...36 VDC	10...36 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 152	Page 152	



BES001Z BES M08MG-GSC20B-BP00,3-GS04	BES0324 BES M08MG-GSC20B-BP00,3-GS04-101	BES0022 BES M08ME1-GSC20B-S04G	BES001Y BES M08ME1-USC20B-S04G
Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 8 x 50 mm	Ø 8 x 50 mm
M8x1	M8x1	M8x1	M8x1
for flush mounting	for flush mounting	for flush mounting	for flush mounting
2 mm	2 mm	2 mm	2 mm
polarized normally open (NO)	polarized normally open (NO)	polarized normally open (NO)	non-polarized normally open (NO)
1500 Hz	1500 Hz	1500 Hz	1500 Hz
Brass	Brass	Brass	Brass
Nickel-free coated	Nickel-free coated	Nickel-free coated	Nickel-free coated
PBT	ceramic coated	PBT	PBT
Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
10...36 VDC	10...30 VDC	10...36 VDC	10...36 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP67	IP67	IP67	IP67
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 152	Page 152	Page 152	Page 152



Polarized normally open			
Polarized normally closed			
Non-polarized normally open	BES004P BES M12MG-USC30B-BP03	BES004T BES M12MG-USC30B-BV02	
Non-polarized normally closed			
Dimension	Ø 12 x 43 mm	Ø 12 x 43 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	3 mm	3 mm	
Switching output	non-polarized normally open (NO)	non-polarized normally open (NO)	
Switching frequency	1300 Hz	1300 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	Nickel-free coated	
Material sensing surface	PA 12	PA 12	
Connection	Cable, 3.00 m, PUR	Cable, 2.00 m, PVC	
Operating voltage U_b	10...36 VDC	10...36 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 152	Page 152	



BES0046 BES M12MG-GSC30B-BV03				
BES0474 BES M12MG-GOC30B-BV03				
	BES004U BES M12MG-USC30B-BV03	BES004W BES M12MG-USC30B-BV05		
			BES03HM BES M12MG-UOC30B-BV03	
Ø 12 x 43 mm	Ø 12 x 43 mm	Ø 12 x 43 mm	Ø 12 x 43 mm	
M12x1	M12x1	M12x1	M12x1	
for flush mounting	for flush mounting	for flush mounting	for flush mounting	
3 mm	3 mm	3 mm	3 mm	
polarized normally open (NO)	non-polarized normally open (NO)	non-polarized normally open (NO)	non-polarized normally closed (NC)	
1300 Hz	1300 Hz	1300 Hz	1300 Hz	
Brass	Brass	Brass	Brass	
Nickel-free coated	Nickel-free coated	Nickel-free coated	Nickel-free coated	
PA 12	PA 12	PA 12	PA 12	
Cable, 3.00 m, PVC	Cable, 3.00 m, PVC	Cable, 5.00 m, PVC	Cable, 3.00 m, PVC	
10...36 VDC	10...36 VDC	10...36 VDC	10...36 VDC	
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C	
IP67	IP67	IP67	IP67	
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Page 152	Page 152	Page 152	Page 152	



Polarized normally open	BES0042 BES M12MG-GSC30B-BP00,3-GS04	BES0326 BES M12MG-GSC30B-BP00,3-GS04-101	
Non-polarized normally open			
Dimension	Ø 12 x 43 mm	Ø 12 x 43 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	3 mm	3 mm	
Switching output	polarized normally open (NO)	polarized normally open (NO)	
Switching frequency	1300 Hz	1300 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	Nickel-free coated	
Material sensing surface	PA 12	LCP PTFE	
Connection	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	
Operating voltage U_b	10...36 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 152	Page 152	



BES039W BES M12MG-GSC30B-BX00,3-GS04-U	BES003Z BES M12MF-GSC30B-S04G	BES0041 BES M12MF-USC30B-S04G	BES0073 BES M18MG-USC70B-BV02
Ø 12 x 43 mm M12x1 for flush mounting 3 mm polarized normally open (NO) 1300 Hz Brass coated, PTFE LCP PTFE Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	Ø 12 x 50 mm M12x1 for flush mounting 3 mm polarized normally open (NO) 1300 Hz Brass Nickel-free coated PA 12 Connector, M12x1 connector, 4-pin	Ø 12 x 50 mm M12x1 for flush mounting 3 mm non-polarized normally open (NO) 1300 Hz Brass Nickel-free coated PA 12 Connector, M12x1 connector, 4-pin	Ø 18 x 46 mm M18x1 for flush mounting 7 mm non-polarized normally open (NO) 600 Hz Brass Nickel-free coated PA 12 Cable, 2.00 m, PVC
10...36 VDC	10...36 VDC	10...36 VDC	10...36 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP67	IP67	IP67	IP67
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 152	Page 152	Page 152	Page 152



Polarized normally open			
Non-polarized normally open	BES0074 BES M18MG-USC70B-BV03	BES0071 BES M18MG-USC70B-BP03	
Dimension	Ø 18 x 46 mm	Ø 18 x 46 mm	
Style	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Range	7 mm	7 mm	
Switching output	non-polarized normally open (NO)	non-polarized normally open (NO)	
Switching frequency	600 Hz	600 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	Nickel-free coated	
Material sensing surface	PA 12	PA 12	
Connection	Cable, 3.00 m, PVC	Cable, 3.00 m, PUR	
Operating voltage U_b	10...36 VDC	10...36 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 152	Page 152	



BES006C BES M18MG-GSC70B-BP00,3-GS04	BES03FJ BES M18MG-GSC70B-BX00,3-GS04-U	BES0069 BES M18MF-GSC70B-S04K	BES006A BES M18MF-USC70B-S04K
Ø 18 x 46 mm	Ø 18 x 46 mm	Ø 18 x 50 mm	Ø 18 x 50 mm
M18x1	M18x1	M18x1	M18x1
for flush mounting	for flush mounting	for flush mounting	for flush mounting
7 mm	7 mm	7 mm	7 mm
polarized normally open (NO)	polarized normally open (NO)	polarized normally open (NO)	non-polarized normally open (NO)
600 Hz	600 Hz	600 Hz	600 Hz
Brass	Brass	Brass	Brass
Nickel-free coated	coated, PTFE	Nickel-free coated	Nickel-free coated
PA 12	LCP PTFE	PA 12	PA 12
Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
10...36 VDC	10...36 VDC	10...36 VDC	10...36 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
IP67	IP67	IP67	IP67
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 153	Page 153	Page 153	Page 153



	BES0328 BES M18MF-GSC70B-S04G	BES03FH BES M18MF-GSC70B-S04G-U	
Polarized normally open			
Non-polarized normally open			
Dimension	Ø 18 x 51 mm	Ø 18 x 51 mm	
Style	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Range	7 mm	7 mm	
Switching output	polarized normally open (NO)	polarized normally open (NO)	
Switching frequency	600 Hz	600 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	coated, PTFE	
Material sensing surface	PA 12	LCP PTFE	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U _b	10...36 VDC	10...36 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 153	Page 153	



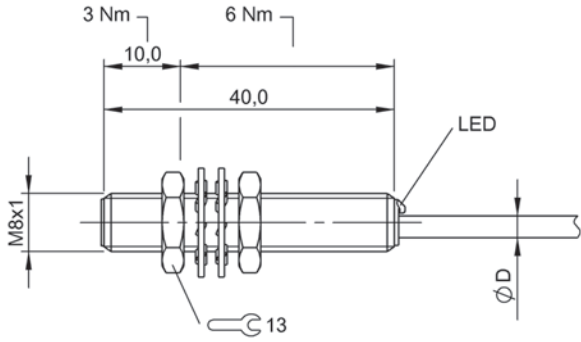
	BES02NR BES M18MF-USC70B-S04G	BES008R BES M30MF-GSC15B-BV02	BES0091 BES M30MF-USC15B-BV02	BES0092 BES M30MF-USC15B-BV03
	Ø 18 x 51 mm	Ø 30 x 42.5 mm	Ø 30 x 42.5 mm	Ø 30 x 42.5 mm
	M18x1	M30x1.5	M30x1.5	M30x1.5
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	7 mm	15 mm	15 mm	15 mm
	non-polarized normally open (NO)	polarized normally open (NO)	non-polarized normally open (NO)	non-polarized normally open (NO)
	600 Hz	400 Hz	400 Hz	400 Hz
	Brass	Brass	Brass	Brass
	Nickel-free coated	Nickel-free coated	Nickel-free coated	Nickel-free coated
	PA 12	PA 12	PA 12	PA 12
	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PVC	Cable, 2.00 m, PVC	Cable, 3.00 m, PVC
	10...36 VDC	10...36 VDC	10...36 VDC	10...36 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 153	Page 153	Page 153	Page 153



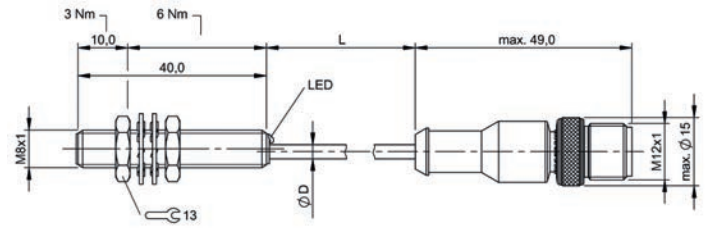
Polarized normally open		BES027K BES M30MF-GSC15B-BX00,3-GS04-U	
Non-polarized normally open	BES008Z BES M30MF-USC15B-BP03		
Dimension	Ø 30 x 42.5 mm	Ø 30 x 42.5 mm	
Style	M30x1.5	M30x1.5	
Installation	for flush mounting	for flush mounting	
Range	15 mm	15 mm	
Switching output	non-polarized normally open (NO)	polarized normally open (NO)	
Switching frequency	400 Hz	400 Hz	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	coated, PTFE	
Material sensing surface	PA 12	LCP PTFE	
Connection	Cable, 3.00 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	
Operating voltage U_b	10...36 VDC	10...36 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 153	Page 153	



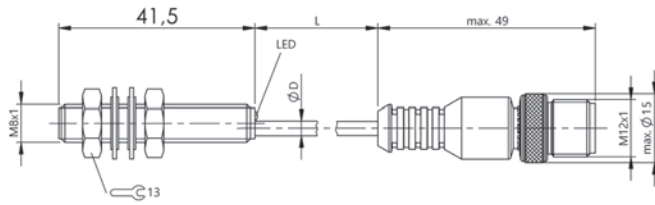
BES008W BES M30MF-GSC15B-S04K	BES0094 BES M30MF-USC15B-S04K	BES03KL BES M30MF-GSC15B-S04G-U	
Ø 30 x 50 mm	Ø 30 x 50 mm	Ø 30 x 51 mm	
M30x1.5	M30x1.5	M30x1.5	
for flush mounting	for flush mounting	for flush mounting	
15 mm	15 mm	15 mm	
polarized normally open (NO)	non-polarized normally open (NO)	polarized normally open (NO)	
400 Hz	400 Hz	400 Hz	
Brass	Brass	Brass	
Nickel-free coated	Nickel-free coated	coated, PTFE	
PA 12	PA 12	LCP PTFE	
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
10...36 VDC	10...36 VDC	10...36 VDC	
-25...70 °C	-25...70 °C	-25...70 °C	
IP67	IP67	IP67	
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Page 153	Page 153	Page 154	



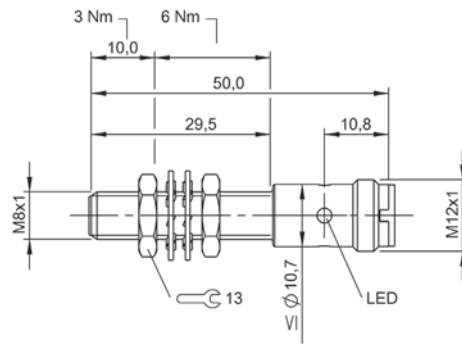
BES001L, BES001P, BES001T, BES001U, BES0021, BES001W, BES024T, BES03HH



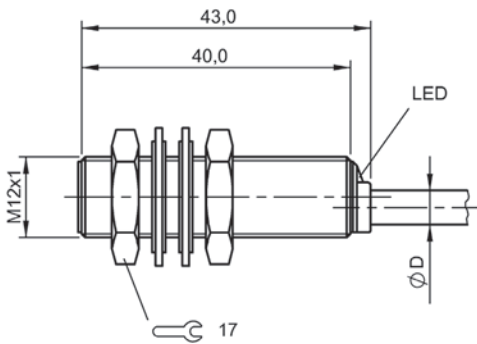
BES001Z



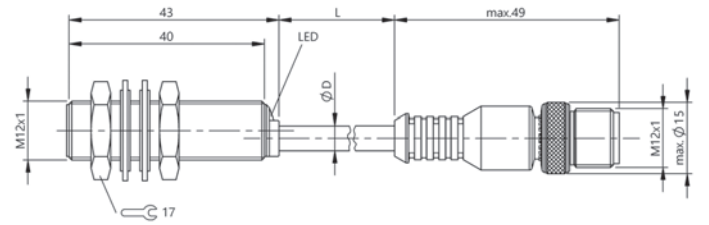
BES0324



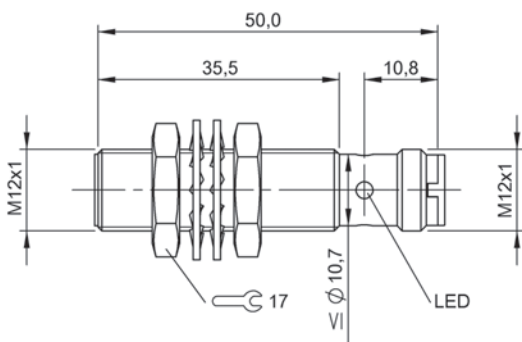
BES0022, BES001Y



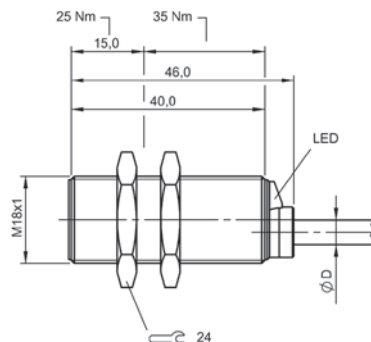
BES004P, BES004T, BES0046, BES0474, BES004U, BES004W, BES03HM



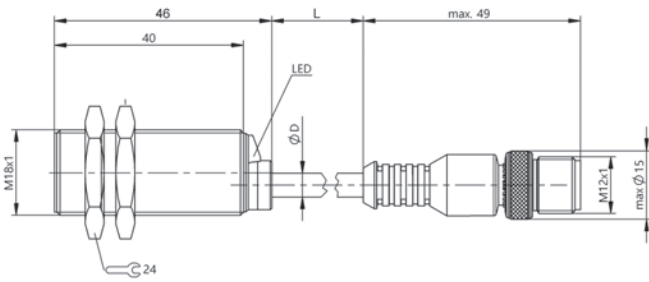
BES0042, BES0326, BES039W



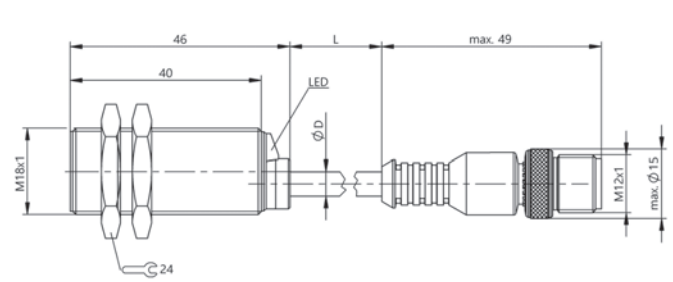
BES003Z, BES0041



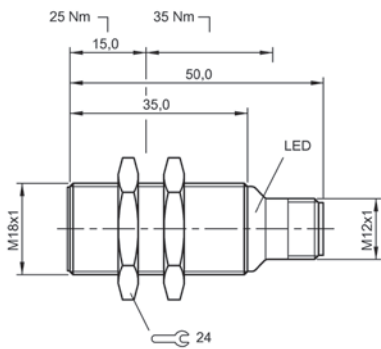
BES0073, BES0074, BES0071



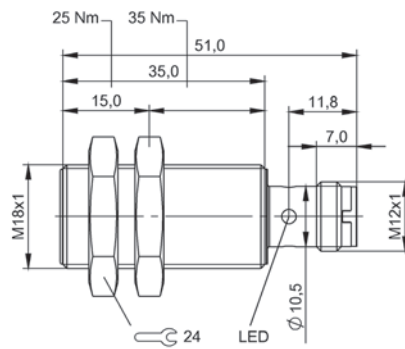
BES006C



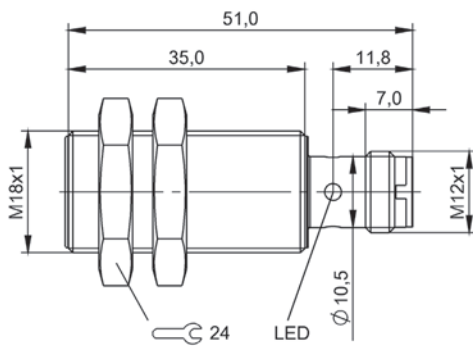
BES03FJ



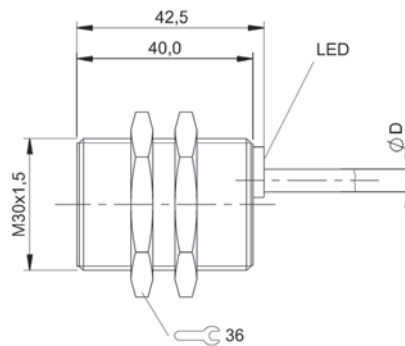
BES0069, BES006A



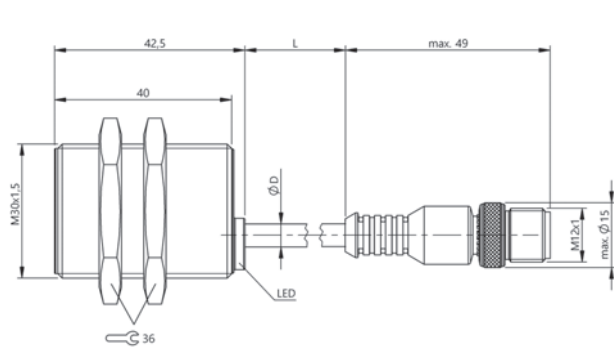
BES0328, BES02NR



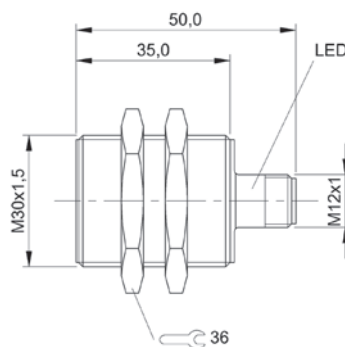
BES03FH



BES008R, BES0091, BES0092, BES008Z

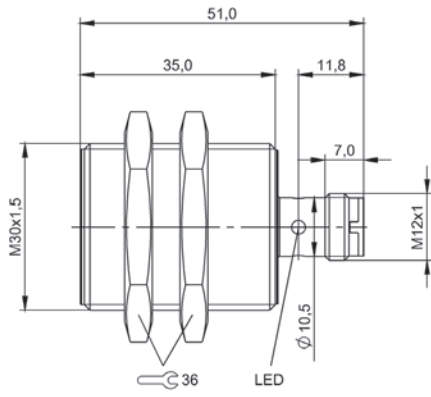


BES027K



BES008W, BES0094

154 | Sensors | Inductive Sensors



BES03KL



PNP normally open	BHS006U BHS G409N-PSD10-EP02	BHS007J BHS G409N-PSD10-EP00,3-GS49	
NPN normally open	BHS006Y BHS G409N-NSD10-EP02		
Dimension	Ø 4.2 x 32 mm	Ø 4.2 x 32 mm	
Style	D4.2	D4.2	
Installation	for flush mounting	for flush mounting	
Installation length from contact surface	—	—	
Range	1 mm	1 mm	
Switching frequency	3000 Hz	3000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	Ceramic	Ceramic	
Connection	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...80 °C	-25...80 °C	
Pressure rating max.	500 bar	500 bar	
Magnetic field immune	—	—	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 178	Page 178	



	BHS006N BHS G403N-PSD10-S26	BHS005H BHS G408N-PSC10-S49	BES055Y BES M05EE1-PSC08B-EV00,9-116	BES03H6 BES M05EG-PSC08B-BP02
	Ø 4.2 x 40.5 mm	Ø 4.2 x 47 mm	Ø 5 x 42 mm	Ø 5 x 42 mm
	D4.2	D4.2	M5x0.5	M5x0.5
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	—	—	—	—
	1 mm	1 mm	0.8 mm	0.8 mm
	3000 Hz	3000 Hz	5000 Hz	3000 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	Ceramic	Ceramic	Ceramic	Ceramic
	Connector, M5x0.5 plug	Connector, M8x1 connector, 3-pin	Cable, 0.92 m, PVC	Cable, 2.00 m, PUR
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...80 °C	-25...80 °C	-25...70 °C	-25...70 °C
	500 bar	500 bar	10 bar	10 bar
	—	—	—	—
	IP68	IP68	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	EAC, CE, cULus	CE, cULus, EAC
	Page 178	Page 178	Page 178	Page 178

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open	BES03JM BES M05EG-PSC08B-BP00,2-GS49	BES03NZ BES M05ED-PSC08B-BP02-R50	
PNP normally closed			
NPN normally open	BES0315 BES M05EG-NSC08B-BP00,2-GS49		
Dimension	Ø 5 x 42 mm	Ø 5 x 27 mm	
Style	M5x0.5	M5x0.5	
Installation	for flush mounting	for flush mounting	
Installation length from contact surface	—	—	
Range	0.8 mm	0.8 mm	
Switching frequency	3000 Hz	3000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	Ceramic	Ceramic	
Connection	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Cable, 2.00 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Pressure rating max.	10 bar	50 bar	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	cULus, CE, EAC	
Productview	Page 178	Page 178	



	BES03L7 BES M05ED-PSD08B-BP02-R03	BES03LC BES M05ED-PSD08B-BP00,3-GS49-R03	BES034K BES 516-324-SA17-05	BES03UY BES M08EE1-PSC20B-S49G-S
		BES03LE BES M05ED-POD08B-BP00,3-GS49-R03		
				BES03Z3 BES M08EE1-NSC20B-S49G-S
	Ø 5 x 27 mm	Ø 5 x 27 mm	Ø 8 x 45 mm	Ø 8 x 50 mm
	M5x0.5	M5x0.5	M8x1	M8x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	—	—	—	—
	0.8 mm	0.8 mm	1.2 mm	2 mm
	3000 Hz	3000 Hz	1500 Hz	100 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	Ceramic	Ceramic	PA 12	Stainless steel (1.4404)
	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Cable, 5.00 m, PVC	Connector, M8x1 connector, 3-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	100 bar	100 bar	10 bar	80 bar
	—	—	—	—
	IP67	IP67	IP68	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, EAC	CE, cULus, EAC
	Page 179	Page 179	Page 179	Page 179



PNP normally open			
NPN normally open	BES02N3 BES M08EH1-NSC20B-S04G-S	BES02N4 BES M08EH1-NSC20B-S04G-S01	
Dimension	Ø 8 x 65 mm	Ø 8 x 65 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Installation length from contact surface	—	—	
Range	2 mm	2 mm	
Switching frequency	750 Hz	750 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	coated, PTFE	
Material sensing surface	Stainless steel	Stainless steel	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Pressure rating max.	80 bar	80 bar	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 179	Page 179	



	BHS0039 BES 516-300-S289-BO-D-PU-05	BHS0058 BHS A407N-PSD15-BP02	BHS0054 BHS A404N-PSC15-S49	BHS0050 BHS A402N-PSC15-S49
	Ø 8 x 34 mm	Ø 6.5 x 31.3 mm	Ø 6.5 x 45 mm	Ø 6.5 x 55 mm
	M8x1	D6.5	D6.5	D6.5
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	—	—	—	—
	1.5 mm	1.5 mm	1.5 mm	1.5 mm
	1000 Hz	4000 Hz	4000 Hz	4000 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	Ceramic	Ceramic	Ceramic	Ceramic
	Cable, 5.00 m, PUR	Cable, 2.00 m, PUR	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...80 °C	-25...80 °C	-25...80 °C
	100 bar	500 bar	500 bar	500 bar
	—	—	—	—
	IP67	IP68	IP68	IP68
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 179	Page 179	Page 179	Page 180

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open	BHS003A BES 516-300-S291-S4-D	BES02NA BES M12EI-PSC40B-S04G-S	
NPN normally open			
Normally open			
Dimension	Ø 12 x 56 mm	Ø 12 x 65 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Installation length from contact surface	—	—	
Range	1.5 mm	4 mm	
Switching frequency	2000 Hz	500 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	EP	Stainless steel	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...80 °C	-25...70 °C	
Pressure rating max.	50 bar	60 bar	
Magnetic field immune	—	—	
Protection degree	IP68	IP67	
Approval/Conformity	CE, EAC	CE, cULus, EAC	
Productview	Page 180	Page 180	



	BES02NC BES M12EI-PSC40B-S04G-S01	BES02WH BES M12EG1-PSC60Z-S04G-S11		
				BHS0008 BES 516-200-S2/1.250"-S21
			BHS0006 BES 516-200-S2/1.025"-S5	
	Ø 12 x 65 mm	Ø 12 x 60 mm	64.2 x 48 x 26.04 mm	64.2 x 48 x 31.75 mm
	M12x1	M12x1	D12.7	D12.7
	for flush mounting	quasi-flush	for flush mounting	for flush mounting
	—	—	—	—
	4 mm	6 mm	2 mm	2 mm
	500 Hz	400 Hz	50 Hz	50 Hz
	Stainless steel	Stainless steel	Stainless steel (1.4104) Zinc, die-cast	Stainless steel Zinc, Die casting
	coated, PTFE	—	nickel plated	nickel plated
	Stainless steel	Stainless steel	Ceramic	Ceramic
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, 7/8"-16 UN plug	Connector, 1/2"-20 UNF2A-Male
	10...30 VDC	10...30 VDC	20...250 VDC/20...250 VAC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	60 bar	80 bar	207 bar	207 bar
	—	—	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 180	Page 180	Page 180	Page 180



PNP normally open	BHS003M BES 516-300-S295/1.250"-S4		
Normally open		BHS0009 BES 516-200-S2/1.250"-S5	
Dimension	51 x 48 x 31.75 mm	64.2 x 48 x 31.75 mm	
Style	D12.7	D12.7	
Installation	for flush mounting	for flush mounting	
Installation length from contact surface	—	—	
Range	2 mm	2 mm	
Switching frequency	10 Hz	50 Hz	
Housing material	Stainless steel Zinc, Die casting	Stainless steel (1.4104) Zinc, die-cast	
Surface protection	nickel plated	nickel plated	
Material sensing surface	Ceramic	Ceramic	
Connection	Connector, M12x1 connector, 4-pin	Connector, 7/8"-16 UN plug	
Operating voltage U_b	10...30 VDC	20...250 VDC/20...250 VAC	
Ambient temperature	-25...70 °C	-25...70 °C	
Pressure rating max.	207 bar	207 bar	
Magnetic field immune	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 180	Page 180	



	BHS0041 BES 516-300-S295/2.062"-S4			
		BHS000T BES 516-200-S2/2.062"-S21	BHS000U BES 516-200-S2/2.062"-S5	BHS0014 BES 516-200-S2/2.875"-S5
Dimensions	51 x 48 x 52.37 mm	64.2 x 48 x 52.37 mm	64.2 x 48 x 52.37 mm	64.2 x 48 x 73.03 mm
Diameter	D12.7	D12.7	D12.7	D12.7
Mounting	for flush mounting	for flush mounting	for flush mounting	for flush mounting
Material	—	—	—	—
Stroke	2 mm	2 mm	2 mm	2 mm
Frequency	10 Hz	50 Hz	50 Hz	50 Hz
Material	Stainless steel Zinc, Die casting	Stainless steel Zinc, Die casting	Stainless steel (1.4104) Zinc, die-cast	Stainless steel Zinc, Die casting
Finish	nickel plated	nickel plated	nickel plated	nickel plated
Material	Ceramic	Ceramic	Ceramic	Ceramic
Connector	Connector, M12x1 connector, 4-pin	Connector, 1/2"-20 UNF2A-Male	Connector, 7/8"-16 UN plug	Connector, 7/8"-16 UN plug
Voltage	10...30 VDC	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC	20...250 VDC/20...250 VAC
Temperature	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
Pressure	207 bar	207 bar	207 bar	207 bar
Immunity	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)
Protection	IP67	IP67	IP67	IP67
Certification	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page	Page 180	Page 180	Page 180	Page 180



PNP normally open		BHS0030 BES 516-300-S260-S4-D	
Normally open	BHS0019 BES 516-200-S2/4.560*-S5		
Dimension	64.2 x 48 x 115.82 mm	Ø 10 x 37 mm	
Style	D12.7	D10.0	
Installation	for flush mounting	for flush mounting	
Installation length from contact surface	—	—	
Range	2 mm	1.5 mm	
Switching frequency	50 Hz	2000 Hz	
Housing material	Stainless steel (1.4104) Zinc, die-cast	Stainless steel	
Surface protection	nickel plated	—	
Material sensing surface	Ceramic	EP	
Connection	Connector, 7/8"-16 UN plug	Connector, M12x1 connector, 4-pin	
Operating voltage U _b	20...250 VDC/20...250 VAC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...80 °C	
Pressure rating max.	207 bar	350 bar	
Magnetic field immune	magnetic field immune (AC/DC)	—	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, EAC	
Productview	Page 180	Page 181	



	BHS0028 BES 516-300-S205-D-PU-03	BHS0029 BES 516-300-S205-D-PU-05	BES042M BES 516-300-S337-S4-D	BES042L BES 516-300-S338-S4-D
	Ø 12 x 37 mm	Ø 12 x 37 mm	Ø 12 x 56 mm	Ø 12 x 56 mm
	M12x1	M12x1	M12x1	M12x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	—	—	—	—
	1.5 mm	1.5 mm	1.5 mm	1.5 mm
	2000 Hz	2000 Hz	1000 Hz	1000 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	EP	EP	EP	EP
	Cable, 3.00 m, PUR	Cable, 5.00 m, PUR	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...80 °C	-25...80 °C	-25...80 °C	-25...80 °C
	350 bar	350 bar	350 bar	350 bar
	—	—	—	—
	IP68	IP68	IP68	IP68
	CE, EAC	CE, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 181	Page 181	Page 180	Page 181



PNP normally open	BHS004N BES 516-300-S321-S4-D	BHS002H BES 516-300-S240-D-PU-03	
Dimension	Ø 12 x 78 mm	Ø 12 x 47 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Installation length from contact surface	—	—	
Range	1.5 mm	1.5 mm	
Switching frequency	1000 Hz	2000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	EP	EP	
Connection	Connector, M12x1 connector, 4-pin	Cable, 3.00 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...80 °C	-25...80 °C	
Pressure rating max.	350 bar	500 bar	
Magnetic field immune	—	—	
Protection degree	IP68	IP68	
Approval/Conformity	CE, EAC	CE, cULus, EAC	
Productview	Page 181	Page 181	



BHS002J BES 516-300-S240-D-PU-05	BHS001F BES 516-300-S135-D-PU-05	BHS0032 BES 516-300-S262-S4-D	BHS002Y BES 516-300-S249-S4-D
Ø 12 x 47 mm	Ø 12 x 61 mm	Ø 12 x 50 mm	Ø 12 x 56 mm
M12x1	M12x1	M12x1	M12x1
for flush mounting	for flush mounting	for flush mounting	for flush mounting
—	—	—	17.9 mm
1.5 mm	1.5 mm	1.5 mm	1.5 mm
2000 Hz	1000 Hz	2000 Hz	2000 Hz
Stainless steel	Stainless steel	Stainless steel	Stainless steel
—	—	—	—
EP	EP	EP	EP
Cable, 5.00 m, PUR	Cable, 5.00 m, PUR	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...80 °C	-25...80 °C	-25...90 °C	-25...80 °C
500 bar	500 bar	500 bar	500 bar
—	—	—	—
IP68	IP68	IP68	IP68
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 181	Page 181	Page 181	Page 180



PNP normally open	BHS0033 BES 516-300-S265-S4-D	BHS005Y BHS B249V-PSD15-S04	
Dimension	Ø 12 x 56 mm	Ø 12 x 56 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Installation length from contact surface	14.9 mm	18 mm	
Range	1.5 mm	1.5 mm	
Switching frequency	2000 Hz	400 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	EP	Ceramic	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...80 °C	-25...120 °C	
Pressure rating max.	500 bar	500 bar	
Magnetic field immune	—	—	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 181	Page 181	



BHS0061 BHS B265V-PSD15-S04	BHS0021 BES 516-300-S162-S4-D	BHS001L BES 516-300-S135-S4-D	BHS005R BHS B135V-PSD15-S04
Ø 12 x 56 mm	Ø 12 x 69 mm	Ø 12 x 78 mm	Ø 12 x 78 mm
M12x1	M12x1	M12x1	M12x1
for flush mounting	for flush mounting	for flush mounting	for flush mounting
15 mm	—	—	—
1.5 mm	1.5 mm	1.5 mm	1.5 mm
400 Hz	2000 Hz	1000 Hz	400 Hz
Stainless steel	Stainless steel	Stainless steel	Stainless steel
—	—	—	—
Ceramic	EP	EP	Ceramic
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...120 °C	-25...80 °C	-25...80 °C	-25...80 °C
500 bar	500 bar	500 bar	500 bar
—	—	—	—
IP68	IP68	IP68	IP68
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 182	Page 182	Page 181	Page 182

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open		BHS0022 BES 516-300-S163-S4-D	
PNP normally open/normally closed	BHS0001 BES 516-100-S45-S4-D		
Dimension	Ø 12 x 78 mm	Ø 12 x 93 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Installation length from contact surface	—	—	
Range	1.5 mm	1.5 mm	
Switching frequency	1000 Hz	1000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	EP	EP	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...80 °C	-25...80 °C	
Pressure rating max.	500 bar	500 bar	
Magnetic field immune	—	—	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 181	Page 182	



	BHS004C BES 516-300-S300-S4-D	BHS005U BHS B135V-PSD25-S04-003	BES02NK BES M18EI-PSC72B-S04G-S01	BES02Y1 BES M18EF1-PSC20F-S04G-S
	Ø 12 x 93 mm	Ø 12 x 78 mm	Ø 18 x 65 mm	Ø 18 x 63.5 mm
	M12x1	M12x1	M18x1	M18x1
	for flush mounting	for flush mounting	for flush mounting	non-flush
	—	—	—	—
	1.5 mm	2.5 mm	7.2 mm	20 mm
	1000 Hz	400 Hz	250 Hz	200 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	coated, PTFE	—
	EP	Ceramic	Stainless steel	Stainless steel
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...80 °C	-25...90 °C	-25...70 °C	-25...70 °C
	500 bar	500 bar	40 bar	60 bar
	—	—	—	—
	IP68	IP68	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 182	Page 182	Page 182	Page 182



PNP normally open	BES02Y3 BES M18EG1-PSC10Z-S04G-S11	BHS001N BES 516-300-S144-S4-D	
Dimension	Ø 18 x 63.5 mm	Ø 18 x 73 mm	
Style	M18x1	M18x1	
Installation	quasi-flush	for flush mounting	
Installation length from contact surface	—	—	
Range	10 mm	1.5 mm	
Switching frequency	200 Hz	1000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	Stainless steel	EP	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...80 °C	
Pressure rating max.	60 bar	350 bar	
Magnetic field immune	—	—	
Protection degree	IP67	IP68	
Approval/Conformity	CE, cULus, EAC	CE, EAC	
Productview	Page 182	Page 183	



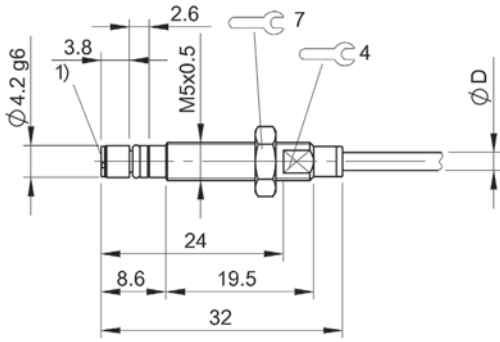
BHS004A BES 516-300-S299-S4-D	BHS0026 BES 516-300-S190-S4	BHS0027 BES 516-300-S203	BHS0036 BES 516-300-S271-S4
Ø 18 x 55 mm	Ø 18 x 58 mm	Ø 18 x 61 mm	Ø 22 x 79 mm
M18x1	M18x1	M18x1	M22x1.5
for flush mounting	for flush mounting	for flush mounting	for flush mounting
—	—	—	—
1.5 mm	3 mm	3 mm	3 mm
2000 Hz	400 Hz	1000 Hz	500 Hz
Stainless steel	Stainless steel	Stainless steel	Stainless steel
—	—	—	—
EP	PEEK	PEEK	POM
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M18x1 connector, 4-pin	Connector, M12x1 connector, 4-pin, 0.50 m, PUR
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...80 °C	-25...80 °C	-25...80 °C	0...85 °C
500 bar	500 bar	500 bar	350 bar
—	—	—	—
IP68	IP68	IP68	IP68
CE, EAC	CE, EAC	CE, EAC	CE, EAC
Page 183	Page 183	Page 183	Page 183



	BES02YF BES M30EG1-PSC20Z-S04G-S11	BES02YC BES M30EE1-PSC40F-S04G-S	
PNP normally open			
NAMUR			
Dimension	Ø 30 x 63.5 mm	Ø 30 x 63.5 mm	
Style	M30x1.5	M30x1.5	
Installation	for flush mounting	non-flush	
Installation length from contact surface	—	—	
Range	20 mm	40 mm	
Switching frequency	100 Hz	100 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	1.4305 stainless steel	1.4305 stainless steel	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Pressure rating max.	40 bar	40 bar	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 183	Page 183	

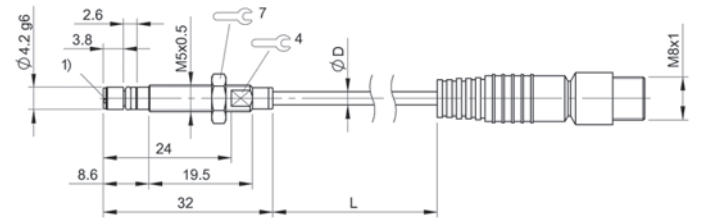


	BHS007A BES 516-300-S332-S4-N	BHS006M BES 516-300-S331-S4-D		
	Ø 16.66 x 50 mm	Ø 16.66 x 50 mm		
	G3/8"	G3/8"		
	for flush mounting	for flush mounting		
	—	—		
	1.5 mm	1.5 mm		
	1000 Hz	2000 Hz		
	Stainless steel (1.4404)	Stainless steel		
	—	—		
	POM	EP		
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin		
	7.7...9 VDC	10...30 VDC		
	-25...70 °C	-25...90 °C		
	500 bar	500 bar		
	—	—		
	IP68	IP68		
	CE, EAC	CE, cULus, EAC		
	Page 183	Page 183		



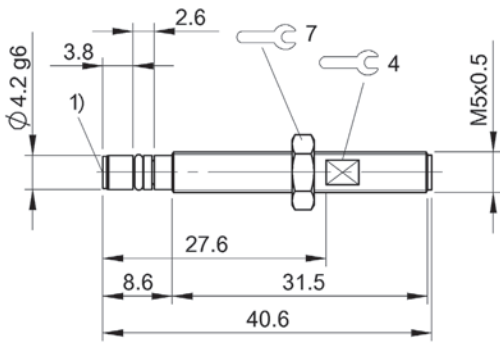
1) Sensing surface

BHS006Y, BHS006U



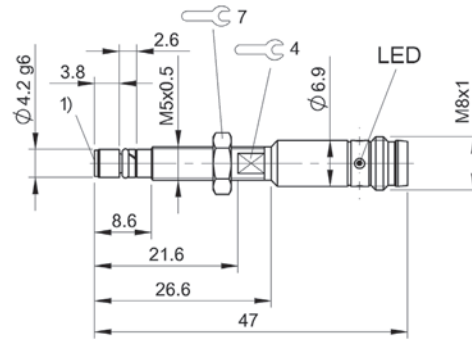
1) Sensing surface

BHS007J



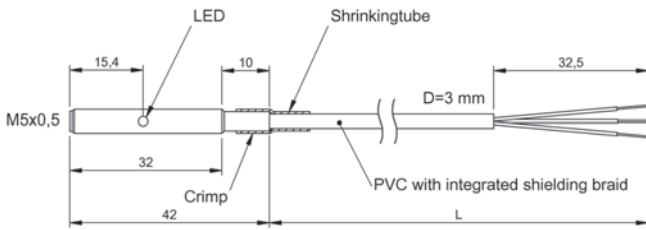
1) Sensing surface

BHS006N

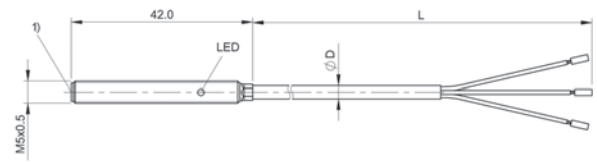


1) Sensing surface

BHS005H

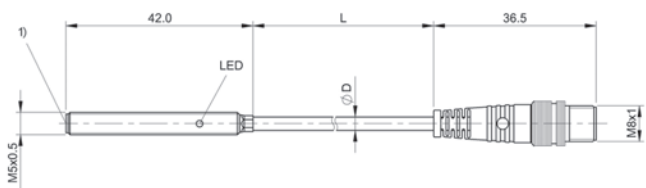


BES055Y



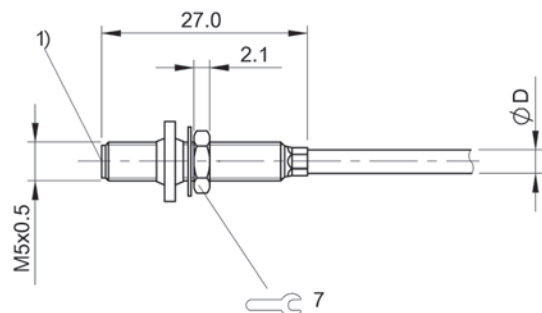
1) Sensing surface

BES03H6



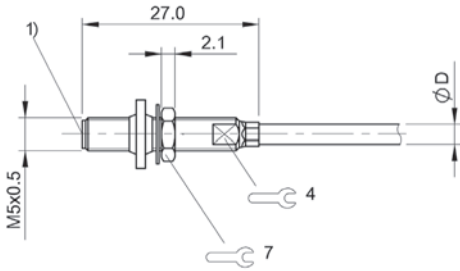
1) Sensing surface

BES0315, BES03JM



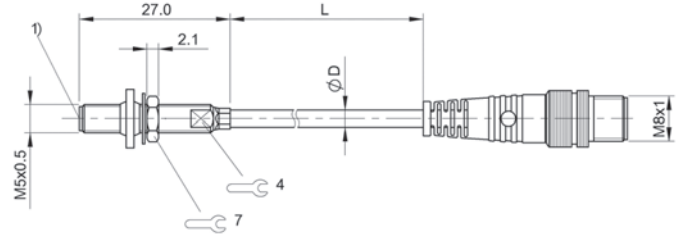
1) Sensing surface

BES03NZ



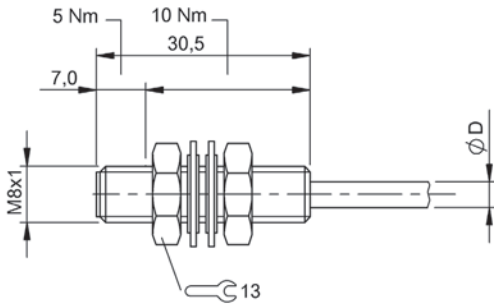
1) Sensing surface

BES03L7

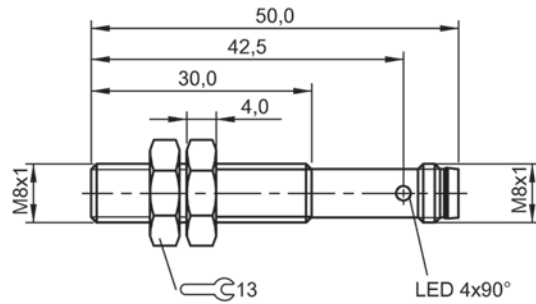


1) Sensing surface

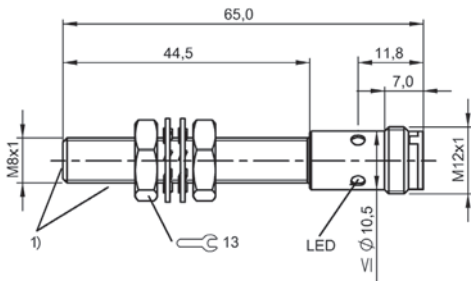
BES03LC, BES03LE



BES034K

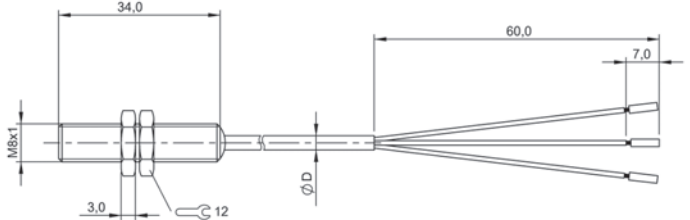


BES03Z3, BES03UY

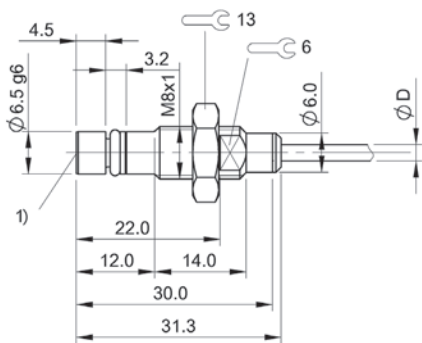


1) Pressure resistant area

BES02N3, BES02N4

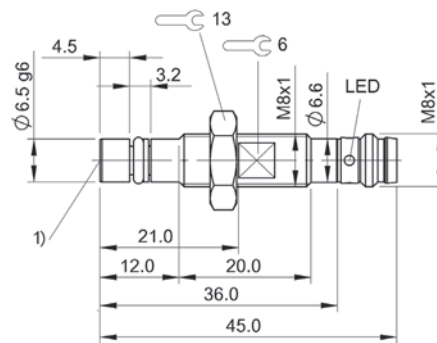


BHS0039



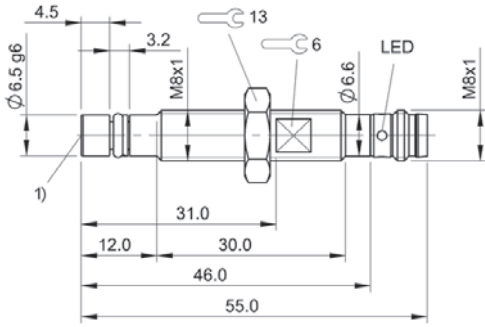
1) Sensing surface

BHS0058



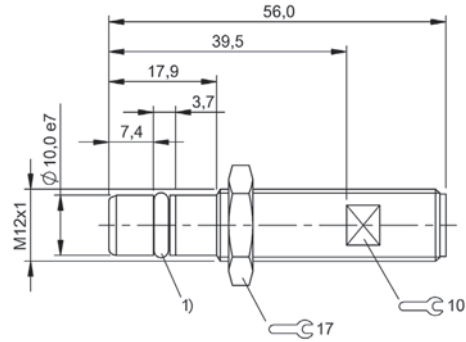
1) Sensing surface

BHS0054



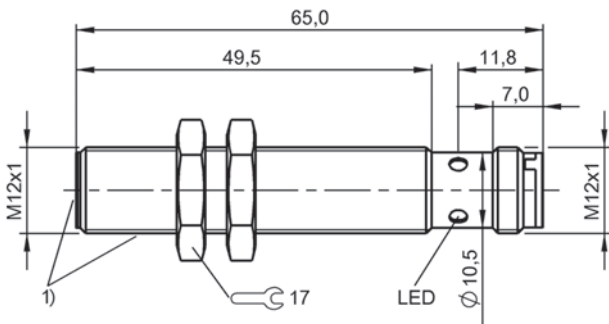
1) Sensing surface

BHS0050



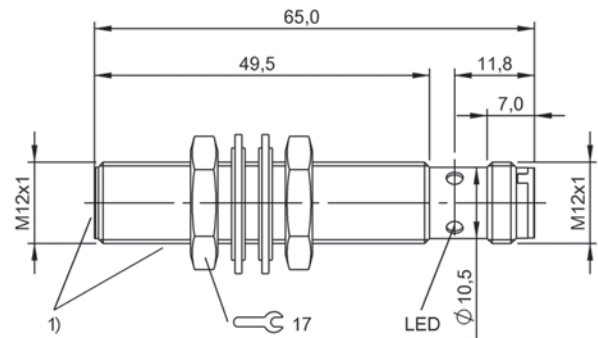
1) O-Ring with thrust ring

BHS003A, BES042M, BHS002Y



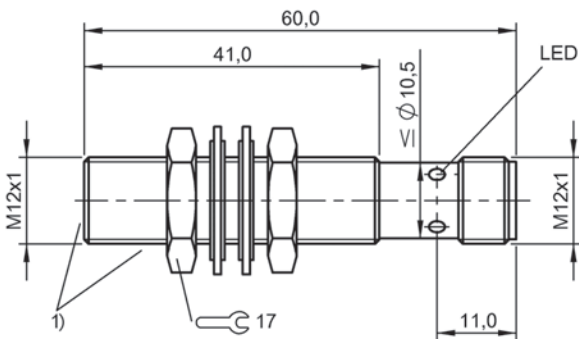
1) Pressure resistant area

BES02NA



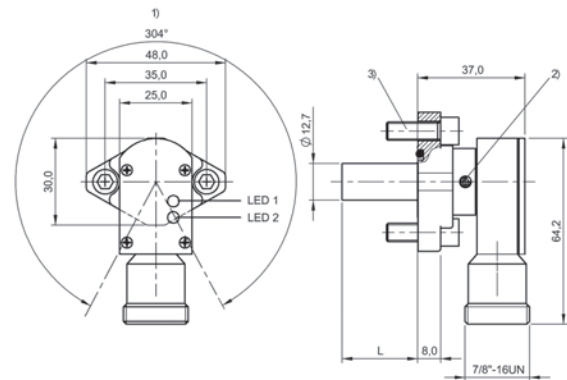
1) Pressure resistant area

BES02NC



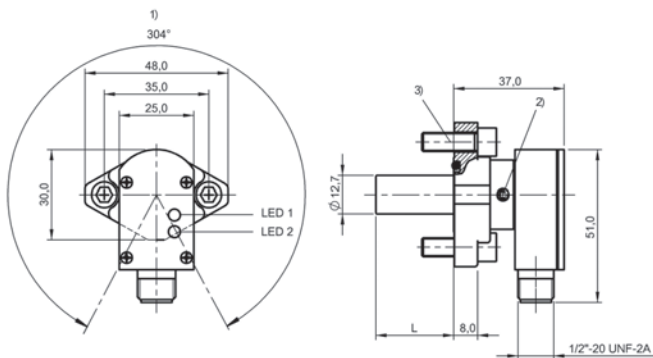
1) Pressure resistant area

BES02WH



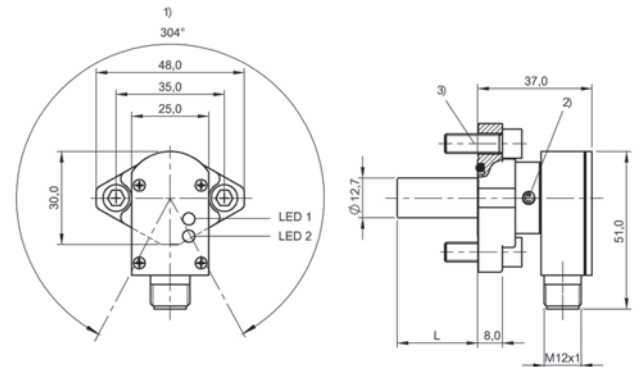
1) Housing rotatable 304°, 2) Tightening torque 1...1.5 Nm, 3) Tightening torque 16.5 Nm

BHS0006, BHS0009, BHS000U, BHS0014, BHS0019



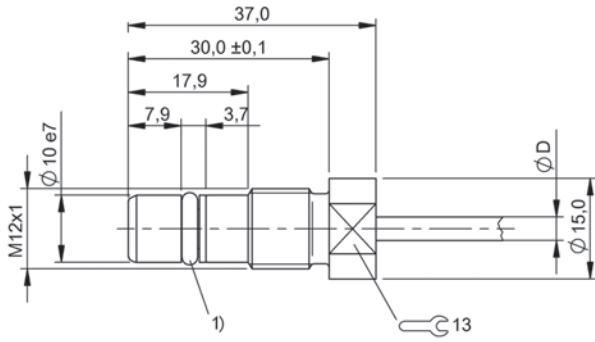
1) Housing rotatable 304°, 2) Tightening torque 1...1.5 Nm, 3) Tightening torque 16.5 Nm

BHS0008, BHS000T



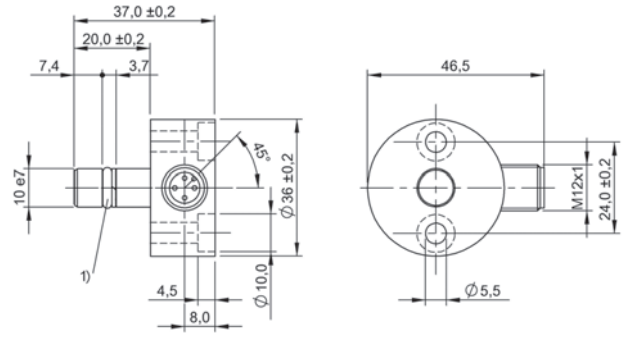
1) Housing rotatable 304°, 2) Tightening torque 1...1.5 Nm, 3) Tightening torque 16.5 Nm

BHS003M, BHS0041



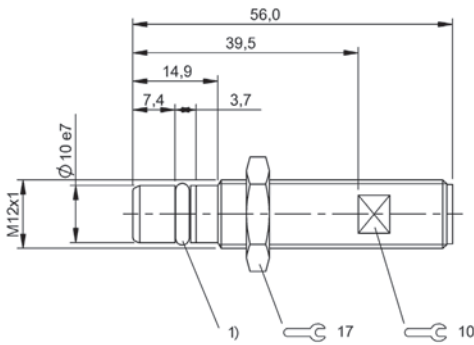
1) O-Ring with thrust ring

BHS0028, BHS0029



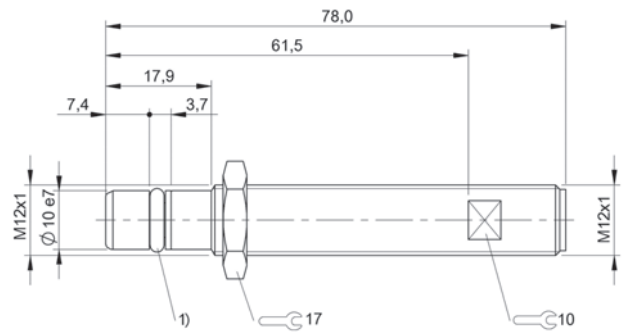
1) O-Ring with thrust ring

BHS0030



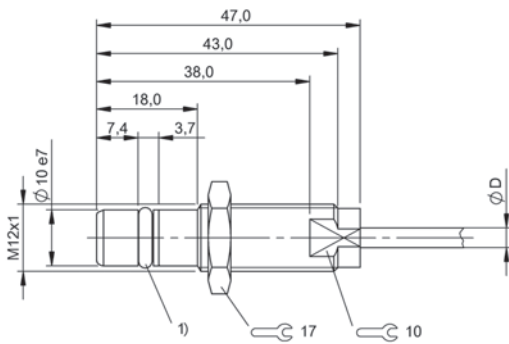
1) O-Ring with thrust ring

BES042L, BHS0033



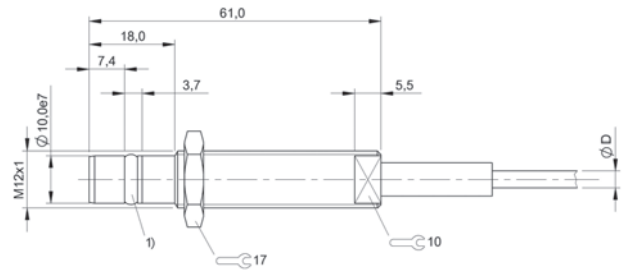
1) O-Ring with thrust ring

BHS004N, BHS001L, BHS0001



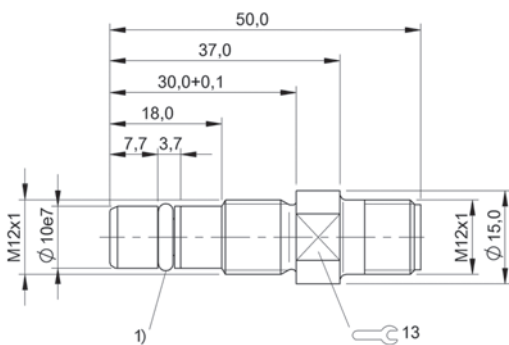
1) O-Ring with thrust ring

BHS002H, BHS002J



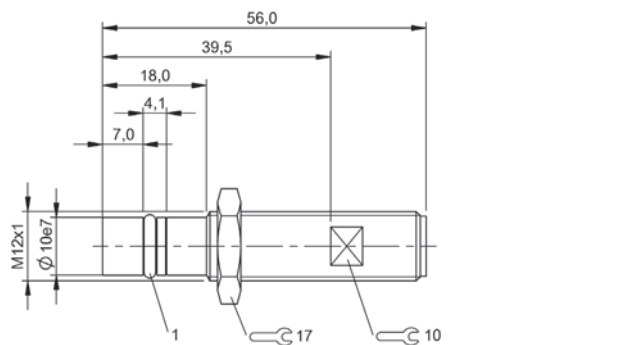
1) O-Ring with thrust ring

BHS001F



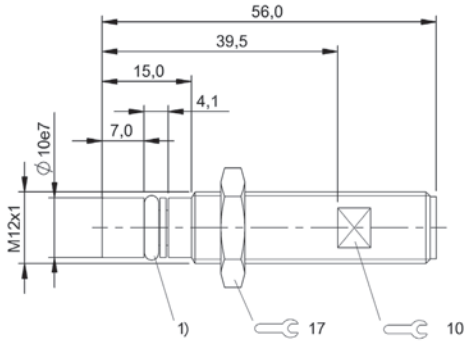
1) O-Ring with thrust ring

BHS0032



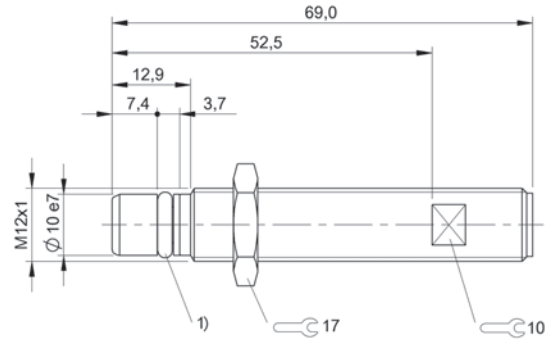
1) O-Ring with thrust ring

BHS005Y



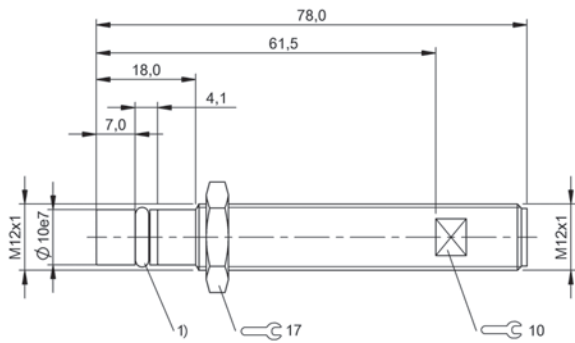
1) O-Ring with thrust ring

BHS0061



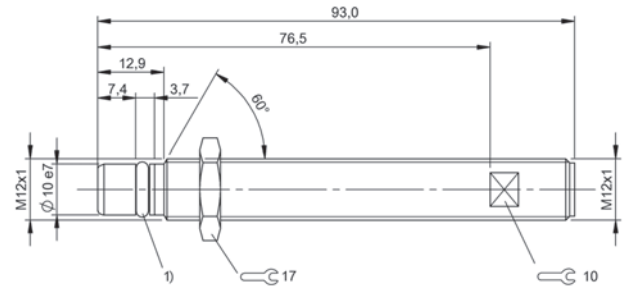
1) O-Ring with thrust ring

BHS0021



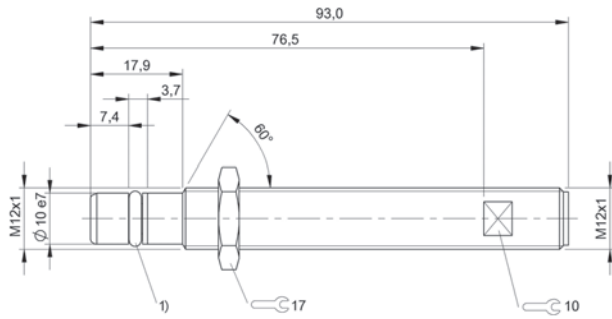
1) O-Ring with thrust ring

BHS005R, BHS005U



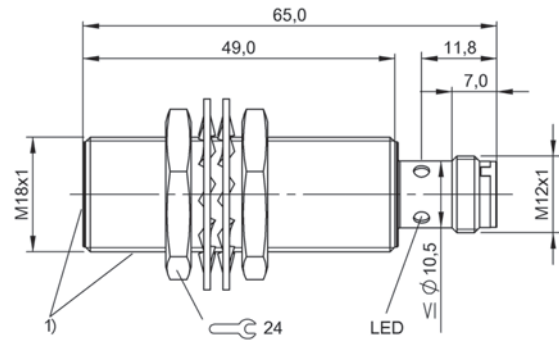
1) O-Ring with thrust ring

BHS0022



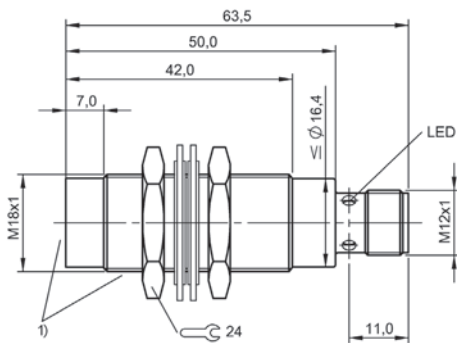
1) O-Ring with thrust ring

BHS004C



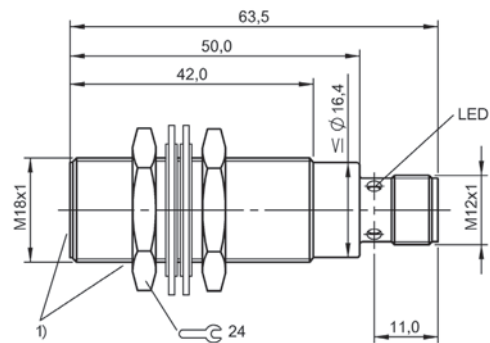
1) Pressure resistant area

BES02NK



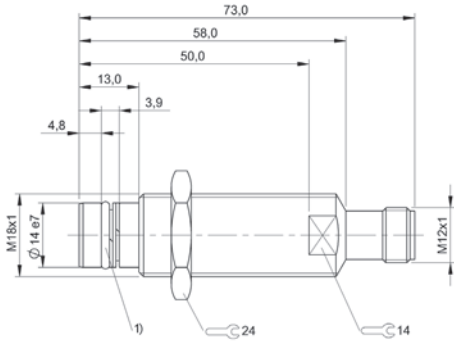
1) Pressure resistant area

BES02Y1



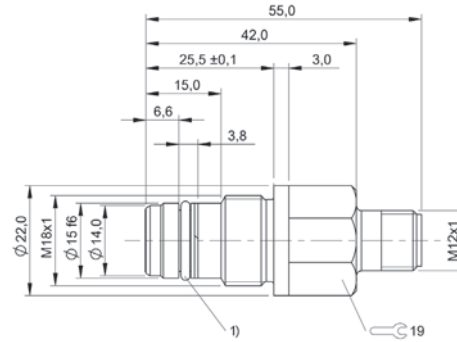
1) Pressure resistant area

BES02Y3



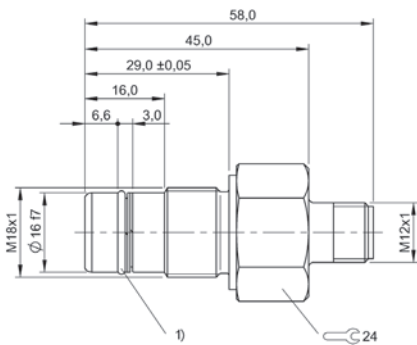
1) O-Ring with thrust ring

BHS001N



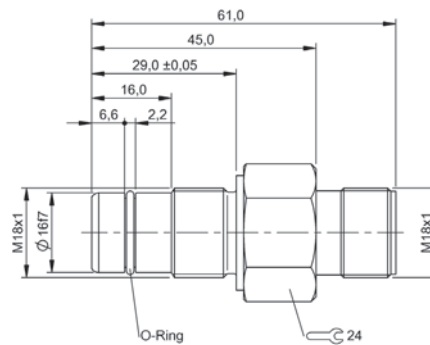
1) O-Ring with thrust ring

BHS004A



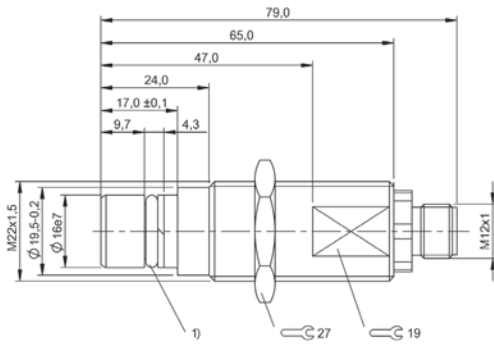
1) O-Ring with thrust ring

BHS0026



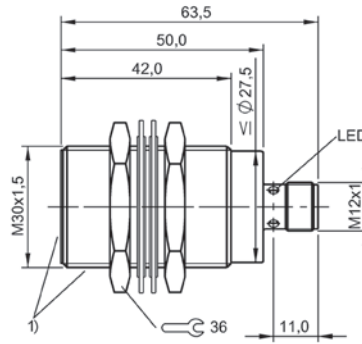
1) Pressure resistant area

BES02YF



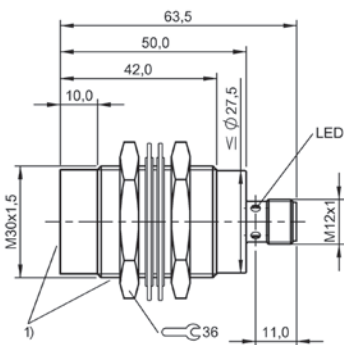
1) Pressure resistant area

BES02YC



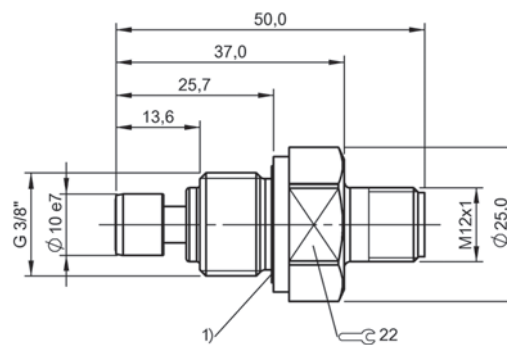
1) Pressure resistant area

BES02YF



1) Pressure resistant area

BES02YF



1) Sealing ring

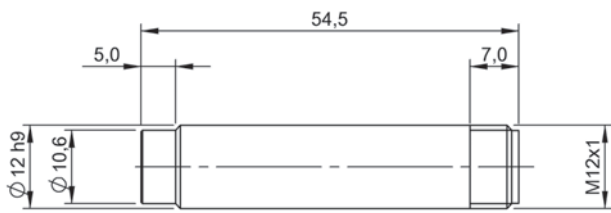
BHS007A, BHS006M



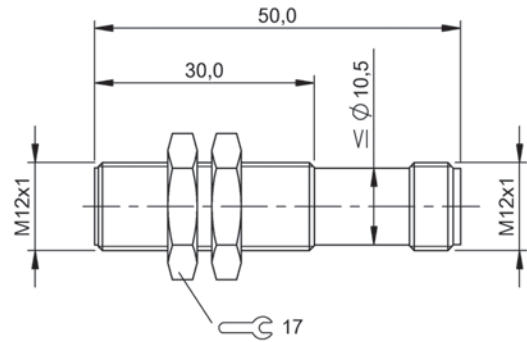
PNP normally open	BES0431 BES G12EE1-PSY40F-S04G-L02	BES0444 BES M12EE1-PSY20B-S04G-L01	BES0433 BES M12EE-PSC40B-S04G-L01	
Dimension	Ø 12 x 54.5 mm	Ø 12 x 50 mm	Ø 12 x 45 mm	
Style	D12.0	M12x1	M12x1	
Installation	non-flush	for flush mounting	for flush mounting	
Range	4 mm	2 mm	4 mm	
Switching frequency	400 Hz	800 Hz	2000 Hz	
Housing material	Stainless steel (1.4571)	Stainless steel (1.4571)	Stainless steel (1.4404)	
Material sensing surface	PEEK	PEEK	LCP	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Ambient temperature	-40...105 °C	-40...105 °C	-25...85 °C	
Protection degree	IP68	IP68	IP68	
Approval/Conformity	CE, cULus, EAC, Ecolab, FDA compliant	CE, cULus, EAC, Ecolab, FDA compliant	CE, cULus, EAC, FDA compliant	
Productview	Page 186	Page 186	Page 186	



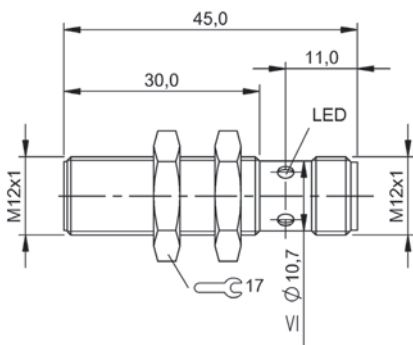
BES0435 BES M12EI-PSC40B-S04G-L01	BES0443 BES M12EE1-PSY40F-S04G-L01	BES0441 BES M18EE1-PSY50B-S04G-L01	BES0437 BES M18EI-PSC80B-S04G-L01	
Ø 12 x 65 mm	Ø 12 x 54.5 mm	Ø 18 x 45 mm	Ø 18 x 65 mm	
M12x1	M12x1	M18x1	M18x1	
for flush mounting	non-flush	for flush mounting	for flush mounting	
4 mm	4 mm	5 mm	8 mm	
1000 Hz	400 Hz	500 Hz	700 Hz	
Stainless steel (1.4404)	Stainless steel (1.4571)	Stainless steel (1.4571)	Stainless steel (1.4404)	
LCP	PEEK	PEEK	PEEK	
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
-25...85 °C	-40...105 °C	-40...105 °C	-40...85 °C	
IP68	IP68	IP68	IP68	
CE, cULus, EAC, Ecolab, FDA compliant	CE, cULus, EAC, Ecolab, FDA compliant	CE, cULus, EAC, Ecolab, FDA compliant	CE, cULus, EAC, Ecolab, FDA compliant	
Page 186	Page 186	Page 186	Page 186	



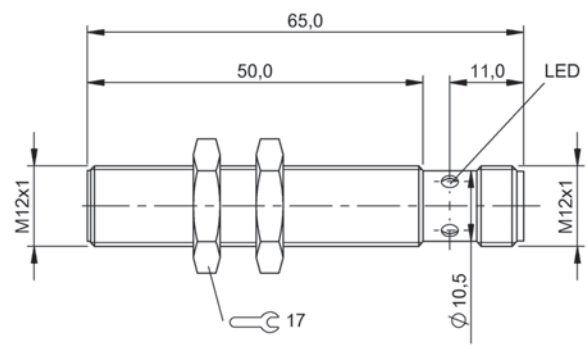
BES0431



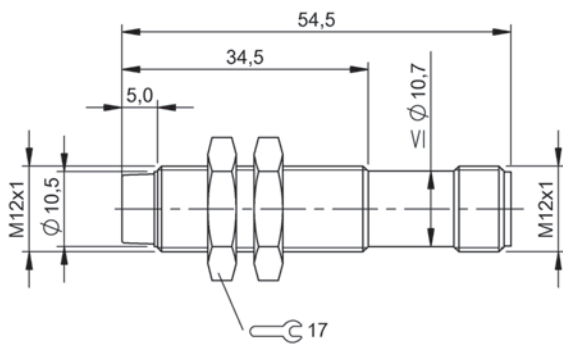
BES0444



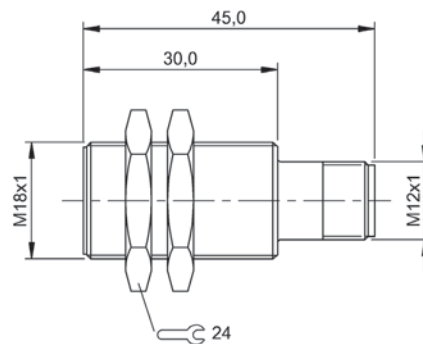
BES0433



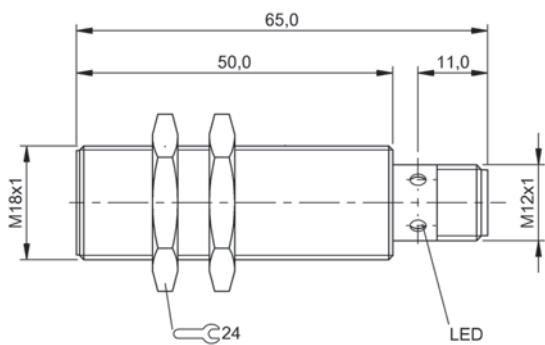
BES0435



BES0443



BES0441



BES0437



PNP normally open	BES02YR BES M08EG-PSC15A-S49G-W	BES02YT BES M08EG1-PSC15A-S04G-W	
Dimension	Ø 8 x 49 mm	Ø 8 x 57 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	1.5 mm	1.5 mm	
Switching frequency	2000 Hz	2000 Hz	
Housing material	Stainless steel (1.4301)	Stainless steel (1.4301)	
Surface protection	coated, PTFE	coated, PTFE	
Material sensing surface	PBT PTFE	PBT PTFE	
Connection	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Magnetic field immune	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	
Protection degree	IP67	IP67	
Approval/Conformity	CE, EAC	CE, EAC	
Additional features	Factor 1, Weld immune	Factor 1, Weld immune	
Productview	Page 198	Page 198	



BES03YP BES M08MG1-PSC20A-S04G-W	BES02JZ BES M12MF1-PSC30A-S04G-W	BES02K0 BES M12MF1-PSC30A-S04G-W01	BES02K3 BES M12ML-PSC30A-S04G-W
Ø 8 x 65 mm	Ø 12 x 50 mm	Ø 12 x 50 mm	Ø 12 x 65 mm
M8x1	M12x1	M12x1	M12x1
for flush mounting	for flush mounting	for flush mounting	for flush mounting
2 mm	3 mm	3 mm	3 mm
1000 Hz	2000 Hz	2000 Hz	2000 Hz
Brass	Brass	Brass	Brass
coated, PTFE	coated, PTFE	coated, PTFE	coated, PTFE
LCP	LCP PTFE	Ceramic	LCP PTFE
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)
IP67	IP67	IP67	IP67
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC, WEEE
Factor 1, Weld immune	Factor 1, Weld immune	Weld immune, Factor 1	Factor 1, Weld immune
Page 198	Page 198	Page 198	Page 198



PNP normally open	BES02K4 BES M12ML-PSC30A-S04G-W01	BES0452 BES M12MG-PSC40A-S04G-W12	
Dimension	Ø 12 x 65 mm	Ø 12 x 56 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	3 mm	4 mm	
Switching frequency	2000 Hz	2000 Hz	
Housing material	Brass	Brass	
Surface protection	coated, PTFE	coated, PTFE	
Material sensing surface	ceramic coated	PPS, GF40	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 3-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Magnetic field immune	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus	
Additional features	Factor 1, Weld immune	Factor 1, Weld immune	
Productview	Page 198	Page 198	



BES02K5 BES M12ML-PSC80E-S04G-W	BES05AJ BES M18ME-PSC80A-S04G-W08	BES05AH BES M18MI-PSC80A-S04G-W07	BES05AK BES M18MI-PSC80A-S04G-W08
Ø 12 x 65 mm	Ø 18 x 46 mm	Ø 18 x 66 mm	Ø 18 x 66 mm
M12x1	M18x1	M18x1	M18x1
non-flush	for flush mounting	for flush mounting	for flush mounting
8 mm	8 mm	8 mm	8 mm
2000 Hz	2500 Hz	2500 Hz	2500 Hz
Brass	Brass	Brass	Brass
coated, PTFE	coated, PTFE	coated, PTFE	coated, PTFE
LCP PTFE	PBT	PBT, PTFE coated	PBT
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 3-pin
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...70 °C	-40...85 °C	-40...85 °C	-40...85 °C
magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)
IP67	IP68	IP68	IP68
CE, cULus, EAC, WEEE	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Factor 1, Weld immune	Factor 1, Extended temperature range, Housing resistant to weld spatter, weld-immune (magnetic field 100kA/m)	Factor 1, Extended temperature range, Housing resistant to weld spatter, weld-immune (magnetic field 100kA/m)	Factor 1, Extended temperature range, Housing resistant to weld spatter, weld-immune (magnetic field 100kA/m)
Page 198	Page 198	Page 199	Page 199



	BES05AL BES M18ME-PSC12E-S04G-W08	BES05AM BES M18MI-PSC12E-S04G-W08	
PNP normally open			
Dimension	Ø 18 x 56 mm	Ø 18 x 76 mm	
Style	M18x1	M18x1	
Installation	non-flush	non-flush	
Range	12 mm	12 mm	
Switching frequency	2500 Hz	2500 Hz	
Housing material	Brass	Brass	
Surface protection	coated, PTFE	coated, PTFE	
Material sensing surface	PBT	PBT	
Connection	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 3-pin	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-40...85 °C	-40...85 °C	
Magnetic field immune	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	—	
Additional features	Factor 1, Extended temperature range, Housing resistant to weld spatter, weld-immune (magnetic field 100kA/m)	Factor 1, Extended temperature range, Housing resistant to weld spatter, weld-immune (magnetic field 100kA/m)	
Productview	Page 199	Page 199	



	BES02KM BES M30ML-PSC10A-S04G-W	BES02KN BES M30ML-PSC10A-S04G-W01	BES0454 BES M30MI-PSC15A-S04G-W12	BES04AH BES R01EC-PSC50A-BP00,3-GS04-W50
	Ø 30 x 65 mm	Ø 30 x 65 mm	Ø 30 x 65 mm	32 x 20 x 8 mm
	M30x1.5	M30x1.5	M30x1.5	block style
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	10 mm	10 mm	15 mm	5 mm
	600 Hz	600 Hz	750 Hz	20 Hz
	Brass	Brass	Brass	Stainless steel
	coated, PTFE	coated, PTFE	coated, PTFE	—
	LCP PTFE	ceramic coated	PPS	Stainless steel
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 3-pin	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Factor 1, Weld immune	Factor 1, Weld immune	Factor 1, Weld immune	Factor 1, Weld immune
	Page 199	Page 199	Page 199	Page 199



	BES04RE BES R01EC-PSC50A-BS00,3-GS04-W51	BES049Y BES R01EC-PSC50A-BP00,3-GS04-W51	
PNP normally open			
PNP normally open/normally closed			
Dimension	32 x 20 x 8 mm	32 x 20 x 8 mm	
Style	block style	block style	
Installation	for flush mounting	for flush mounting	
Range	5 mm	5 mm	
Switching frequency	20 Hz	20 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	coated, PTFE	coated, PTFE	
Material sensing surface	Stainless steel, W51 ceramic coating	Stainless steel, W51 ceramic coating	
Connection	Cable with connector, M12x1 connector, 4-pin, 0.30 m, silicone	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Magnetic field immune	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Additional features	Factor 1, Housing resistant to weld spatter, Weld immune	Housing resistant to weld spatter, Weld immune, Factor 1	
Productview	Page 199	Page 199	



BES021P BES Q40KFU-PSC15A-S04G	BES022K BES Q40KFU-PAC15A-S04G	BES021T BES Q40KFU-PSC15A-S04G-W01	BES021U BES Q40KFU-PSC20A-S04G
40 x 40 x 62 mm	40 x 40 x 62 mm	40 x 40 x 62 mm	40 x 40 x 62 mm
block style	block style	block style	block style
for flush mounting	for flush mounting	for flush mounting	for flush mounting
15 mm	15 mm	15 mm	20 mm
400 Hz	400 Hz	400 Hz	400 Hz
PBT	PBT	PBT	PBT
—	—	partly coated	—
PBT	PBT	ceramic coated	PBT
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)
IP67	IP67	IP67	IP67
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Factor 1, Weld immune	Factor 1	Factor 1, Weld immune	Factor 1
Page 200	Page 200	Page 200	Page 200



PNP normally open		BES0222 BES Q40KFU-PSC35Z-S04G-011	
PNP normally open/normally closed	BES0457 BES Q40KFU-PAC20A-S04G-W01		
Dimension	40 x 40 x 62 mm	40 x 40 x 62 mm	
Style	block style	block style	
Installation	for flush mounting	Shielded on one side	
Range	20 mm	35 mm	
Switching frequency	400 Hz	250 Hz	
Housing material	PBT	PBT	
Surface protection	partly coated	—	
Material sensing surface	ceramic coated	PBT	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-10...60 °C	
Magnetic field immune	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Additional features	Factor 1	Factor 1	
Productview	Page 200	Page 200	



			BES0223 BES Q40KFU-PSC40E-S04G	
	BES021H BES Q40KFU-PAC35E-S04G	BES021K BES Q40KFU-PAC35E-S04G-W01		BES021M BES Q40KFU-PAC40E-S04G
	40 x 40 x 62 mm	40 x 40 x 62 mm	40 x 40 x 62 mm	40 x 40 x 62 mm
	block style	block style	block style	block style
	non-flush	non-flush	non-flush	non-flush
	35 mm	35 mm	40 mm	40 mm
	250 Hz	250 Hz	100 Hz	100 Hz
	PBT	PBT	PBT	PBT
	—	partly coated	—	—
	PBT	ceramic coated	PBT	PBT
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-10...70 °C	-10...70 °C	-10...70 °C	-10...70 °C
	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Factor 1	Factor 1, Weld immune	Factor 1	Factor 1
	Page 200	Page 200	Page 200	Page 200

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

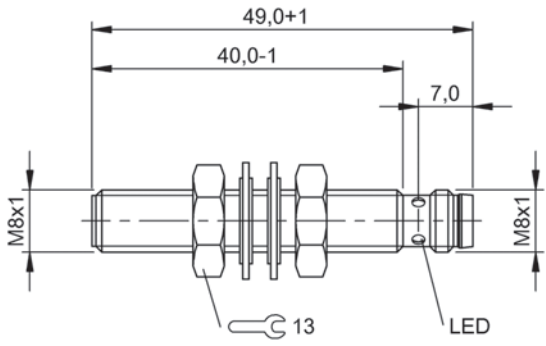
Safety

Industrial Networking

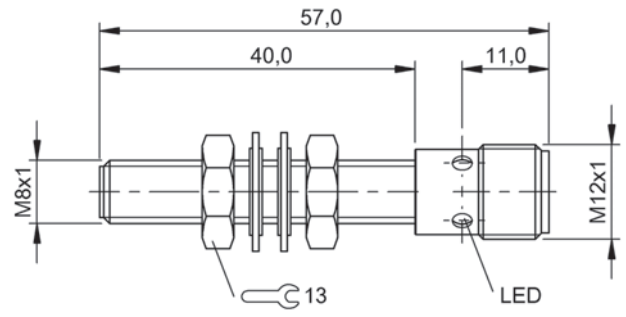
Power Supply

Connectivity

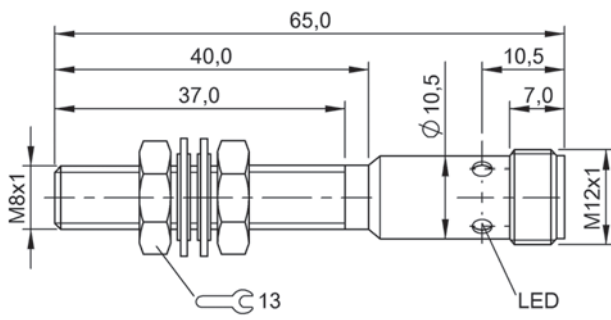
Accessories



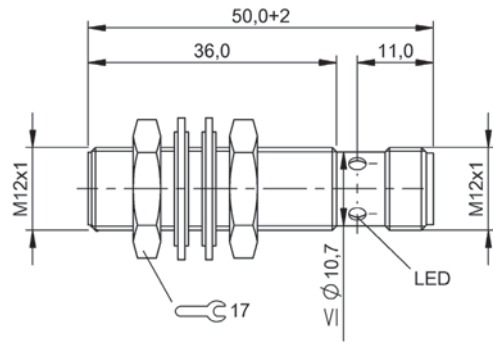
BES02YR



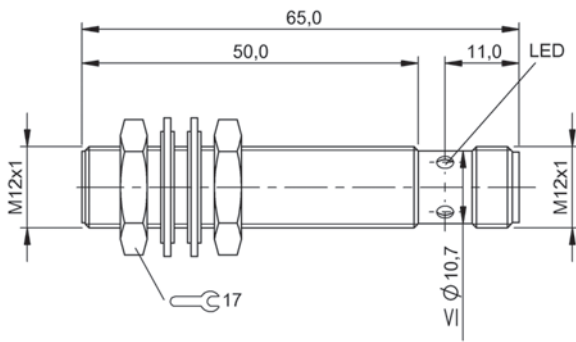
BES02YT



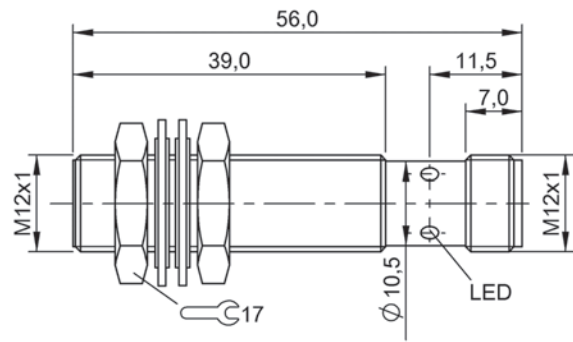
BES03YP



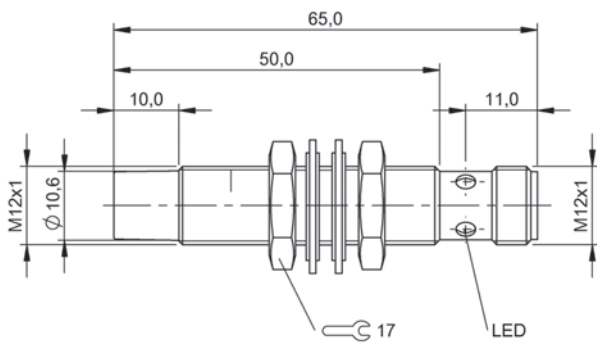
BES02JZ, BES02K0



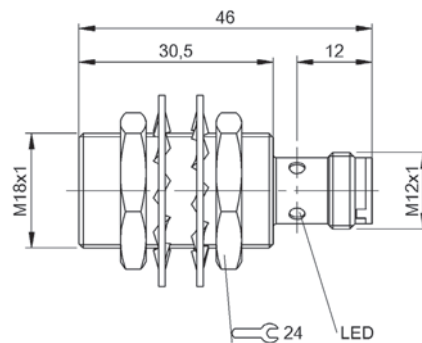
BES02K3, BES02K4



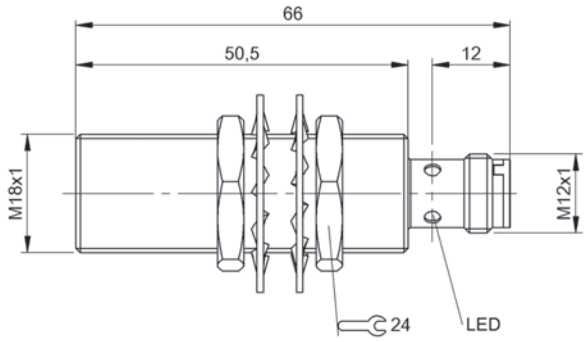
BES0452



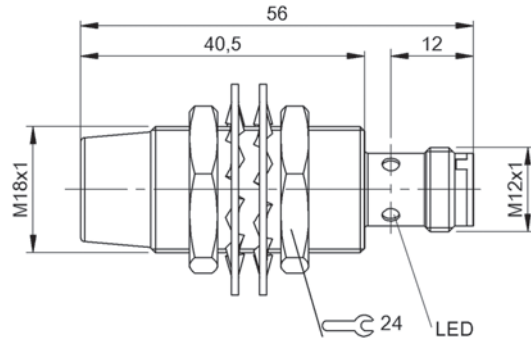
BES02K5



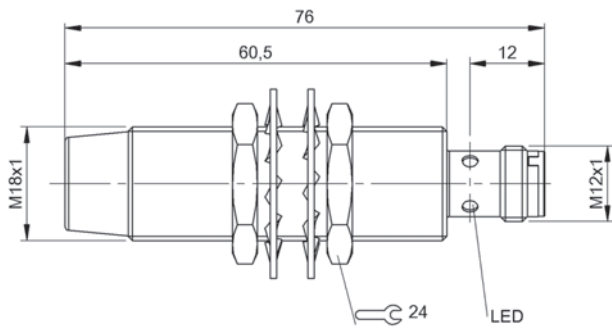
BES05AJ



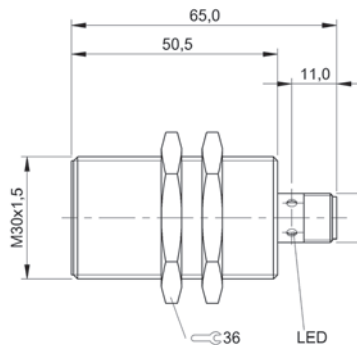
BES05AH, BES05AK



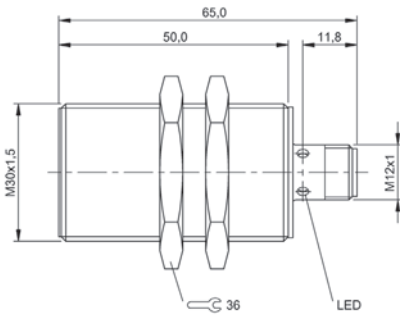
BES05AL



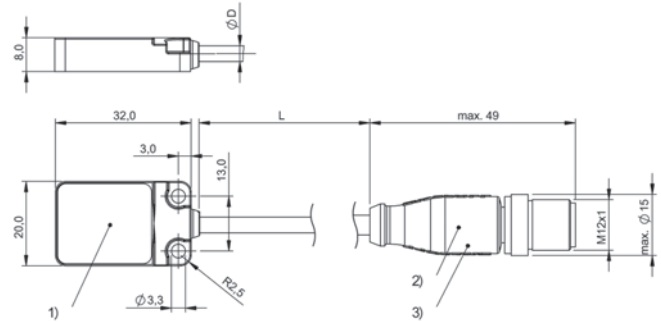
BES05AM



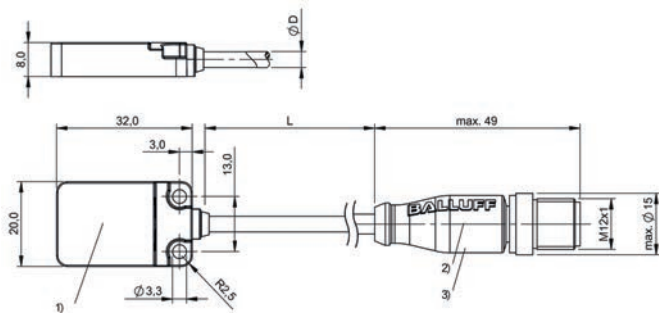
BES02KM, BES02KN



BES0454



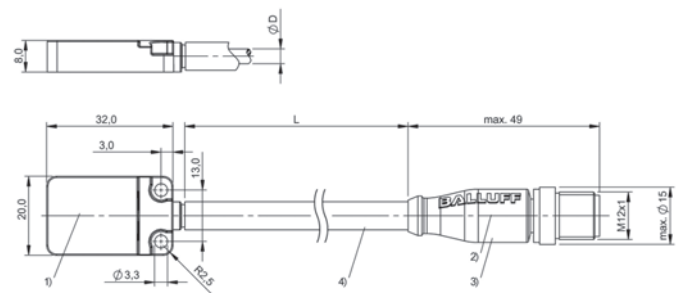
1) Sensing surface, 2) LED yellow, 3) LED green



1) Sensing surface, 2) LED green, 3) LED yellow

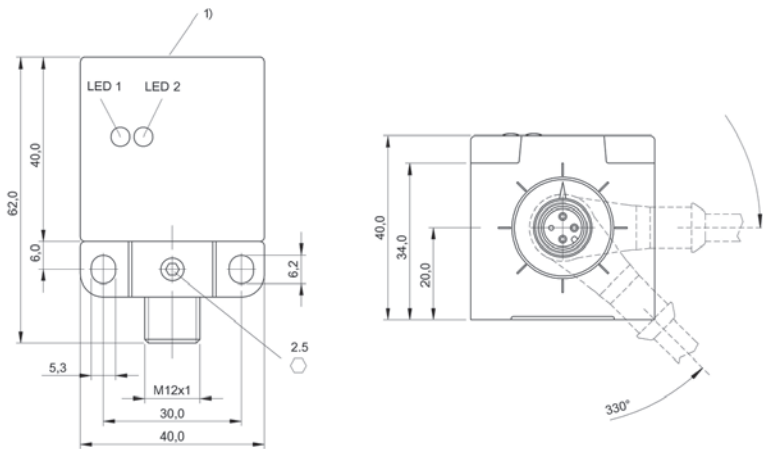
BES04RE

BES04AH



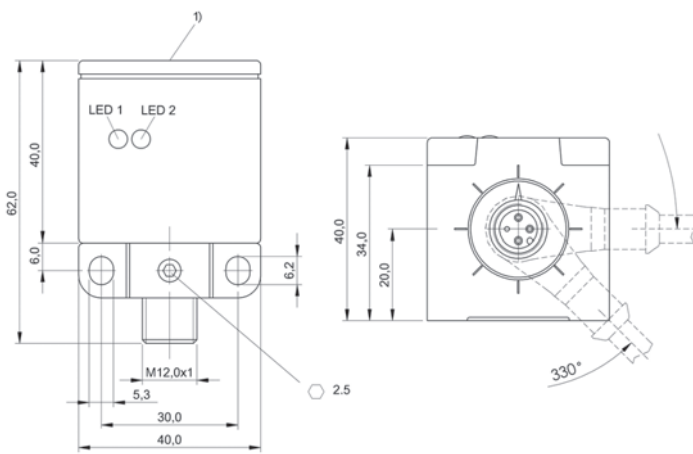
1) Sensing surface, 2) LED green, 3) LED yellow, 4) Silicon tube D=7mm

BES049Y



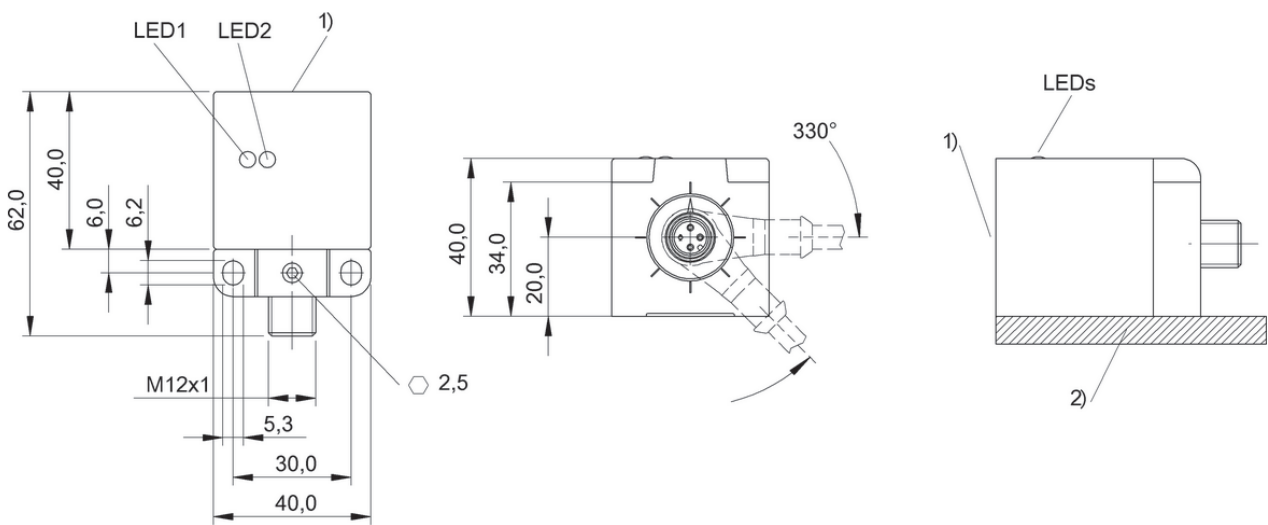
1) Sensing surface

BES021P, BES022K, BES021T, BES021H, BES021K, BES0223, BES021M



1) Sensing surface

BES021U, BES0457



1) Sensing surface, 2) Metal plate

BES0222



PNP normally open	BES02YZ BES M08EG1-PSC15S-S04G-S	BES02N5 BES M08EH1-PSC20B-S04G-S	
Dimension	Ø 8 x 64.5 mm	Ø 8 x 65 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	for flush mounting	
Range	1.5 mm	2 mm	
Switching frequency	20 Hz	750 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	Stainless steel	Stainless steel	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Additional features	—	—	
Productview	Page 208	Page 208	



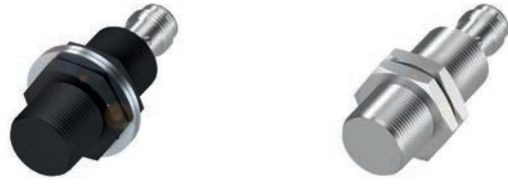
	BES02N6 BES M08EH1-PSC20B-S04G-S01	BES02Z3 BES M12EG1-PSC20S-S04G-S	BES02Z2 BES M12EG1-PSC20N-S04G-S	BES04Z5 BES M12EI-PSC40A-S04G-S
	Ø 8 x 65 mm	Ø 12 x 65 mm	Ø 12 x 65 mm	Ø 12 x 65 mm
	M8x1	M12x1	M12x1	M12x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	2 mm	2 mm	2 mm	4 mm
	750 Hz	50 Hz	50 Hz	80 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	coated, PTFE	—	—	—
	Stainless steel, coated	Stainless steel	Stainless steel	Stainless steel
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	—	—	—	magnetic field immune (AC/DC)
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Housing resistant to weld spatter	—	—	Factor 1, Weld immune
	Page 208	Page 208	Page 208	Page 208



PNP normally open	BES0567 BES M12EI-PSC40A-S04G-S02	BES0510 BES M12EI-PSC40S-S04G-S	
Dimension	Ø 12 x 65 mm	Ø 12 x 65 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	4 mm	4 mm	
Switching frequency	80 Hz	70 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	weld spatter resistant, coated	—	
Material sensing surface	Stainless steel, coated	Stainless steel	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Magnetic field immune	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Additional features	Factor 1, Weld immune, Housing resistant to weld spatter	Damping: Steel	
Productview	Page 208	Page 208	



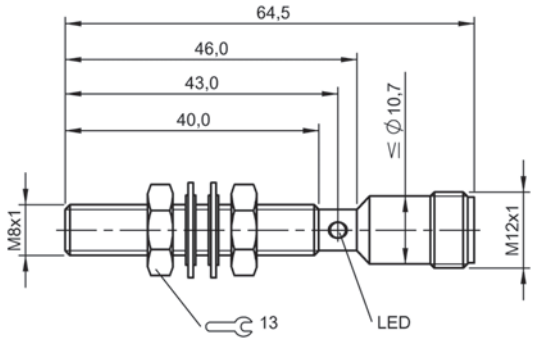
BES0511 BES M12EI-PSC40N-S04G-S	BES0279 BES M18EG1-PSC50S-S04G-S	BES0278 BES M18EG1-PSC50N-S04G-S	BES05K7 BES M18EG1-PSC80A-S04G-S
Ø 12 x 65 mm	Ø 18 x 66 mm	Ø 18 x 66 mm	Ø 18 x 56 mm
M12x1	M18x1	M18x1	M18x1
for flush mounting	for flush mounting	for flush mounting	for flush mounting
4 mm	5 mm	5 mm	8 mm
70 Hz	15 Hz	15 Hz	110 Hz
Stainless steel	Stainless steel	Stainless steel	Stainless steel
—	—	—	—
Stainless steel	Stainless steel	Stainless steel	Stainless steel
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 3-pin
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
magnetic field immune (AC/DC)	—	—	magnetic field immune (AC/DC)
IP67	IP67	IP67	IP68
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Damping: Alloys	—	—	Factor 1
Page 208	Page 208	Page 208	Page 208



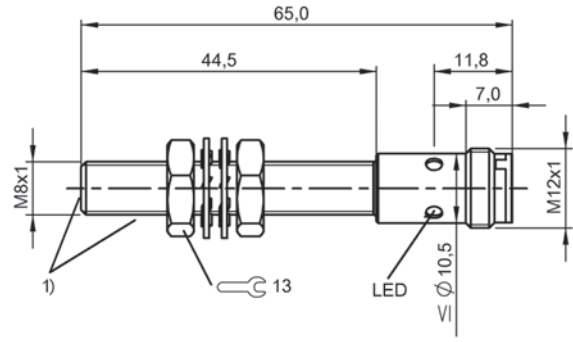
PNP normally open	BES05NC BES M18EG1-PSC80A-S04G-S02	BES05K8 BES M18EG1-PSC80S-S04G-S	
Dimension	Ø 18 x 56 mm	Ø 18 x 56 mm	
Style	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Range	8 mm	8 mm	
Switching frequency	110 Hz	110 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	weld spatter resistant, coated	—	
Material sensing surface	Stainless steel, coated	Stainless steel	
Connection	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 3-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Magnetic field immune	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	
Protection degree	IP68	IP68	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Additional features	Factor 1	Damping: Steel	
Productview	Page 208	Page 208	



BES05K9 BES M18EG1-PSC80N-S04G-S	BES02ZJ BES M30EG1-PSC80S-S04G-S	BES02ZH BES M30EG1-PSC80N-S04G-S	
Ø 18 x 56 mm	Ø 30 x 66 mm	Ø 30 x 66 mm	
M18x1	M30x1.5	M30x1.5	
for flush mounting	for flush mounting	for flush mounting	
8 mm	8 mm	8 mm	
110 Hz	15 Hz	15 Hz	
Stainless steel	Stainless steel	Stainless steel	
—	—	—	
Stainless steel	Stainless steel	Stainless steel	
Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
10...30 VDC	10...30 VDC	10...30 VDC	
-25...70 °C	-25...70 °C	-25...70 °C	
magnetic field immune (AC/DC)	—	—	
IP68	IP67	IP67	
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Damping: Alloys	—	—	
Page 208	Page 208	Page 208	

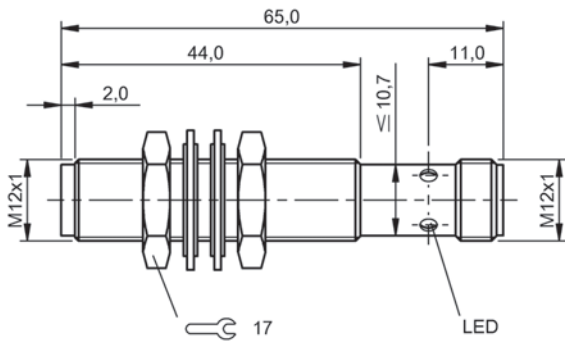


BES02YZ

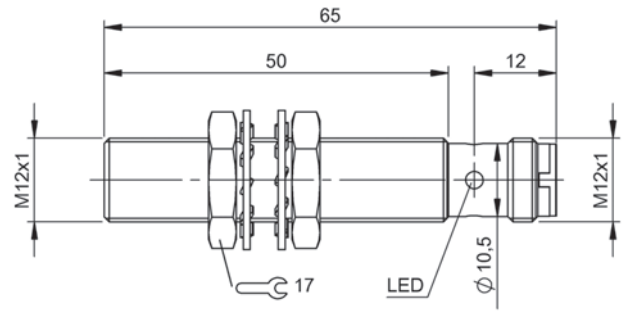


1) Pressure resistant area

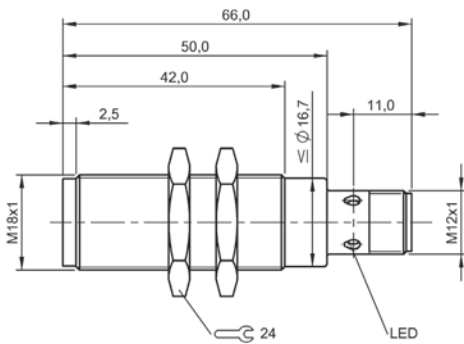
BES02N5, BES02N6



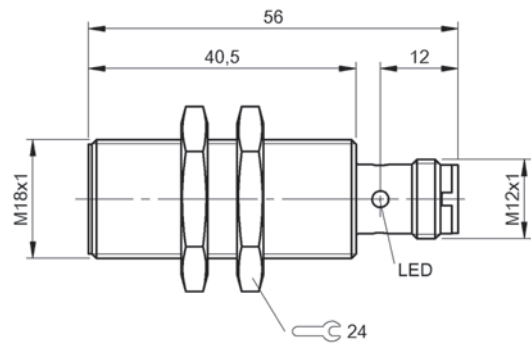
BES02Z3, BES02Z2



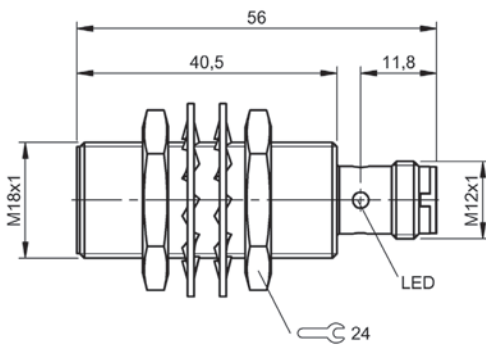
BES04Z5, BES0567, BES0510, BES0511



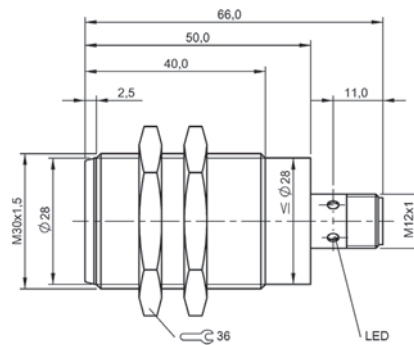
BES02Z9, BES02Z8



BES05K7, BES05K8, BES05K9



BES05NC



BES02ZJ, BES02ZH



PNP normally open	BES02J5 BES 516-325-S4-CW	
Dimension	Ø 12 x 61 mm	
Style	M12x1	
Installation	for flush mounting	
Range	2 mm	
Switching frequency	1000 Hz	
Housing material	Stainless steel	
Surface protection	coated, PTFE	
Material sensing surface	PTFE	
Connection	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	
Ambient temperature	-25...70 °C	
Magnetic field immune	magnetic field immune (AC/DC)	
Protection degree	IP67	
Approval/Conformity	cULus, CE, EAC	
Productview	Page 214	



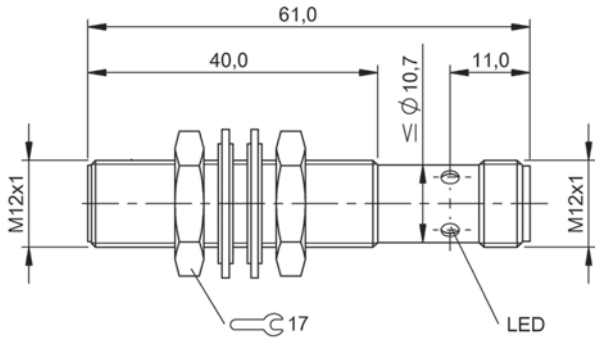
	BES02JM BES 516-356-S4-CW	BES02J9 BES 516-326-S4-CW	BES02JH BES 516-327-S4-CW
	Ø 12 x 61 mm	Ø 18 x 65 mm	Ø 30 x 65 mm
	M12x1	M18x1	M30x1.5
	non-flush	for flush mounting	for flush mounting
	4 mm	5 mm	10 mm
	1000 Hz	500 Hz	100 Hz
	Stainless steel	Brass	Brass
	coated, PTFE	coated, PTFE	coated, PTFE
	PTFE	PTFE	PTFE
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	10...30 VDC	10...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C
	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)
	IP67	IP67	IP67
	cULus, CE, EAC	cULus, CE, EAC	CE, cULus, EAC
	Page 214	Page 214	Page 214



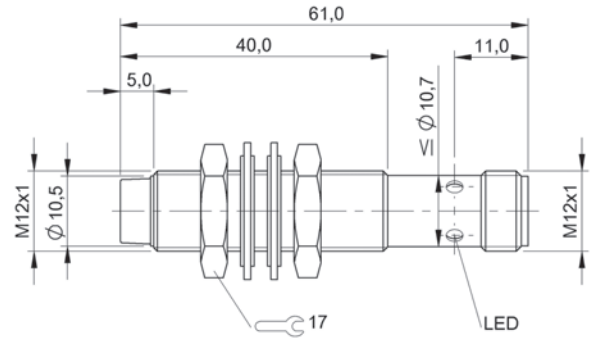
PNP normally open	BES0481 BES R01ZC-PSC50B-BZ03-V02	
Dimension	32 x 20 x 8 mm	
Style	block style	
Installation	for flush mounting	
Range	5 mm	
Switching frequency	100 Hz	
Housing material	Zinc, die-cast	
Surface protection	—	
Material sensing surface	PA 12	
Connection	Cable, 3.00 m, TPU	
Operating voltage U_b	10...30 VDC	
Ambient temperature	-25...70 °C	
Magnetic field immune	magnetic field immune (AC/DC)	
Protection degree	IP67	
Approval/Conformity	CE, cULus, EAC	
Productview	Page 214	



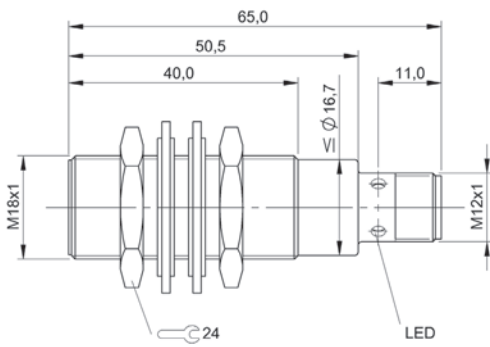
BES048J BES R01ZC-PSC50B-BZ00,2-GS04-V02	BES0493 BES R01ZC-PSC50B-BZ00,2-GS49-V02	BES048W BES R01ZC-PSC50B-BZ00,5-GS04-V02
32 x 20 x 8 mm	32 x 20 x 8 mm	32 x 20 x 8 mm
block style	block style	block style
for flush mounting	for flush mounting	for flush mounting
5 mm	5 mm	5 mm
100 Hz	100 Hz	100 Hz
Zinc, die-cast	Zinc, die-cast	Zinc, die-cast
—	—	—
PA 12	PA 12	PA 12
Cable with connector, M12x1 connector, 4-pin, 0.20 m, TPU	Cable with connector, M8x1 connector, 3-pin, 0.20 m, TPU	Cable with connector, M12x1 connector, 4-pin, 0.50 m, TPU
10...30 VDC	10...30 VDC	10...30 VDC
-25...70 °C	-25...70 °C	-25...70 °C
magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)
IP67	IP67	IP67
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
Page 214	Page 214	Page 214



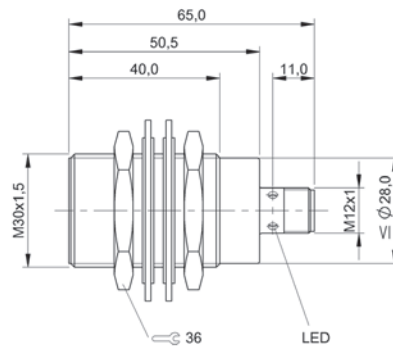
BES02J5



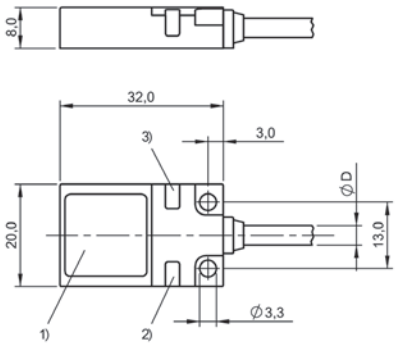
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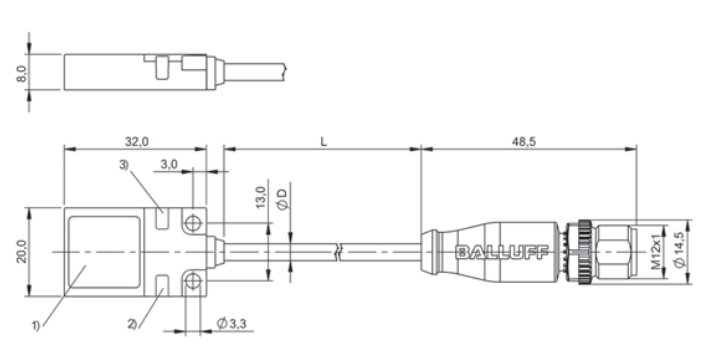
BES02J9



BES02JH



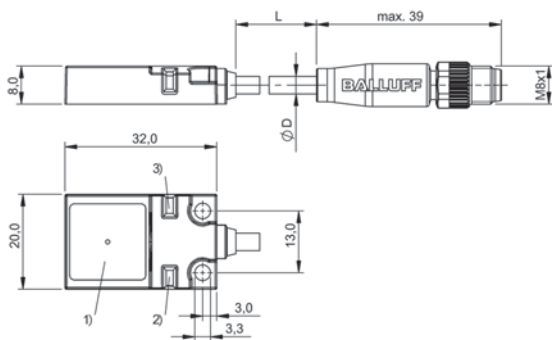
1) Sensing surface, 2) LED green, 3) LED yellow



1) Sensing surface, 2) LED green, 3) LED yellow

BES0481

BES048J, BES048W



1) Sensing surface, 2) LED green, 3) LED yellow

BES0493



PNP normally open	BES02PU BES M08MH1-PSC20B-S04G-101	BES02PW BES M08MH1-PSC30B-S04G-101	
Dimension	Ø 8 x 65 mm	Ø 8 x 66 mm	
Style	M8x1	M8x1	
Installation	for flush mounting	quasi-flush	
Range	2 mm	3 mm	
Switching frequency	700 Hz	1000 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	Chrome-plated	
Material sensing surface	ceramic coated	ceramic coated	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	12...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, EAC	
Productview	Page 220	Page 220	



BES056A BES M12EI-PSC40B-S04G-S03	BES02KC BES M18MI-PSC70B-S04G-W	BES056C BES M18EI-PSC72B-S04G-S03	
Ø 12 x 65 mm	Ø 18 x 65 mm	Ø 18 x 65 mm	
M12x1	M18x1	M18x1	
for flush mounting	for flush mounting	for flush mounting	
4 mm	7 mm	7.2 mm	
500 Hz	50 Hz	250 Hz	
Stainless steel	Brass	Stainless steel	
weld spatter resistant	coated, PTFE	weld spatter resistant	
Stainless steel	LCP PTFE	Stainless steel	
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
10...30 VDC	10...30 VDC	10...30 VDC	
-25...70 °C	5...60 °C	-25...70 °C	
—	magnetic field immune (AC/DC)	—	
IP67	IP67	IP67	
CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Page 220	Page 220	Page 220	



PNP normally open	BES048K BES R01ZC-PSC50B-BZ00,2-GS04-W05	BES048N BES R01ZC-PSC50B-BZ00,2-GS04-W13	
Dimension	32 x 20 x 8 mm	32 x 20 x 8 mm	
Style	block style	block style	
Installation	for flush mounting	for flush mounting	
Range	5 mm	5 mm	
Switching frequency	100 Hz	100 Hz	
Housing material	Zinc, die-cast	Zinc, die-cast	
Surface protection	partly coated	partly coated	
Material sensing surface	ceramic coated	ceramic coated	
Connection	Cable with connector, M12x1 connector, 4-pin, 0.20 m, TPU	Cable with connector, M12x1 connector, 4-pin, 0.20 m, TPU	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Magnetic field immune	magnetic field immune (AC/DC)	magnetic field immune (AC/DC)	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 220	Page 220	



BES048Y BES R01ZC-PSC70B-BZ00,2-GS04-108			
32 x 20 x 8 mm			
block style			
for flush mounting			
7 mm			
150 Hz			
Zinc, die-cast			
partly coated			
ceramic coated			
Cable with connector, M12x1 connector, 4-pin, 0.20 m, TPU			
10...30 VDC			
-25...70 °C			
—			
IP67			
CE, cULus, EAC			
Page 220			

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

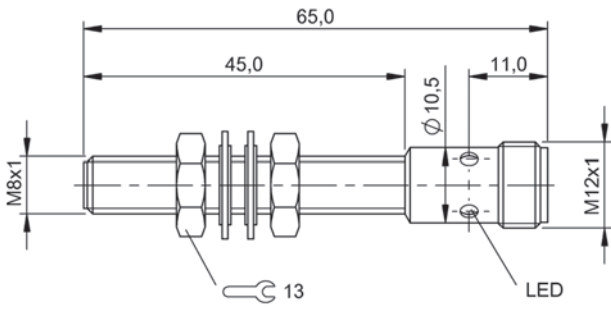
Safety

Industrial Networking

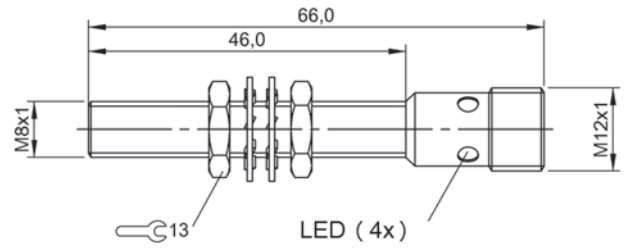
Power Supply

Connectivity

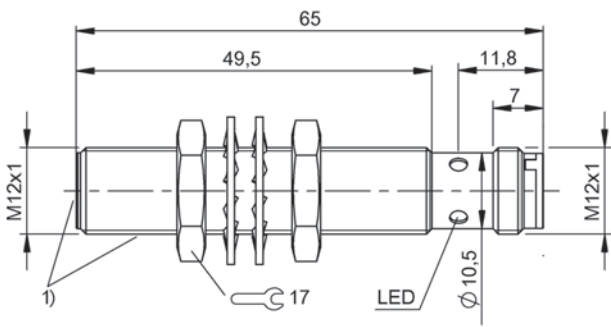
Accessories



BES02PU

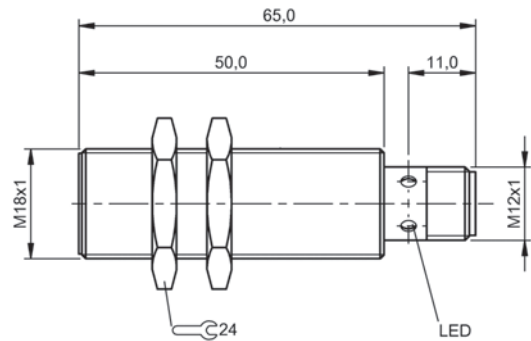


BES02PW

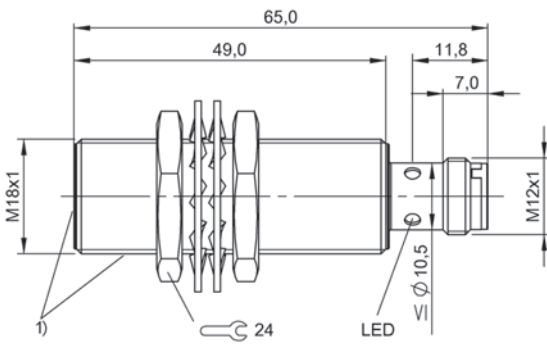


1) Pressure resistant area

BES056A

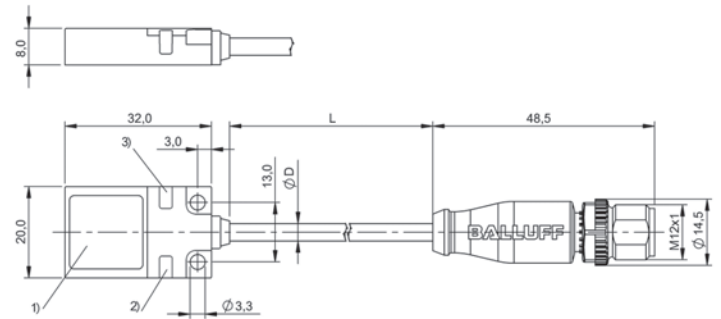


BES02KC



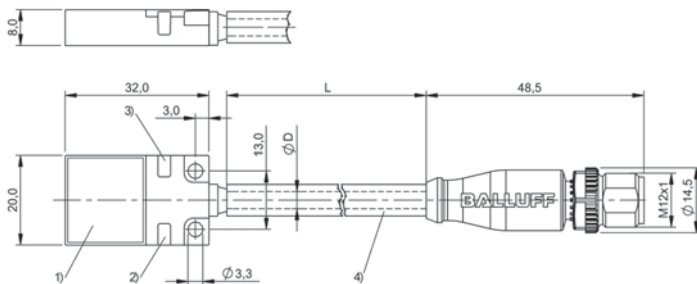
1) Pressure resistant area

BES056C



1) Sensing surface, 2) LED green, 3) LED yellow

BES048K, BES048Y



1) Sensing surface, 2) LED green, 3) LED yellow, 4) Silicon tube D=7mm

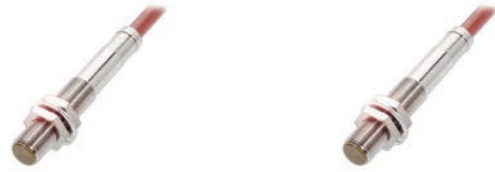
BES048N



PNP normally open	BES02J2 BES M05ED-PSD05B-ES02-T01	BES046C BES M05ED-PSD05B-ES05-T01	
Dimension	Ø 5 x 27 mm	Ø 5 x 27 mm	
Style	M5x0.5	M5x0.5	
Installation	for flush mounting	for flush mounting	
Range	0.5 mm	0.5 mm	
Switching frequency	1000 Hz	1000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	POM	POM	
Connection	Cable, 2.00 m, silicone	Cable, 5.00 m, silicone	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...120 °C	-25...120 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 232	Page 232	



BES03P1 BES M05ED-PSD08B-ES02-T01	BES04FL BES M05ED-PSD05B-ES05-GS04-T50	BES05FN BES M08EM-PSD20B-ET05-T	BES04CK BES 515-325-SA74-D-TF-02
Ø 5 x 27 mm	Ø 5 x 27 mm	Ø 8 x 60 mm	Ø 12 x 62 mm
M5x0.5	M5x0.5	M8x1	M12x1
for flush mounting	for flush mounting	for flush mounting	for flush mounting
0.8 mm	0.5 mm	2 mm	2 mm
900 Hz	1000 Hz	600 Hz	200 Hz
Stainless steel	Stainless steel	Stainless steel	Stainless steel
—	—	—	—
POM	POM	LCP	PEEK
Cable, 2.00 m, silicone	Cable with connector, 5.00 m, silicone	Cable, 5.0 m, PTFE	Cable, 2.00 m, PTFE
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
0...120 °C	-25...120 °C	0...140 °C	-25...160 °C
IP67	IP67	IP50	IP68
CE, cULus, EAC	CE, cULus, EAC	CE, EAC	CE, EAC
Page 232	Page 232	Page 232	Page 232



PNP normally open	BES02HU BES 516-325-SA19-03	BES02HW BES 516-325-SA19-05	
PNP normally open/normally closed			
Dimension	Ø 12 x 75 mm	Ø 12 x 75 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	2 mm	2 mm	
Switching frequency	1000 Hz	1000 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	nickel plated	
Material sensing surface	PEEK	PEEK	
Connection	Cable, 3.00 m, silicone	Cable, 5.00 m, silicone	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...120 °C	-25...120 °C	
Protection degree	IP68	IP68	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 232	Page 232	



	BES04CL BES 515-356-SA35-D-TF-02	BES043T BES 515-326-SA49-D-TF-02	BES04AT BES 515-326-SA49-D-TF-05	BES02H5 BES 516-105-SA2-05
	Ø 12 x 66 mm	Ø 18 x 95 mm	Ø 18 x 95 mm	Ø 18 x 95.5 mm
	M12x1	M18x1	M18x1	M18x1
	non-flush	for flush mounting	for flush mounting	for flush mounting
	4 mm	5 mm	5 mm	5 mm
	200 Hz	200 Hz	200 Hz	500 Hz
	Stainless steel (1.4571)	Stainless steel	Stainless steel	Brass
	—	—	—	nickel plated
	PEEK	PEEK	PEEK	PBT
	Cable, 2.00 m, PTFE	Cable, 2.00 m, PTFE	Cable, 5.00 m, PTFE	Cable, 5.00 m, silicone
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...160 °C	-25...160 °C	-25...160 °C	-25...120 °C
	IP68	IP68	IP68	IP67
	CE, EAC	CE, EAC	CE, EAC	CE, EAC
	Page 232	Page 232	Page 232	Page 232



PNP normally open	BES05N4 BES M18ED-PSC50B-GT05-T		
PNP normally open/normally closed		BES02H6 BES 516-105-SA5	
Dimension	Ø 18 x 35 mm	Ø 18 x 83 mm	
Style	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Range	5 mm	5 mm	
Switching frequency	9 Hz	500 Hz	
Housing material	Stainless steel	Brass	
Surface protection	—	nickel plated	
Material sensing surface	LCP	PBT	
Connection	Connector, M12x1-Male, 4-pole, 5.0 m, PTFE	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	0...230 °C	-25...120 °C	
Protection degree	IP50	IP67	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 233	Page 233	



BES04C7 BES 515-360-SA13-D-TF-05		BES043W BES 515-327-SA22-D-TF-02	BES04AU BES 515-327-SA22-D-TF-05
	BES02H7 BES 516-114-SA1-05		
Ø 18 x 103 mm	Ø 30 x 91.5 mm	Ø 30 x 100 mm	Ø 30 x 100 mm
M18x1	M30x1.5	M30x1.5	M30x1.5
non-flush	for flush mounting	for flush mounting	for flush mounting
8 mm	10 mm	10 mm	10 mm
200 Hz	300 Hz	200 Hz	200 Hz
Stainless steel	Brass	Stainless steel	Stainless steel
—	nickel plated	—	—
PEEK	PBT	PEEK	PEEK
Cable, 5.00 m, PTFE	Cable, 5.00 m, silicone	Cable, 2.00 m, PTFE	Cable, 5.00 m, PTFE
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...160 °C	-25...120 °C	-25...160 °C	-25...160 °C
IP68	IP67	IP68	IP68
CE, EAC	CE, EAC	CE, EAC	CE, EAC
Page 233	Page 233	Page 233	Page 233



PNP normally open	BES05N5 BES M30N1-PSC10B-GT05-T		
PNP normally open/normally closed		BES02HE BES 516-125-SA1-05	
Dimension	Ø 30 x 74 mm	Ø 30 x 91 mm	
Style	M30x1.5	M30x1.5	
Installation	for flush mounting	non-flush	
Range	10 mm	15 mm	
Switching frequency	9 Hz	100 Hz	
Housing material	Stainless steel	Brass	
Surface protection	—	nickel plated	
Material sensing surface	LCP	PA 12	
Connection	Connector, M12x1, 4-pole, 5.0 m, PTFE	Cable, 5.00 m, silicone	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	0...230 °C	-25...120 °C	
Protection degree	IP50	IP67	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 233	Page 233	



	BES043Y BES 515-362-SA4-D-TF-02	BES04C8 BES 515-362-SA4-D-TF-05	BES05N7 BES Q08EC-PSD20B-ES05	BES05N8 BES Q12EC-PSD40B-ES05
	Ø 30 x 110 mm	Ø 30 x 110 mm	8 x 8 x 55 mm	12 x 12 x 59 mm
	M30x1.5	M30x1.5	8x8	12x12
	non-flush	non-flush	for flush mounting	for flush mounting
	15 mm	15 mm	2 mm	4 mm
	200 Hz	200 Hz	500 Hz	500 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—
	PEEK	PEEK	LCP	LCP
	Cable, 2.00 m, PTFE	Cable, 5.00 m, PTFE	Cable, 5.0 m, Silicone	Cable, 5.0 m, Silicone
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...160 °C	-25...160 °C	-25...140 °C	-25...130 °C
	IP68	IP68	IP65	IP65
	CE, EAC	CE, EAC	CE, EAC	CE, EAC
	Page 233	Page 233	Page 234	Page 234

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

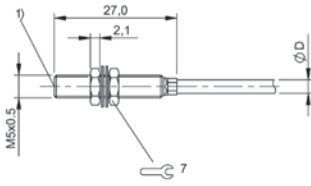
Power Supply

Connectivity

Accessories

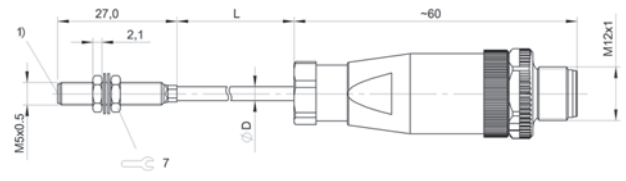


PNP normally open		BES05N9 BES Q40KG-PSD25F-S04G	
For switching amplifier	BES05N6 BES Q40KG-X20F-SZ03		
Dimension	40 x 40 x 66.6 mm	40 x 40 x 70.7 mm	
Style	40x40	40x40	
Installation	non-flush	non-flush	
Range	20 mm	25 mm	
Switching frequency	100 Hz	100 Hz	
Housing material	Stainless steel	Stainless steel (1.4305) LCP	
Surface protection	—	—	
Material sensing surface	LCP	LCP	
Connection	Connector, LEMO connector-Special connector, 2-pole	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...35 VDC	
Ambient temperature	0...230 °C	0...150 °C	
Protection degree	IP50	IP67	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 234	Page 234	



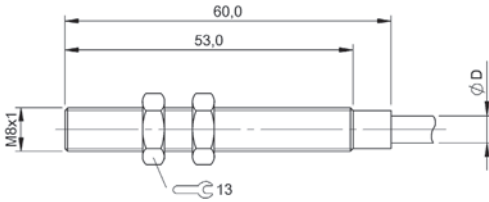
1) Sensing surface

BES02J2, BES046C, BES03P1

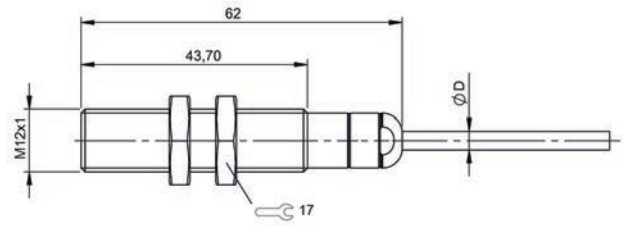


1) Sensing surface

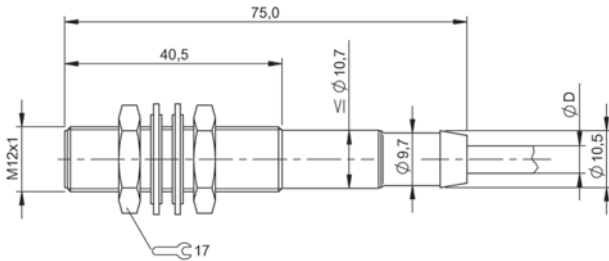
BES04FL



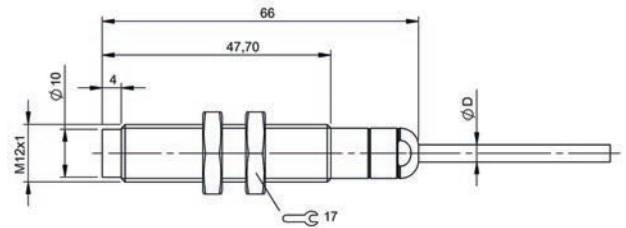
BES05FN



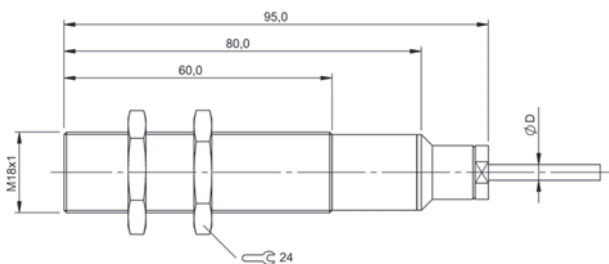
BES04CK



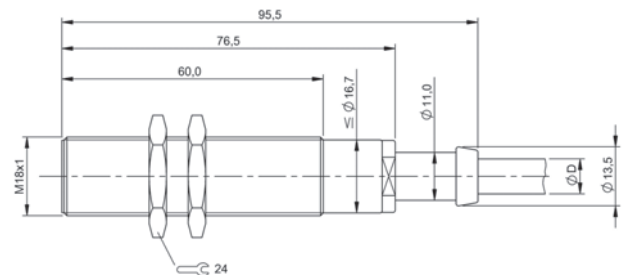
BES02HU, BES02HW



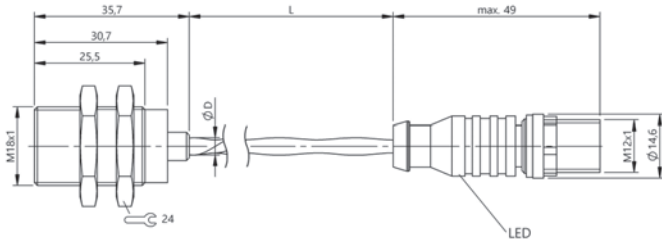
BES04CL



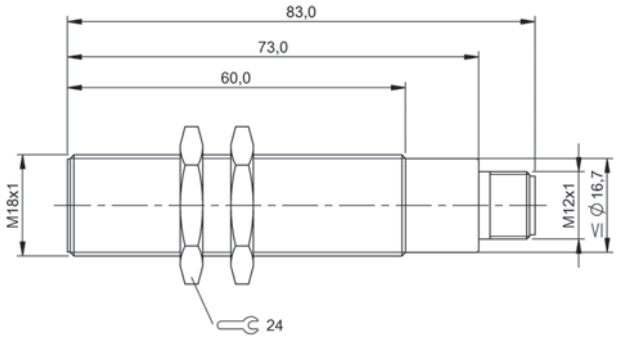
BES043T, BES04AT



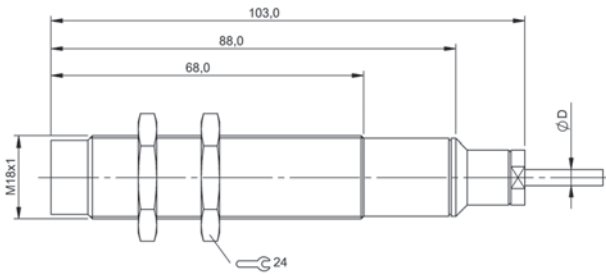
BES02H5



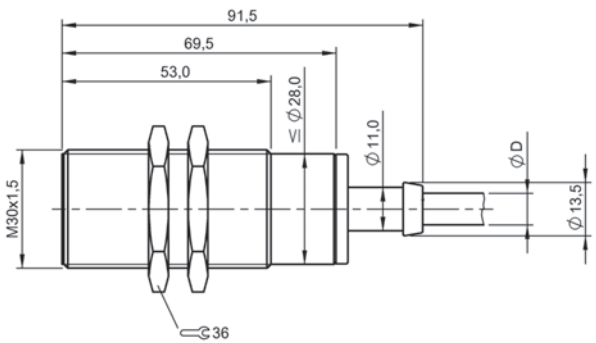
BES05N4



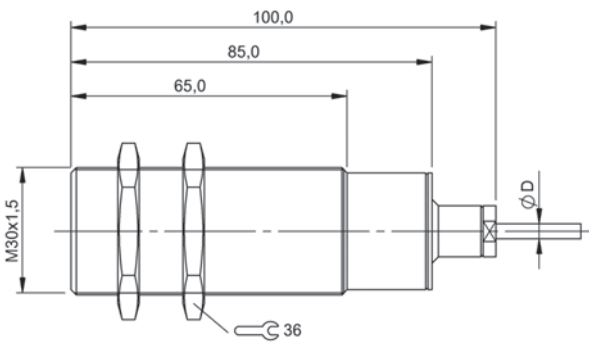
BES02H6



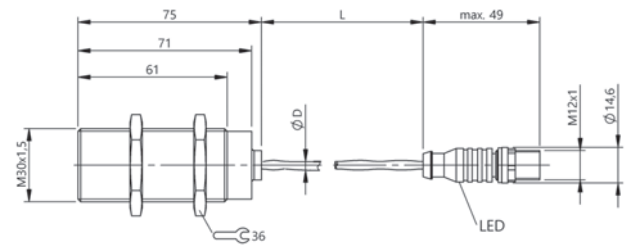
BES04C7



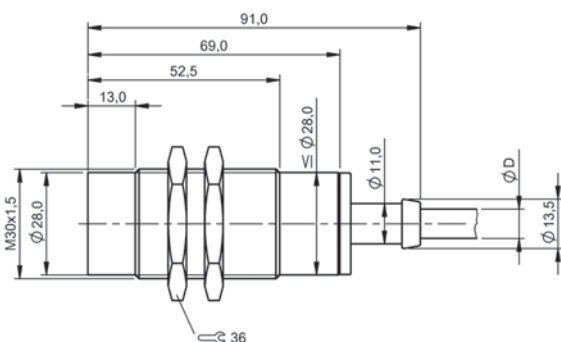
BES02H7



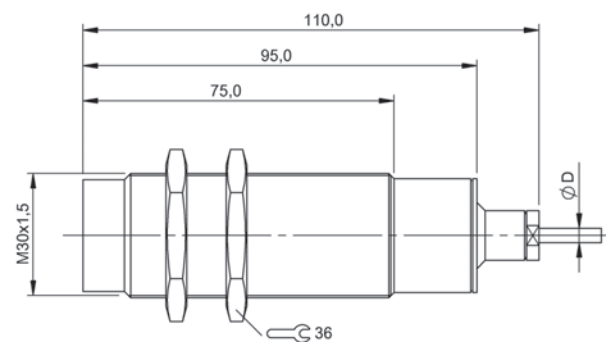
BES043W, BES04AU



BES05N5

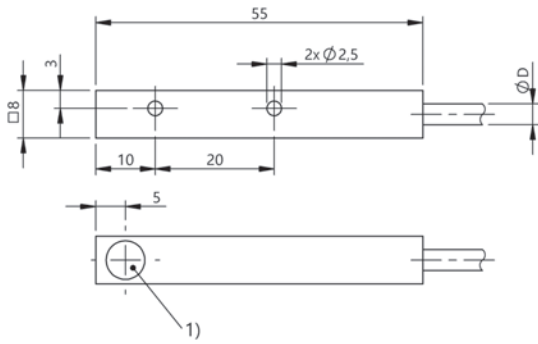


BES02HE



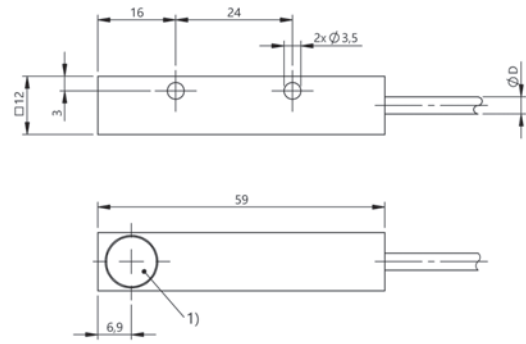
BES043Y, BES04C8

234 | Sensors | Inductive Sensors



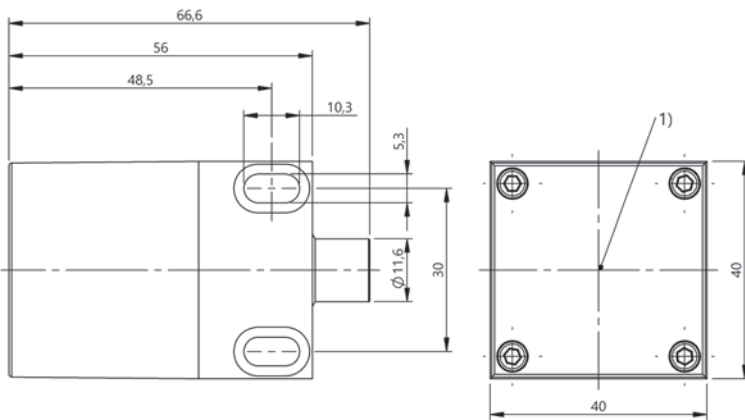
1) Sensing surface

BES05N7



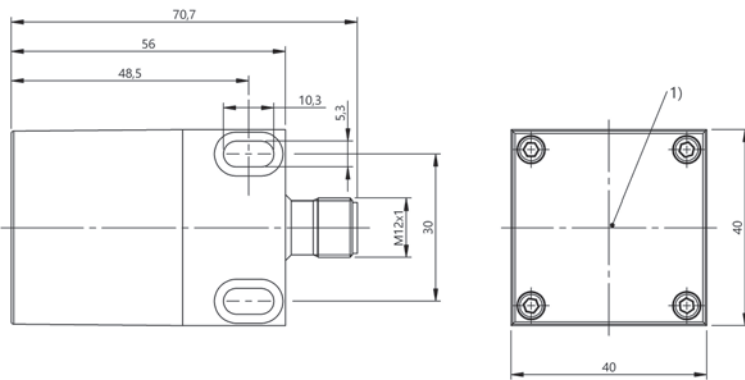
1) Sensing surface

BES05N8



1) Sensing surface

BES05N6



1) Sensing surface

BES05N9



NAMUR	BES02ZR BES G06MD-GNX10B-EV02-EEX	BES02ZT BES M08MD-GNX10B-EV02-EEX		
PNP normally open			BES05M3 BES M12EG2-PSC20B-BV02-EXF	
Dimension	Ø 6.5 x 30 mm	Ø 8 x 30 mm	Ø 12 x 59 mm	
Style	D6.5	M8x1	M12x1	
Installation	for flush mounting	for flush mounting	for flush mounting	
Range	1 mm	1 mm	2 mm	
Switching frequency	2000 Hz	2000 Hz	180 Hz	
Housing material	Brass	Brass	Stainless steel	
Surface protection	Nickel-free coated	Nickel-free coated	—	
Material sensing surface	PBT	PBT	Stainless steel	
Connection	Cable, 2.00 m, PVC	Cable, 2.00 m, PVC	Cable, PUR	
Operating voltage U_b	7.7...9 VDC	7.7...9 VDC	10...30 VDC	
Ambient temperature	-20...70 °C	-20...70 °C	-5...60 °C	
Pressure rating max.	—	—	—	
Ex category	ATEX: 2G (EPL Gb) ATEX: 1D (EPL Da)	ATEX: 2G (EPL Gb) ATEX: 1D (EPL Da)	ATEX: 3G (EPL Gc) ATEX: 3D (EPL Dc) IECEX: EPL Gc IECEX: EPL Dc	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	CE, EAC, ATEX, cCSAus, FM	CE, EAC, ATEX, cCSAus, FM	CE, EAC, IECEX, ATEX	
Productview	Page 248	Page 248	Page 248	



	BES05L6 BES M12MF2-PSC20B-BV02-EXE	BES05NE BES M12MG2-GNX20B-BT02-EXA	BES05NM BES M12MG2-GNX20B-BT02-EXB	BHS004L BES 516-300-S318-S4-N	BHS002W BES 516-300-S249-NEX-S4-D
	Ø 12 x 59 mm	Ø 12 x 62 mm	Ø 12 x 62 mm	Ø 12 x 56 mm	Ø 12 x 56 mm
	M12x1	M12x1	M12x1	M12x1	M12x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	2 mm	2 mm	2 mm	1.5 mm	1.5 mm
	300 Hz	—	—	1000 Hz	2000 Hz
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	—	—	—	—	—
	LCP	PEEK	PTFE	POM	EP
	Cable, PUR	Cable, FEP	Cable, FEP	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	7.7...9 VDC	7.7...9 VDC	7.7...9 VDC	10...30 VDC
	-20...60 °C	-20...60 °C, depending on Ex category	-20...60 °C, depending on Ex category	-25...70 °C	-25...80 °C
	—	—	—	500 bar	500 bar
	ATEX: 3G (EPL Gc) ATEX: 3D (EPL Dc) IECEX: EPL Gc IECEX: EPL Dc	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 2G (EPL Gb)	ATEX: 3G (EPL Gc)
	IP67	IP68	IP68	IP68	IP68
	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	CE, EAC, ATEX
	Page 248	Page 248	Page 248	Page 248	Page 248



NAMUR	BHS0034 BES 516-300-S266-S4	BHS004K BES 516-300-S315-S4-N		
PNP normally open			BHS005P BHS B135V-PSD15-NEX-S04	
Dimension	Ø 12 x 56 mm	Ø 12 x 56 mm	Ø 12 x 78 mm	
Style	M12x1	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	for flush mounting	
Range	1.5 mm	1.5 mm	1.5 mm	
Switching frequency	1000 Hz	1000 Hz	400 Hz	
Housing material	Stainless steel	Stainless steel	Stainless steel	
Surface protection	—	—	—	
Material sensing surface	POM	POM	Ceramic	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	7.7...9 VDC	7.7...9 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	-25...100 °C	
Pressure rating max.	500 bar	500 bar	500 bar	
Ex category	ATEX: 2G (EPL Gb)	ATEX: 2G (EPL Gb)	ATEX: 3G (EPL Gc)	
Protection degree	IP68	IP68	IP68	
Approval/Conformity	CE, EAC	CE, EAC, IECEx, ATEX	CE, EAC, ATEX	
Productview	Page 248	Page 248	Page 249	



BES05MW BES M12MG2-GNX20B-S04G-EXC	BES02ZU BES M12ME-GNX40B-S04G-EEX	BES05L7 BES M12MF2-PSC40F-BV02-EXE	BES05NF BES M12MG2-GNX40F-BT02-EXA	BES05NN BES M12MG2-GNX40F-BT02-EXB
Ø 12 x 65 mm	Ø 12 x 45 mm	Ø 12 x 61 mm	Ø 12 x 66 mm	Ø 12 x 66 mm
M12x1	M12x1	M12x1	M12x1	M12x1
for flush mounting	for flush mounting	non-flush	non-flush	non-flush
2 mm	4 mm	1.5 mm	4 mm	4 mm
—	700 Hz	300 Hz	—	—
Brass	Brass	Stainless steel	Stainless steel	Stainless steel
nickel plated	Nickel-free coated	—	—	—
PA	PBT	LCP POM	PEEK	PTFE
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Cable, PUR	Cable, FEP	Cable, FEP
7.7...9 VDC	7.7...9 VDC	10...30 VDC	7.7...9 VDC	7.7...9 VDC
-20...60 °C, depending on Ex category	-20...70 °C	-20...60 °C	-20...60 °C, depending on Ex category	-20...60 °C, depending on Ex category
—	—	—	—	—
ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 3G (EPL Gc) ATEX: 3D (EPL Dc) IECEX: EPL Gc IECEX: EPL Dc	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)
IP67	IP67	IP67	IP68	IP68
CE, EAC, IECEx, ATEX	CE, EAC, cCSAus, FM	CE, EAC, IECEx, ATEX	CE, EAC, IECEx, ATEX	CE, EAC, IECEx, ATEX
Page 249	Page 249	Page 249	Page 249	Page 249



NAMUR	BES05MY BES M12MG2-GNX40F-S04G-EXC			
PNP normally open		BES05M4 BES M18EG2-PSC50B-BV02-EXF	BES05L2 BES M18MF2-PSC50B-BV02-EXD	
Dimension	Ø 12 x 70 mm	Ø 18 x 57 mm	Ø 18 x 60 mm	
Style	M12x1	M18x1	M18x1	
Installation	non-flush	for flush mounting	for flush mounting	
Range	4 mm	5 mm	5 mm	
Switching frequency	—	180 Hz	300 Hz	
Housing material	Brass	Stainless steel	Brass	
Surface protection	nickel plated	—	nickel plated	
Material sensing surface	PA	Stainless steel	PA	
Connection	Connector, M12x1 connector, 4-pin	Cable, PUR	Cable, PUR	
Operating voltage U_b	7.7...9 VDC	10...30 VDC	18...27 VDC	
Ambient temperature	-20...60 °C, depending on Ex category	-10...60 °C	-20...60 °C	
Pressure rating max.	—	—	—	
Ex category	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 3G (EPL Gc) ATEX: 3D (EPL Dc) IECEX: EPL Gc IECEX: EPL Dc	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	
Productview	Page 249	Page 249	Page 250	



	BES05L8 BES M18MF2-PSC50B-BV02-EXE	BES05NH BES M18MH2-GNX50B-BT02-EXA	BES05NP BES M18MH2-GNX50B-BT02-EXB	BHS004H BES 516-300-S308-NEX-S4-D	BES05MZ BES M18MH2-GNX50B-S04G-EXC
	Ø 18 x 60 mm	Ø 18 x 67 mm	Ø 18 x 67 mm	Ø 18 x 55 mm	Ø 18 x 67 mm
	M18x1	M18x1	M18x1	M18x1	M18x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	5 mm	5 mm	5 mm	1.5 mm	5 mm
	300 Hz	—	—	2000 Hz	—
	Brass	Stainless steel	Stainless steel	Stainless steel	Brass
	nickel plated	—	—	—	nickel plated
	PA	PEEK	PTFE	EP	PA
	Cable, PUR	Cable, FEP	Cable, FEP	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	10...30 VDC	7.7...9 VDC	7.7...9 VDC	10...30 VDC	7.7...9 VDC
	-20...60 °C	-20...60 °C, depending on Ex category	-20...60 °C, depending on Ex category	-25...80 °C	-20...60 °C, depending on Ex category
	—	—	—	500 bar	—
	ATEX: 3G (EPL Gc) ATEX: 3D (EPL Dc) IECEX: EPL Gc IECEX: EPL Dc	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 3G (EPL Gc)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)
	IP67	IP68	IP68	IP68	IP67
	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	CE, EAC, ATEX	CE, EAC, IECEX, ATEX
	Page 250	Page 250	Page 250	Page 250	Page 250



NAMUR	BES02ZW BES M18ME1-GNX80B-S04G-EEX			
PNP normally open		BES05L3 BES M18MF2-PSC80F-BV02-EXD	BES05L9 BES M18MF2-PSC80F-BV02-EXE	
Dimension	Ø 18 x 46 mm	Ø 18 x 69 mm	Ø 18 x 69 mm	
Style	M18x1	M18x1	M18x1	
Installation	for flush mounting	non-flush	non-flush	
Range	8 mm	5.5 mm	5.5 mm	
Switching frequency	400 Hz	300 Hz	300 Hz	
Housing material	Brass	Brass	Brass	
Surface protection	Nickel-free coated	nickel plated	nickel plated	
Material sensing surface	PBT	PA POM	PA POM	
Connection	Connector, M12x1 connector, 4-pin	Cable, PUR	Cable, PUR	
Operating voltage U_b	7.7...9 VDC	18...27 VDC	10...30 VDC	
Ambient temperature	-20...70 °C	-20...60 °C	-20...60 °C	
Pressure rating max.	—	—	—	
Ex category	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 3G (EPL Gc) ATEX: 3D (EPL Dc) IECEX: EPL Gc IECEX: EPL Dc	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	CE, EAC, cCSAus, FM	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	
Productview	Page 250	Page 250	Page 250	



BES05NJ BES M18MH2-GNX80F-BT02-EXA	BES05NR BES M18MH2-GNX80F-BT02-EXB	BES05N0 BES M18MH2-GNX80F-S04G-EXC		BES05M5 BES M30EG2-PSC10B-BV02-EXF	BES05L4 BES M30MF2-PSC10B-BV02-EXD
Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm		Ø 30 x 59 mm	Ø 30 x 62 mm
M18x1	M18x1	M18x1		M30x1.5	M30x1.5
non-flush	non-flush	non-flush		for flush mounting	for flush mounting
8 mm	8 mm	8 mm		10 mm	10 mm
—	—	—		180 Hz	300 Hz
Stainless steel	Stainless steel	Brass		Stainless steel	Brass
—	—	nickel plated		—	nickel plated
PEEK	PTFE	PA		Stainless steel	PA
Cable, FEP	Cable, FEP	Connector, M12x1 connector, 4-pin		Cable, PUR	Cable, PUR
7.7...9 VDC	7.7...9 VDC	7.7...9 VDC		10...30 VDC	18...27 VDC
-20...60 °C, depending on Ex category	-20...60 °C, depending on Ex category	-20...60 °C, depending on Ex category		-20...60 °C	-20...60 °C
—	—	—		—	—
ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)		ATEX: 3G (EPL Gc) ATEX: 3D (EPL Dc) IECEX: EPL Gc IECEX: EPL Dc	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)
IP68	IP68	IP67		IP67	IP67
CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX		CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX
Page 250	Page 250	Page 251		Page 251	Page 251



NAMUR		BES05NK BES M30MH2-GNX10B-BT02-EXA	BES05NT BES M30MH2-GNX10B-BT02-EXB	
PNP normally open	BES05LA BES M30MF2-PSC10B-BV02-EXE			
Dimension	Ø 30 x 62 mm	Ø 30 x 68 mm	Ø 30 x 68 mm	
Style	M30x1.5	M30x1.5	M30x1.5	
Installation	for flush mounting	for flush mounting	for flush mounting	
Range	10 mm	10 mm	10 mm	
Switching frequency	300 Hz	—	—	
Housing material	Brass	Stainless steel	Stainless steel	
Surface protection	nickel plated	—	—	
Material sensing surface	PA	PEEK	PTFE	
Connection	Cable, PUR	Cable, FEP	Cable, FEP	
Operating voltage U_b	10...30 VDC	7.7...9 VDC	7.7...9 VDC	
Ambient temperature	-20...60 °C	-20...60 °C, depending on Ex category	-20...60 °C, depending on Ex category	
Pressure rating max.	—	—	—	
Ex category	ATEX: 3G (EPL Gc) ATEX: 3D (EPL Dc) IECEX: EPL Gc IECEX: EPL Dc	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	
Protection degree	IP67	IP68	IP68	
Approval/Conformity	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX	
Productview	Page 251	Page 251	Page 251	



BES05N1 BES M30MH2-GNX10B-S04G-EXC	BES02ZY BES M30ME1-GNX15B-S04G-EEX				BES05NL BES M30MH2-GNX15F-BT02-EXA
		BES05L5 BES M30MF2-PSC15F-BV02-EXD	BES05LC BES M30MF2-PSC15F-BV02-EXE		
Ø 30 x 68 mm	Ø 30 x 50 mm	Ø 30 x 74 mm	Ø 30 x 74 mm		Ø 30 x 77 mm
M30x1.5	M30x1.5	M30x1.5	M30x1.5		M30x1.5
for flush mounting	for flush mounting	non-flush	non-flush		non-flush
10 mm	15 mm	12 mm	12 mm		15 mm
—	100 Hz	300 Hz	300 Hz		—
Brass	Brass	Brass	Brass		Stainless steel
nickel plated	Nickel-free coated	nickel plated	nickel plated		—
PA	PBT	PA POM	PA POM		PEEK
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Cable, PUR	Cable, PUR		Cable, FEP
7.7...9 VDC	7.7...9 VDC	18...27 VDC	10...30 VDC		7.7...9 VDC
-20...60 °C, depending on Ex category	-20...70 °C	-20...60 °C	-20...60 °C		-20...60 °C, depending on Ex category
—	—	—	—		—
ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 3G (EPL Gc) ATEX: 3D (EPL Dc) IECEX: EPL Gc IECEX: EPL Dc		ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)
IP67	IP67	IP67	IP67		IP68
CE, EAC, IECEX, ATEX	CE, EAC, cCSAus, FM	CE, EAC, IECEX, ATEX	CE, EAC, IECEX, ATEX		CE, EAC, IECEX, ATEX
Page 251	Page 251	Page 251	Page 251		Page 252



NAMUR	BES05NU BES M30MH2-GNX15F-BT02-EXB	BES05N2 BES M30MH2-GNX15F-S04G-EXC	BES02ZZ BES Q40KFU-GNX20B-S92G-EEEX	
Dimension	Ø 30 x 77 mm	Ø 30 x 77 mm	40 x 40 x 66 mm	
Style	M30x1.5	M30x1.5	block style	
Installation	non-flush	non-flush	for flush mounting	
Range	15 mm	15 mm	20 mm	
Switching frequency	—	—	200 Hz	
Housing material	Stainless steel	Brass	PPE PPS	
Surface protection	—	nickel plated	—	
Material sensing surface	PTFE	PA	PPE	
Connection	Cable, FEP	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector	
Operating voltage U _b	7.7...9 VDC	7.7...9 VDC	7.7...9 VDC	
Ambient temperature	-20...60 °C, depending on Ex category	-20...60 °C, depending on Ex category	-20...70 °C	
Pressure rating max.	—	—	—	
Ex category	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)	ATEX: 2G (EPL Gb) ATEX: 1D (EPL Da)	
Protection degree	IP68	IP67	IP67	
Approval/Conformity	CE, EAC, IECEx, ATEX	CE, EAC, IECEx, ATEX	CE, EAC, cCSAus, FM	
Productview	Page 252	Page 252	Page 252	



BES0300 BES Q40KFU-GNX35F-S92G-EEX				
40 x 40 x 66 mm				
block style				
non-flush				
35 mm				
100 Hz				
PPE PPS				
—				
PPE				
Connector, M12x1 connector				
7.7...9 VDC				
-20...70 °C				
—				
ATEX: 2G (EPL Gb) ATEX: 1D (EPL Da)				
IP67				
CE, EAC, cCSAus, FM				
Page 252				

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

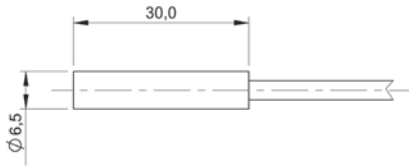
Safety

Industrial Networking

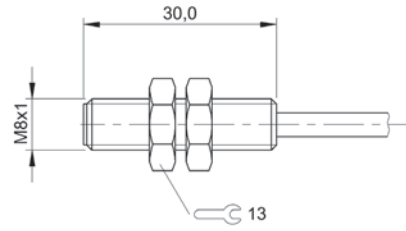
Power Supply

Connectivity

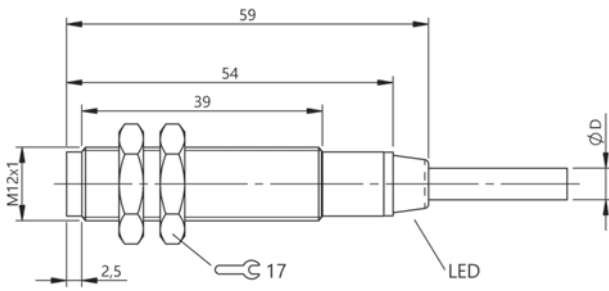
Accessories



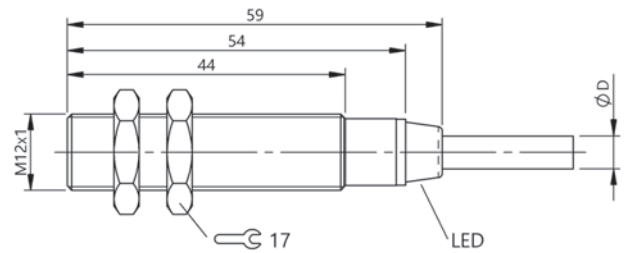
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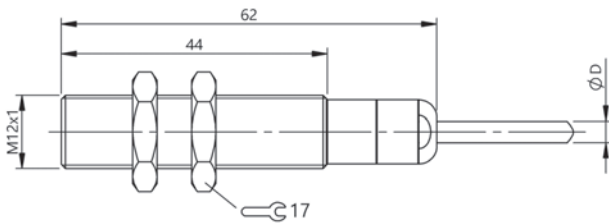
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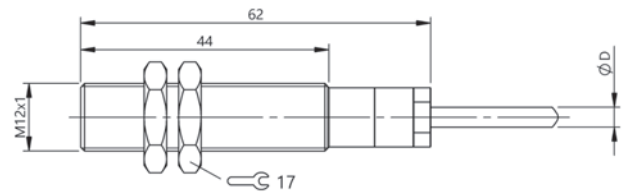
BES05M3



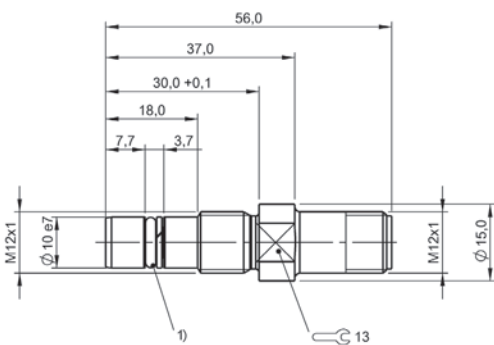
BES05L6



BES05NE

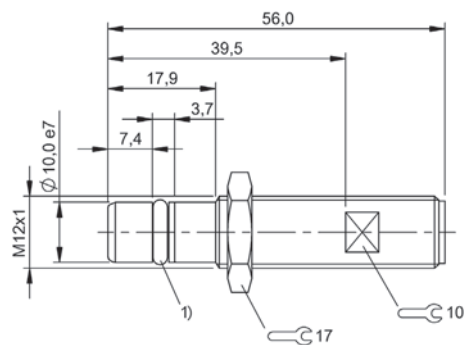


BES05NM



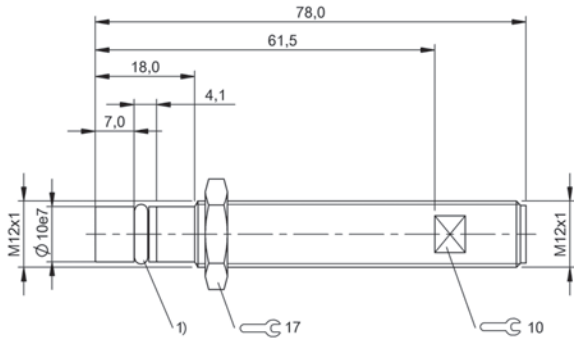
1) O-Ring with thrust ring

BHS004L



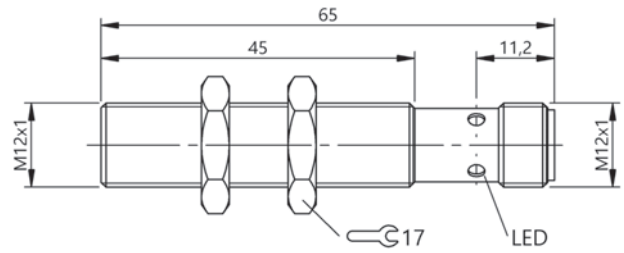
1) O-Ring with thrust ring

BHS002W, BHS0034, BHS004K

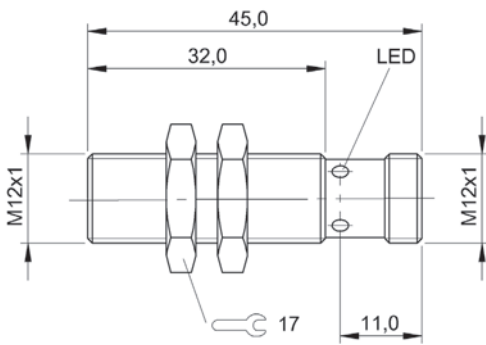


1) O-Ring with thrust ring

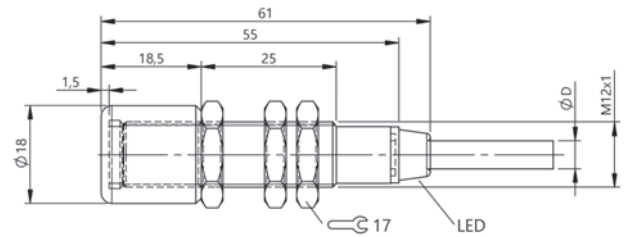
BHS005P



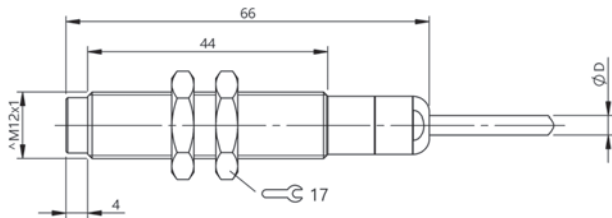
BES05MW



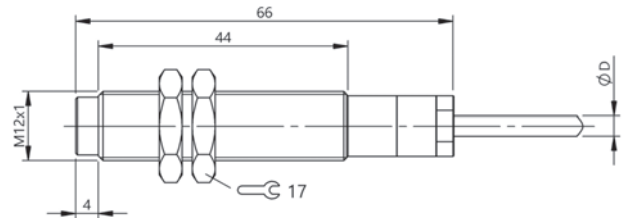
BES02ZU



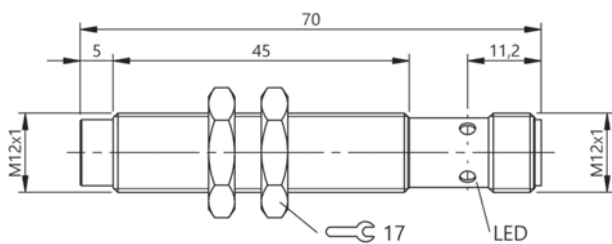
BES05L7



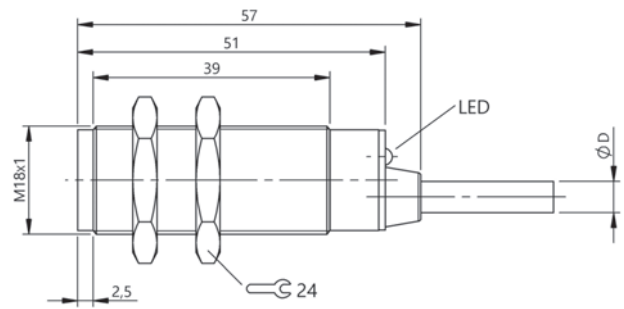
BES05NF



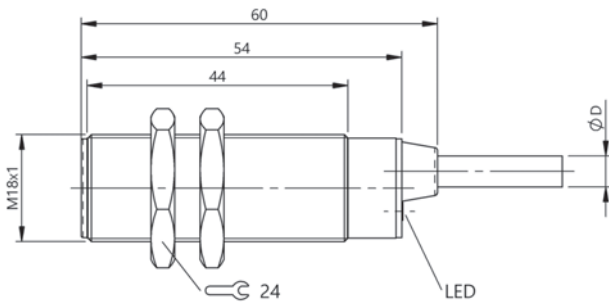
BES05NN



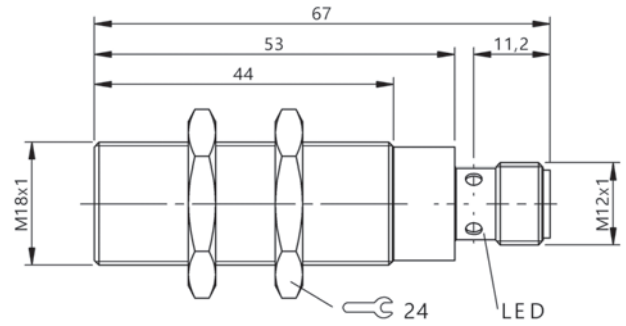
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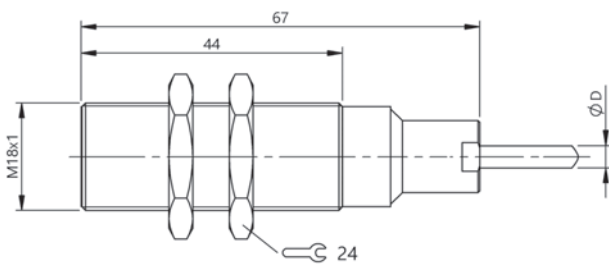
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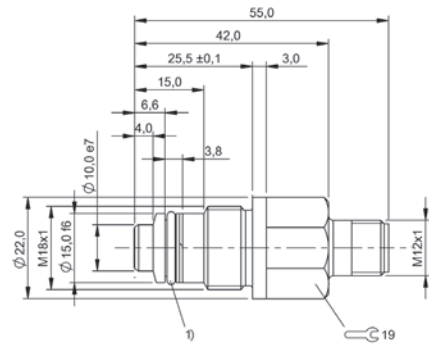
BES05L2, BES05L8



BES05NH, BES05MZ

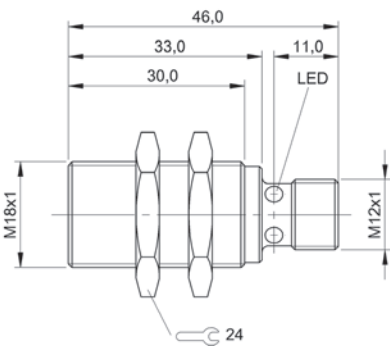


BES05NP

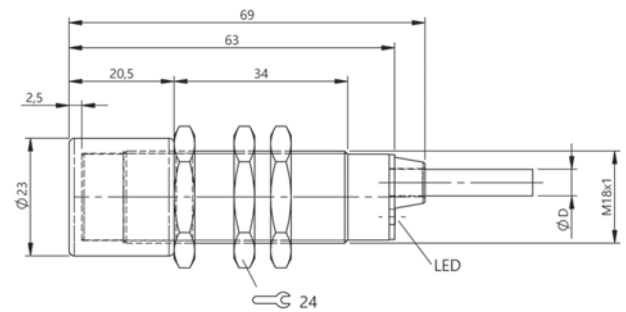


1) O-Ring with thrust ring

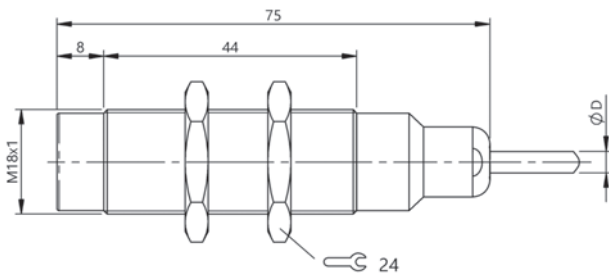
BHS004H



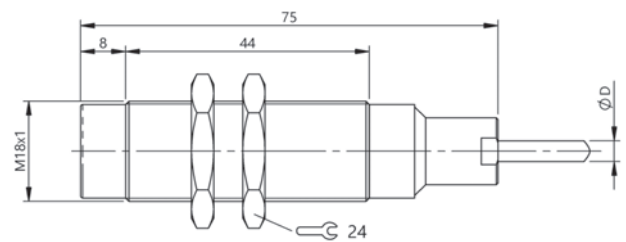
BES02ZW



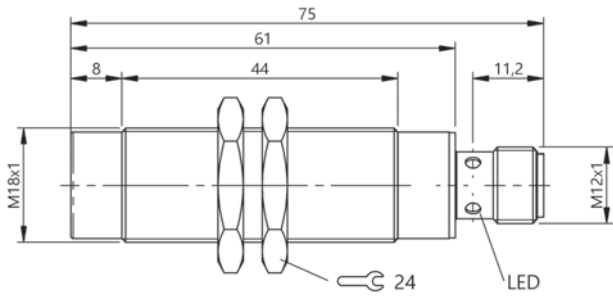
BES05L3, BES05L9



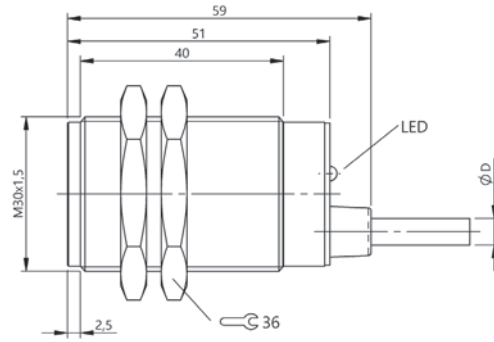
BES05NJ



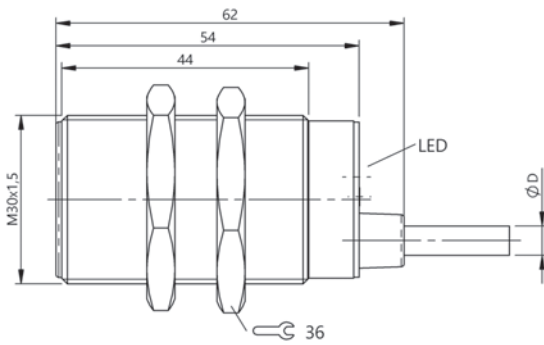
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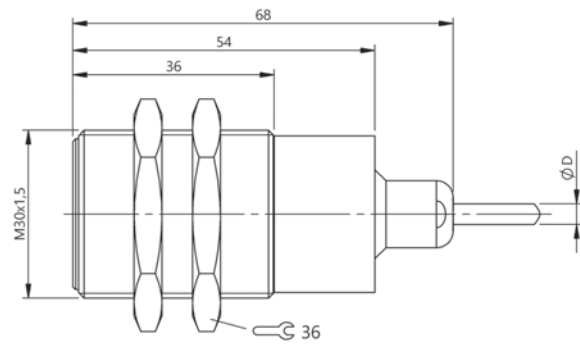
BES05N0



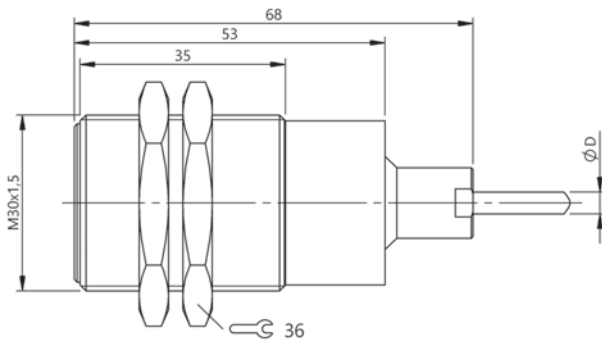
BES05M5



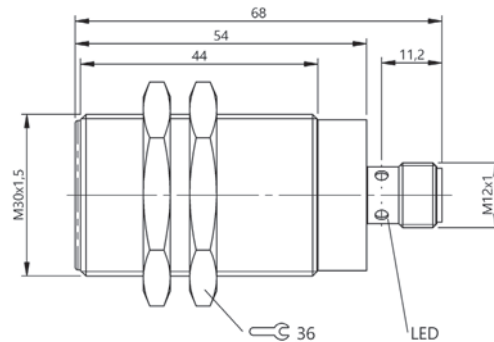
BES05L4, BES05LA



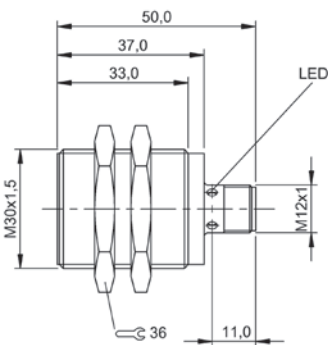
BES05NK



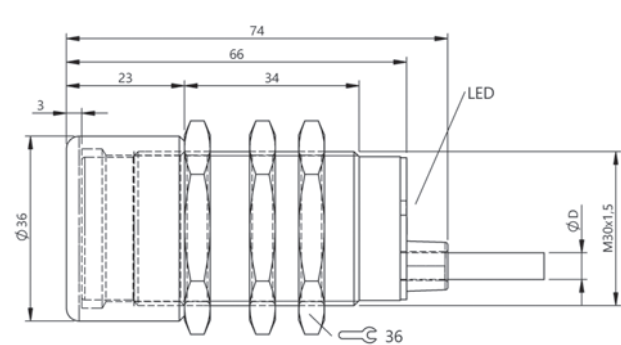
BES05NT



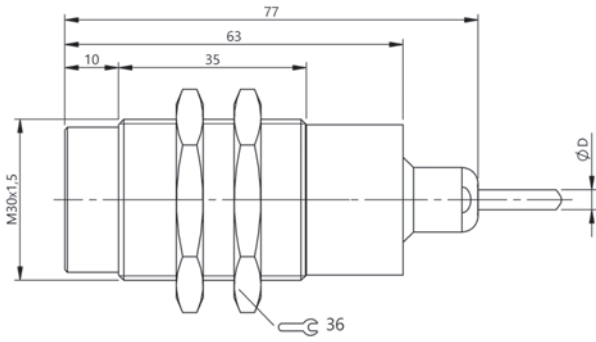
BES05N1



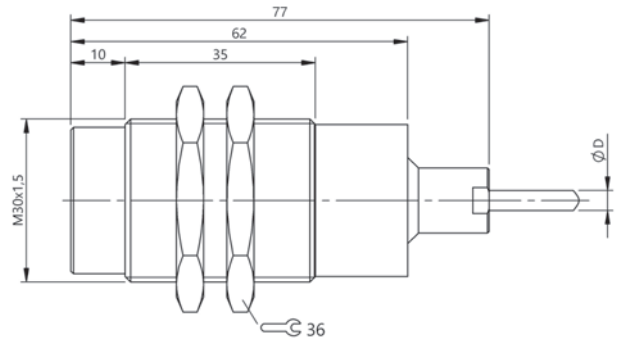
BES02ZY



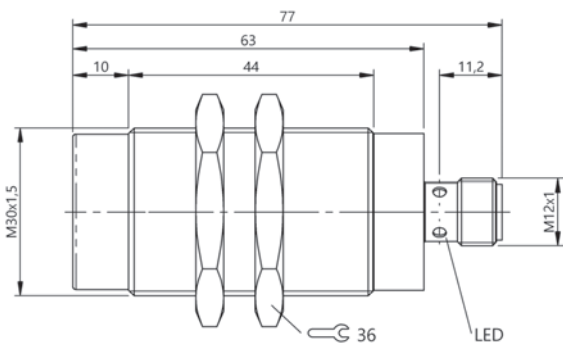
BES05L5, BES05LC



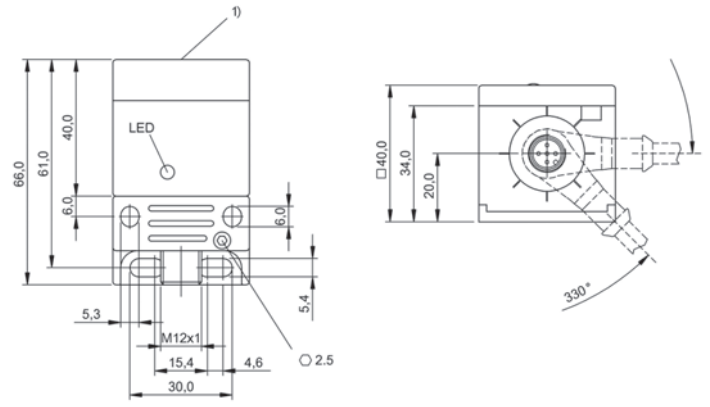
BES05NL



BES05NU



BES05N2



1) Sensing surface

BES02ZZ, BES0300



	BES050N BES G04ED-GNX08B-EP02	BES02L6 BES 516-3005-F0-N-03	
Dimension	Ø 4 x 27 mm	Ø 5 x 24.5 mm	
Style	D4.0	M5x0.5	
Installation	for flush mounting	for flush mounting	
Range	0.8 mm	0.8 mm	
Interface	NAMUR	NAMUR	
Switching frequency	2500 Hz	2000 Hz	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Cable, 2.00 m, PUR	Cable, 3.00 m, PVC	
Operating voltage U_b	7.7...9 VDC	7.7...9 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, EAC	
Productview	Page 258	Page 258	



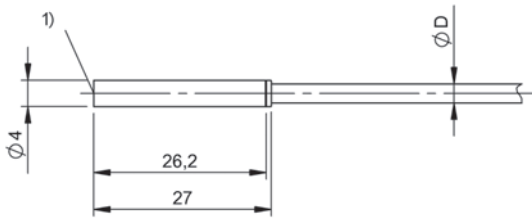
	BES050P BES M05ED-GNX08B-EP02	BES02LW BES 516-371-SA3-03	BES02LY BES 516-371-SA3-05	BES02LA BES 516-324-E0-N-03
	Ø 5 x 27 mm	Ø 6.5 x 22.5 mm	Ø 6.5 x 22.5 mm	Ø 8 x 45.5 mm
	M5x0.5	D6.5	D6.5	M8x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	0.8 mm	0.3 mm	0.3 mm	1.2 mm
	NAMUR	NAMUR	NAMUR	NAMUR
	2500 Hz	2000 Hz	2000 Hz	2000 Hz
	Stainless steel	Aluminum	Aluminum	Stainless steel
	—	—	—	—
	PBT	PA 12	PA 12	PBT
	Cable, 2.00 m, PUR	Cable, 3.00 m, PVC	Cable, 5.00 m, PVC	Cable, 3.00 m, PVC
	7.7...9 VDC	10.8...13.2 VDC	10.8...13.2 VDC	7.7...9 VDC
	-25...70 °C	-25...70 °C	-25...70 °C	-25...70 °C
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, EAC	CE, EAC	CE, EAC
	Page 258	Page 258	Page 258	Page 258



	BES02LE BES 516-325-E3-N-PU-05	BES02LL BES 516-327-E3-N-PU-05	
Dimension	Ø 12 x 30 mm	Ø 30 x 30 mm	
Style	M12x1	M30x1.5	
Installation	for flush mounting	for flush mounting	
Range	2 mm	10 mm	
Interface	NAMUR	NAMUR	
Switching frequency	1000 Hz	300 Hz	
Housing material	Brass	Brass	
Surface protection	nickel plated	nickel plated	
Material sensing surface	PA 12	PA 12	
Connection	Cable, 5.00 m, PUR	Cable, 5.00 m, PUR	
Operating voltage U_b	7.7...9 VDC	7.7...9 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 258	Page 258	

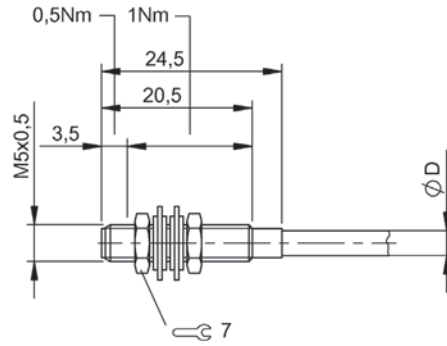


	BES0566 BES Q05EC-GNX08B-EP02	BES0568 BES Q08ZC-GNX15B-EP02	BES03M5 BES R04KC-GNX15B-EP02	
	25 x 5 x 5 mm	40 x 8 x 8 mm	16 x 8 x 4 mm	
	block style	block style	block style	
	for flush mounting	for flush mounting	for flush mounting	
	0.8 mm	1.5 mm	1.5 mm	
	NAMUR	NAMUR	NAMUR	
	3000 Hz	5000 Hz	8000 Hz	
	Stainless steel	Zinc, die-cast	PA 6, GF30	
	—	—	—	
	PBT	PBT	PA 6	
	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	
	7.7...9 VDC	7.7...9 VDC	7.7...9 VDC	
	—	-25...70 °C	-25...70 °C	
	IP67	IP67	IP67	
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
	Page 258	Page 259	Page 259	

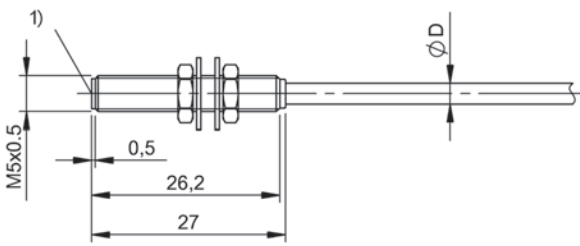


1) Sensing surface

BES050N

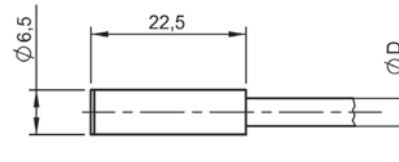


BES02L6

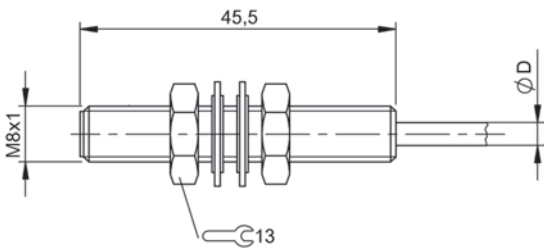


1) Sensing surface

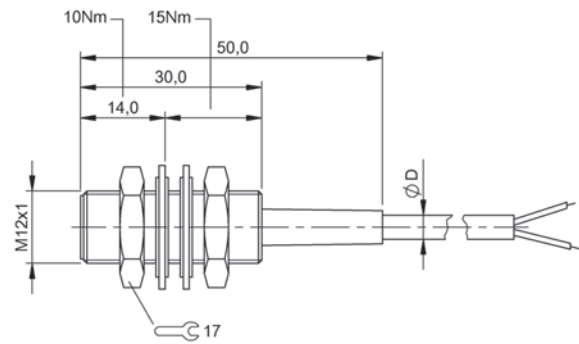
BES050P



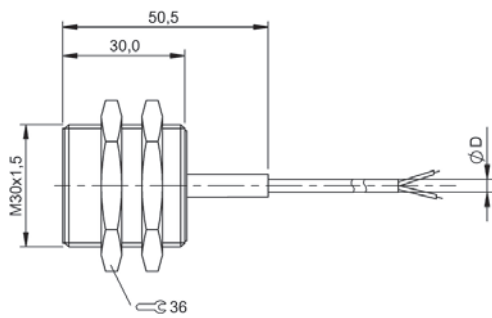
BES02LW, BES02LY



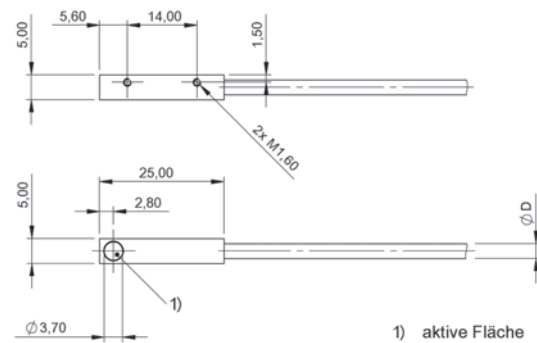
BES02LA



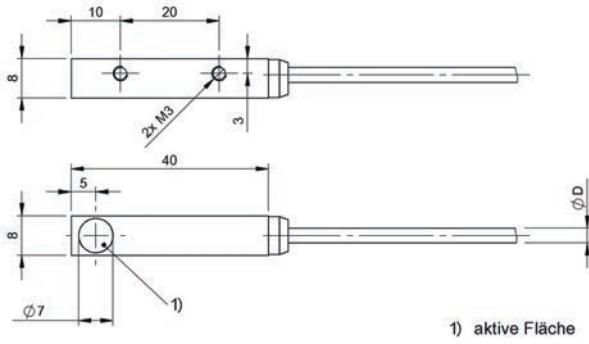
BES02LE



BES02LL



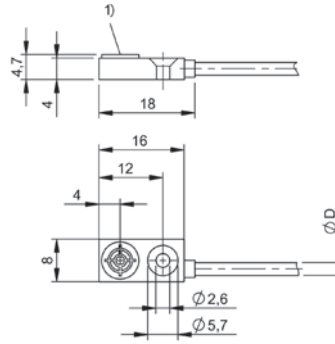
BES0566



1) Sensing surface

BES0568

1) aktive Fläche



1) Sensing surface

BES03M5



PNP normally open	BES03JA BES IKVS-010.23-G-S4	BES03JC BES IKVS-015.23-G-S4	
Dimension	60 x 35 x 20 mm	60 x 35 x 20 mm	
Style	block style	block style	
Pass-through	10.1 mm	15.1 mm	
Target size min.	Ball D = 2 mm	Ball D = 3 mm	
Range	—	—	
Switching frequency	16 Hz	16 Hz	
Housing material	Plastic	Plastic	
Material sensing surface	Plastic	Plastic	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	
Protection degree	IP65	IP65	
Approval/Conformity	CE, EAC	CE, EAC	
Productview	Page 262	Page 262	



BES03JH BES IKVS-025.23-G-S4	BES0429 BES Z06K-PSC16F-BP00,1-GS04	BES0428 BES Z06K-PSC16F-S49G	
60 x 35 x 20 mm	78.5 x 17 x 11.9 mm	78.5 x 17 x 11.9 mm	
block style	block style	block style	
25.1 mm	—	—	
Ball D = 4 mm	M3x5 screw	M3x5 screw	
—	16 mm	16 mm	
16 Hz	10 Hz	10 Hz	
Plastic	PA 6.6	PA 6.6	
Plastic	—	—	
Connector, M12x1 connector, 4-pin	Cable with connector, M12x1 connector, 4-pin, 0.10 m, PUR	Connector, M8x1 connector, 3-pin	
10...30 VDC	10...30 VDC	10...30 VDC	
-25...70 °C	-25...70 °C	-25...70 °C	
IP65	IP67	IP67	
CE, EAC	CE, EAC	CE, EAC	
Page 262	Page 263	Page 263	

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

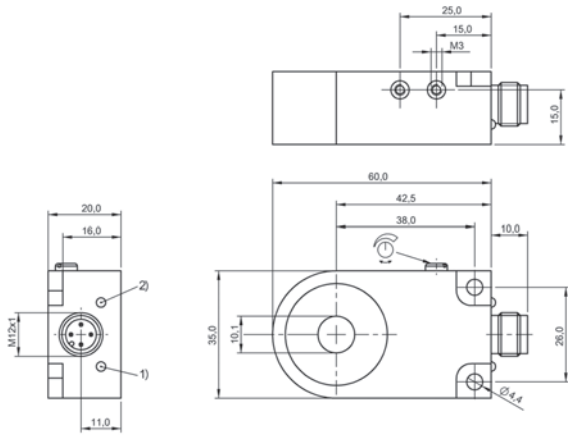
Safety

Industrial Networking

Power Supply

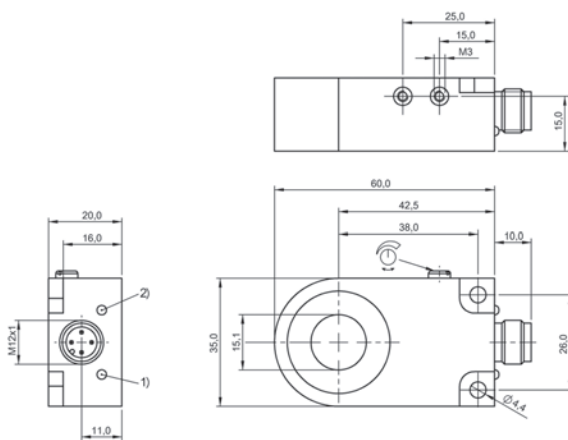
Connectivity

Accessories



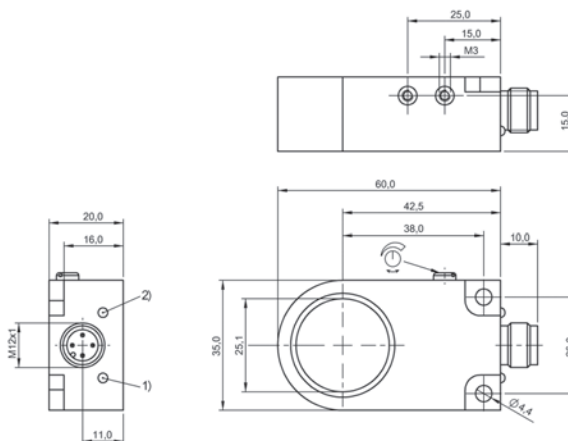
1) LED function indicator, 2) LED operating voltage

BES03JA



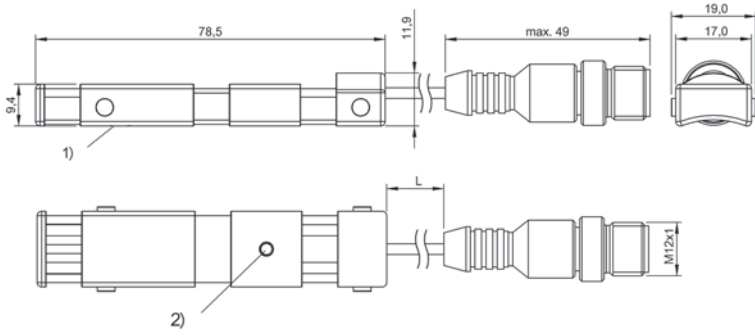
1) LED function indicator, 2) LED operating voltage

BES03JC



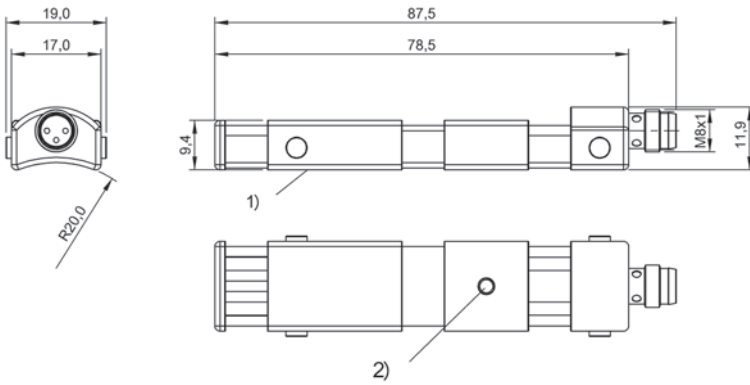
1) LED function indicator, 2) LED operating voltage

BES03JH



1) Sensing surface, 2) LED yellow

BES0429



BES0428



	BAW000J BAW G06EE-UAF20B-EP03-K	BAW000L BAW G06EF-UAC20B-S49G	
Dimension	Ø 6.5 x 30.5 mm	Ø 6.5 x 45 mm	
Style	D6.5	D6.5	
Installation	for flush mounting	for flush mounting	
Range	0.5...2 mm	0.5...2 mm	
Interface	—	—	
Analog output	Analog, voltage 0...10 V Analog, Temperature	Analog, voltage 0...10 V	
Output characteristic	falling on approach	falling on approach	
Limit frequency -3 dB	1000 Hz	1000 Hz	
Switching output	—	—	
Switching frequency	—	—	
Repeat accuracy per BWN	±10 µm	±40 µm	
Non-linearity max.	±45 µm	±45 µm	
Housing material	Stainless steel	Stainless steel	
Surface protection	—	—	
Material sensing surface	PBT	PBT	
Connection	Cable, 3.00 m, PUR	Connector, M8x1 connector, 3-pin	
Operating voltage U_b	21.6...26.4 VDC	15...30 VDC	
Ambient temperature	10...60 °C	10...60 °C	
Pressure rating max.	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 274	Page 274	



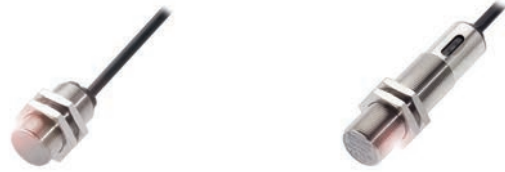
	BAW000T BAW M08EI-UAD15B-BP03	BAW000W BAW M08EI-UAD25F-BP03	BAW0040 BAW Z08E0-UAD20B-S04G-H11	BAW004K BAW M12ME-UAC35C-S04G
	Ø 8 x 51.5 mm	Ø 8 x 51.5 mm	Ø 12 x 78 mm	Ø 12 x 45 mm
	M8x1	M8x1	M12x1	M12x1
	for flush mounting	non-flush	for flush mounting	for flush mounting
	0.5...1.5 mm	0.5...2.5 mm	0.5...2 mm	0.2...3.5 mm
	—	—	—	—
	Analog, voltage 0...10 V	Analog, voltage 0...10 V	Analog, voltage 0...10 V	Analog, voltage 0...10 V
	falling on approach	falling on approach	falling on approach	falling on approach
	1000 Hz	1000 Hz	1000 Hz	1000 Hz
	—	—	—	—
	—	—	—	—
	±8 µm	±10 µm	±8 µm	±7 µm
	±30 µm	±60 µm	±45 µm	±35 µm
	Stainless steel	Stainless steel	Stainless steel	Brass
	—	—	—	Nickel-free coated
	PBT	PBT	Ceramic	PBT
	Cable, 3.00 m, PUR	Cable, 3.00 m, PUR	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 4-pin
	15...30 VDC	15...30 VDC	15...30 VDC	15...30 VDC
	-10...70 °C	-10...70 °C	-25...85 °C	-40...80 °C
	—	—	500 bar	—
	IP67	IP67	IP68	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 274	Page 274	Page 274	Page 274



	BAW0054 BAW M12ME-IAC35C-S04G	BAW0055 BAW M12ME-ICC35C-S04G	
Dimension	Ø 12 x 45 mm	Ø 12 x 45 mm	
Style	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Range	0.2...3.5 mm	0.2...3.5 mm	
Interface	—	—	
Analog output	Analog, current 0...20 mA	Analog, current 4...20 mA	
Output characteristic	falling on approach	falling on approach	
Limit frequency -3 dB	1000 Hz	1000 Hz	
Switching output	—	—	
Switching frequency	—	—	
Repeat accuracy per BWN	±7 µm	±7 µm	
Non-linearity max.	±35 µm	±35 µm	
Housing material	Brass	Brass	
Surface protection	Nickel-free coated	Nickel-free coated	
Material sensing surface	PBT	PBT	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U _b	16...30 VDC	16...30 VDC	
Ambient temperature	-40...80 °C	-40...80 °C	
Pressure rating max.	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 274	Page 274	



	BAW004M BAW M12MI-BLC35C-S04G	BAW004H BAW M12ME-UAC70G-S04G	BAW0056 BAW M12MH-BLC70G-S04G	BAW0011 BAW M12ME-UAD50B-BP01
	Ø 12 x 65 mm	Ø 12 x 50 mm	Ø 12 x 65 mm	Ø 12 x 30 mm
	M12x1	M12x1	M12x1	M12x1
	for flush mounting	non-flush	non-flush	quasi-flush
	0.2...3.5 mm	0.2...7 mm	0.2...7 mm	1...5 mm
	IO-Link 1.1 12 bit	—	IO-Link 1.1 12 bit	—
	—	Analog, voltage 0...10 V	—	Analog, voltage 0...10 V Analog, Temperature
	falling on approach	falling on approach	falling on approach	falling on approach
	1000 Hz	1000 Hz	1000 Hz	1000 Hz
	—	—	—	—
	—	—	—	—
	±7 µm	±7 µm	±14 µm	±10 µm
	±35 µm	±70 µm	±70 µm	±160 µm
	Brass	Brass	Brass	Brass
	Nickel-free coated	Nickel-free coated	Nickel-free coated	nickel plated
	PBT	LCP	LCP	PA 12
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Cable, 1.00 m, PUR
	18...30 VDC	15...30 VDC	18...30 VDC	15...30 VDC
	-40...80 °C	-40...80 °C	-40...80 °C	0...60 °C
	—	—	—	—
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 274	Page 274	Page 275	Page 275



	BAW001T BAW M18ME-ICC50B-BP03	BAW002M BAW M18MI2-UAC50B-BP05-002	
Dimension	Ø 18 x 36 mm	Ø 18 x 76.5 mm	
Style	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Range	1...5 mm	1...5 mm	
Interface	—	—	
Analog output	Analog, current 4...20 mA	Analog, voltage 0...10 V	
Output characteristic	falling on approach	falling on approach	
Limit frequency -3 dB	500 Hz	500 Hz	
Switching output	—	3x PNP Normally open (NO) Programmable	
Switching frequency	—	1000 Hz	
Repeat accuracy per BWN	±8 µm	±8 µm	
Non-linearity max.	±120 µm	±120 µm	
Housing material	Brass	Brass	
Surface protection	nickel plated	nickel plated	
Material sensing surface	PBT	PBT	
Connection	Cable, 3.00 m, PUR	Cable, 5.00 m, PUR	
Operating voltage U_b	15...30 VDC	15...30 VDC	
Ambient temperature	-10...70 °C	-10...70 °C	
Pressure rating max.	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 275	Page 275	



	BAW0026 BAW M18ME-UAE50B-S04G-K	BAW002F BAW M18MI-BLC50B-S04G	BAW002H BAW M18MI-IAC50B-S04G	BAW0029 BAW M18MG-UAC16F-S04G-K
	Ø 18 x 44.5 mm	Ø 18 x 65 mm	Ø 18 x 65 mm	Ø 18 x 65 mm
	M18x1	M18x1	M18x1	M18x1
	for flush mounting	for flush mounting	for flush mounting	non-flush
	1...5 mm	1...5 mm	1...5 mm	4...16 mm
	—	IO-Link 1.1 10 bit	—	—
	Analog, voltage 0...10 V Analog, Temperature	—	Analog, current 0...20 mA	Analog, voltage 0...10 V Analog, Temperature
	falling on approach	falling on approach	falling on approach	falling on approach
	500 Hz	500 Hz	500 Hz	500 Hz
	—	—	—	—
	—	—	—	—
	±8 µm	±10 µm	±8 µm	±200 µm
	±120 µm	±120 µm	±120 µm	±360 µm
	Brass	Brass	Brass	Brass
	nickel plated	nickel plated	nickel plated	nickel plated
	PBT	PBT	PBT	PBT
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 4-pin
	21.6...26.4 VDC	18...30 VDC	10...30 VDC	15...30 VDC
	-10...70 °C	-10...70 °C	-10...70 °C	10...60 °C
	—	—	—	—
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 275	Page 275	Page 275	Page 275



	BAW005Y BAW M30EE-ICD10B-S04G-L01	BAW002W BAW M30ME-UAC10B-S04G	
Dimension	Ø 30 x 44.5 mm	Ø 30 x 44.5 mm	
Style	M30x1.5	M30x1.5	
Installation	for flush mounting	for flush mounting	
Range	2...10 mm	2...10 mm	
Interface	—	—	
Analog output	Analog, current 4...20 mA	Analog, voltage 0...10 V	
Output characteristic	falling on approach	falling on approach	
Limit frequency -3 dB	500 Hz	500 Hz	
Switching output	—	—	
Switching frequency	—	—	
Repeat accuracy per BWN	±10 µm	±10 µm	
Non-linearity max.	±300 µm	±240 µm	
Housing material	Stainless steel	Brass	
Surface protection	—	nickel plated	
Material sensing surface	PEEK	PBT	
Connection	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 3-pin	
Operating voltage U_b	15...30 VDC	15...30 VDC	
Ambient temperature	-10...70 °C	-10...70 °C	
Pressure rating max.	—	—	
Protection degree	IP68	IP67	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	
Productview	Page 275	Page 276	

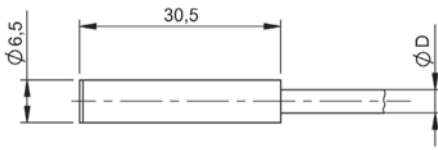


	BAW002Y BAW M30ME-UAC15F-S04G	BAW005Z BAW R03KC-UAA40B-BP03-505	BAW003E BAW Z01AC-UAD50B-DP03-K	BAW003W BAW Z05AC-BLD50B-BP00,75-GS04
	Ø 30 x 57 mm	10 x 6 x 30 mm	38,5 x 14 x 17 mm	30 x 38,5 x 16,5 mm
	M30x1,5	block style	block style	block style
	non-flush	for flush mounting	non-flush	non-flush
	3...15 mm	1...4 mm	1...5 mm	1...5 mm
	—	—	—	IO-Link 1.1 10 bit
	Analog, voltage 0...10 V	Analog, voltage 0...10 V	Analog, voltage 0...10 V Analog, Temperature	—
	falling on approach	falling on approach	falling on approach	falling on approach
	350 Hz	1000 Hz	1000 Hz	200 Hz
	—	—	—	—
	—	—	—	—
	±12 µm	±35 µm	±10 µm	±12 µm
	±360 µm	±150 µm	±120 µm	±150 µm
	Brass	PA 6, GF30	Aluminum	Aluminum
	nickel plated	—	Anodized	Anodized
	PBT	PA 6, GF30	PA 12	LCP
	Connector, M12x1 connector, 3-pin	Cable, 3.00 m, PUR	Cable, 3.00 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.75 m, PUR
	15...30 VDC	21.6...26.4 VDC	15...30 VDC	18...30 VDC
	-10...70 °C	0...70 °C	-10...60 °C	-10...60 °C
	—	—	—	—
	IP67	IP67	IP67	IP67
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Page 276	Page 276	Page 276	Page 276

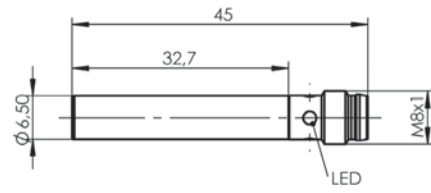


	BAW0034 BAW R06AC-UAF20B-S49G		
Dimension	30 x 20 x 8 mm		
Style	block style		
Installation	for flush mounting		
Range	0.5...2 mm		
Interface	—		
Analog output	Analog, voltage 0...10 V		
Output characteristic	falling on approach		
Limit frequency -3 dB	1000 Hz		
Switching output	—		
Switching frequency	—		
Repeat accuracy per BWN	±12 µm		
Non-linearity max.	±45 µm		
Housing material	Aluminum		
Surface protection	Anodized		
Material sensing surface	PBT		
Connection	Connector, M8x1 connector, 3-pin		
Operating voltage U _b	21.6...26.4 VDC		
Ambient temperature	-10...70 °C		
Pressure rating max.	—		
Protection degree	IP67		
Approval/Conformity	CE, cULus, EAC		
Productview	Page 276		

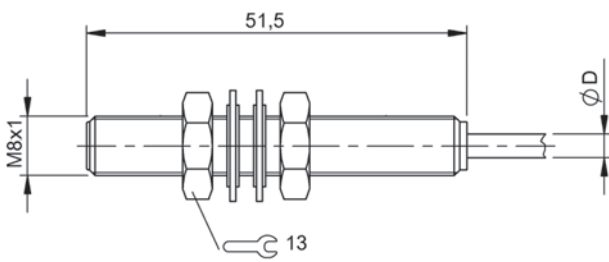
Product	Accessories	Connectivity	Power Supply	Industrial Networking	Safety	Systems	Human Machine Interfaces	Machine Vision and Optical Identification	RFID	Sensors



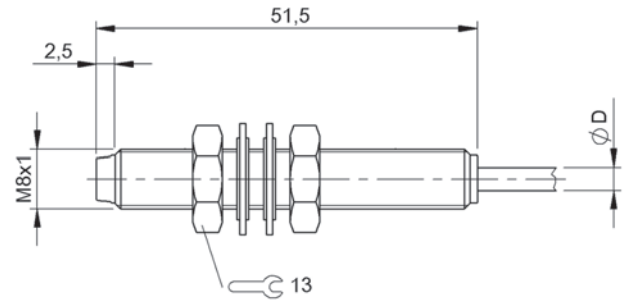
BAW000J



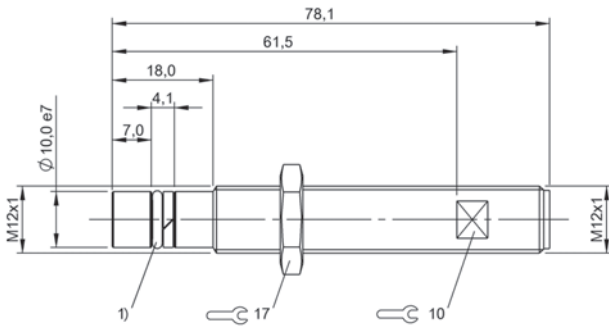
BAW000L



BAW000T

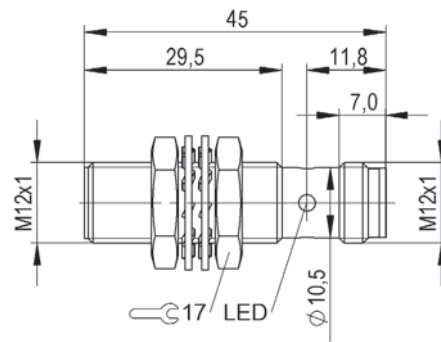


BAW000W

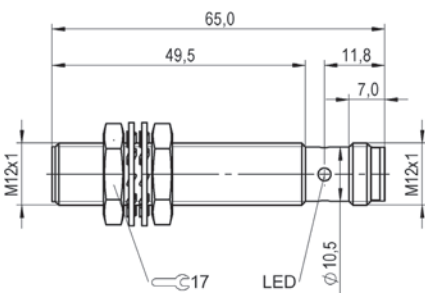


1) O-Ring with thrust ring

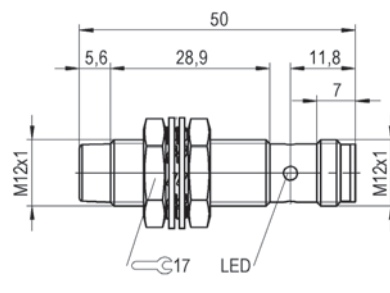
BAW0040



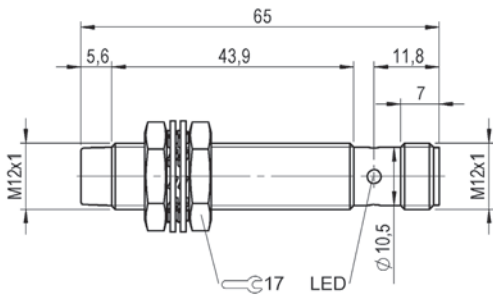
BAW004K, BAW0054, BAW0055



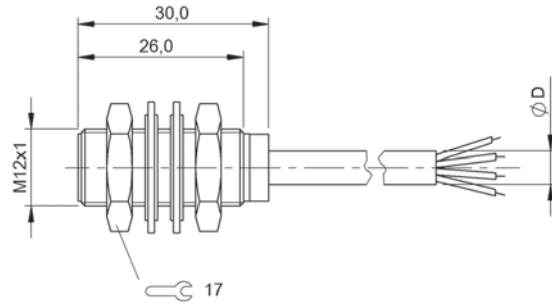
BAW004M



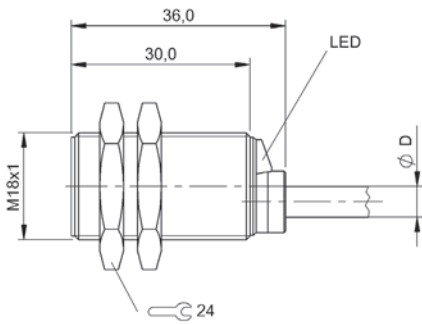
BAW004H



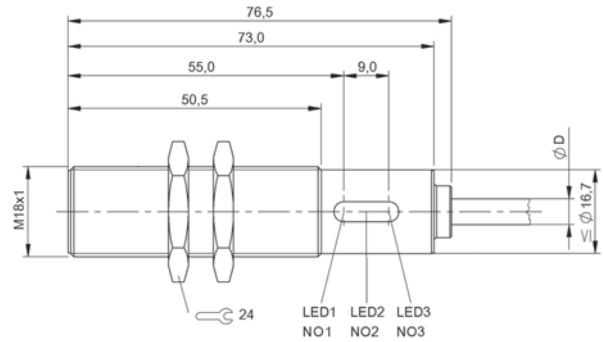
BAW0056



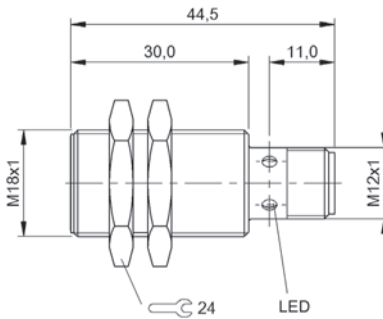
BAW0011



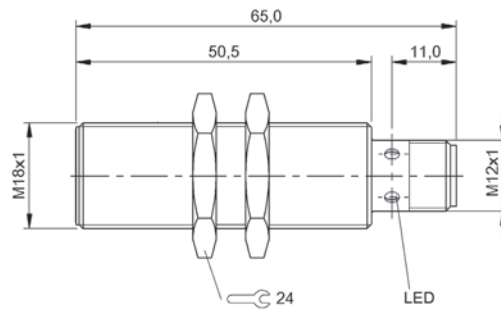
BAW001T



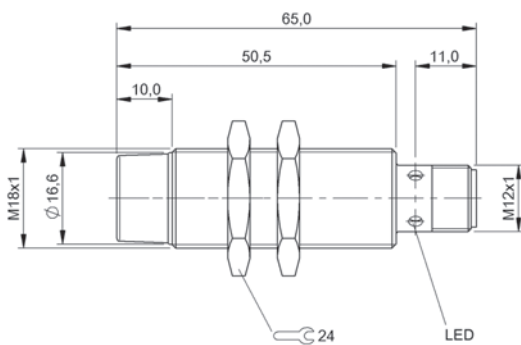
BAW002M



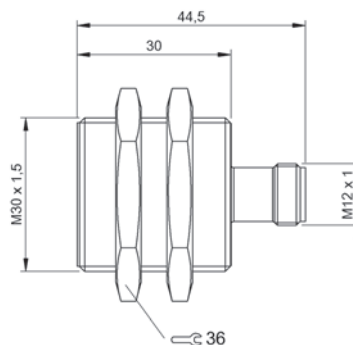
BAW0026



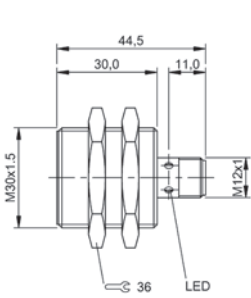
BAW002F, BAW002H



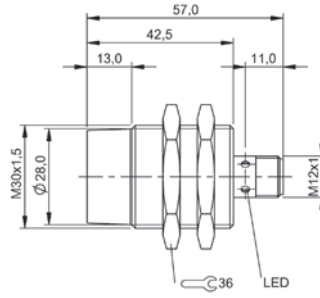
BAW0029



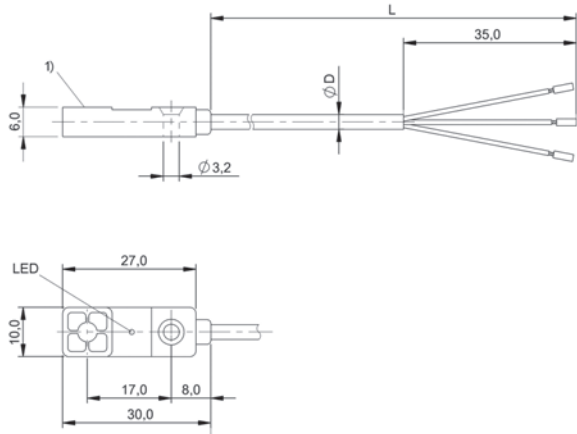
BAW005Y



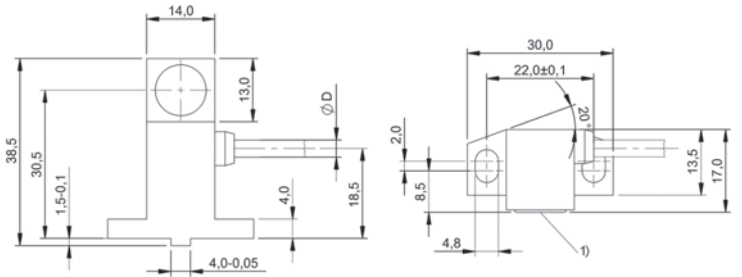
BAW002W



BAW002Y

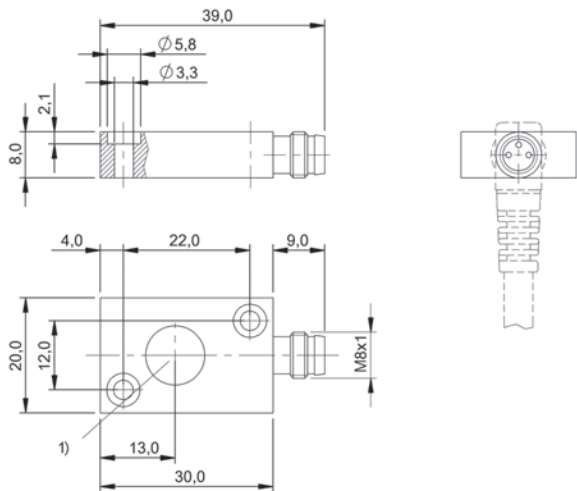


1) Sensing surface



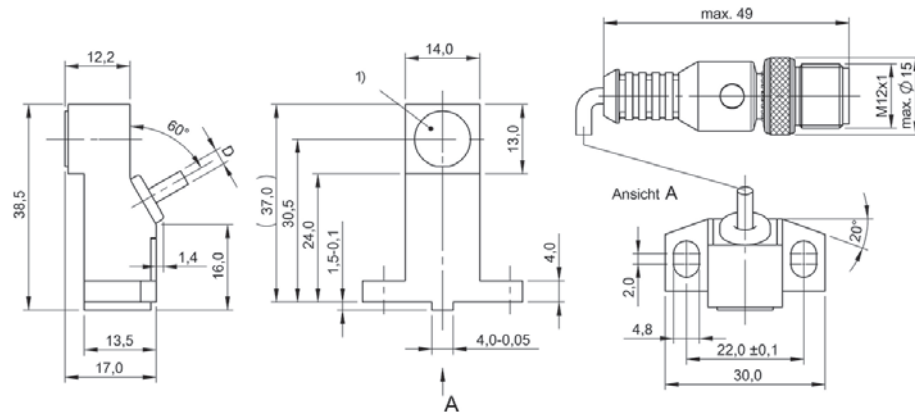
1) Sensing surface

BAW005Z



1) Sensing surface

BAW0034



1) Sensing surface

BAW003W



	BIP0001 BIP AD0-B014-01-EP02	BIP000T BIP AD2-T014-01-EB02-505	BIP0008 BIP CD2-B014-01-EP02	
Dimension	35 x 35 x 31 mm	35 x 35 x 31 mm	35 x 35 x 31 mm	
Style	block style	block style	block style	
Connection	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	
Cable shield	no	yes	no	
Housing material	PA	PA	PA	
Measuring range	0...14 mm	0...14 mm	0...14 mm	
Interface	—	—	—	
Analog output	Analog, voltage 0...10 V	Analog, voltage 0...10 V	Analog, current 4...20 mA	
Output characteristic	Adjustable	Adjustable	Adjustable	
Repeat accuracy per BWN	±80 µm	±80 µm	±80 µm	
Non-linearity max.	±250 µm	±250 µm	±250 µm	
Operating voltage U_b	15...30 VDC	15...30 VDC	15...30 VDC	
Ambient temperature	-25...70 °C	-25...70 °C	-25...70 °C	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	CE, cURus, EAC	CE, cURus, EAC	CE, cURus, EAC	
Productview	Page 284	Page 284	Page 284	



	BIP000F BIP LD2-T014-01-EP01-S4	BIP001K BIP AD2-T017-04-BP02	BIP001L BIP CD2-T017-04-BP02	BIP001M BIP LD2-T017-04-BP00,5-S4	BIP000L BIP AD2-T030-02-S4
	35 x 35 x 31 mm	30 x 18 x 40.5 mm	30 x 18 x 40.5 mm	30 x 18 x 40.5 mm	52 x 30 x 16 mm
	block style	block style	block style	block style	block style
	Cable with connector, M12x1-Male, 3-pole, 1.00 m, PUR	Cable, 2 m, PUR	Cable, 2 m, PUR	Cable with connector, M12x1 connector, 3-pin, 0.5 m, PUR	Connector, M12x1 connector, 3-pin
	no	yes	yes	yes	—
	PA	PA	PA	PA	PA
	0...14 mm	0...17 mm	0...17 mm	0...17 mm	0...30 mm
	IO-Link 1.0	—	—	IO-Link 1.1	—
	—	Analog, voltage 0...10 V	Analog, current 4...20 mA	—	Analog, voltage 0...10 V
	—	Adjustable	Adjustable	—	Adjustable
	±80 µm	±50 µm	±50 µm	±40 µm	±100 µm
	±250 µm	±250 µm	±250 µm	±250 µm	±500 µm
	18...30 VDC	15...30 VDC	15...30 VDC	18...30 VDC	15...30 VDC
	-25...70 °C	-25...70 °C	-25...70 °C, Temperature drift is between -10...70 °C	-25...70 °C	-25...85 °C
	IP67	IP67	IP67	IP67	IP67
	CE, cURus, EAC	CE, cURus, EAC	CE, cURus, EAC	CE, cURus, EAC	CE, cURus, EAC
	Page 284	Page 284	Page 284	Page 284	Page 284



	BIP0002 BIP AD2-B040-02-S4	BIP0005 BIP CD2-B040-02-S4	BIP0004 BIP LD2-T040-02-S4	
Dimension	70 x 30 x 16 mm	70 x 30 x 16 mm	70 x 30 x 16 mm	
Style	block style	block style	block style	
Connection	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 3-pin	Connector, M12x1 connector, 3-pin	
Cable shield	—	—	—	
Housing material	PA	PA	PA	
Measuring range	0...40 mm	0...40 mm	0...40 mm	
Interface	—	—	IO-Link 1.0	
Analog output	Analog, voltage 0...10 V	Analog, current 4...20 mA	—	
Output characteristic	Adjustable	Adjustable	—	
Repeat accuracy per BWN	±100 µm	±100 µm	±100 µm	
Non-linearity max.	±500 µm	±500 µm	±500 µm	
Operating voltage U_b	15...30 VDC	15...30 VDC	18...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	-25...85 °C	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	CE, cURus, EAC	CE, cURus, EAC	CE, cURus, EAC	
Productview	Page 285	Page 285	Page 285	



	BIP000M BIP ED2-B048-03-S75	BIP001J BIP LD2-T048-03-S75	BIP000C BIP ED2-B070-03-S75	BIP001H BIP LD2-T070-03-S75	BIP000E BIP ED2-B103-03-S75
	64 x 21 x 22 mm	64 x 21 x 22 mm	92.5 x 21 x 22 mm	92.5 x 21 x 22 mm	121 x 21 x 22 mm
	block style	block style	block style	block style	block style
	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin
	—	—	—	—	—
	PBT	PBT	PBT	PBT	PBT
	0...48 mm	0...48 mm	0...70 mm	0...70 mm	0...103 mm
	—	IO-Link 1.1	—	IO-Link 1.1	—
	Analog, voltage 0...10 V Analog, current 4...20 mA	—	Analog, voltage 0...10 V Analog, current 4...20 mA	—	Analog, voltage 0...10 V Analog, current 4...20 mA
	Adjustable	—	Adjustable	—	Adjustable
	±80 µm	±80 µm	±80 µm	±80 µm	±80 µm
	±400 µm	±400 µm	±300 µm	±300 µm	±300 µm
	16...30 VDC	18...30 VDC	16...30 VDC	18...30 VDC	16...30 VDC
	-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C
	IP67	IP67	IP67	IP67	IP67
	CE, cURus, EAC	CE, cURus, EAC	CE, cURus, EAC	CE, cURus, EAC	CE, cURus, EAC
	Page 285	Page 285	Page 285	Page 286	Page 286



	BIP0014 BIP LD2-T103-03-S75	BIP000R BIP ED2-B133-03-S75	BIP001F BIP LD2-T133-03-S75	
Dimension	121 x 21 x 22 mm	149.5 x 21 x 22 mm	149.5 x 21 x 22 mm	
Style	block style	block style	block style	
Connection	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	
Cable shield	—	—	—	
Housing material	PBT	PBT	PBT	
Measuring range	0...103 mm	0...133 mm	0...133 mm	
Interface	IO-Link 1.1	—	IO-Link 1.1	
Analog output	—	Analog, voltage 0...10 V Analog, current 4...20 mA	—	
Output characteristic	—	Adjustable	—	
Repeat accuracy per BWN	±80 µm	±80 µm	±80 µm	
Non-linearity max.	±300 µm	±400 µm	±400 µm	
Operating voltage U_b	18...30 VDC	16...30 VDC	18...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	-25...85 °C	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	CE, cURus, EAC	CE, cURus, EAC	CE, cURus, EAC	
Productview	Page 286	Page 286	Page 286	

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

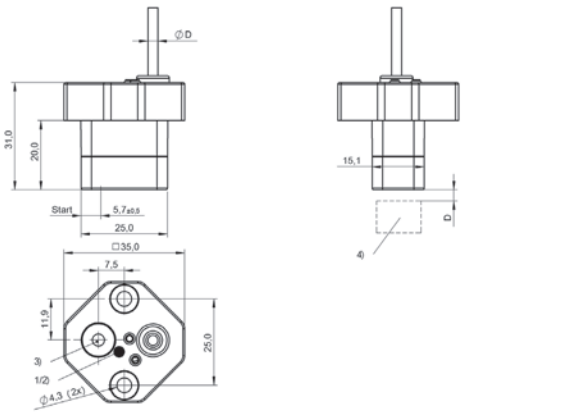
Safety

Industrial Networking

Power Supply

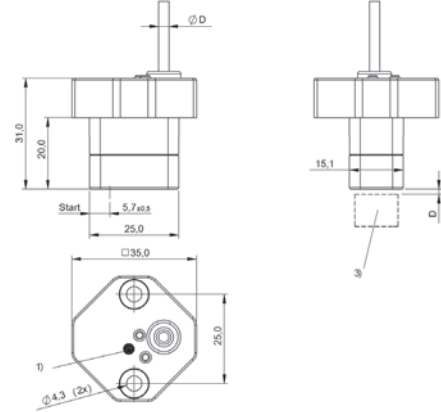
Connectivity

Accessories



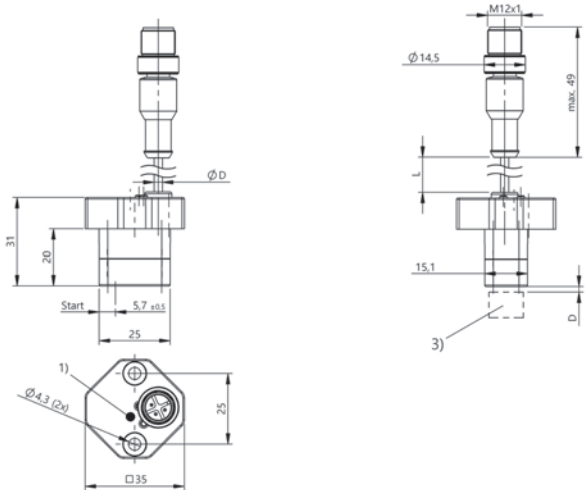
1) LED function indicator, 2) LED function indicator, 3) Teach-In button, 4) Encoder

BIP0001, BIP0008



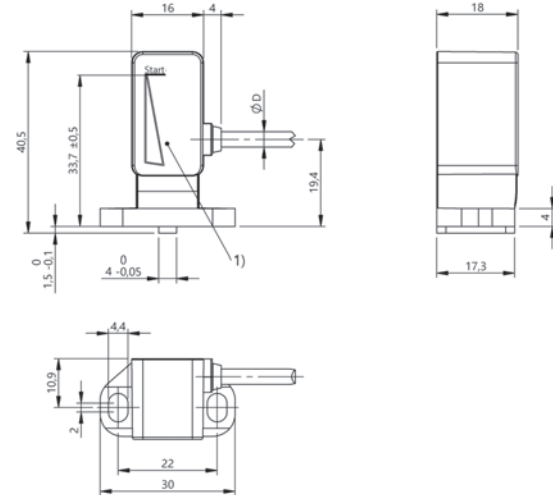
1) LED function indicator, 3) Encoder

BIP0007



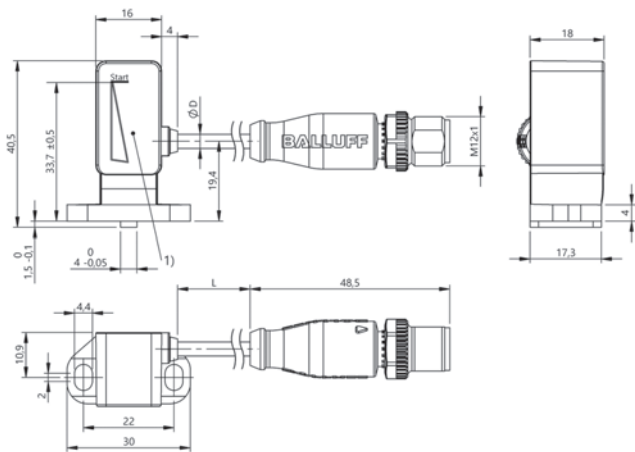
1) LED function indicator, 3) Encoder

BIP000F



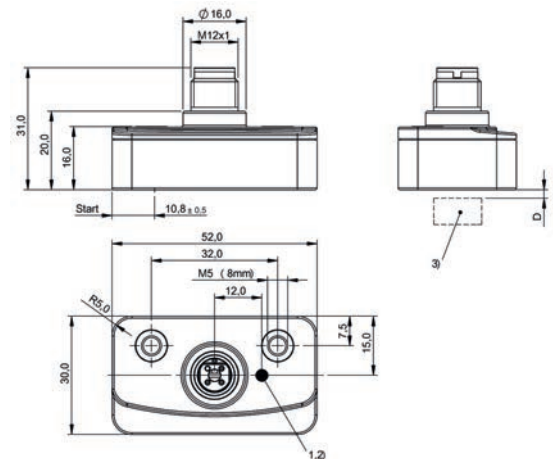
1) Sensing surface

BIP001K, BIP001L



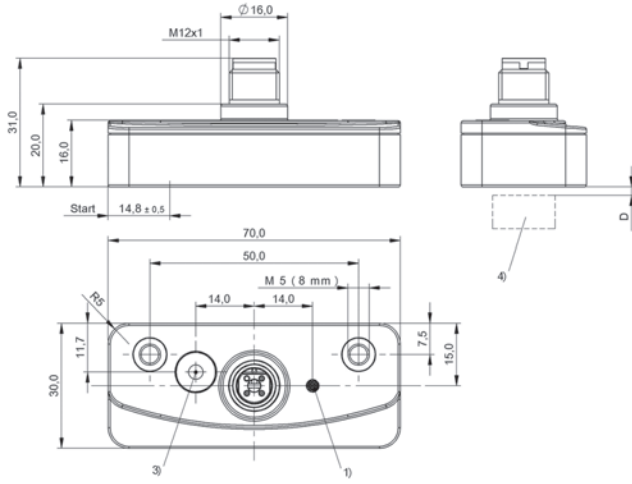
1) Sensing surface

BIP001M



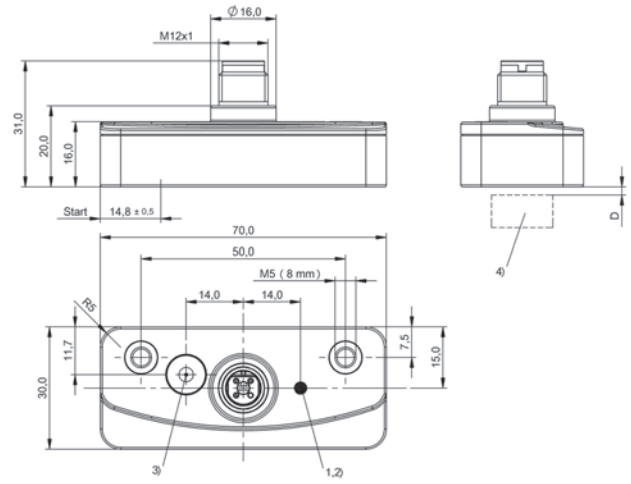
1) LED function indicator, 2) LED function indicator, 3) Encoder

BIP000L



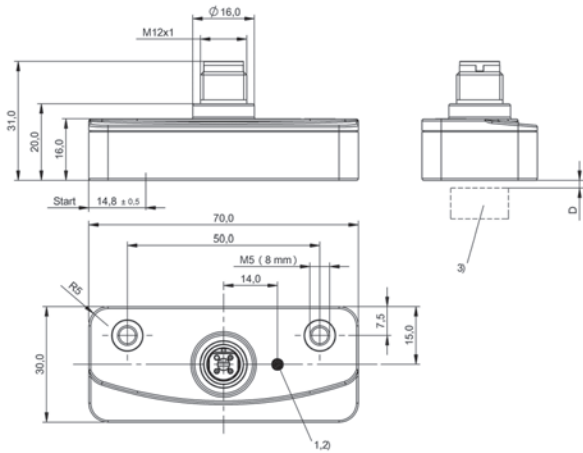
1) LED function indicator, 3) Teach-In button, 4) Encoder

BIP0002



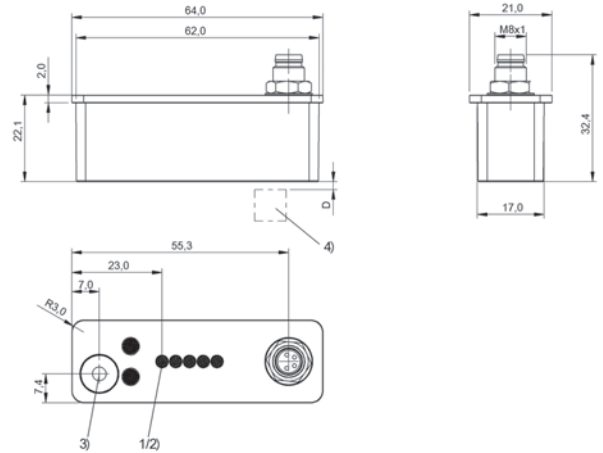
1) LED function indicator, 2) LED function indicator, 3) Teach-In button, 4) Encoder

BIP0005



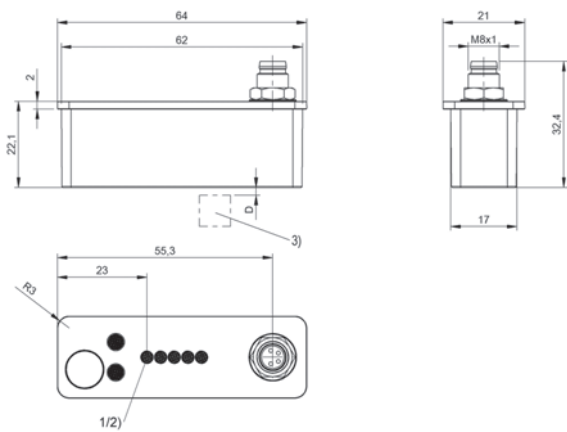
1) LED function indicator, 2) LED function indicator, 3) Encoder

BIP0004



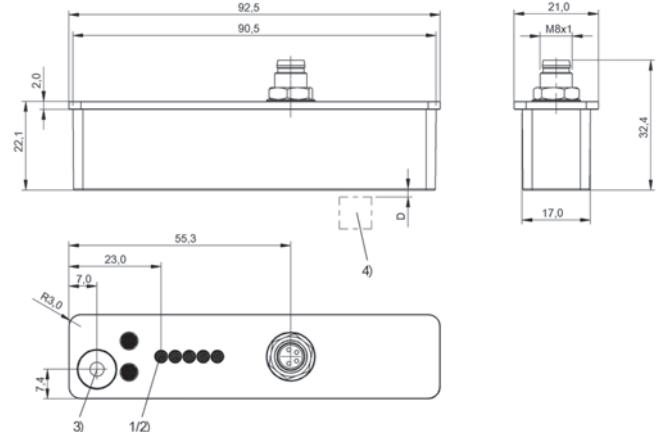
1) LED function indicator, 2) LED function indicator, 3) Teach-In button, 4) Encoder

BIP000M



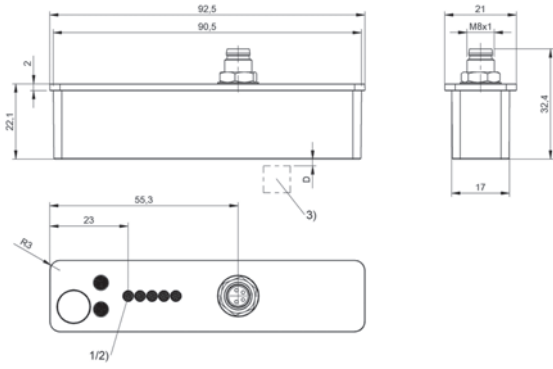
1) LED Power, 2) LED function indicator, 3) Encoder

BIP001J



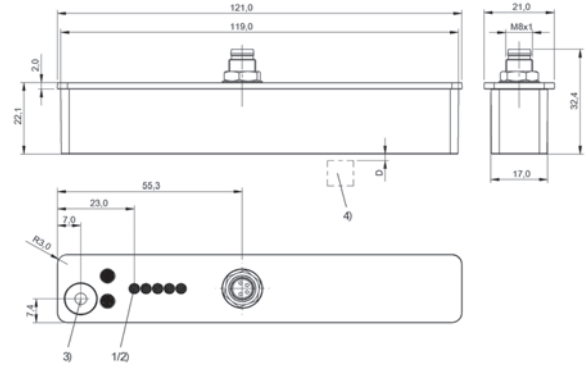
1) LED function indicator, 2) LED function indicator, 3) Teach-In button, 4) Encoder

BIP000C



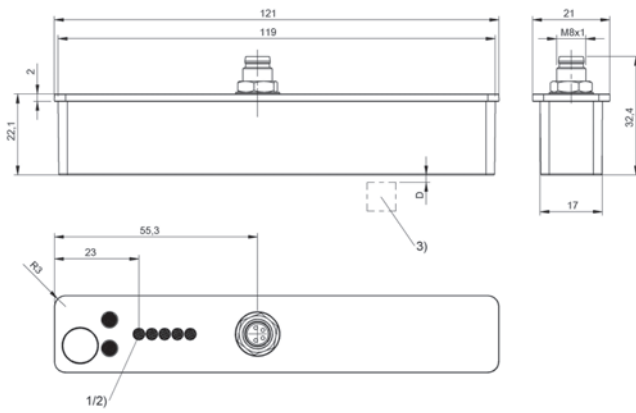
1) LED Power, 2) LED function indicator, 3) Encoder

BIP001H



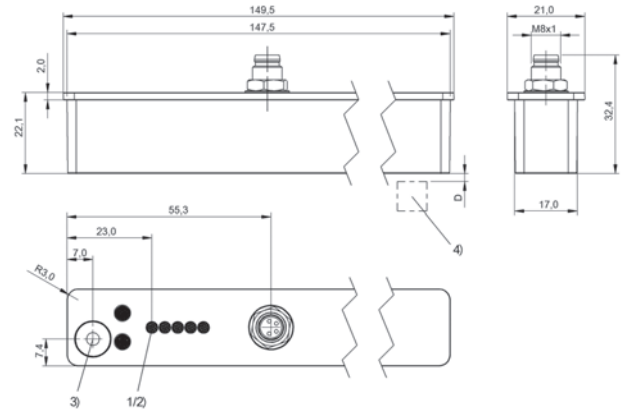
1) LED function indicator, 2) LED function indicator, 3) Teach-In button, 4) Encoder

BIP000E



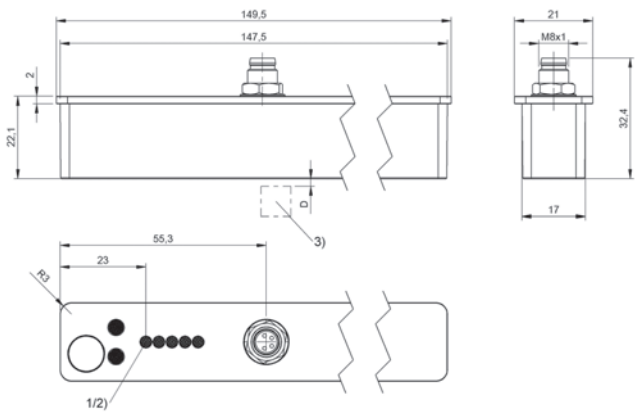
1) LED Power, 2) LED function indicator, 3) Encoder

BIP0014



1) LED function indicator, 2) LED function indicator, 3) Teach-In button, 4) Encoder

BIP000R



1) LED Power, 2) LED function indicator, 3) Encoder

BIP001F



Features

- High resolution and repeatability
- Insensitive to shock, vibration and noise fields
- Absolute analog output signal rising or falling
- Guided sensor element
- 32 kHz sampling rate
- Potential-free
- Non-contact operating principle

	BIW1-A310 BIW1-A310-M____-P1-S115	
Analog output U_A / I_A	A (0...+10 V)	
Repeat accuracy	10 μ m	
Sampling rate	typ. 32 kHz	
Non-linearity max.	$\leq 0.02\%$	
Operating voltage	18...30 V DC	
Operating temperature	-20...+85 °C	
Degree of protection as per IEC 60529	IP 54	
Approval/Conformity	cULus, CE	
Housing material	Anodized aluminum	
Connection	M12 connector, 8-pin standard	

Calculation example:

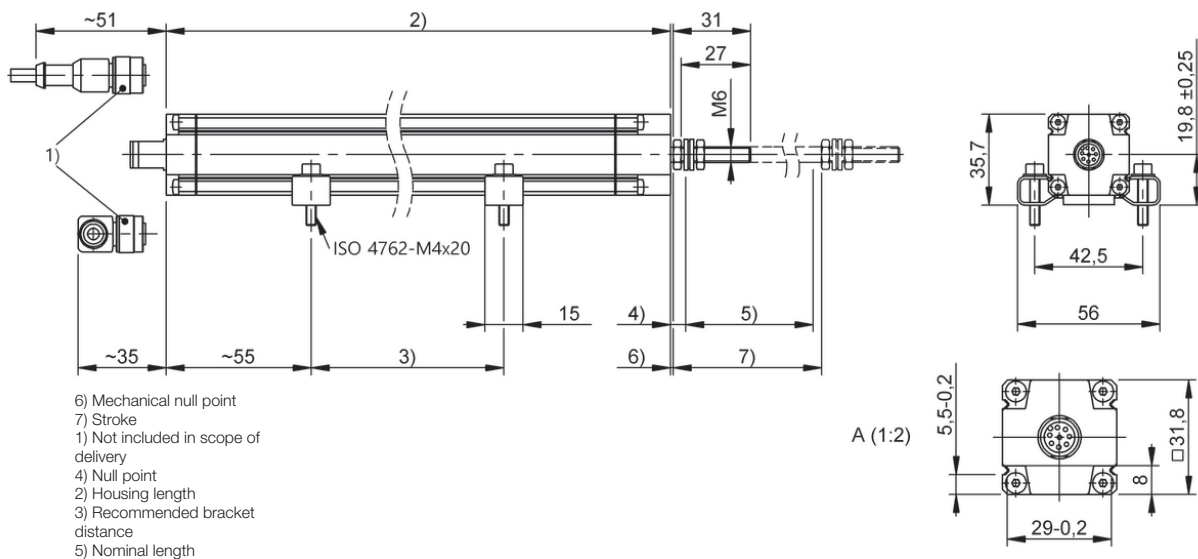
BIW1-...-M0100-P1-S115
 Nominal length 100
 A = 200
 B = 110
 C = 80

Ordering example:

BIW1 - 310 - M - P1 - S115

	Output signal	Standard nominal length [mm]			
A	0...+10 V	0075	0100	0130	0150
E	4...20 mA	0175	0225	0260	0300
C	0...20 mA	0360	0375	0400	0450
G	-10...+10 V	0500	0600	0650	0750 0775

BIW1-E310 BIW1-E310-M____-P1-S115	BIW1-C310 BIW1-C310-M____-P1-S115	BIW1-G310 BIW1-G310-M____-P1-S115
E (4...20 mA)	C (0...20 mA)	G (-10...+10 V)
10 µm	10 µm	10 µm
typ. 32 kHz	typ. 32 kHz	typ. 32 kHz
≤ 0.02%	≤ 0.02%	≤ 0.02%
18...30 V DC	18...30 V DC	18...30 V DC
-20...+85 °C	-20...+85 °C	-20...+85 °C
IP 54	IP 54	IP 54
cULus, CE	cULus, CE	cULus, CE
Anodized aluminum	Anodized aluminum	Anodized aluminum
M12 connector, 8-pin standard	M12 connector, 8-pin standard	M12 connector, 8-pin standard





Object and level detection with patented technology

CAPACITIVE SENSORS



Balluff's capacitive sensors detect fluids, granulates and powders in direct contact or through a non-metallic container wall. As stick-on sensors, they fit flexibly to the housing shape and are easily removable. Moisture, foam and deposits of any kind are compensated for, even through glass and plastic walls up to 10 mm thick. This makes them ideal as level detection sensors for conductive media while guaranteeing high application security.

Our capacitive sensors are available in various form factors, even especially small ones.

The most important benefits

- Contact-free and therefore wear-free
- Bounceless output signal
- Foam and residue compensation



PNP normally open	BCS001L BCS G06T4E1-PSM15C-EP02	BCS001R BCS G06T4D2-PSM15C-S49G	
Dimension	Ø 6.5 x 42 mm	Ø 6.5 x 54 mm	
Series	G06	G06	
Thread (A)	—	—	
Installation	for flush mounting	for flush mounting	
Connection	Cable, 2.00 m, PUR	Connector, M8x1 connector, 3-pin	
Switching frequency	100 Hz	100 Hz	
Interface	—	—	
Range	0.1...1.5 mm	0.1...1.5 mm	
Sensitivity	Switching distance adjustable	Switching distance adjustable	
Housing material	Stainless steel (1.4301)	Stainless steel (1.4301)	
Material sensing surface	PTFE	PTFE	
Ambient temperature	-10...70 °C	-10...70 °C	
Operating voltage U _b	11...30 VDC	11...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP65	IP65	
Productview	Page 304	Page 304	



	BCS0026 BCS M08T4E1-PSM15C-EP02	BCS002A BCS M08T4E2-PSM15C-S49G	BCS002T BCS G10T4H-PSM40C-EP02	BCS00PU BCS M12BB11-PSC40D-EP02
	Ø 8 x 42 mm	Ø 8 x 54 mm	Ø 10 x 50 mm	Ø 12 x 61 mm
	M08	M08	G10	M12
	M8x1	M8x1	—	M12x1
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	Cable, 2.00 m, PUR	Connector, M8x1 connector, 3-pin	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR
	100 Hz	100 Hz	100 Hz	100 Hz
	—	—	—	—
	0.1...1.5 mm	0.1...1.5 mm	1...4 mm	1...4 mm
	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable
	Stainless steel (1.4301)	Stainless steel (1.4301)	Stainless steel (1.4301)	PBT
	PTFE	PTFE	PTFE	PBT
	-10...70 °C	-10...70 °C	-30...70 °C	-25...85 °C
	11...30 VDC	11...30 VDC	12...35 VDC	10...30 VDC
	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	IP65	IP65	IP65	IP67
	Page 304	Page 304	Page 304	Page 304



PNP normally open	BCS00PJ BCS M12BBG2-PSC40D-S04K	BCS00AU BCS M12TTG1-PSM40C-ET02	
Dimension	Ø 12 x 75 mm	Ø 12 x 50 mm	
Series	M12	M12	
Thread (A)	M12x1	M12x1	
Installation	for flush mounting	for flush mounting	
Connection	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PUR	
Switching frequency	100 Hz	100 Hz	
Interface	—	—	
Range	1...4 mm	4 mm	
Sensitivity	Switching distance adjustable	—	
Housing material	PBT	PTFE	
Material sensing surface	PBT	PTFE	
Ambient temperature	-25...85 °C	-30...60 °C	
Operating voltage U _b	10...30 VDC	12...35 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP65	
Productview	Page 304	Page 304	



BCS00R4 BCS M12B4I1-PSC40D-EP02	BCS00P0 BCS M12B4G2-PSC40D-S04K	BCS002Z BCS M12T4G1-PSM40C-EP02	BCS0037 BCS M12T4D2-PSM40C-S04G
Ø 12 x 61 mm	Ø 12 x 75 mm	Ø 12 x 50 mm	Ø 12 x 60 mm
M12	M12	M12	M12
M12x1	M12x1	M12x1	M12x1
for flush mounting	for flush mounting	for flush mounting	for flush mounting
Cable, 2.00 m, PUR	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PUR	Connector, M12x1 connector, 4-pin
100 Hz	100 Hz	100 Hz	100 Hz
—	—	—	—
1...4 mm	1...4 mm	1...4 mm	1...4 mm
Switching distance adjustable	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable
Stainless steel (1.4305)	Stainless steel (1.4305)	Stainless steel (1.4301)	Stainless steel (1.4301)
PBT	PBT	PTFE	PTFE
-25...85 °C	-25...85 °C	-30...70 °C	-30...70 °C
10...30 VDC	10...30 VDC	12...35 VDC	12...35 VDC
CE, cULus	CE, cULus	CE, cULus	CE, cULus
IP67	IP67	IP65	IP65
Page 305	Page 305	Page 305	Page 305



PNP normally open	BCS00NZ BCS M18BBN1-PSC80D-EP02	BCS00M8 BCS M18BBI3-PSC80D-S04K	
NPN normally open	BCS00M2 BCS M18BBN1-NSC80D-EP02		
Dimension	Ø 18 x 75 mm	Ø 18 x 88.5 mm	
Series	M18	M18	
Thread (A)	M18x1	M18x1	
Installation	for flush mounting	for flush mounting	
Connection	Cable, 2.00 m, PUR	Connector, M12x1 connector, 4-pin	
Switching frequency	100 Hz	100 Hz	
Interface	—	—	
Range	1...8 mm	1...8 mm	
Sensitivity	Switching distance adjustable	Switching distance adjustable	
Housing material	PBT	PBT	
Material sensing surface	PBT	PBT	
Ambient temperature	-25...85 °C	-25...85 °C	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP67	
Productview	Page 305	Page 305	



	BCS00MF BCS M18B4I3-PSC80D-S04K	BCS003H BCS D22T403-PSM60C-EP02	BCS00HK BCS D22T402-PSM60C-EP02	BCS0033 BCS D22V4M1-PSC10C-EV02
	Ø 18 x 88.5 mm	Ø 22 x 4 mm	Ø 22 x 16 mm	Ø 22 x 65 mm
	M18	D22	D22	D22
	M18x1	—	—	—
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	Cable, 2.00 m, PVC
	100 Hz	100 Hz	100 Hz	100 Hz
	—	—	—	—
	1...8 mm	5.4...6.6 mm	5.4...6.6 mm	2...10 mm
	Switching distance adjustable	—	—	Switching distance adjustable
	Stainless steel (1.4305)	Stainless steel (1.4301)	Stainless steel (1.4301)	Stainless steel (1.4301)
	PBT	PTFE	PTFE	PVC
	-25...85 °C	-30...70 °C	-30...70 °C	-30...60 °C
	10...30 VDC	12...30 VDC	12...30 VDC	10...35 VDC
	CE, cULus	CE, cULus	CE	CE, cULus
	IP67	IP64	IP64	IP67
	Page 305	Page 305	Page 306	Page 306



PNP normally open	BCS003A BCS D30T401-PSC15C-EP02		
PNP normally open/normally closed programmable		BCS004H BCS D30B4M3-PPC20C-EP02	
NPN normally open	BCS003E BCS D30T401-NSC15C-EP02		
NPN normally closed	BCS003F BCS D30T401-NOC15C-EP02		
Dimension	Ø 30 x 4 mm	Ø 30 x 82 mm	
Series	D30	D30	
Thread (A)	—	—	
Installation	for flush mounting	for flush mounting	
Connection	Cable, 2.00 m, PUR	Cable, 2.00 m, PUR	
Switching frequency	100 Hz	100 Hz	
Interface	—	—	
Range	2...15 mm	2...20 mm	
Sensitivity	Switching distance adjustable	Switching distance adjustable	
Housing material	Stainless steel (1.4301)	Stainless steel (1.4301)	
Material sensing surface	PTFE	PBT	
Ambient temperature	-30...70 °C	-30...70 °C	
Operating voltage U _b	10...35 VDC	10...35 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP66	
Productview	Page 306	Page 306	



	BCS00NM BCS M30BBI1-PSC15D-EP02	BCS00NA BCS M30BBI2-PSC15D-S04K		
			BCS004K BCS M30BBM3-PPC20C-EP02	BCS004M BCS M30BBM2-PPM20C-S04G
	Ø 30 x 65.5 mm	Ø 30 x 79 mm	Ø 30 x 82 mm	Ø 30 x 87 mm
	M30	M30	M30	M30
	M30x1.5	M30x1.5	M30x1.5	M30x1.5
	for flush mounting	for flush mounting	for flush mounting	for flush mounting
	Cable, 2.00 m, PUR	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PUR	Connector, M12x1 connector, 4-pin
	100 Hz	100 Hz	100 Hz	100 Hz
	—	—	—	—
	2...15 mm	2...15 mm	1...20 mm	1...20 mm
	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable
	PBT	PBT	PBT	PBT
	PBT	PBT	PBT	PBT
	-25...85 °C	-25...85 °C	-30...70 °C	-30...70 °C
	10...30 VDC	10...30 VDC	10...35 VDC	10...35 VDC
	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	IP67	IP67	IP66	IP66
	Page 306	Page 306	Page 306	Page 306



PNP normally open	BCS00MR BCS M30B4I2-PSC15D-S04K		
PNP normally open/normally closed programmable		BCS004T BCS M30B4M2-PPM20C-S04G	
PNP/NPN normally open/normally closed programmable			
Dimension	Ø 30 x 79 mm	Ø 30 x 87 mm	
Series	M30	M30	
Thread (A)	M30x1.5	M30x1.5	
Installation	for flush mounting	for flush mounting	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Switching frequency	100 Hz	100 Hz	
Interface	—	—	
Range	2...15 mm	1...20 mm	
Sensitivity	Switching distance adjustable	Switching distance adjustable	
Housing material	Stainless steel (1.4305) PBT	Stainless steel (1.4301)	
Material sensing surface	PBT	PBT	
Ambient temperature	-25...85 °C	-30...70 °C	
Operating voltage U_b	10...30 VDC	10...35 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP66	
Productview	Page 307	Page 307	



	BCS00UJ BCS G3400I2-PSC15D-S04K			
		BCS003K BCS D500002-YPC25C-EV02		
	Ø 34 x 77 mm	Ø 50 x 10 mm		
	G34	D50		
	—	—		
	for flush mounting	for flush mounting		
	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PVC		
	100 Hz	50 Hz		
	—	—		
	2...15 mm	2...25 mm		
	Switching distance adjustable	Switching distance adjustable		
	POM	POM		
	POM	POM		
	-5...85 °C	—		
	10...30 VDC	10...30 VDC		
	CE, cULus	CE, cULus		
	IP67	IP67		
	Page 307	Page 307		

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open	BCS012N BCS R08RRE-PIM80C-EP00,3-GS04	BCS012T BCS R08RRE-PSM80C-EP00,3-GS75	
PNP normally closed		BCS012U BCS R08RRE-POM80C-EP00,3-GS75	
NPN normally open		BCS012W BCS R08RRE-NSM80C-EP00,3-GS75	
NPN normally closed		BCS012Y BCS R08RRE-NOM80C-EP00,3-GS75	
PNP/NPN normally open/normally closed programmable			
Dimension	34 x 16 x 8 mm	34 x 16 x 8 mm	
Series	R08	R08	
Thread (A)	—	—	
Installation	for flush mounting	for flush mounting	
Connection	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	Cable with connector, 0.30 m, PUR	
Switching frequency	50 Hz	50 Hz	
Interface	IO-Link 1.1	—	
Range	1...8 mm	1...8 mm	
Sensitivity	Switching distance adjustable	Switching distance teachable	
Housing material	PP	PP	
Material sensing surface	PP	PP	
Ambient temperature	-25...70 °C	-25...70 °C	
Operating voltage U_b	18...30 VDC	12...30 VDC	
Approval/Conformity	UL Listed, CE, IO-Link	UL Listed, CE	
Protection degree	IP67	IP67	
Productview	Page 307	Page 307	



	BCS012A BCS R08RRE-PSM80C-EP02	BCS00U6 BCS Q40BBAA-PSC20C-EP00,3-GS49		
	BCS012C BCS R08RRE-POM80C-EP02	BCS00U5 BCS Q40BBAA-POC20C-EP00,3-GS49		
	BCS012E BCS R08RRE-NSM80C-EP02			
	BCS012F BCS R08RRE-NOM80C-EP02			
			BCS00TR BCS Q40BBAA-GPC20C-EP02	
	34 x 16 x 8 mm	40 x 40 x 10 mm	40 x 40 x 10 mm	
	R08	Q40	Q40	
	—	—	—	
	for flush mounting	for flush mounting	for flush mounting	
	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Cable, 2.00 m, PUR	
	50 Hz	100 Hz	100 Hz	
	—	—	—	
	1...8 mm	1...20 mm	1...20 mm	
	Switching distance teachable	Switching distance adjustable	Switching distance adjustable	
	PP	PBT	PBT	
	PP	PBT	PBT	
	-25...70 °C	-5...85 °C	-5...85 °C	
	12...30 VDC	10...30 VDC	10...30 VDC	
	CE, UL Listed	CE, cULus	CE, cULus	
	IP67	IP67	IP67	
	Page 307	Page 307	Page 308	

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

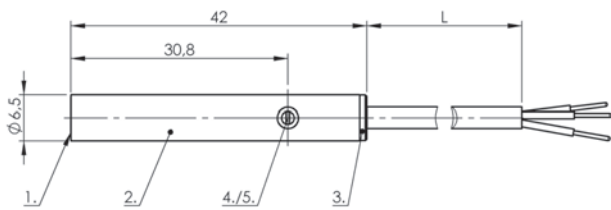
Safety

Industrial Networking

Power Supply

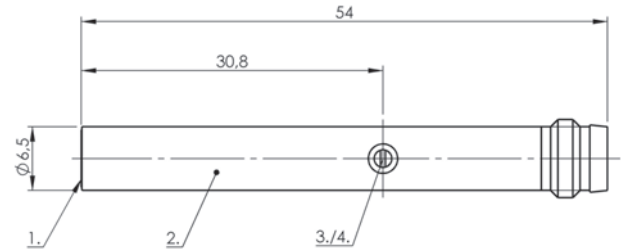
Connectivity

Accessories



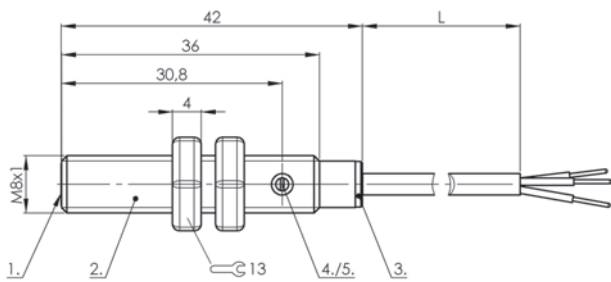
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS001L



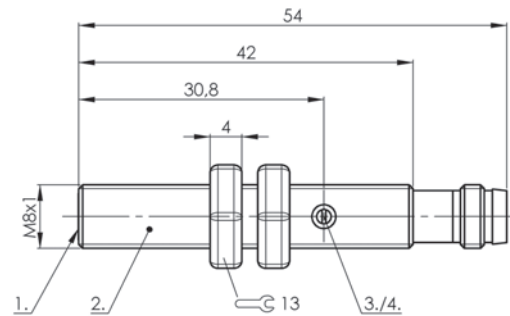
1) Sensing surface, 2) Housing, 3) Potentiometer, 4) LED function indicator

BCS001R



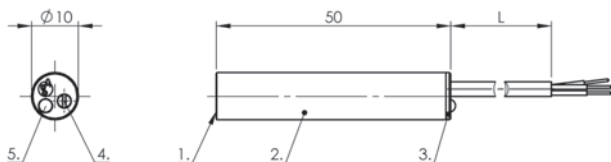
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS0026



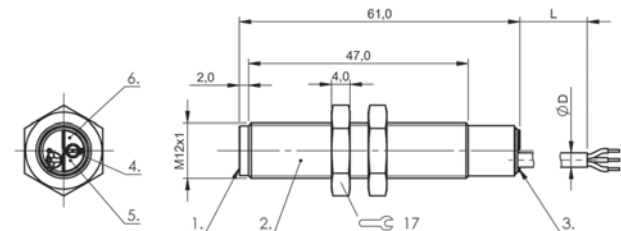
1) Sensing surface, 2) Housing, 3) Potentiometer, 4) LED function indicator

BCS002A



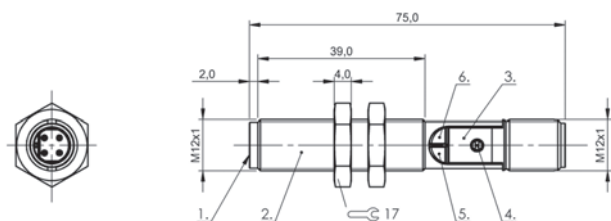
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS002T



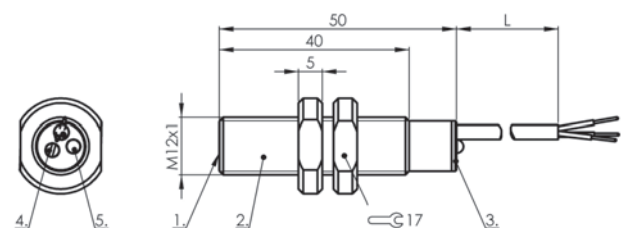
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00PU



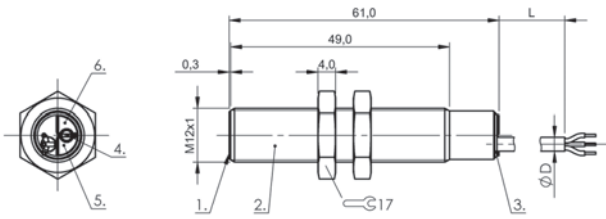
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00PJ



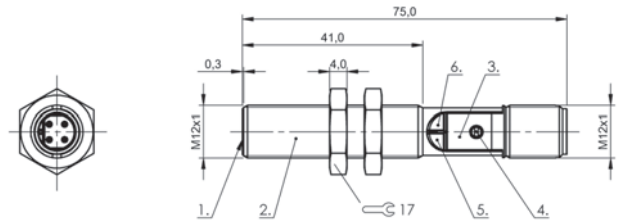
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS00AU



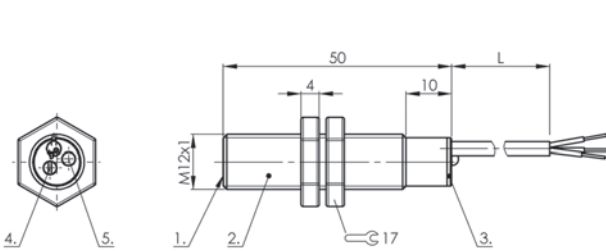
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00R4



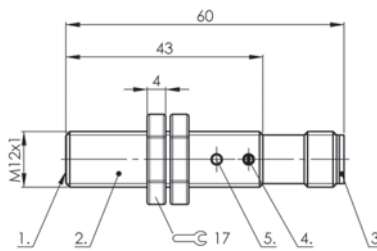
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00P0



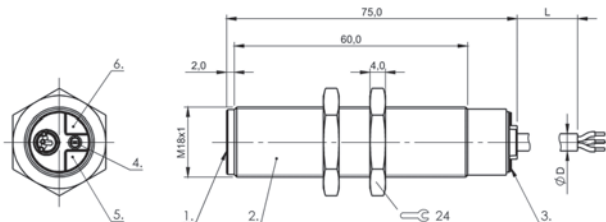
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS00Z2



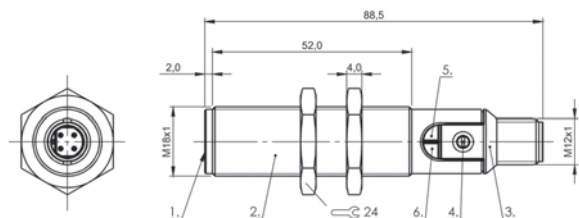
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS0037



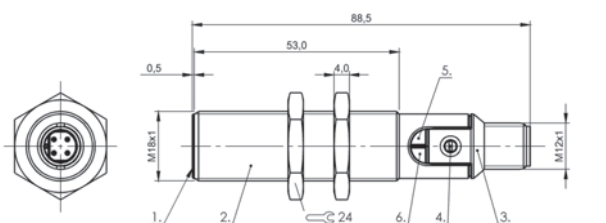
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00M2, BCS00NZ



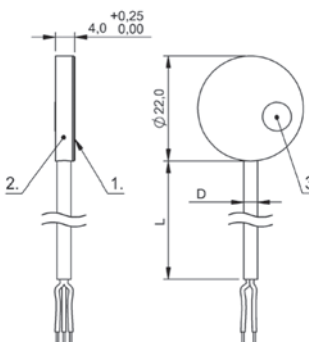
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00M8



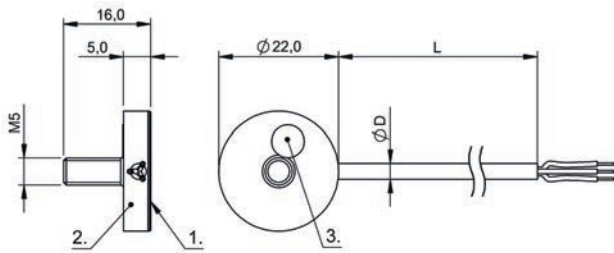
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00MF



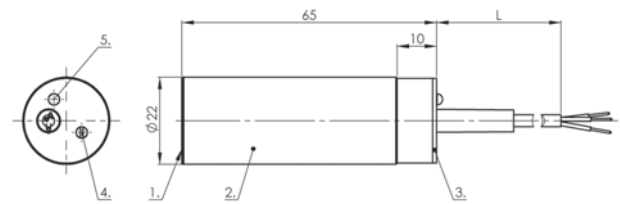
1) Sensing surface, 2) Housing, 3) Potentiometer sealed

BCS003H



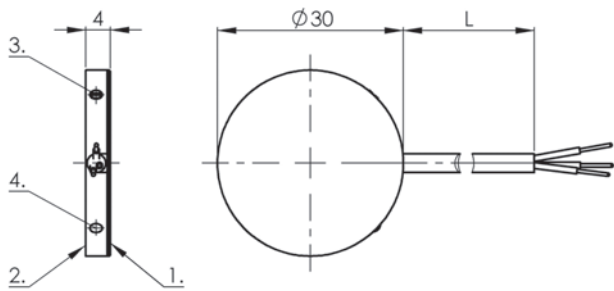
1) Sensing surface, 2) Housing, 3) Potentiometer sealed

BCS00HK



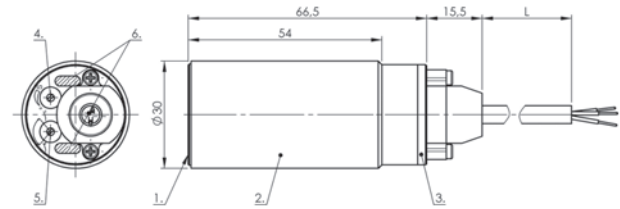
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS0033



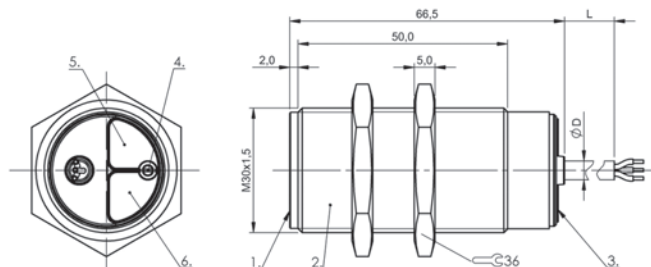
1) Sensing surface, 2) Housing, 3) Potentiometer, 4) LED function indicator

BCS003E, BCS003F, BCS003A



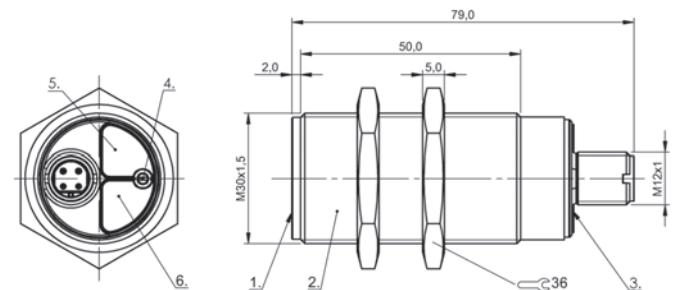
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) NO or NC selectable, 6) LED function indicator

BCS004H



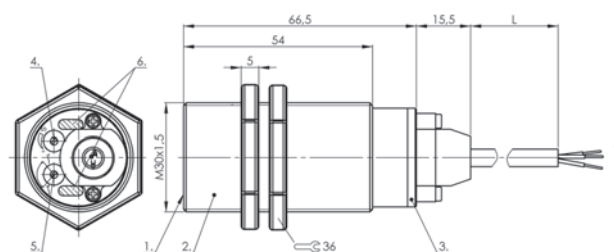
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00NM



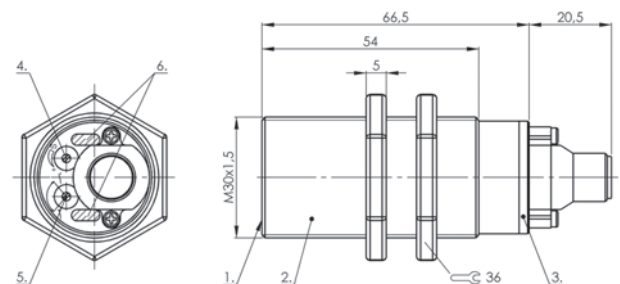
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00NA



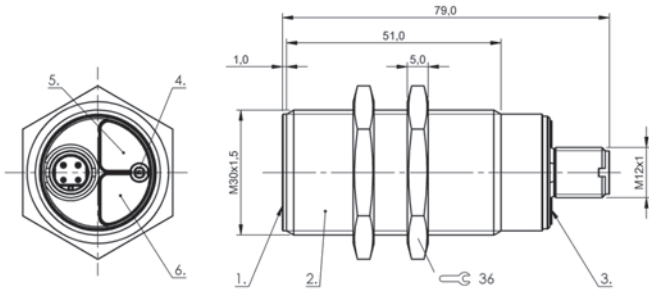
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) NO or NC selectable, 6) LED function indicator

BCS004K



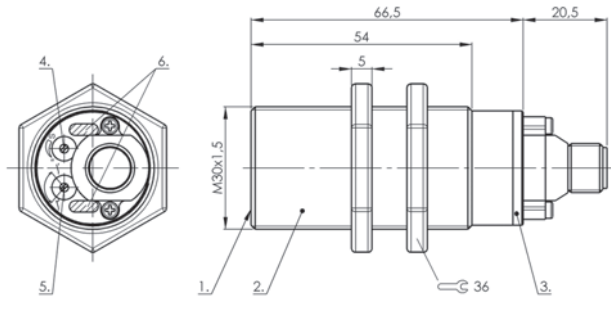
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) NO or NC selectable, 6) LED function indicator

BCS004M



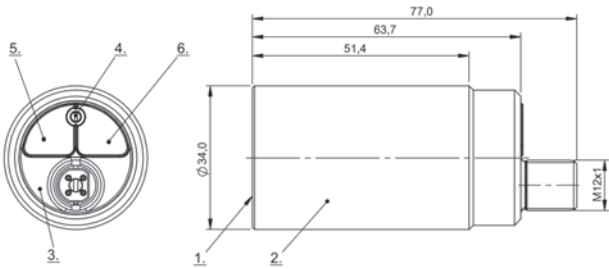
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00MR



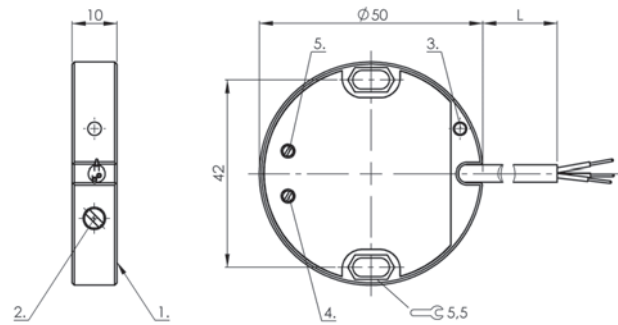
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) NO or NC selectable, 6) LED function indicator

BCS004T



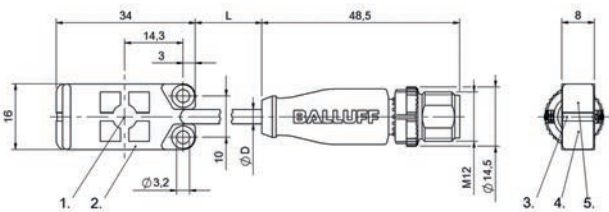
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00UJ



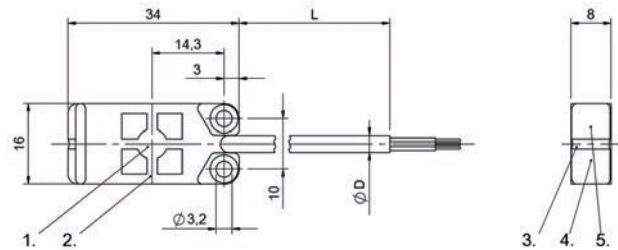
1) Sensing surface, 2) Potentiometer, 3) LED function indicator, 4) NO or NC selectable, 5) PNP or NPN selectable

BCS003K



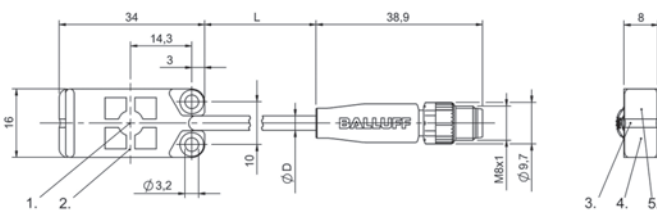
1) Sensing surface, 2) Housing, 3) Cover, 4) Power indicator green, 5) Function indicator yellow

BCS012N



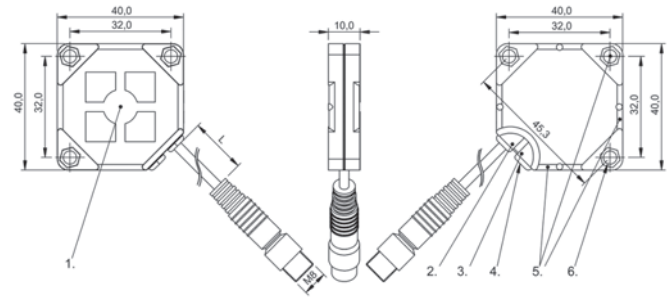
1) Sensing surface, 2) Housing, 3) Cover, 4) Power indicator green, 5) Function indicator yellow

BCS012E, BCS012F, BCS012A, BCS012C



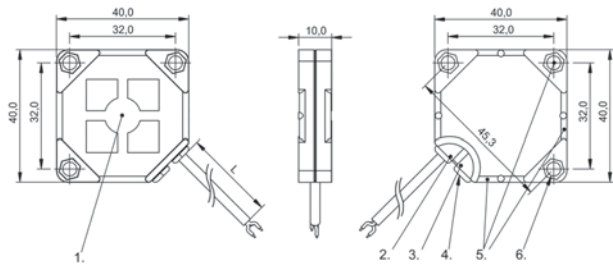
1) Sensing surface, 2) Housing, 3) Cover, 4) Power indicator green, 5) Function indicator yellow

BCS012W, BCS012Y, BCS012T, BCS012U



1) Sensing surface, 2) Power indicator green, 3) Function indicator yellow, 4) Potentiometer, 5) Fastening: Cable tie, 6) Fastening: screw 3xM3

BCS00U6, BCS00U5



1) Sensing surface, 2) Power indicator green, 3) Function indicator yellow, 4) Potentiometer, 5) Fastening: Cable tie, 6) Fastening: screw 3xM3

BCS00TR



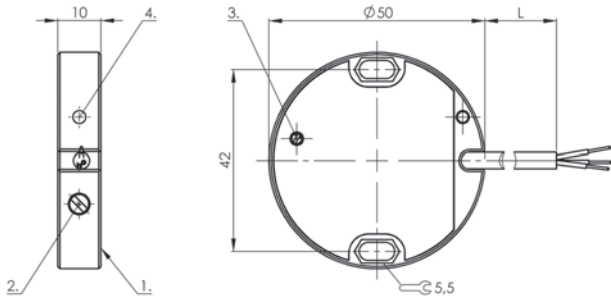
PNP normally open		BCS00UW BCS D50TT06-PSCFSC-ET02	
PNP normally closed		BCS00UY BCS D50TT06-POCFSC-ET02	
PNP normally open/normally closed programmable	BCS0084 BCS D500004-PPCFAC-EV02		
NPN normally open			
NPN normally closed			
Dimension	Ø 50 x 10 mm	Ø 50 x 10 mm	
Series	D50	D50	
Installation	flush with container outer wall	flush with container outer wall	
Connection	Cable, 2.00 m, PVC	Cable, 2.00 m, PTFE	
Switching frequency	2 Hz	2 Hz	
Interface	—	—	
Sensitivity	media-dependent, adjustable	media-dependent, adjustable	
Function	Smart Level 15	Smart Level 50	
Additional features	Electrically conductive media, Foam and residue compensation	Electrically conductive media, Foam and residue compensation	
Housing material	POM	PTFE	
Material sensing surface	POM	PTFE	
Ambient temperature	-10...60 °C	-10...60 °C	
Operating voltage U_b	10...35 VDC	10...35 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP67	
Productview	Page 314	Page 314	



	BCS012P BCS R08RRE-PIMFHC-EP00,3-GS04	BCS012Z BCS R08RRE-PSMFHC-EP00,3-GS75	BCS012H BCS R08RRE-PSMFHC-EP02	
		BCS0130 BCS R08RRE-POMFHC-EP00,3-GS75	BCS012J BCS R08RRE-POMFHC-EP02	
		BCS0131 BCS R08RRE-NSMFHC-EP00,3-GS75	BCS012K BCS R08RRE-NSMFHC-EP02	
		BCS0132 BCS R08RRE-NOMFHC-EP00,3-GS75	BCS012L BCS R08RRE-NOMFHC-EP02	
	34 x 16 x 8 mm	34 x 16 x 8 mm	34 x 16 x 8 mm	
	R08	R08	R08	
	flush with container outer wall	flush with container outer wall	flush with container outer wall	
	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	Cable with connector, M8x1 connector, 4-pin, 0.30 m, PUR	Cable, 4-pin, 2.00 m, PUR	
	10 Hz	10 Hz	10 Hz	
	IO-Link 1.1	—	—	
	teachable depending on media	teachable depending on media	teachable depending on media	
	Smart Level 50	Smart Level 50	Smart Level 50	
	Electrically conductive media, Foam and residue compensation	Electrically conductive media, Foam and residue compensation	Electrically conductive media, Foam and residue compensation	
	PP	PP	PP	
	PP	PP	PP	
	-25...70 °C	-25...75 °C	-25...75 °C	
	18...30 VDC	12...30 VDC	12...30 VDC	
	UL Listed, IO-Link, CE	UL Listed, CE	CE, UL Listed	
	IP67	IP67	IP67	
	Page 314	Page 314	Page 314	

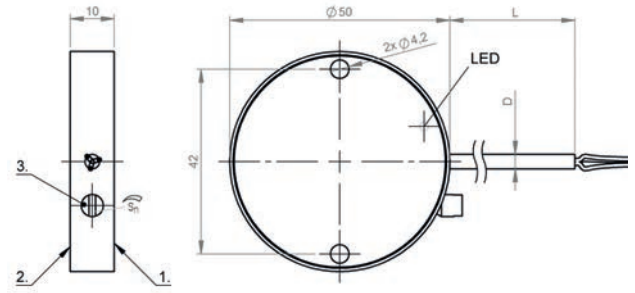


PNP normally open	BCS0134 BCS Q40BBAA-PSCFHC-EP00,3-GS49		
PNP normally closed	BCS0135 BCS Q40BBAA-POCFHC-EP00,3-GS49		
PNP/NPN normally open/normally closed programmable		BCS0133 BCS Q40BBAA-GPCFHC-EP02	
Dimension	40 x 40 x 10 mm	40 x 40 x 10 mm	
Series	Q40	Q40	
Installation	flush with container outer wall	flush with container outer wall	
Connection	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Cable, 2.00 m, PUR	
Switching frequency	10 Hz	10 Hz	
Interface	—	—	
Sensitivity	media-dependent, adjustable	media-dependent, adjustable	
Function	Smart Level 50	Smart Level 50	
Additional features	Electrically conductive media, Foam and residue compensation	Electrically conductive media, Foam and residue compensation	
Housing material	PBT	PBT	
Material sensing surface	PBT	PBT	
Ambient temperature	-5...85 °C	-5...85 °C	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP67	
Productview	Page 314	Page 314	



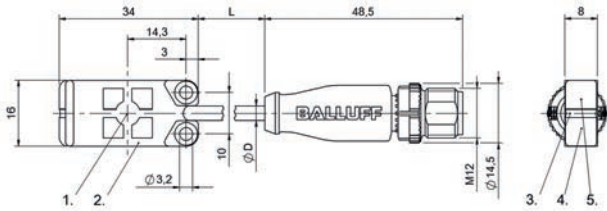
1) Sensing surface, 2) Potentiometer, 3) NO or NC selectable, 4) LED function indicator

BCS0084



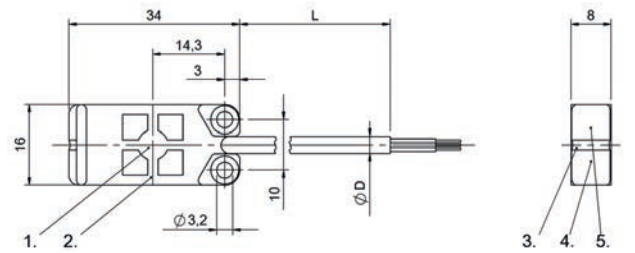
1) Sensing surface, 2) Housing, 3) Potentiometer, 4) LED function indicator

BCS00UW, BCS00UY



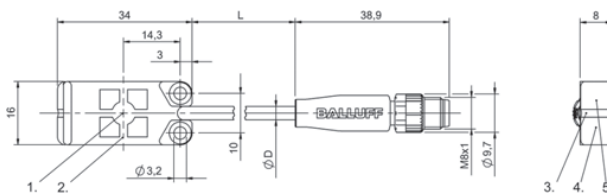
1) Sensing surface, 2) Housing, 3) Cover, 4) Power indicator green, 5) Function indicator yellow

BCS012P



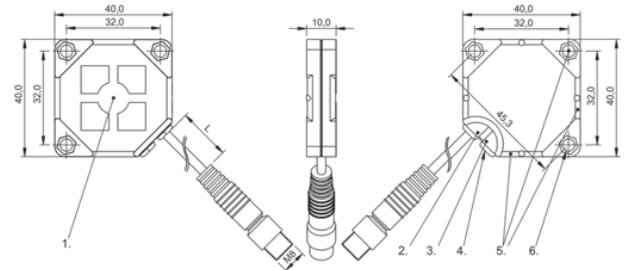
1) Sensing surface, 2) Housing, 3) Cover, 4) Power indicator green, 5) Function indicator yellow

BCS012K, BCS012L, BCS012H, BCS012J



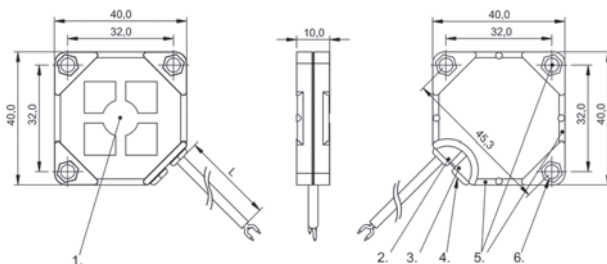
1) Sensing surface, 2) Housing, 3) Cover, 4) Power indicator green, 5) Function indicator yellow

BCS0131, BCS0132, BCS012Z, BCS0130



1) Sensing surface, 2) Power indicator green, 3) Function indicator yellow, 4) Potentiometer, 5) Fastening: Cable tie, 6) Fastening: screw 3xM3

BCS0134, BCS0135



1) Sensing surface, 2) Power indicator green, 3) Function indicator yellow, 4) Potentiometer, 5) Fastening: Cable tie, 6) Fastening: screw 3xM3

BCS0133



	BCS001Y BCS G06T4E1-PSM30G-EP02	BCS0022 BCS G06T4D2-PSM30G-S49G	
PNP normally open			
PNP normally closed			
NPN normally closed			
Dimension	Ø 6.5 x 42 mm	Ø 6.5 x 54 mm	
Series	G06	G06	
Thread (A)	—	—	
Installation	non-flush	non-flush	
Connection	Cable, 2.00 m, PUR	Connector, M8x1 connector, 3-pin	
Switching frequency	100 Hz	100 Hz	
Interface	—	—	
Range	0.1...3 mm	0.1...3 mm	
Sensitivity	Switching distance adjustable	Switching distance adjustable	
Function	—	—	
Additional features	—	—	
Housing material	Stainless steel (1.4301)	Stainless steel (1.4301)	
Material sensing surface	PTFE	PTFE	
Ambient temperature	-10...70 °C	-10...70 °C	
Operating voltage U _b	11...30 VDC	11...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP65	IP65	
Productview	Page 330	Page 330	



	BCS002M BCS M08T4E2-PSM30G-S49G	BCS00R0 BCS M12BBG1-PSC80H-EP02	BCS00PN BCS M12BBE2-PSC80H-S04K	BCS006Z BCS M12TTG1-PSM80G-ET02
		BCS00R1 BCS M12BBG1-POC80H-EP02	BCS00PP BCS M12BBE2-POC80H-S04K	BCS0070 BCS M12TTG1-POM80G-ET02
				BCS0072 BCS M12TTG1-NOM80G-ET02
	Ø 8 x 54 mm	Ø 12 x 61 mm	Ø 12 x 75 mm	Ø 12 x 53 mm
	M08	M12	M12	M12
	M8x1	M12x1	M12x1	M12x1
	non-flush	non-flush	non-flush	non-flush
	Connector, M8x1 connector, 3-pin	Cable, 2.00 m, PUR	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PTFE
	100 Hz	100 Hz	100 Hz	100 Hz
	—	—	—	—
	0.1...3 mm	1...8 mm	1...8 mm	1...8 mm
	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable
	—	—	—	—
	—	—	—	—
	Stainless steel (1.4301)	PBT	PBT	PTFE
	PTFE	PBT	PBT	PTFE
	-10...70 °C	-25...85 °C	-25...85 °C	-30...70 °C
	11...30 VDC	10...30 VDC	10...30 VDC	12...35 VDC
	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	IP65	IP67	IP67	IP65
	Page 330	Page 330	Page 330	Page 330



PNP normally open	BCS00PC BCS M12B4G1-PSC80H-EP02	BCS00P4 BCS M12B4E2-PSC80H-S04K	
PNP normally closed			
Dimension	Ø 12 x 61 mm	Ø 12 x 75 mm	
Series	M12	M12	
Thread (A)	M12x1	M12x1	
Installation	non-flush	non-flush	
Connection	Cable, 2.00 m, PUR	Connector	
Switching frequency	100 Hz	100 Hz	
Interface	—	—	
Range	1...8 mm	1...8 mm	
Sensitivity	Switching distance adjustable	Switching distance adjustable	
Function	—	—	
Additional features	—	—	
Housing material	Stainless steel (1.4305)	Stainless steel (1.4305)	
Material sensing surface	PBT	PBT	
Ambient temperature	-25...85 °C	-25...85 °C	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP67	
Productview	Page 330	Page 330	



	BCS0062 BCS M12T4D2-PSM80G-S04G	BCS007N BCS M18VV11-PSCFAG-DV02	BCS008T BCS M18VVN-PSCFAG-S49G	BCS008A BCS M18TT12-PSCFAG-AT02
		BCS007P BCS M18VV11-POCFAG-DV02		BCS008C BCS M18TT12-POCFAG-AT02
	Ø 12 x 60 mm	Ø 18 x 70 mm	Ø 18 x 70 mm	Ø 18 x 73 mm
	M12	M18	M18	M18
	M12x1	M18x1	M18x1	M18x1
	non-flush	non-flush	non-flush	non-flush
	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PVC	Connector, M8x1 connector, 3-pin	Cable, 2.00 m, PTFE
	100 Hz	2 Hz	2 Hz	2 Hz
	—	—	—	—
	1...8 mm	—	—	—
	Switching distance adjustable	media-dependent, adjustable	media-dependent, adjustable	media-dependent, adjustable
	—	Smart Level 15	Smart Level 15	Smart Level 15
	—	Electrically conductive media, Foam and residue compensation	Electrically conductive media, Foam and residue compensation	Electrically conductive media, Foam and residue compensation
	Stainless steel (1.4301)	PVC	PVC	PTFE
	PTFE	PVC	PVC	PTFE
	-30...70 °C	-10...60 °C	-10...60 °C	-10...60 °C
	12...35 VDC	10...35 VDC	10...35 VDC	10...35 VDC
	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	IP65	IP66	IP66	IP66
	Page 330	Page 330	Page 331	Page 331



PNP normally open	BCS00LL BCS M18BBH1-PSC15H-EP02	BCS00LM BCS M18BBG2-PSC15H-S04K	
PNP normally closed		BCS00LT BCS M18BBG2-POC15H-S04K	
NPN normally open	BCS00LZ BCS M18BBH1-NSC15H-EP02		
NPN normally closed	BCS00M0 BCS M18BBH1-NOC15H-EP02		
Dimension	Ø 18 x 75.5 mm	Ø 18 x 88.5 mm	
Series	M18	M18	
Thread (A)	M18x1	M18x1	
Installation	non-flush	non-flush	
Connection	Cable, 2.00 m, PUR	Connector, M12x1 connector, 4-pin	
Switching frequency	100 Hz	100 Hz	
Interface	—	—	
Range	2...15 mm	2...15 mm	
Sensitivity	Switching distance adjustable	Switching distance adjustable	
Function	—	—	
Additional features	—	—	
Housing material	PBT	PBT	
Material sensing surface	PBT	PBT	
Ambient temperature	-25...85 °C	-25...85 °C	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP67	
Productview	Page 331	Page 331	



	BCS0073 BCS M18TTI2-PSC15G-AT02	BCS00ME BCS M18B4G2-PSC15H-S04K	BCS006A BCS M18T4G2-PSC15G-S04G	
		BCS00ML BCS M18B4G2-POC15H-S04K	BCS006C BCS M18T4G2-POC15G-S04G	BCS005T BCS M18T4I1-POC15G-DV02
	BCS0076 BCS M18TTI2-NOC15G-AT02			
	Ø 18 x 73 mm	Ø 18 x 88.5 mm	Ø 18 x 75 mm	Ø 18 x 65 mm
	M18	M18	M18	M18
	M18x1	M18x1	M18x1	M18x1
	non-flush	non-flush	non-flush	non-flush
	Cable, 2.00 m, PTFE	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PVC
	100 Hz	100 Hz	100 Hz	100 Hz
	—	—	—	—
	2...15 mm	2...15 mm	2...15 mm	2...15 mm
	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable
	—	—	—	—
	—	—	—	—
	PTFE	Stainless steel (1.4305)	Stainless steel (1.4301)	Stainless steel (1.4301)
	PTFE	PBT	PTFE	PTFE
	-30...70 °C	-25...85 °C	-30...70 °C	-30...70 °C
	10...35 VDC	10...30 VDC	10...35 VDC	10...35 VDC
	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	IP67	IP67	IP67	IP67
	Page 331	Page 331	Page 331	Page 331



PNP normally open		BCS0086 BCS M30TTH2-PSCFAG-AT02	
PNP normally closed		BCS0087 BCS M30TTH2-POCFAG-AT02	
PNP normally open/normally closed programmable	BCS007Y BCS M30BBM2-PPCFAG-S04G		
Dimension	Ø 30 x 87 mm	Ø 30 x 72 mm	
Series	M30	M30	
Thread (A)	M30x1.5	M30x1.5	
Installation	non-flush	non-flush	
Connection	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PTFE	
Switching frequency	2 Hz	2 Hz	
Interface	—	—	
Range	—	—	
Sensitivity	media-dependent, adjustable	media-dependent, adjustable	
Function	Smart Level 15	Smart Level 15	
Additional features	Electrically conductive media, Foam and residue compensation	Electrically conductive media, Foam and residue compensation	
Housing material	PBT	PTFE	
Material sensing surface	PBT	PTFE	
Ambient temperature	-10...60 °C	-10...60 °C	
Operating voltage U _b	10...35 VDC	10...35 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP67	
Productview	Page 331	Page 332	



	BCS00NT BCS M30BBE1-PSC25H-EP02	BCS00NH BCS M30BBE2-PSC25H-S04K		BCS0077 BCS M30TTH2-PSC30G-AT02
				BCS0078 BCS M30TTH2-POC30G-AT02
			BCS007F BCS M30BBM2-PPC30G-S04G	
	Ø 30 x 65.5 mm	Ø 30 x 78.5 mm	Ø 30 x 87 mm	Ø 30 x 72 mm
	M30	M30	M30	M30
	M30x1.5	M30x1.5	M30x1.5	M30x1.5
	non-flush	non-flush	non-flush	non-flush
	Cable, 2.00 m, PUR	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PTFE
	100 Hz	100 Hz	100 Hz	100 Hz
	—	—	—	—
	1...25 mm	1...25 mm	1...30 mm	2...30 mm
	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable	Switching distance adjustable
	—	—	—	—
	—	—	—	—
	PBT	PBT	PBT	PTFE
	PBT	PBT	PBT	PTFE
	-25...85 °C	-25...85 °C	-30...70 °C	-30...70 °C
	10...30 VDC	10...30 VDC	10...35 VDC	10...35 VDC
	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	IP67	IP67	IP66	IP67
	Page 332	Page 332	Page 332	Page 332



PNP normally open	BCS00N6 BCS M30B4E1-PSC25H-EP02	BCS00MY BCS M30B4E2-PSC25H-S04K	
PNP normally open/normally closed programmable			
NPN normally closed	BCS00N9 BCS M30B4E1-NOC25H-EP02		
Dimension	Ø 30 x 65.5 mm	Ø 30 x 78.5 mm	
Series	M30	M30	
Thread (A)	M30x1.5	M30x1.5	
Installation	non-flush	non-flush	
Connection	Cable, 2.00 m, PUR	Connector, M12x1 connector, 4-pin	
Switching frequency	100 Hz	100 Hz	
Interface	—	—	
Range	1...25 mm	1...25 mm	
Sensitivity	Switching distance adjustable	Switching distance adjustable	
Function	—	—	
Additional features	—	—	
Housing material	Stainless steel (1.4305)	Stainless steel (1.4305)	
Material sensing surface	PBT	PBT	
Ambient temperature	-25...85 °C	-25...85 °C	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP67	
Productview	Page 332	Page 332	



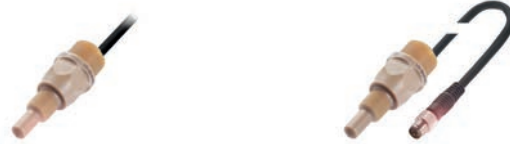
	BCS007L BCS M30T4M2-PPC30G-S04G	BCS0105 BCS S44KK01-PSCFAG-EP00,3-GS49	BCS010L BCS S44KK01-GPCFAG-EP02	BCS00ZL BCS S44KK01-PSCFNG-EP00,3-GS49
	Ø 30 x 86.5 mm	Ø 12 x 62.5 mm	Ø 12 x 62.5 mm	Ø 12 x 62.5 mm
	M30	S44	S44	S44
	M30x1.5	M12x1	M12x1	M12x1
	non-flush	non-flush	non-flush	non-flush
	Connector, M12x1 connector, 4-pin	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR
	100 Hz	5 Hz	5 Hz	10 Hz
	—	—	—	—
	1...30 mm	—	—	—
	Switching distance adjustable	media-dependent, adjustable	media-dependent, adjustable	media-dependent, adjustable
	—	Smart Level 15	Smart Level 15	—
	—	Electrically conductive media, Foam and residue compensation	Electrically conductive media, Foam and residue compensation	—
	Stainless steel (1.4301)	PEEK	PEEK	PEEK
	PTFE	PEEK	PEEK	PEEK
	-30...70 °C	-5...105 °C	-5...105 °C	-5...105 °C
	10...35 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus	CE	CE	CE
	IP66	IP67	IP67	IP67
	Page 332	Page 332	Page 332	Page 332



PNP normally open		BCS010F BCS S44KK03-PSCFAG-EP00,3-GS49	
PNP normally closed			
PNP/NPN normally open/normally closed codierbar	BCS0102 BCS S44KK01-GPCFNG-EP02		
Dimension	Ø 12 x 62.5 mm	Ø 13.7 x 62.5 mm	
Series	S44	S44	
Thread (A)	M12x1	NPT 1/4"	
Installation	non-flush	non-flush	
Connection	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	
Switching frequency	10 Hz	5 Hz	
Interface	—	—	
Range	—	—	
Sensitivity	media-dependent, adjustable	media-dependent, adjustable	
Function	—	Smart Level 15	
Additional features	—	Electrically conductive media, Foam and residue compensation	
Housing material	PEEK	PEEK	
Material sensing surface	PEEK	PEEK	
Ambient temperature	-5...105 °C	-5...105 °C	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Approval/Conformity	CE	CE	
Protection degree	IP67	IP67	
Productview	Page 332	Page 333	



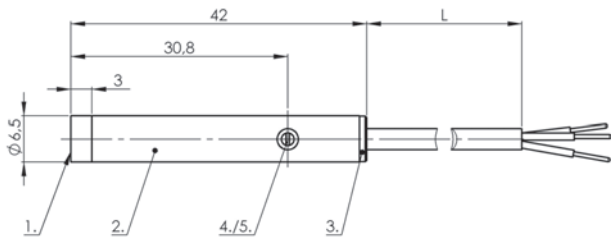
	BCS010N BCS S44KK03-GPCFAG-EP02	BCS00ZY BCS S44KK03-PSCFNG-EP00,3-GS49		BCS0109 BCS S44KK02-PSCFAG-EP00,3-GS49
				BCS010A BCS S44KK02-POCFAG-EP00,3-GS49
	BCS010N BCS S44KK03-GPCFAG-EP02		BCS0104 BCS S44KK03-GPCFNG-EP02	
	Ø 13.7 x 62.5 mm	Ø 13.7 x 62.5 mm	Ø 13.7 x 62.5 mm	Ø 11.9 x 62.5 mm
	S44	S44	S44	S44
	NPT 1/4"	NPT 1/4"	NPT 1/4"	G 1/4"
	non-flush	non-flush	non-flush	non-flush
	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR
	5 Hz	10 Hz	10 Hz	5 Hz
	—	—	—	—
	—	—	—	—
	media-dependent, adjustable	media-dependent, adjustable	media-dependent, adjustable	media-dependent, adjustable
	Smart Level 15	—	—	Smart Level 15
	Electrically conductive media, Foam and residue compensation	—	—	Electrically conductive media, Foam and residue compensation
	PEEK	PEEK	PEEK	PEEK
	PEEK	PEEK	PEEK	PEEK
	-5...105 °C	-5...105 °C	-5...105 °C	-5...105 °C
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE	CE	CE	CE
	IP67	IP67	IP67	IP67
	Page 333	Page 333	Page 333	Page 333



PNP normally open		BCS00ZR BCS S44KK02-PSCFNG-EP00,3-GS49	
PNP normally closed			
NPN normally open			
NPN normally closed			
PNP/NPN normally open/normally closed codierbar	BCS010M BCS S44KK02-GPCFAG-EP02		
Dimension	Ø 11.9 x 62.5 mm	Ø 11.9 x 62.5 mm	
Series	S44	S44	
Thread (A)	G 1/4"	G 1/4"	
Installation	non-flush	non-flush	
Connection	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.30 m, PUR	
Switching frequency	5 Hz	10 Hz	
Interface	—	—	
Range	—	—	
Sensitivity	media-dependent, adjustable	media-dependent, adjustable	
Function	Smart Level 15	—	
Additional features	Electrically conductive media, Foam and residue compensation	—	
Housing material	PEEK	PEEK	
Material sensing surface	PEEK	PEEK	
Ambient temperature	-5...105 °C	-5...105 °C	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Approval/Conformity	CE	CE	
Protection degree	IP67	IP67	
Productview	Page 333	Page 333	

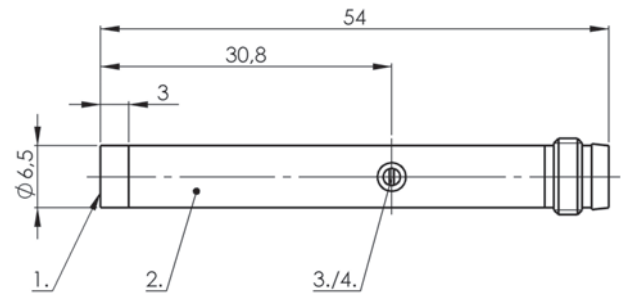


	BCS011L BCS S04K501-PICFNG-S04G-T51	BCS011E BCS S04K501-PICFNG-S04G-T50	BCS011F BCS S04K501-PSCFNG-S04G-T50
			BCS011H BCS S04K501-POCFNG-S04G-T50
			BCS011J BCS S04K501-NSCFNG-S04G-T50
			BCS011K BCS S04K501-NOCFNG-S04G-T50
BCS0103 BCS S44KK02-GPCFNG-EP02			
Ø 11.9 x 62.5 mm	Ø 30 x 96 mm	Ø 30 x 96 mm	Ø 30 x 96 mm
S44	S04	S04	S04
G 1/4"	G 1/2"	G 1/2"	G 1/2"
non-flush	non-flush	non-flush	non-flush
Cable, 2.00 m, PUR	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
10 Hz	5 Hz	5 Hz	5 Hz
—	IO-Link 1.1	IO-Link 1.1	—
—	—	—	—
media-dependent, adjustable	teachable depending on media	teachable depending on media	teachable depending on media
—	Smart Level 100	Smart Level 100	Smart Level 100
—	Electrically conductive media, Foam and residue compensation	Electrically conductive media, Foam and residue compensation	Electrically conductive media, Foam and residue compensation
PEEK	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4404)
PEEK	PEEK	PEEK	PEEK
-5...105 °C	-10...85 °C	-40...85 °C	-40...85 °C
10...30 VDC	18...30 VDC	18...30 VDC	12...30 VDC
CE	IO-Link, EHEDG conformal, FDA compliant, CE	CE, FDA compliant, EHEDG conformal, IO-Link	CE, FDA compliant, EHEDG conformal
IP67	IP68	IP68	IP68
Page 333	Page 333	Page 333	Page 333



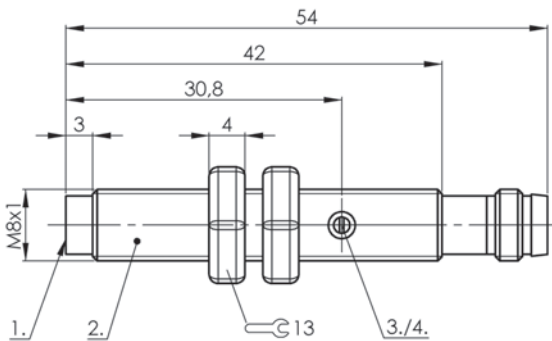
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS001Y



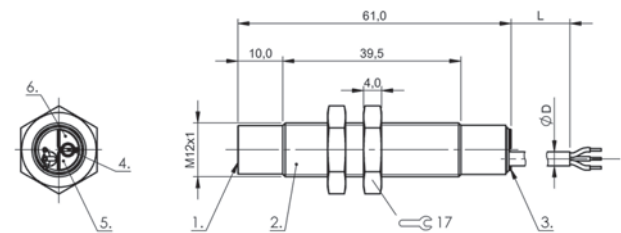
1) Sensing surface, 2) Housing, 3) Potentiometer, 4) LED function indicator

BCS0022



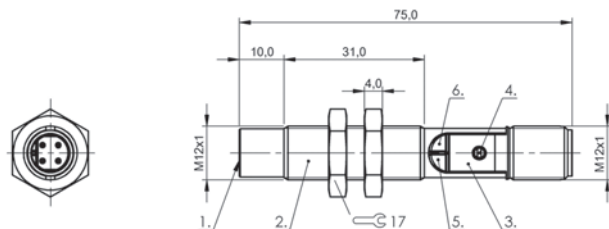
1) Sensing surface, 2) Housing, 3) Potentiometer, 4) LED function indicator

BCS002M



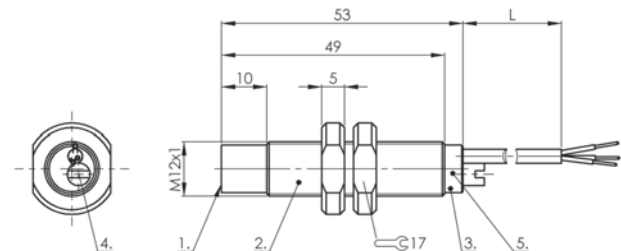
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00R0, BCS00R1, BCS00PC



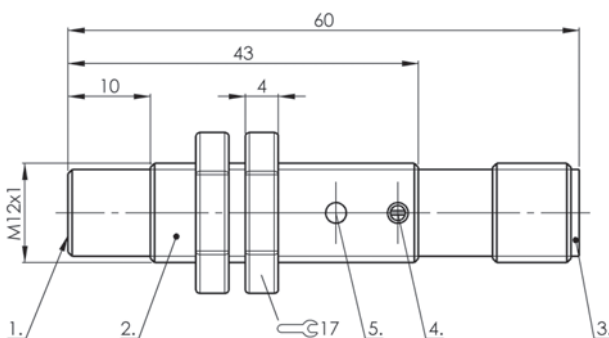
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00PN, BCS00PP, BCS00P4



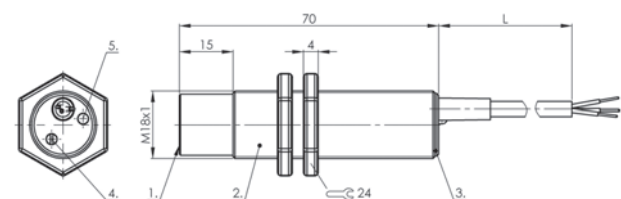
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS0072, BCS006Z, BCS0070



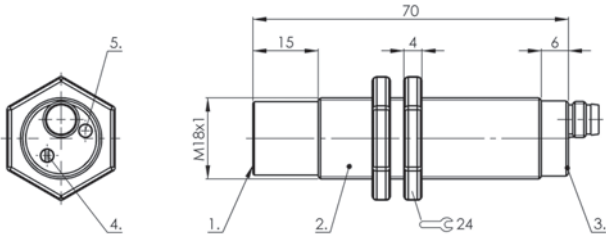
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS0062



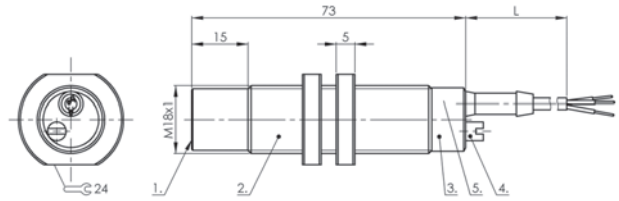
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS007N, BCS007P



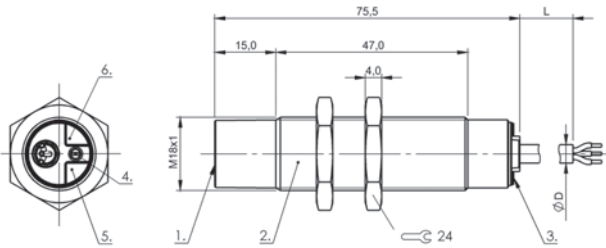
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS008T



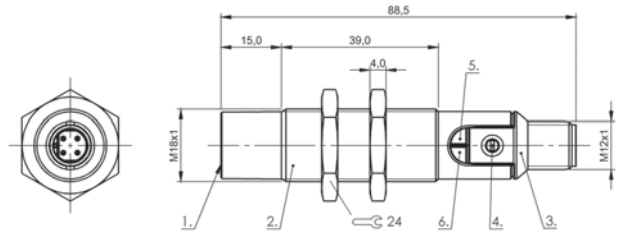
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS008A, BCS008C



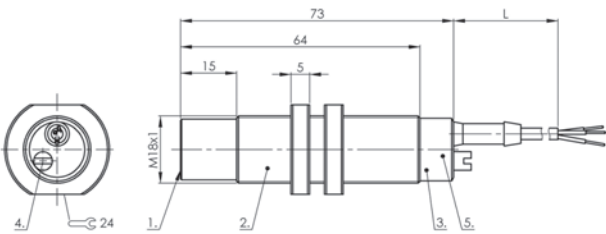
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00LZ, BCS00M0, BCS00LL



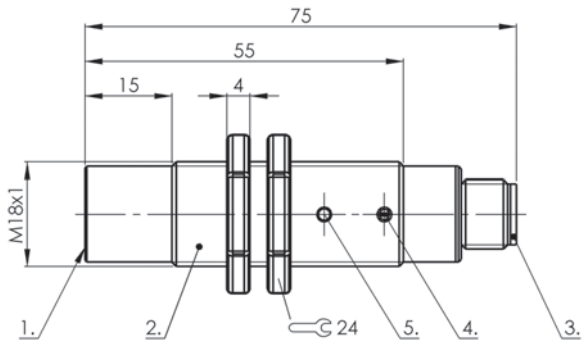
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00LM, BCS00LT, BCS00ME, BCS00ML



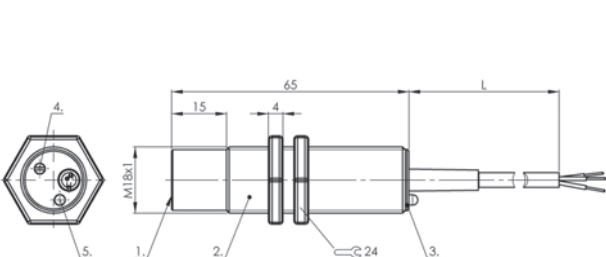
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS0076, BCS0073



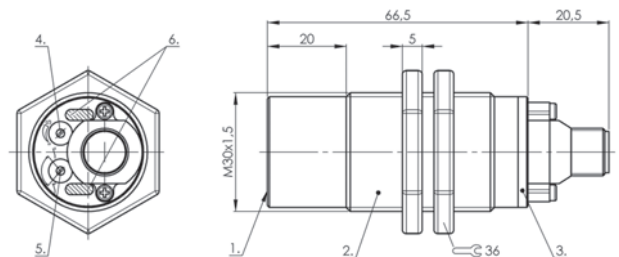
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS006A, BCS006C



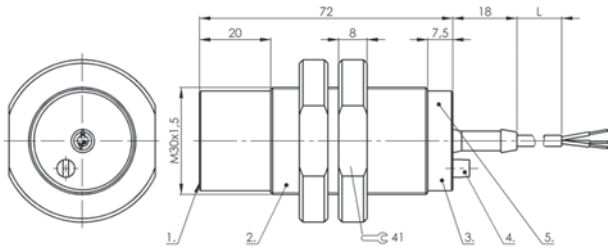
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS005T



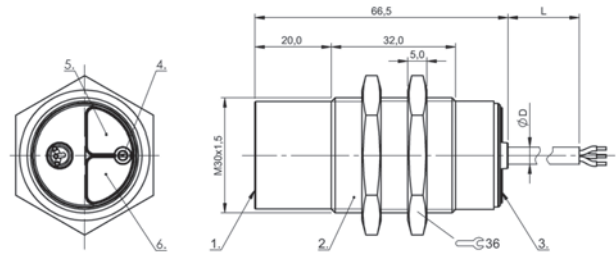
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) NO or NC selectable, 6) LED function indicator

BCS007Y



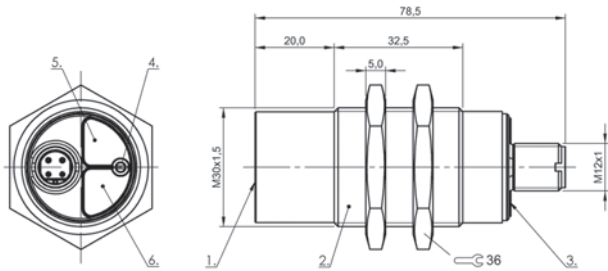
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS0086, BCS0087



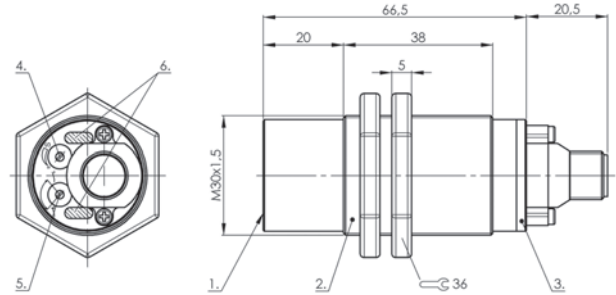
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00NT, BCS00N9, BCS00N6



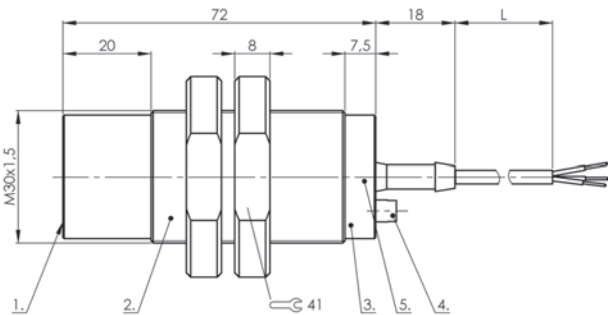
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED Power, 6) LED function indicator

BCS00NH, BCS00MY



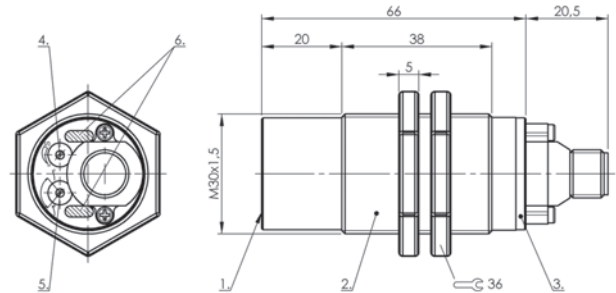
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) NO or NC selectable, 6) LED function indicator

BCS007F



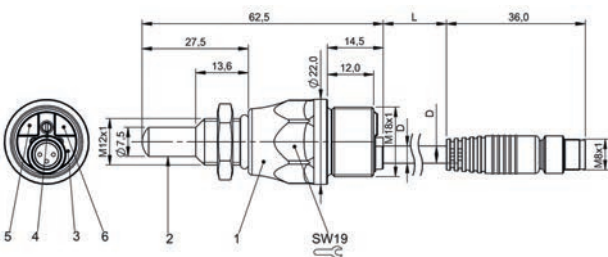
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCS0077, BCS0078



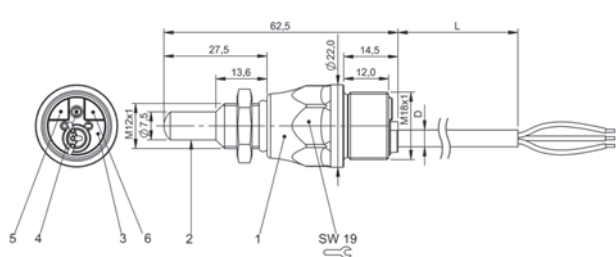
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) NO or NC selectable, 6) LED function indicator

BCS007L



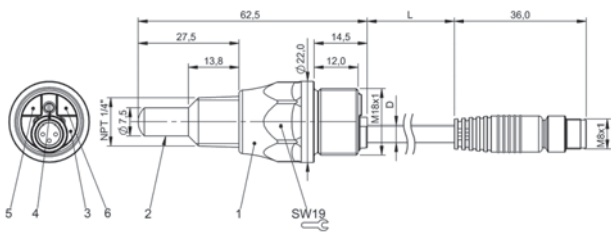
1) Housing, 2) Sensing surface, 3) Cover, 4) Potentiometer, 5) Function indicator yellow, 6) Power indicator green

BCS0105, BCS00ZL



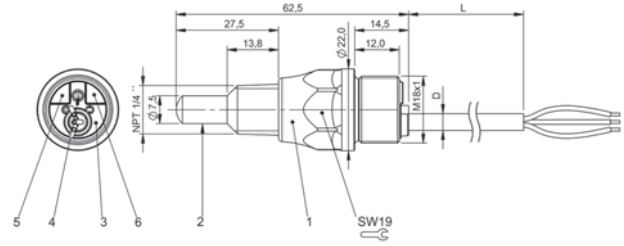
1) Housing, 2) Sensing surface, 3) Cover, 4) Potentiometer, 5) Function indicator yellow, 6) Power indicator green

BCS010L, BCS0102



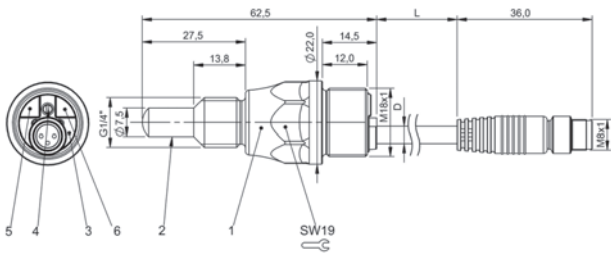
1) Housing, 2) Sensing surface, 3) Cover, 4) Potentiometer, 5) Function indicator yellow, 6) Power indicator green

BCS010F, BCS00ZY



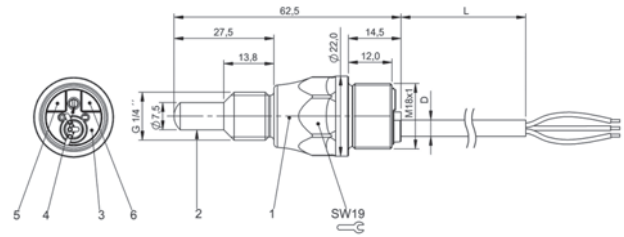
1) Housing, 2) Sensing surface, 3) Cover, 4) Potentiometer, 5) Function indicator yellow, 6) Power indicator green

BCS010N, BCS0104



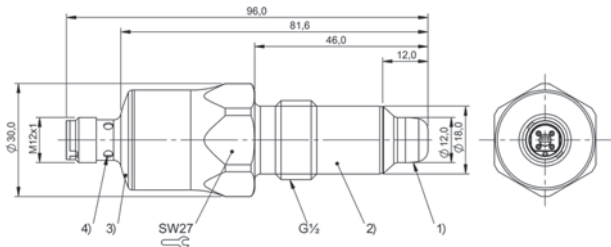
1) Housing, 2) Sensing surface, 3) Cover, 4) Potentiometer, 5) Function indicator yellow, 6) Power indicator green

BCS0109, BCS010A, BCS00ZR



1) Housing, 2) Sensing surface, 3) Cover, 4) Potentiometer, 5) Function indicator yellow, 6) Power indicator green

BCS010M, BCS0103



1) Sensing surface, 2) Housing, 3) Cover, 4) LED function indicator

BCS011E, BCS011L, BCS011J, BCS011K, BCS011F, BCS011H



	BCS0010 BCS G04T4D-XXS10C-EP02-GZ01-002	BCS0012 BCS G06T4B-XXS15C-EP02-GZ01-002	
Dimension	Ø 4 x 29 mm	Ø 6.5 x 18 mm	
Series	G04	G06	
Thread (A)	—	—	
Installation	for flush mounting	for flush mounting	
Connection	Cable with connector, Special connector-Special connector, 2.00 m, PUR	Cable with connector, Special connector-Special connector, 2.00 m, PUR	
Interface	Special interface	Special interface	
Range	0.1...1 mm	0.1...1.5 mm	
Sensitivity	adjustable on base unit	adjustable on base unit	
Housing material	Stainless steel (1.4301)	Stainless steel (1.4301)	
Material sensing surface	PTFE	PTFE	
Ambient temperature	-30...80 °C	-30...80 °C	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP67	
Productview	Page 340	Page 340	



	BCS0013 BCS G06T4B-XXS30G-EP02-GZ01-002	BCS0016 BCS G10T4B-XXS40C-EP02-GZ01-002	BCS0017 BCS G10T4C-XXS80G-EP02-GZ01-002	BCS0011 BCS M05T4C-XXS10C-EP02-GZ01-002
	Ø 6.5 x 19 mm	Ø 10 x 20 mm	Ø 10 x 24 mm	Ø 5 x 29 mm
	G06	G10	G10	M05
	—	—	—	M5x0.5
	non-flush	for flush mounting	non-flush	for flush mounting
	Cable with connector, Special connector-Special connector, 2.00 m, PUR	Cable with connector, Special connector-Special connector, 2.00 m, PUR	Cable with connector, Special connector-Special connector, 2.00 m, PUR	Cable with connector, Special connector-Special connector, 2.00 m, PUR
	Special interface	Special interface	Special interface	Special interface
	0.1...3 mm	0.1...4 mm	1...8 mm	0.1...1 mm
	adjustable on base unit	adjustable on base unit	adjustable on base unit	adjustable on base unit
	Stainless steel (1.4301)	Stainless steel (1.4301)	Stainless steel (1.4301)	Stainless steel (1.4301)
	PTFE	PTFE	PTFE	PTFE
	-30...80 °C	-30...80 °C	-30...80 °C	-30...80 °C
	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	IP67	IP67	IP67	IP67
	Page 340	Page 340	Page 340	Page 340



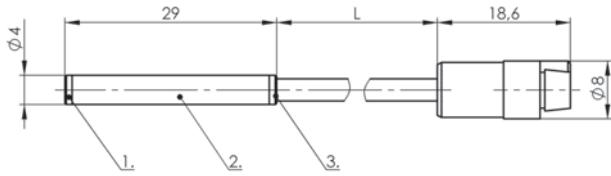
	BCS0014 BCS M08T4C-XXS15C-EP02-GZ01-002	BCS0015 BCS M08T4C1-XXS30G-EP02-GZ01-002	
Dimension	Ø 8 x 25 mm	Ø 8 x 28 mm	
Series	M08	M08	
Thread (A)	M8x1	M8x1	
Installation	for flush mounting	non-flush	
Connection	Cable with connector, Special connector-Special connector, 2.00 m, PUR	Cable with connector, Special connector-Special connector, 2.00 m, PUR	
Interface	Special interface	Special interface	
Range	0.1...1.5 mm	0.1...3 mm	
Sensitivity	adjustable on base unit	adjustable on base unit	
Housing material	Stainless steel (1.4301)	Stainless steel (1.4301)	
Material sensing surface	PTFE	PTFE	
Ambient temperature	-30...80 °C	-30...80 °C	
Approval/Conformity	CE, cULus	CE, cULus	
Protection degree	IP67	IP67	
Productview	Page 340	Page 340	



	BCS0019 BCS M12T4D1-XXS80G-EP02-GZ01-002	BCS001A BCS D18T403-XXS30C-EP02-GZ01-002	BCS001C BCS D18T404-XXS50C-EP02-GZ01-002	BCS001F BCS D22T405-XXS10C-EP02-GZ01-002
	Ø 12 x 34 mm	Ø 18 x 2.5 mm	Ø 18 x 4 mm	Ø 22 x 4 mm
	M12	D18	D18	D22
	M12x1	—	—	—
	non-flush	for flush mounting	for flush mounting	for flush mounting
	Cable with connector, Special connector-Special connector, 2.00 m, PUR	Cable with connector, Special connector-Special connector, 2.00 m, PVC	Cable with connector, Special connector-Special connector, 2.00 m, PUR	Cable with connector, Special connector-Special connector, 2.00 m, PUR
	Special interface	Special interface	Special interface	Special interface
	1...8 mm	0.1...3 mm	1...5 mm	1...10 mm
	adjustable on base unit	adjustable on base unit	adjustable on base unit	adjustable on base unit
	Stainless steel (1.4301)	Stainless steel (1.4301)	Stainless steel (1.4301)	Stainless steel (1.4301)
	PTFE	PTFE	PTFE	PTFE
	-30...80 °C	-30...70 °C	-30...80 °C	-30...80 °C
	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	IP67	IP66	IP66	IP66
	Page 341	Page 341	Page 341	Page 341

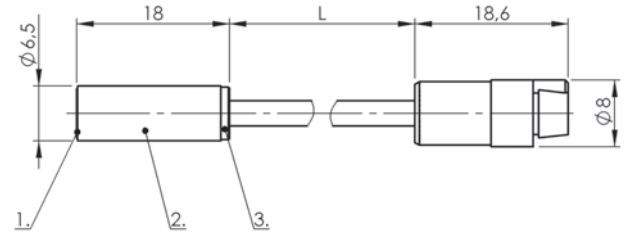


	BCS001H BCS D22T408-XXS10C-EP02-GZ01-002		
Dimension	Ø 22 x 10 mm		
Series	D22		
Thread (A)	—		
Installation	for flush mounting		
Connection	Cable with connector, Special connector-Special connector, 2.00 m, PUR		
Interface	Special interface		
Range	1...10 mm		
Sensitivity	adjustable on base unit		
Housing material	Stainless steel (1.4301)		
Material sensing surface	PTFE		
Ambient temperature	-30...80 °C		
Approval/Conformity	CE, cULus		
Protection degree	IP66		
Productview	Page 341		



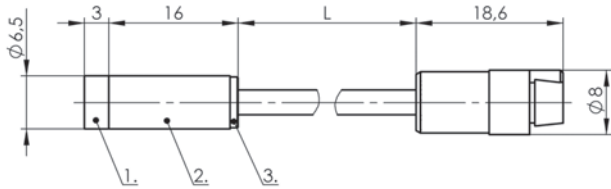
1) Sensing surface, 2) Housing, 3) Cover

BCS0010



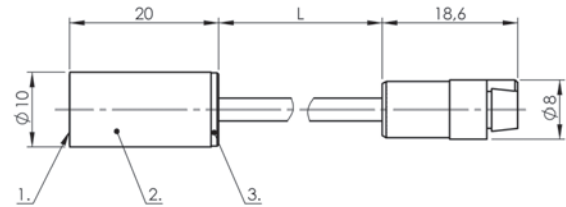
1) Sensing surface, 2) Housing, 3) Cover

BCS0012



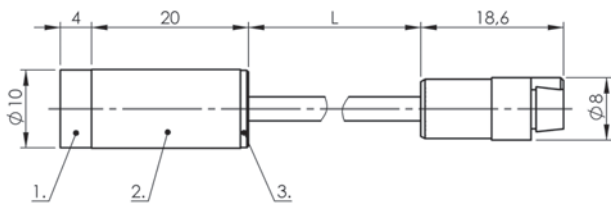
1) Sensing surface, 2) Housing, 3) Cover

BCS0013



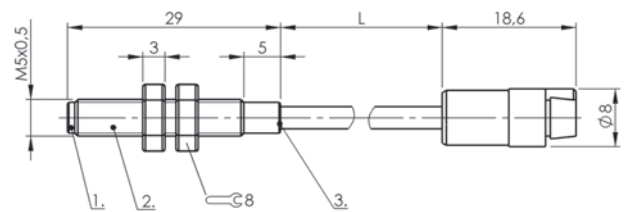
1) Sensing surface, 2) Housing, 3) Cover

BCS0016



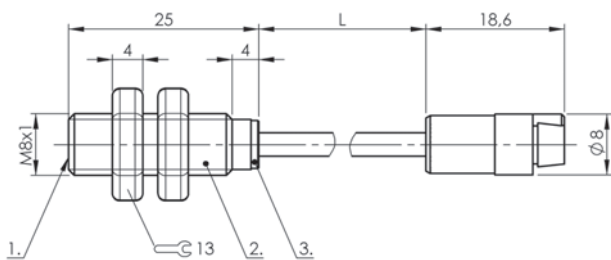
1) Sensing surface, 2) Housing, 3) Cover

BCS0017



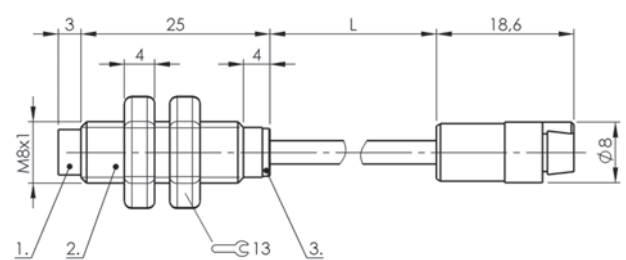
1) Sensing surface, 2) Housing, 3) Cover

BCS0011



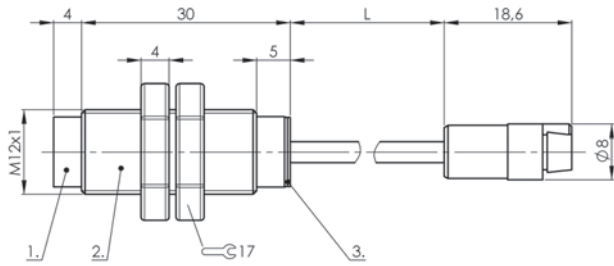
1) Sensing surface, 2) Housing, 3) Cover

BCS0014



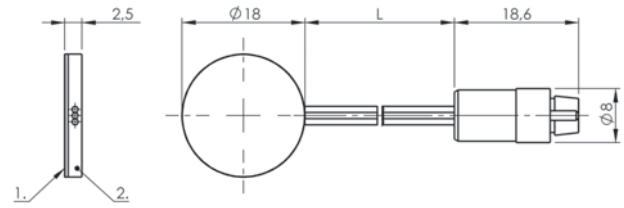
1) Sensing surface, 2) Housing, 3) Cover

BCS0015



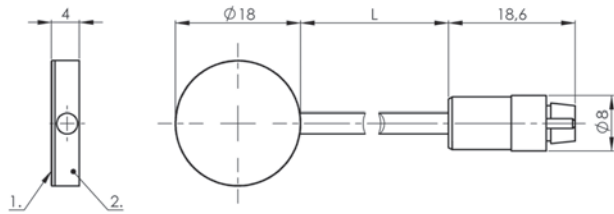
1) Sensing surface, 2) Housing, 3) Cover

BCS0019



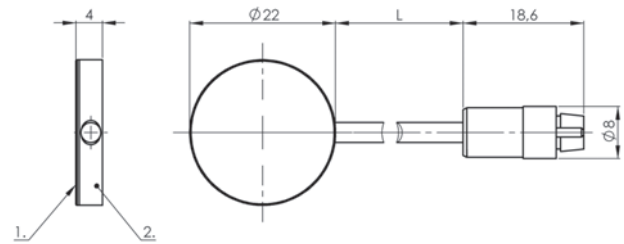
1) Sensing surface, 2) Housing

BCS001A



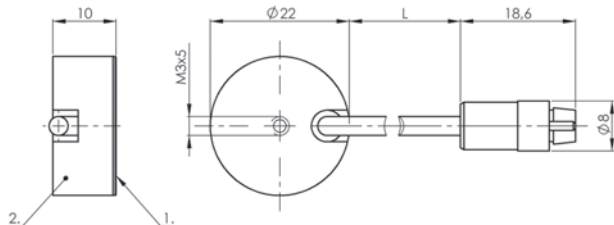
1) Sensing surface, 2) Housing

BCS001C



1) Sensing surface, 2) Housing

BCS001F



1) Sensing surface, 2) Housing

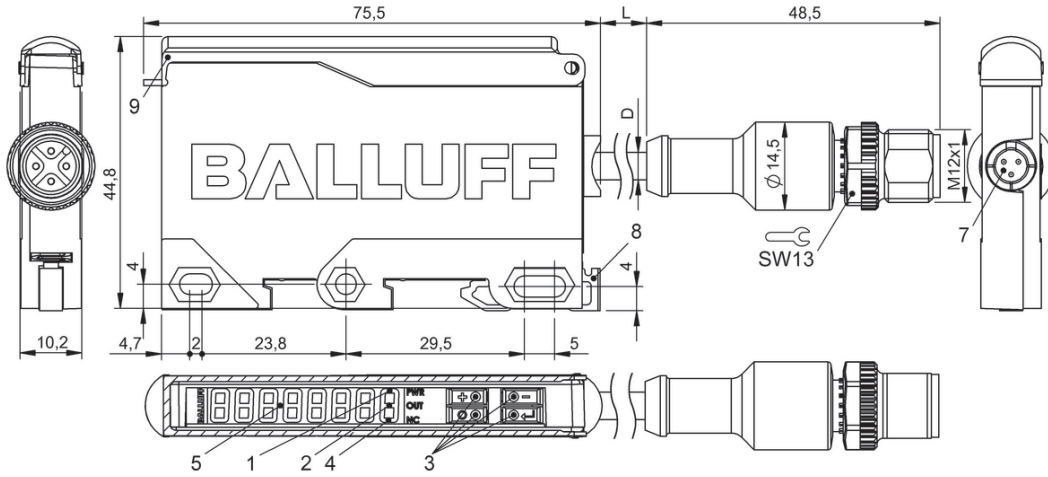
BCS001H



PNP/NPN normally open/normally closed programmable	BAE00LC BAE SA-CS-027-YI-BP00,3-GS04		
Analog, voltage 0...10 V/current 4...20 mA		BAE00KJ BAE SA-CS-026-YP-BP02	
Dimension	10.5 x 45 x 75.5 mm	10.5 x 45 x 75.5 mm	
Connection	Cable with connector, M12x1 connector, 4-pin, 0.30 m, PUR	Cable, 2.00 m, PUR	
Switching frequency	50 Hz	100 Hz	
Interface	IO-Link 1.1	—	
Housing material	PBT	PBT	
Ambient temperature	-10...70 °C	-10...70 °C	
Operating voltage U _b	18...30 VDC	15...30 VDC	
Approval/Conformity	CE, IO-Link, cULus	CE, cULus	
Protection degree	IP40	IP40	
Time function	On/off delay time programmable	On/off delay time programmable	
Productview	Page 344	Page 344	

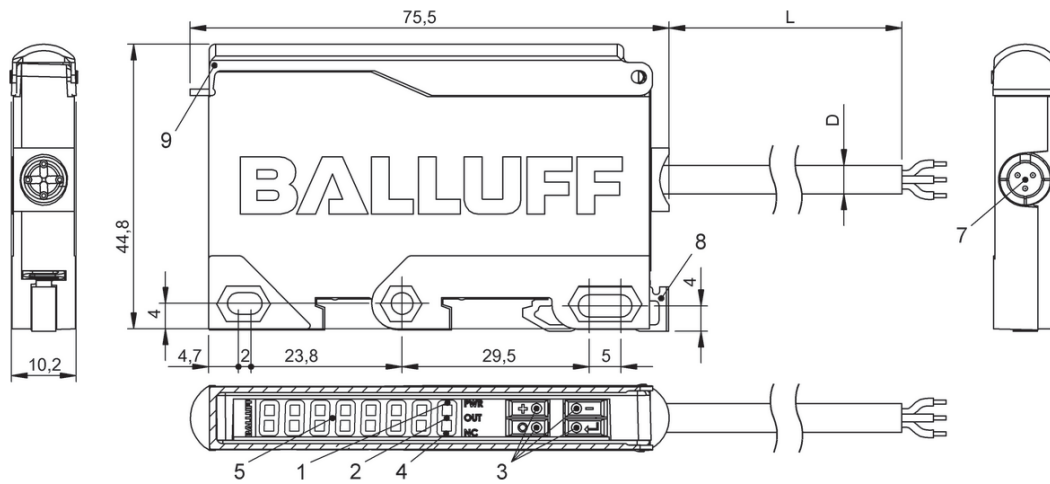


	BAE00LA BAE SA-CS-026-YP-BP00,3-GS04	BAE00KH BAE SA-CS-025-YP-BP02	BAE00L9 BAE SA-CS-025-YP-BP00,3-GS04	
	10.5 x 45 x 75.5 mm	10.5 x 45 x 75.5 mm	10.5 x 45 x 75.5 mm	
	Cable with connector, M12x1, 0.30 m, PUR	Cable, 2.00 m, PUR	Cable with connector, M12x1, 0.30 m, PUR	
	100 Hz	100 Hz	100 Hz	
	—	—	—	
	PBT	PBT	PBT	
	-10...70 °C	-10...70 °C	-10...70 °C	
	15...30 VDC	12...30 VDC	12...30 VDC	
	CE, cULus	CE, cULus	CE, cULus	
	IP40	IP40	IP40	
	On/off delay time programmable	—	—	
	Page 344	Page 345	Page 345	



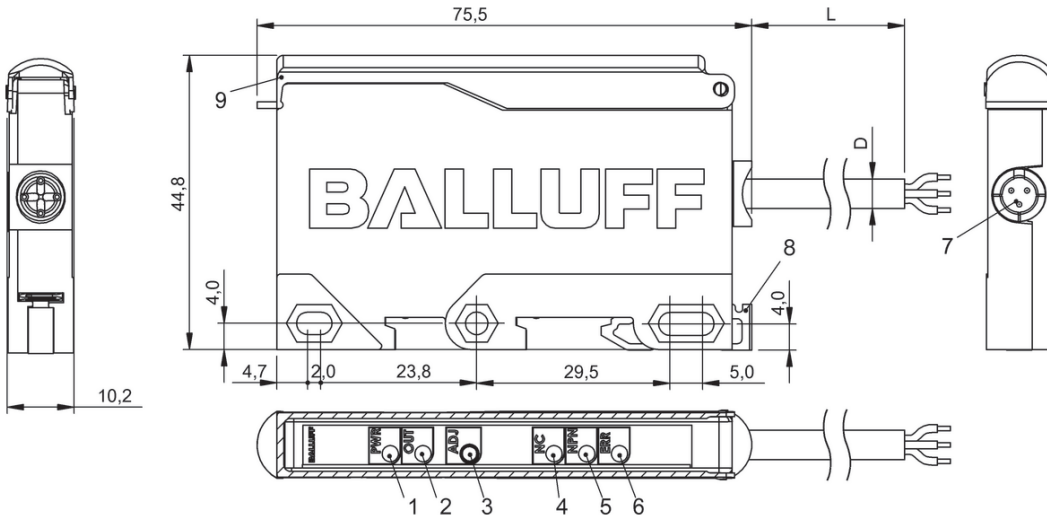
1) LED Power, 2) LED function indicator, 3) 4x operating keys, 4) LED N.C. function active, 5) 7x seven-segment display, 7) Plug connection sensor, 8) DIN rail mount 35mm, 9) Flap

BAE00LC, BAE00LA



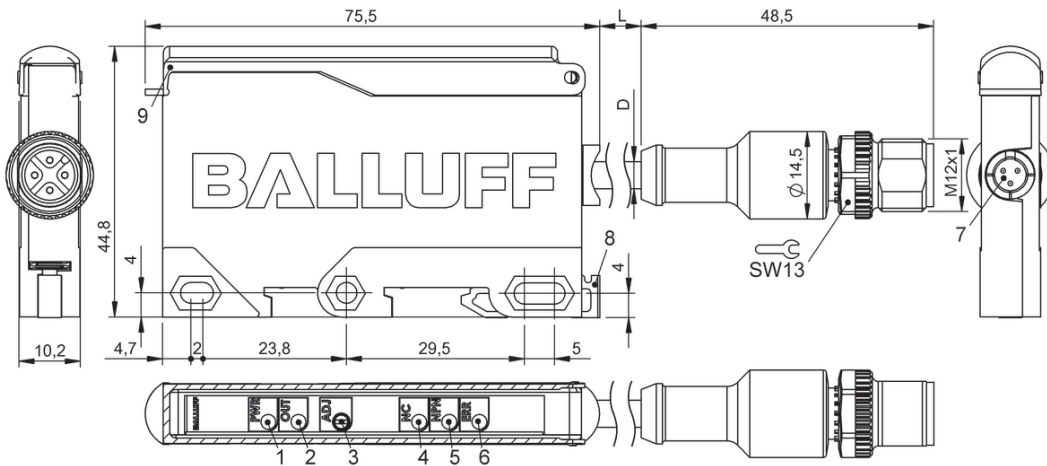
1) LED Power, 2) LED function indicator, 3) 4x operating keys, 4) LED N.C. function active, 5) 7x seven-segment display, 7) Plug connection sensor, 8) DIN rail mount 35mm, 9) Flap

BAE00KJ



1) LED Power, 2) LED function indicator, 3) Sn, 4) LED N.C. function active, 5) Switching stage NPN, active, 6) LED Error, 7) Plug connection sensor, 8) DIN rail mount 35mm, 9) Flap

BAE00KH



1) LED Power, 2) LED function indicator, 3) Sn, 4) LED N.C. function active, 5) Switching stage NPN, active, 6) LED Error, 7) Plug connection sensor, 8) DIN rail mount 35mm, 9) Flap

BAE00L9

Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



Normally open		BCS000K BCS M18KM3-U0T80G-BV02	
Normally closed		BCS000J BCS M18KM3-U0T80G-BV02	
Analog, current falling on approach			
With sensor amplifier	BCS013E BCS Z094401-XXS20B-SZ02-T07		
Dimension	Ø 18 x 38.5 mm	Ø 18 x 84 mm	
Series	Z09	M18	
Thread (A)	M12x1	M18x1	
Installation	for flush mounting	non-flush	
Connection	Connector-triaxial plug	Cable, 2.00 m, PVC	
Switching frequency	5 Hz	40 Hz	
Interface	Special interface	—	
Range	0.1...2 mm	0...6.5 mm	
Sensitivity	adjustable on base unit	Switching distance adjustable	
Housing material	Stainless steel (1.4104)	PBT	
Material sensing surface	Stainless steel (1.4301) epoxy	PBT	
Ambient temperature	0...180 °C	-25...80 °C	
Pressure rating max.	150 bar	—	
Operating voltage U_b	—	20...250 VDC/20...250 VAC	
Approval/Conformity	CE	CE	
Protection degree	IP68	IP67	
Productview	Page 352	Page 352	



	BCW0001 BCW M18B4M1-ICM80C-DV02			
		BCS00A3 BCS S10T401-XXSFNC-SZ02-T07	BCS00A5 BCS S10T403-XXSFNC-SZ02-T07	BCS00A1 BCS M18T4H1-XXS10H-SZ02-T08
	Ø 18 x 70 mm	Ø 18 x 61 mm	Ø 18 x 61 mm	Ø 18 x 65 mm
	M18	S10	S10	M18
	M18x1	M18x1	J 3/8" NPTF	M18x1
	for flush mounting	non-flush	non-flush	non-flush
	Cable, 2.00 m, PVC	Connector, Special connector-Special connector	Connector, Special connector-Special connector	Connector, Special connector-Special connector
	100 Hz	5 Hz	100 Hz	50 Hz
	—	Special interface	Special interface	Special interface
	0...8 mm	—	—	1...10 mm
	—	adjustable on base unit	adjustable on base unit	adjustable on base unit
	Stainless steel	Stainless steel (1.4301)	Stainless steel (1.4301)	Stainless steel (1.4301)
	PBT	PTFE	PTFE	PTFE
	10...55 °C	-10...180 °C	-10...180 °C	-180...250 °C
	—	6 bar	6 bar	—
	12...35 VDC	—	—	—
	CE, cULus	CE	CE	CE
	IP67	IP68	IP68	IP66
	Page 352	Page 352	Page 353	Page 352



PNP normally open/normally closed	BCS00W7 BCS G20L4Q-PAC10C-EV03-D03		
Normally open		BCS000W BCS M30KN2-UST15G-AV02	
Normally closed		BCS000U BCS M30KN2-UOT15G-AV02	
With sensor amplifier			
Dimension	Ø 20 x 81 mm	Ø 30 x 99 mm	
Series	G20	M30	
Thread (A)	—	M30x1.5	
Installation	for flush mounting	non-flush	
Connection	Cable, 3.00 m, PVC	Cable, 2.00 m, PVC	
Switching frequency	100 Hz	100 Hz	
Interface	—	—	
Range	1.5...10 mm	0...12.1 mm	
Sensitivity	Switching distance adjustable	Switching distance adjustable	
Housing material	Stainless steel (1.4301)	PBT	
Material sensing surface	LCP	PBT	
Ambient temperature	-25...70 °C	-25...70 °C	
Pressure rating max.	—	—	
Operating voltage U_b	10...30 VDC	20...250 VDC/20...250 VAC	
Approval/Conformity	CE	CE	
Protection degree	IP65	IP65	
Productview	Page 352	Page 352	



PNP normally open	BCS006H BCS S01T401-PSCFNG-KM16-T02	BCS00A6 BCS S03T401-PSCFNH-KM16-T02	
PNP normally closed	BCS006J BCS S01T401-POCFNG-KM16-T02		
NPN normally closed		BCS00A9 BCS S03T401-NOCFNH-KM16-T02	
Dimension	54.8 x 48.5 x 106 mm	54.8 x 48.5 x 106 mm	
Series	S01	S03	
Thread (A)	M18x1	J 3/8" NPTF	
Installation	non-flush	non-flush	
Connection	Clamping terminal	Clamping terminal	
Switching frequency	5 Hz	100 Hz	
Interface	—	—	
Range	—	—	
Sensitivity	media-dependent, adjustable	media-dependent, adjustable	
Housing material	Stainless steel (1.4305)	Stainless steel (1.4305)	
Material sensing surface	PTFE	PTFE	
Ambient temperature	-30...125 °C	-30...125 °C	
Pressure rating max.	10 bar	10 bar	
Operating voltage U _b	10...35 VDC	10...35 VDC	
Approval/Conformity	CE	CE	
Protection degree	IP67	IP67	
Productview	Page 353	Page 353	



BCS006M BCS S02T401-PSCFNG-KM16-T02			
54.8 x 48.5 x 106 mm			
S02			
R 3/8"			
non-flush			
Clamping terminal			
5 Hz			
—			
—			
media-dependent, adjustable			
Stainless steel (1.4305)			
PTFE			
-30...125 °C			
10 bar			
10...35 VDC			
CE			
IP67			
Page 353			

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

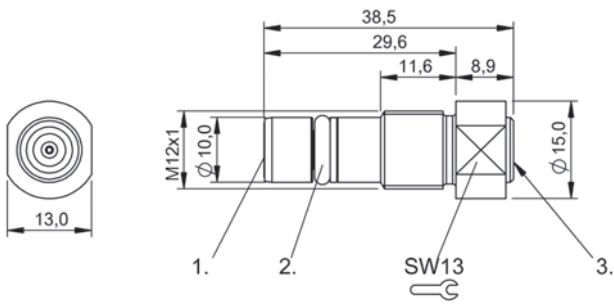
Safety

Industrial Networking

Power Supply

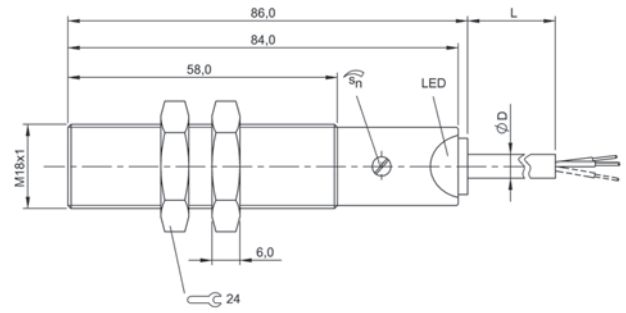
Connectivity

Accessories

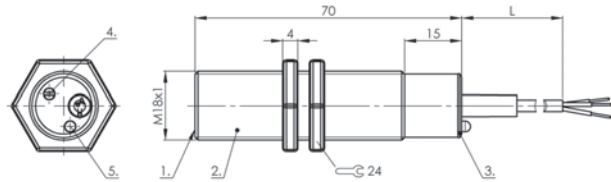


1) Sensing surface, 2) O-Ring with thrust ring, 3) Triaxial connector

BCS013E

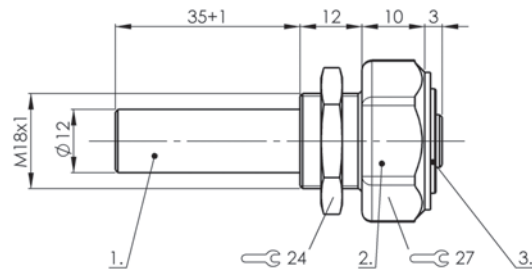


BCS000K, BCS000J



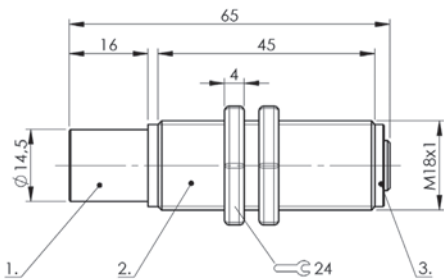
1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) LED function indicator

BCW0001



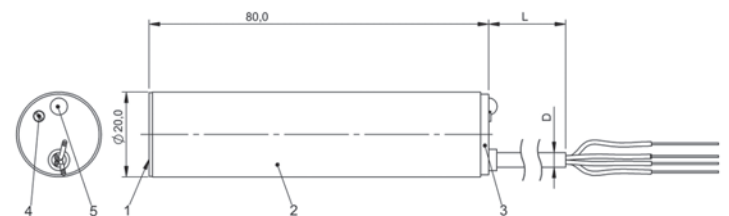
1) Sensing surface, 2) Housing, 3) Cover

BCS00A3



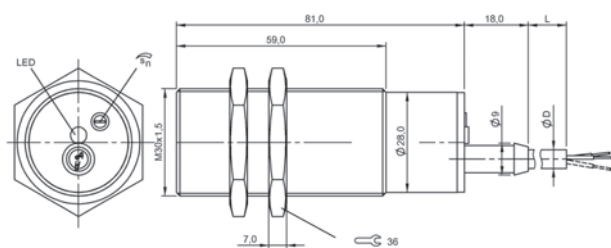
1) Sensing surface, 2) Housing, 3) Cover

BCS00A1

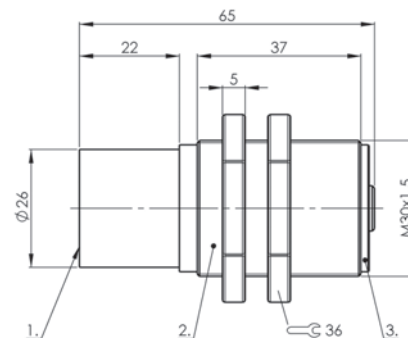


1) Sensing surface, 2) Housing, 3) Cover, 4) Potentiometer, 5) Function indicator yellow

BCS00W7

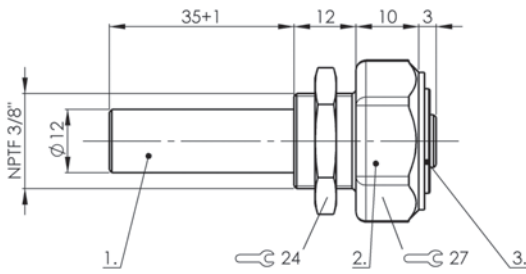


BCS000W, BCS000U



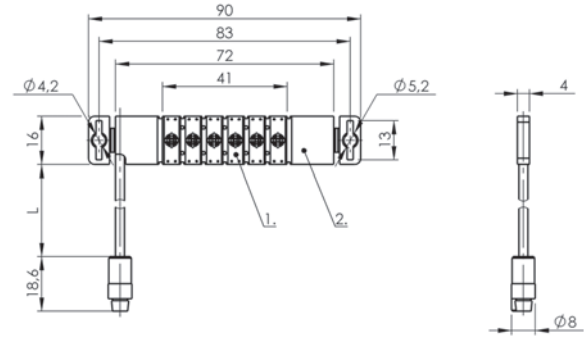
1) Sensing surface, 2) Housing, 3) Cover

BCS00A2



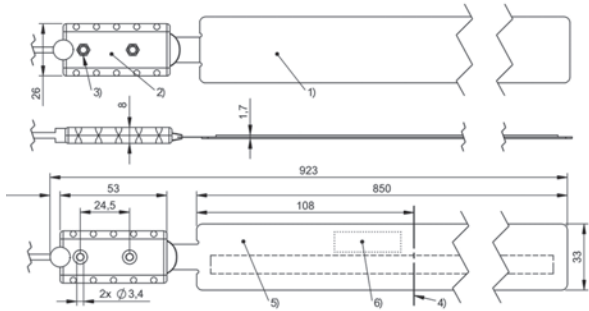
1) Sensing surface, 2) Housing, 3) Cover

BCS00A5



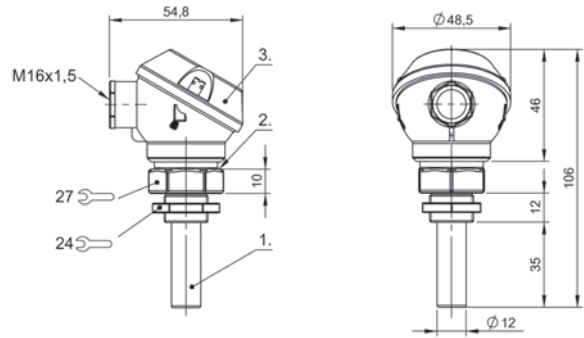
1) Sensing surface, 2) Housing

BCS000Y



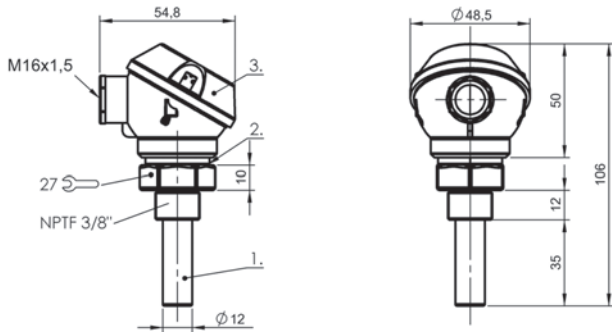
1) Length of stick-on electronics, 2) Measuring length min., 3) Length of electronics box, 4) Hole spacing, 5) Cable length, 6) Width of stick-on electrode

BCW0004



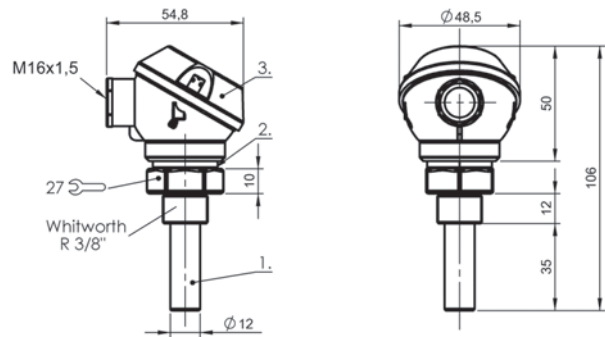
1) Sensing surface, 2) Housing, 3) Cover

BCS006H, BCS006J



1) Sensing surface, 2) Housing, 3) Cover

BCS00A9, BCS00A6



1) Sensing surface, 2) Housing, 3) Cover

BCS006M

Generous detection range for high reliability

PHOTOELECTRIC SENSORS

Photoelectric sensors from Balluff reliably recognize the presence of objects. They check shape, color, distance or thickness equally reliably. This is because they have a significantly greater detection range compared to inductive or capacitive technology.

In the area of photoelectric sensors we offer a huge product variety. Sensors using all light types from red light to infrared to laser technology.

Sensors with the most different ranges, with and without background suppression, as well as many different form factors. For specialty applications, mini-sensors, color sensors, light band and contrast sensors round out our portfolio. With Balluff you achieve not only the highest reliability, but also the greatest flexibility.

The most important benefits

- All light types, all principles
- Different ranges from near to far
- Tailored to the requirements of automation, mounting and handling
- Robust and reliable even under adverse environmental conditions
- Flexibility for planning and installation through well-conceived technical data





Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

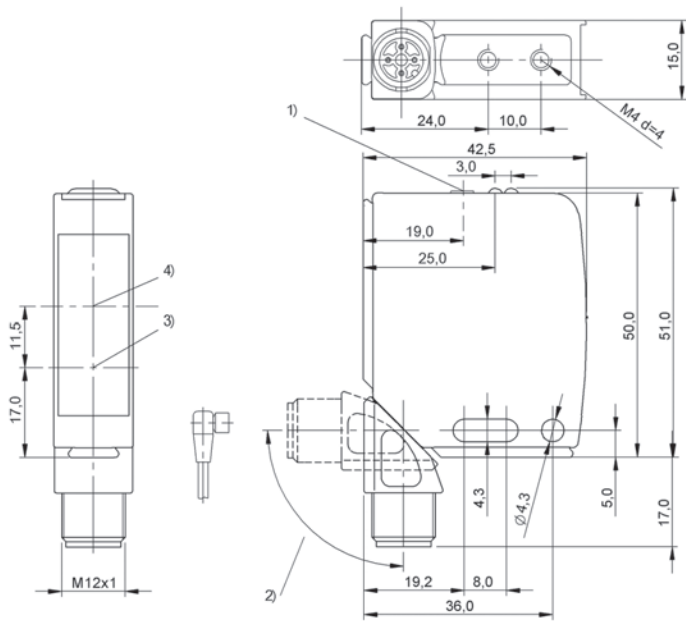
Power Supplies

Connectivity

Accessories



	BOS026R BOS 21M-UUI-RP30-S4
Series	21M
Dimension	15 x 51 x 42.5 mm
Interface	IO-Link 1.1 2x PNP/NPN/push-pull NO/NC
Input function	Reset counter
Principle of operation	Photoelectric sensor
Principle of optical operation	Diffuse energetic, diffuse with background suppression, retroreflective, through-beam (emitter), through-beam (receiver), depends on setting
Special optical feature	Multifunction
Beam characteristic	Divergent
Light type	LED, red light
Light spot size	Ø 50 mm at 1 m
Range	adjustable
Connection	Connector, M12x1 connector, 4-pin
Housing material	Zinc, die-cast Aluminum, glass, PC
Material sensing surface	Glass, anti-glare
Operating voltage U_b	10...30 VDC
Approval/Conformity	CE, EAC, cULus
Productview	Page 357



1) Display and control panel, 2) rotatable 270°, 3) Optical axis emitter, 4) Optical axis receiver

BOS026R



	BOS01R8 BOS 08E-PS-KD20-00,2-S49	BOS01NN BOS 08E-PS-KD20-S49	BOS01Y2 BOS 12M-PS-ID10-S4	
PNP normally open				
PNP normally open, PNP normally closed				
Series	08E	08E	12M	
Dimension	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 12 x 60 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED infrared	
Light spot size	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	45 x 45 mm at 400 mm	
Range	1...60 mm	1...60 mm	1...400 mm	
Connection	Cable with connector, 0.20 m, PUR	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin	
Housing material	Stainless steel	Stainless steel	Brass	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	cULus, CE	cULus, CE	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 370	Page 370	Page 370	



	BOS01TP BOS 12M-PS-RD10-S4	BOS01TN BOS 12M-PS-RD11-S4	BOS01TU BOS 12M-PS-RD12-S4		
				BOS01EY BOS 18M-PA-ID20-S4	BOS01NF BOS 18M-PA-LD20-S4
	12M	12M	12M	18M	18M
	Ø 12 x 60 mm	Ø 12 x 60 mm	Ø 12 x 60 mm	Ø 18 x 75 mm	Ø 18 x 75 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic
	—	—	—	—	—
	Divergent	Divergent	Divergent	Divergent	Focus, typical at 400 mm
	LED, red light	LED, red light	LED, red light	LED infrared	Laser red light
	28 x 28 mm at 250 mm	Ø 8 mm at 100 mm	22 x 22 mm at 200 mm	Ø 50 mm at 600 mm	Ø 2 mm at 250 mm
	0...250 mm	1...100 mm	1...200 mm	1...800 mm	1...250 mm
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Brass	Brass	Brass	Brass	Brass
	PMMA	PMMA	PMMA	Glass, anti-glare	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	cULus, CE, EAC	cULus, CE, EAC
	Global	Global	Global	—	—
	Page 370	Page 370	Page 370	Page 370	Page 370

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open	BOS01C1 BOS 18M-PS-RD20-S4	BOS01E7 BOS 18M-PS-RD21-S4		
PNP normally open, PNP normally closed	BOS01CF BOS 18M-PA-RD20-S4	BOS01CA BOS 18M-PA-RD21-S4		
PNP normally open/normally closed, IO-Link 1.1			BOS01UA BOS 18M-PI-RD30-S4	
PNP normally open/normally closed				
Series	18M	18M	18M	
Dimension	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	Ø 50 mm at 600 mm	Ø 25 mm at 300 mm	Ø 50 mm at 600 mm	
Range	0...600 mm	0...300 mm	1...500 mm	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	Brass	Brass	Brass	
Material sensing surface	Glass, anti-glare	Glass, anti-glare	Glass	
Operating voltage U_b	10...30 VDC	10...30 VDC	18...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	cULus, CE, EAC	
Trademark	—	—	—	
Productview	Page 370	Page 370	Page 370	



	BOS01FA BOS 18M-PS-RD23-S4				
			BOS01KE BOS 18E-PA-RD20-S4	BOS023R BOS 18E-PA-RD30-S4	
					BOS023E BOS 18E-PI-RD30-S4
		BOS01J8 BOS 18M-PUV-RD30-S4			
	18M	18M	18E	18E	18E
	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic
	—	—	—	—	—
	Divergent	Divergent	Divergent	Divergent	Divergent
	LED, red light	LED, red light	LED, red light	LED, red light	LED, red light
	Ø 25 mm at 300 mm	Ø 50 mm at 600 mm	Ø 50 mm at 600 mm	Ø 50 mm at 600 mm	Ø 50 mm at 600 mm
	0...400 mm	0...500 mm	500 mm	500 mm	1...500 mm
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Brass	Brass	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4571)
	Glass, anti-glare	Glass	Glass	PMMA	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	18...30 VDC
	cULus, CE, EAC	CE, cULus, EAC	CE, cULus, Ecolab, FDA compliant, EAC	cULus, Ecolab	cULus, CE, EAC
	—	—	—	—	—
	Page 370	Page 370	Page 371	Page 371	Page 370



PNP normally open				
PNP normally open, PNP normally closed	BOS01KH BOS G18E-PA-RD20-S4	BOS0240 BOS G18E-PA-RD30-S4	BOS00LT BOS 18KW-PA-1PD-S4-C	
Series	G18E	G18E	18KW	
Dimension	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 14 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	Infrared	
Light spot size	Ø 50 mm at 600 mm	—	Ø 100 mm at 300 mm	
Range	500 mm	500 mm	0...400 mm	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	Stainless steel (1.4404)	Stainless steel (1.4404)	PBT	
Material sensing surface	Glass	PMMA	PMMA	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, Ecolab, FDA compliant, EAC	Ecolab, cULus, CE, EAC	CE, cULus, EAC	
Trademark	—	—	Global	
Productview	Page 371	Page 371	Page 371	



BOS01NA BOS 18KF-PA-1XA-SA1-C-00,2					
	BOS00K9 BOS 18KF-PA-1XA-S4-C	BOS00K0 BOS 18KF-PA-1PE-C-02	BOS00JZ BOS 18KF-PA-1PD-S4-C	BOS00K1 BOS 18KF-PA-1PE-S4-C	
18KF	18KF	18KF	18KF	18KF	
Ø 18 x 67 mm	Ø 18 x 71.5 mm	Ø 18 x 77 mm	Ø 18 x 81.5 mm	Ø 18 x 81.5 mm	
—	—	—	—	—	
Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	
—	—	—	—	—	
Divergent	Divergent	Divergent	Divergent	Divergent	
Infrared	Infrared	Infrared	Infrared	Infrared	
Ø 80 mm at 100 mm	Ø 80 mm at 100 mm	Ø 200 mm at 600 mm	Ø 100 mm at 300 mm	Ø 200 mm at 600 mm	
0...100 mm	0...100 mm	0...700 mm	0...400 mm	0...700 mm	
Cable with connector, Molex Mini-Fit 4.2, 4-pin, 0.19 m, PVC	Connector, M12x1 connector, 4-pin	Cable, 2.00 m, PVC	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
PBT	PBT	PBT	PBT	PBT	
PMMA	PMMA	PMMA	PMMA	PMMA	
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
CE, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
—	Global	Global	Global	Global	
Page 371	Page 371	Page 371	Page 371	Page 371	



PNP normally open		BOS01WH BOS Q08M-PS-LD20-0,02-S49	BOS01WC BOS Q08M-PS-LD20-S49	
PNP normally open, PNP normally closed	BOS00JP BOS 18KF-PA-1LOC-S4-C			
Series	18KF	Q08M	Q08M	
Dimension	Ø 18 x 81.5 mm	8 x 44 x 8 mm	8 x 59 x 8 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Collimated	Collimated	
Light type	Laser red light	Laser red light	Laser red light	
Light spot size	Ø 1 mm at 150 mm	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	
Range	0...350 mm	60 mm	60 mm	
Connection	Connector, M12x1 connector, 4-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Connector, M8x1 connector, 3-pin	
Housing material	PBT	Zinc, die-cast	Zinc, die-cast	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	cULus, CE, EAC	cULus, CE, EAC	
Trademark	Global	—	—	
Productview	Page 371	Page 372	Page 372	



	BOS01RZ BOS Q08M-PS-KD20-00,2-S49	BOS01RJ BOS Q08M-PS-KD20-S49	BOS021J BOS R01E-PS-KD20-00,2-S49	BOS021K BOS R01E-PS-KD20-02	BOS0123 BOS 5K-PS-ID10-02
	Q08M	Q08M	R01E	R01E	5K
	8 x 44 x 8 mm	8 x 59 x 8 mm	20 x 32 x 9 mm	20 x 32 x 9 mm	10.8 x 32.7 x 19.5 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic
	—	—	—	—	—
	Divergent	Divergent	Divergent	Divergent	Divergent
	LED, red light	LED, red light	LED, red light	LED, red light	Infrared
	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	Ø 50 mm at 500 mm
	1...60 mm	1...60 mm	1...100 mm	1...100 mm	0...900 mm
	Cable with connector, 0.20 m, PUR	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Cable, 2.00 m, PUR	Cable, 2.00 m, PVC
	Zinc, die-cast	Zinc, die-cast	Stainless steel (1.4404)	Stainless steel (1.4404)	PC PBT
	PMMA	PMMA	PA	PA	PMMA
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	cULus, CE, EAC	cULus, CE, EAC	cULus, CE, Ecolab, EAC	cULus, CE, Ecolab, EAC	cULus, CE, EAC
	—	—	—	—	Global
	Page 372	Page 372	Page 372	Page 372	Page 372



	BOS015J BOS 5K-PS-ID10-S49	BOS0124 BOS 5K-PS-ID10-S75	BOS0127 BOS 5K-PS-RD11-02	
PNP normally open				
PNP normally open, PNP normally closed				
Series	5K	5K	5K	
Dimension	10.8 x 43.5 x 19.5 mm	10.8 x 43.5 x 19.5 mm	10.8 x 32.7 x 19.5 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	Infrared	Infrared	LED, red light	
Light spot size	Ø 50 mm at 500 mm	Ø 50 mm at 500 mm	Ø 8 mm at 180 mm	
Range	0...900 mm	0...900 mm	50...200 mm	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 4-pin	Cable, 2.00 m, PVC	
Housing material	PC PBT	PC PBT	PC PBT	
Material sensing surface	PMMA	PMMA	PC	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	cULus, CE, EAC	cULus, CE, EAC	cULus, CE	
Trademark	Global	Global	Global	
Productview	Page 372	Page 372	Page 372	



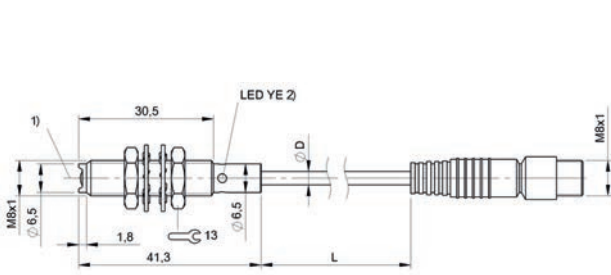
	BOS015N BOS 5K-PS-RD11-S49	BOS0128 BOS 5K-PS-RD11-S75			
			BOS0031 BOS 21M-PA-ID10-S4	BOS0032 BOS 21M-PA-LD10-S4	BOS0033 BOS 21M-PA-RD10-S4
	5K	5K	21M	21M	21M
	10.8 x 43.5 x 19.5 mm	10.8 x 43.5 x 19.5 mm	15 x 50 x 42.5 mm	15 x 50 x 42.5 mm	15 x 50 x 42.5 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic
	—	—	—	—	—
	Divergent	Divergent	Divergent	Collimated	Divergent
	LED, red light	LED, red light	LED infrared	Laser red light	LED, red light
	Ø 8 mm at 180 mm	Ø 8 mm at 180 mm	—	—	—
	50...200 mm	50...200 mm	50...2000 mm	0...600 mm	10...1000 mm
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	PC PBT	PC PBT	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum
	PC	PC	PMMA	PMMA	PMMA
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	cULus, CE	cULus, CE	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Global	Global	—	—	—
	Page 372	Page 372	Page 373	Page 373	Page 373



PNP normally open, PNP normally closed			BOS01FM BOS 23K-PA-RD10-S4	
PNP normally open/normally closed, IO-Link 1.1				
PNP normally open/normally closed	BOS0175 BOS 23K-PU-LD20-S4	BOS016Z BOS 23K-PU-RD10-S4		
Relay normally open/normally closed				
Series	23K	23K	23K	
Dimension	23 x 51 x 52.4 mm	23 x 51 x 52.4 mm	23 x 51 x 52.4 mm	
Input function	Key disable on/off, Same function as button	Key disable on/off, Same function as button	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	
Special optical feature	—	—	—	
Beam characteristic	Collimated	Focus, typical at 500 mm	Focus, typical at 500 mm	
Light type	Laser red light	LED, red light	LED, red light	
Light spot size	2.2 x 2.2 mm at 800 mm	15 x 15 mm at focal point	15 x 15 mm at focal point	
Range	5...1200 mm	0...2000 mm	0...2000 mm	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	PC ABS	PC ABS	PC ABS	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, Ecolab, cULus	Ecolab, CE, cULus, EAC	Ecolab, CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 373	Page 373	Page 373	

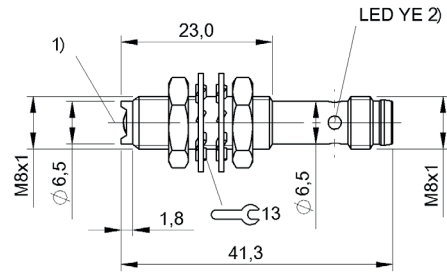


		BOS01CJ BOS 50K-PA-RD10-S4			
			BOS01JJ BOS 50K-PI-RD11-S4		
	BOS016Z BOS 23K-PU-RD10-S4			BOS01JA BOS 50K-PU-RD11-S4	
					BOS01K2 BOS 64K-AA-ID10-TG
	23K	50K	50K	50K	64K
	23 x 51 x 52.4 mm	28.5 x 80.5 x 62 mm	28.5 x 80.5 x 62 mm	28.5 x 80.5 x 62 mm	25 x 69.7 x 100.4 mm
	Key disable on/off, Same function as button	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic
	—	—	—	—	—
	Focus, typical at 500 mm	Divergent	Divergent	Divergent	Divergent
	LED, red light	LED, red light	LED, red light	LED, red light	Infrared
	15 x 15 mm at focal point	50 x 50 mm at 2 m	80 x 80 mm at Sr	80 x 80 mm at Sr	—
	0...2000 mm	1...2000 mm	1...3500 mm	1...3500 mm	50...2000 mm
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Screw terminals
	PC ABS	PC ABS	PC ABS	PC ABS	PBT, GF30
	PMMA	Glass	Glass	Glass	PC
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	24...60 VDC/24...240 VAC
	Ecolab, CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	cULus, CE, EAC	CE, cULus, EAC
	—	—	—	—	—
	Page 373	Page 373	Page 373	Page 373	Page 373



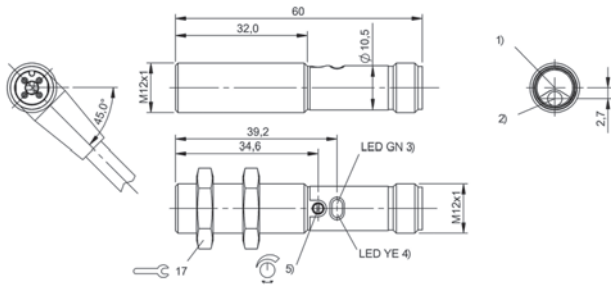
1) Optical axis, 2) Output function

BOS01R8



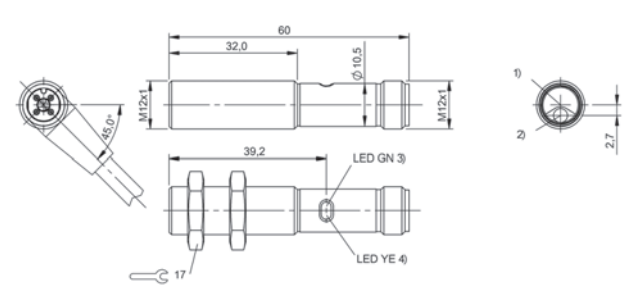
1) Optical axis, 2) Output function

BOS01NN



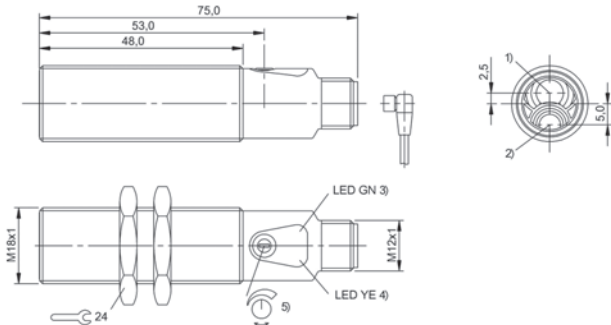
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn

BOS01Y2, BOS01TP



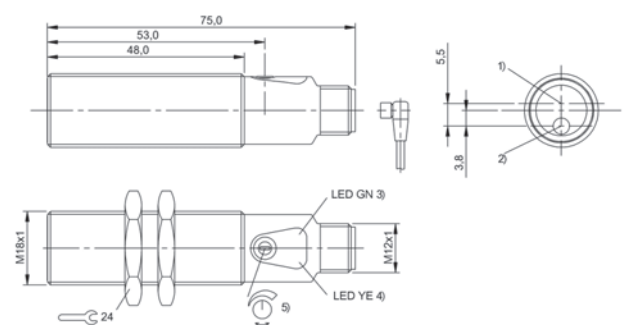
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area

BOS01TN, BOS01TU



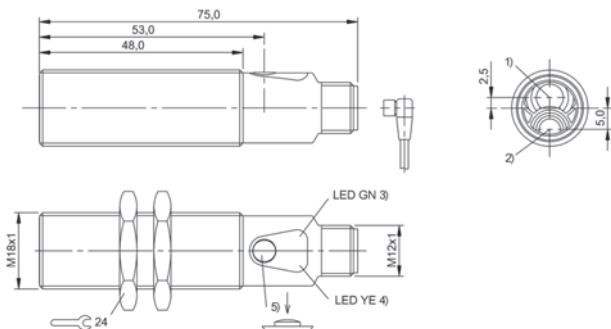
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn

BOS01EY, BOS01CF, BOS01CA, BOS01C1, BOS01E7



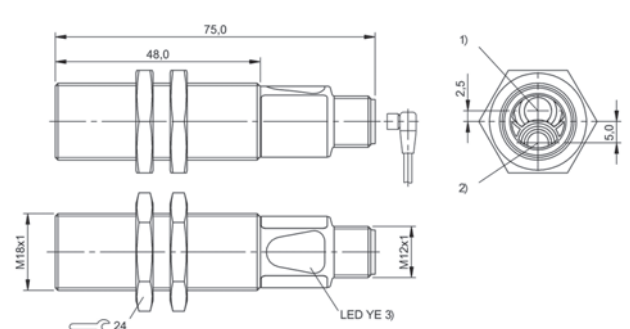
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage/Error, 4) Light reception/limit area, 5) Sn

BOS01NF



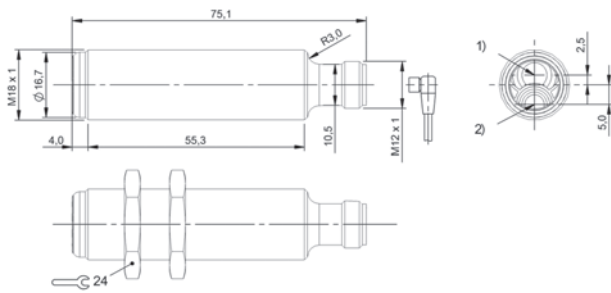
1) Optical axis receiver, 2) Optical axis emitter, 3) Power/short-circuit, 4) Light reception/limit area, 5) Sn

BOS01UA, BOS01J8, BOS023E



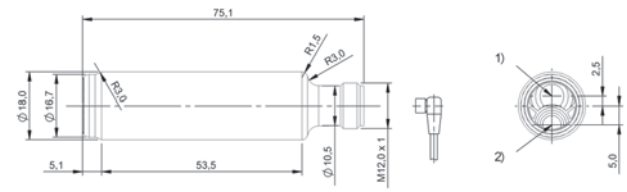
1) Optical axis receiver, 2) Optical axis emitter, 3) Light reception/limit area

BOS01FA



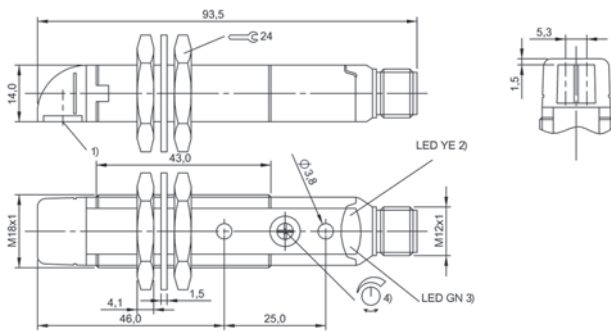
1) Optical axis receiver, 2) Optical axis emitter

BOS01KE, BOS023R



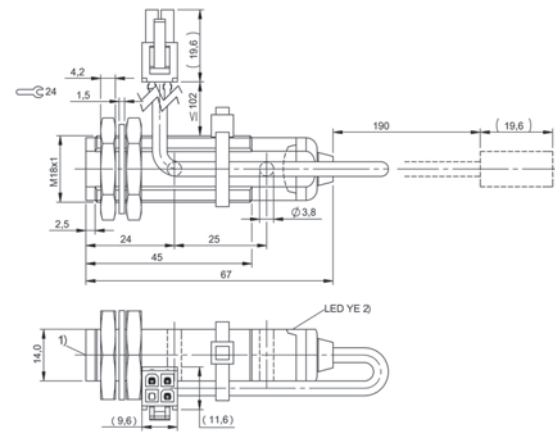
1) Optical axis receiver, 2) Optical axis emitter

BOS01KH, BOS0240



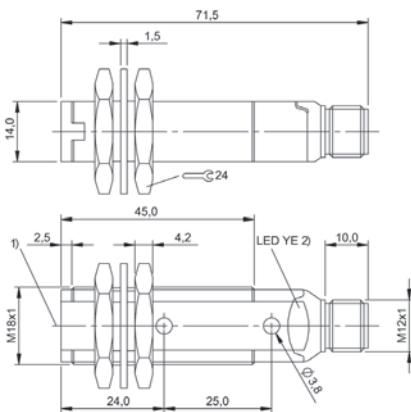
1) Optical axis, 2) Output function, 3) Stability, 4) Sn

BOS001T



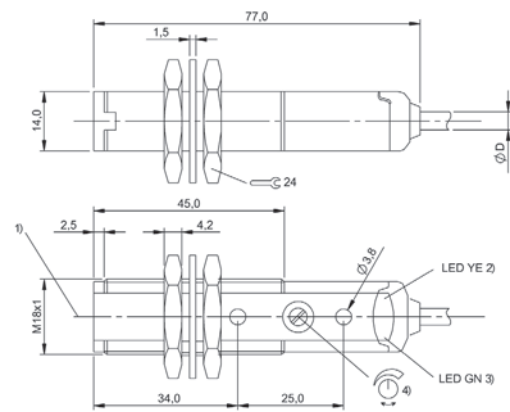
1) Optical axis, 2) Output function

BOS01NA



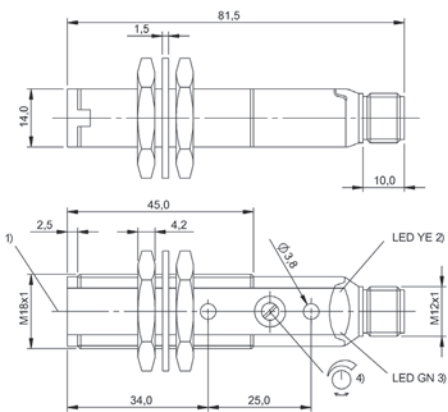
1) Optical axis, 2) Output function

BOS00K9



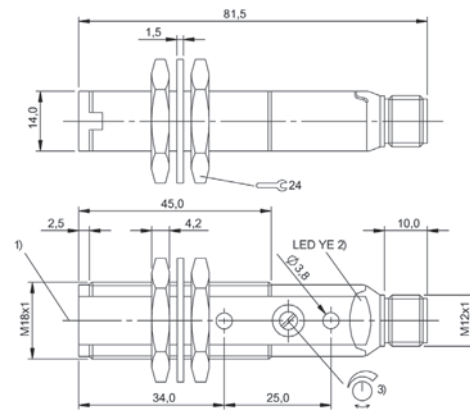
1) Optical axis, 2) Output function, 3) Stability, 4) Sn

BOS00K0



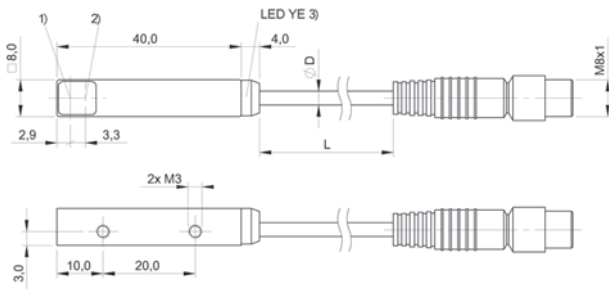
1) Optical axis, 2) Output function, 3) Stability, 4) Sn

BOS00JZ, BOS00K1



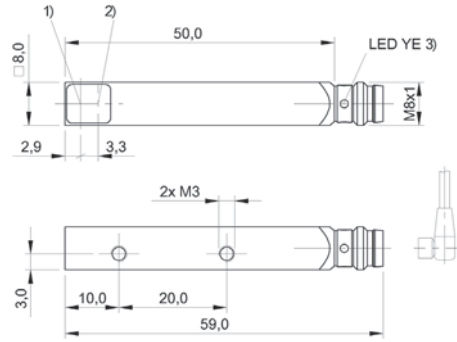
1) Optical axis, 2) Output function, 3) Sn

BOS00JP



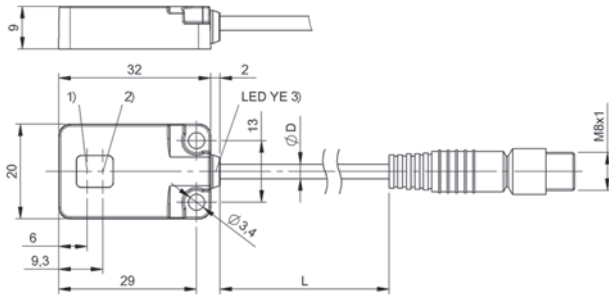
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

BOS01WH, BOS01RZ



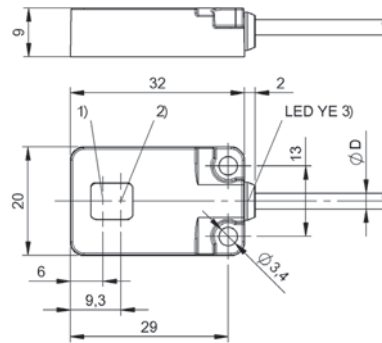
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

BOS01WC, BOS01RJ



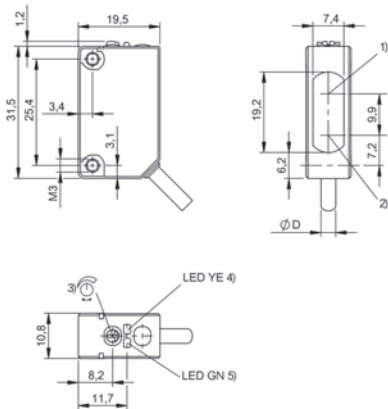
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

BOS021J



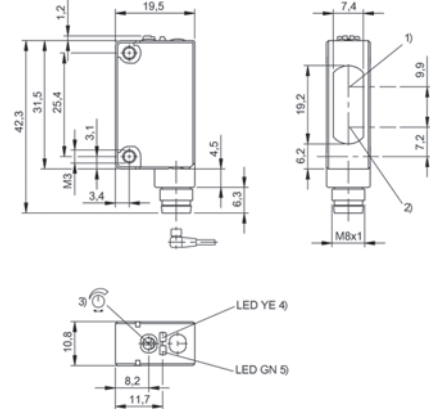
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

BOS021K



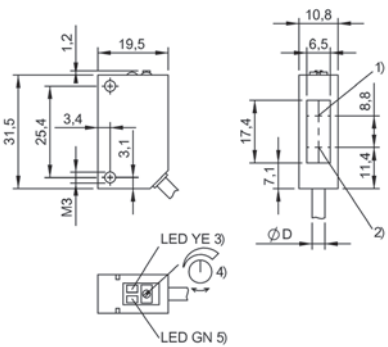
1) Optical axis receiver, 2) Optical axis emitter, 3) Sn, 4) Output function, 5) stability

BOS0123



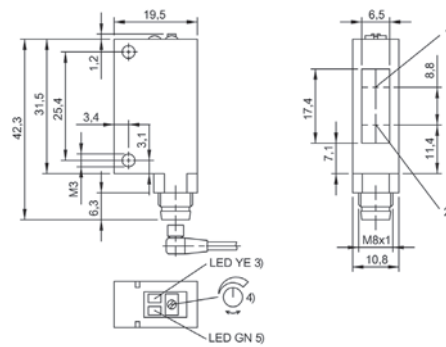
1) Optical axis receiver, 2) Optical axis emitter, 3) Sn, 4) Output function, 5) stability

BOS015J, BOS0124



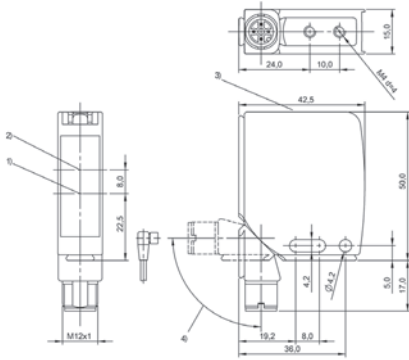
1) Optical axis receiver, 2) Optical axis emitter, 3) Output function, 4) Sn, 5) stability

BOS0127



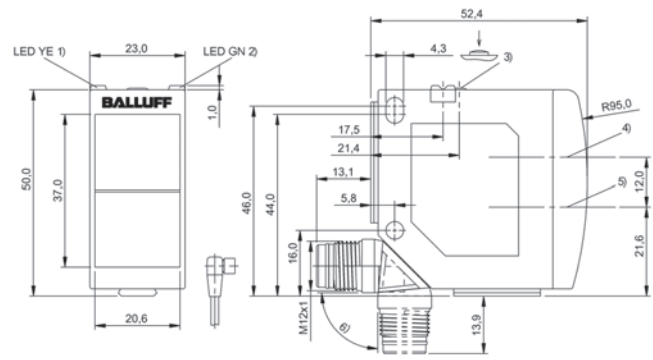
1) Optical axis receiver, 2) Optical axis emitter, 3) Output function, 4) Sn, 5) stability

BOS015N, BOS0128



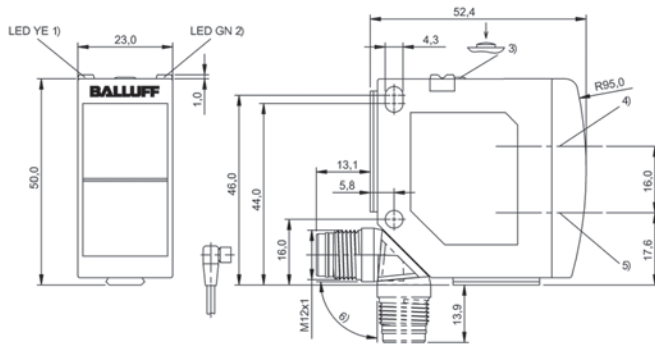
1) Optical axis emitter, 2) Optical axis receiver, 3) Display and control panel, 4) rotatable 270°

BOS0031, BOS0032, BOS0033



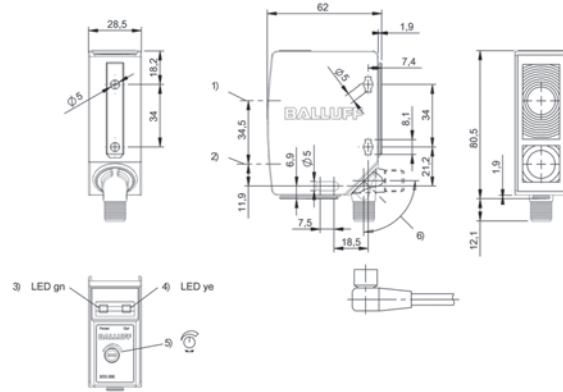
1) Output function/Error, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter, 6) rotatable 270°

BOS0175



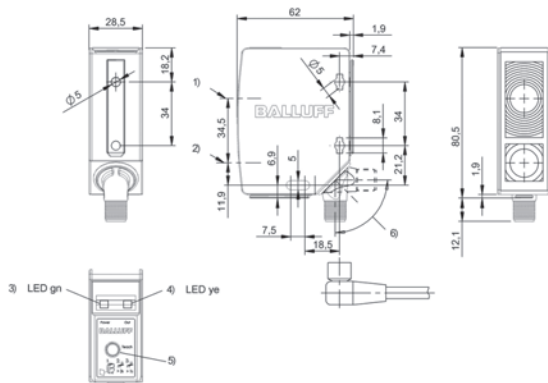
1) Output function/Error, 2) Power/setting mode, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter, 6) rotatable 270°

BOS01FM, BOS016Z



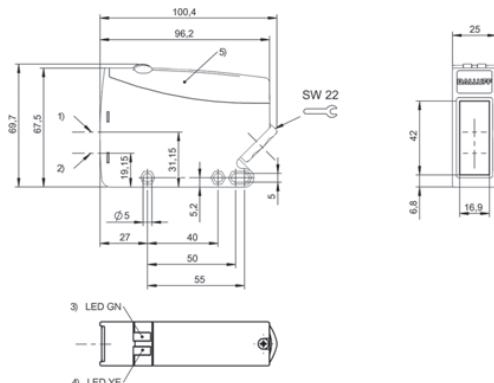
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn, 6) rotatable 270°

BOS01CJ



1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception, 5) Teach-In button, 6) rotatable 270°

BOS01JJ, BOS01JA

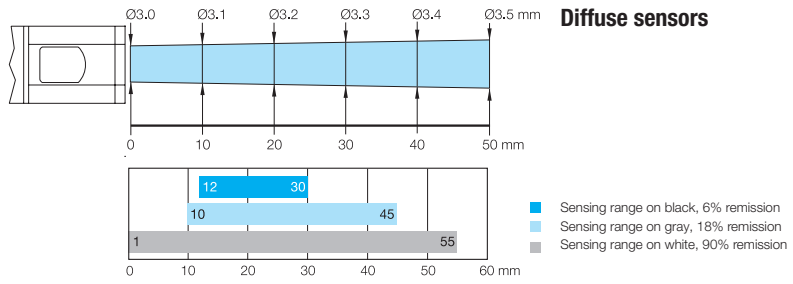


1) Optical axis receiver, 2) Optical axis emitter, 3) Stability, 4) Output function, 5) Removable cover

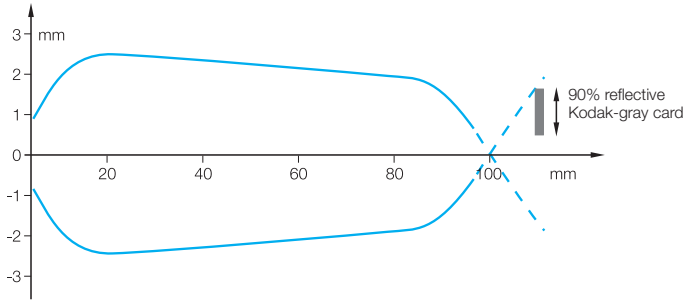
BOS01K2

BOS 2K

**Light spot diameter
Diffuse, 50 mm**

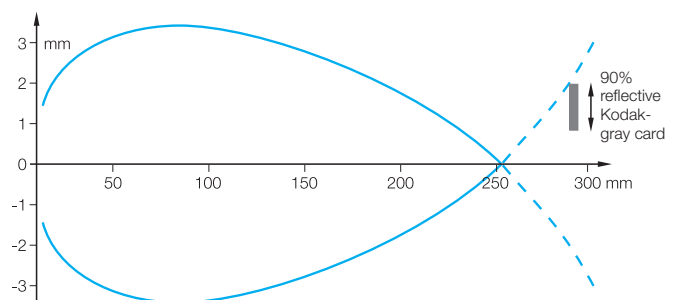


Diffuse sensor BOS 6K-...-1HA-...



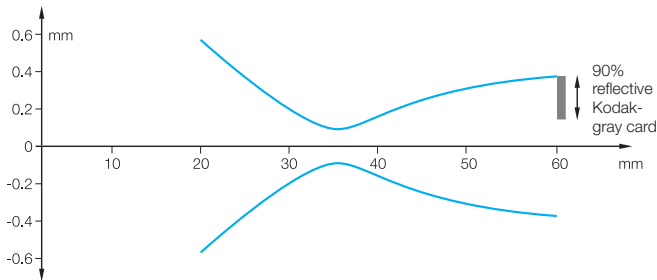
Sensing distance with side approach of Kodak-gray card.

Diffuse sensor BOS 6K-...-10C-...



Sensing distance with side approach of Kodak-gray card.

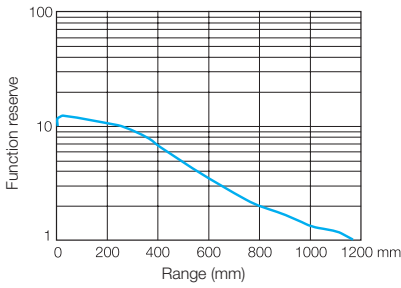
Diffuse sensor BOS 6K-...-1LHA-...



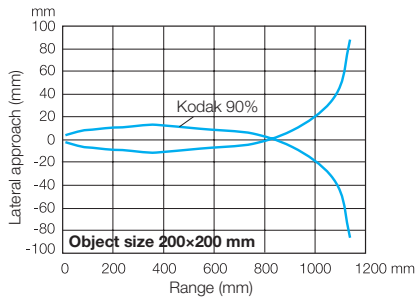
Sensing distance with side approach of Kodak-gray card.

Diffuse sensor BOS 5K-...-ID10-...

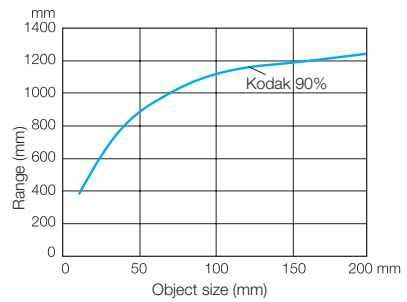
Receiving characteristics



Characteristic response curve

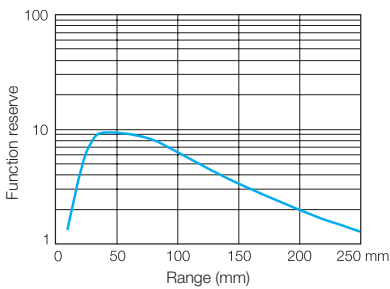


Object size vs. hysteresis

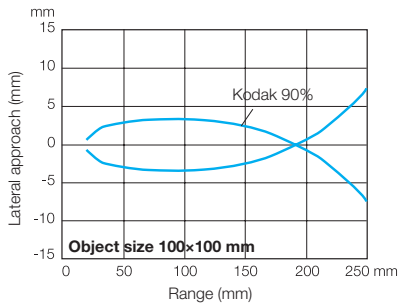


Diffuse sensor, small beam BOS 5K-...-RD11-...

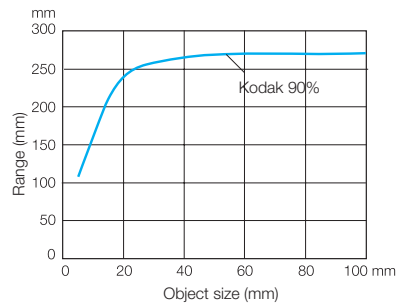
Receiving characteristics



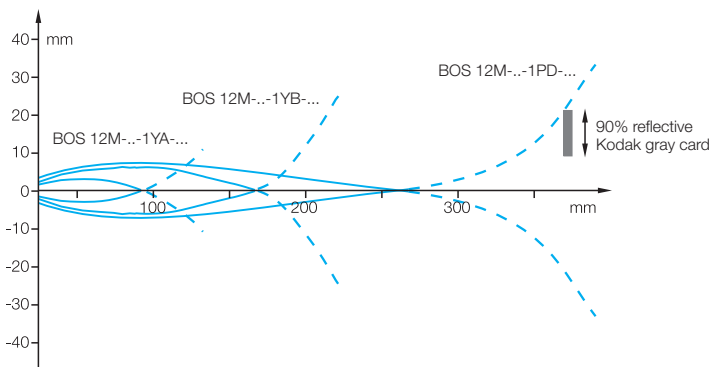
Characteristic response curve



Object size vs. hysteresis

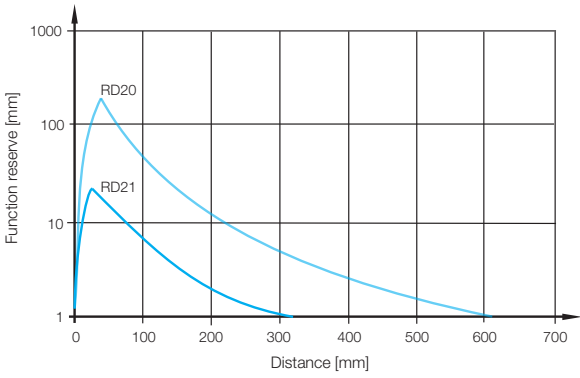


Diffuse sensor BOS 12M-...-1YA/1YB/1PD-...

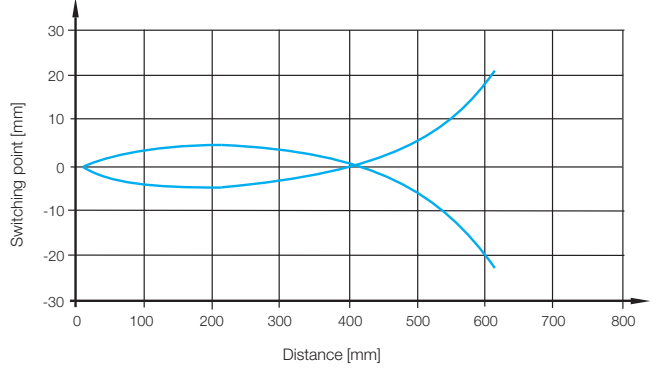


Sensing distance measured with side approach of Kodak gray card.

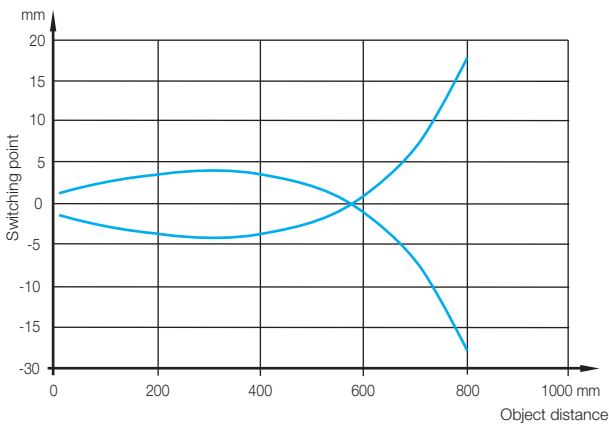
**Diffuse sensor BOS 18M...RD
function reserve**



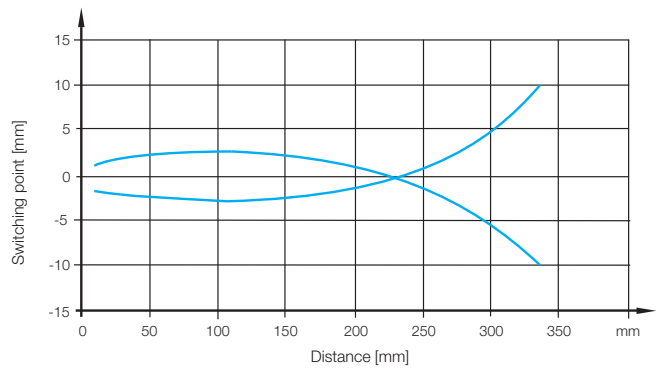
**Diffuse sensor BOS 18M...RD20
Response curve**



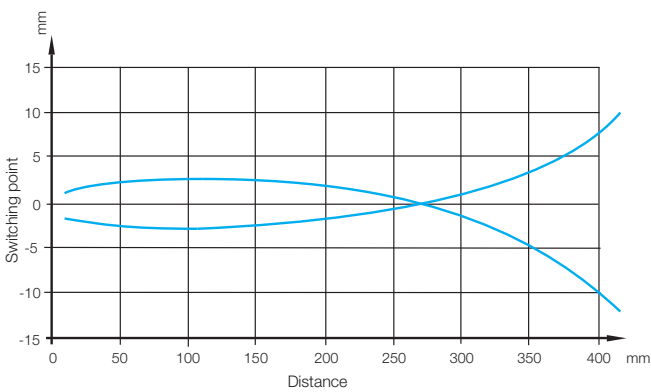
Diffuse sensor BOS 18M...ID20-S4 response curve



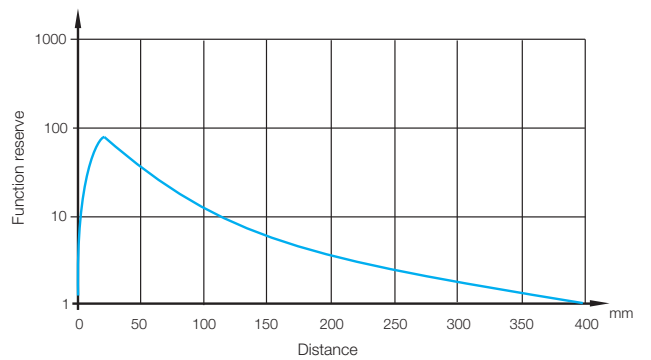
**Diffuse sensor BOS 18M...RD21..
Response curve**



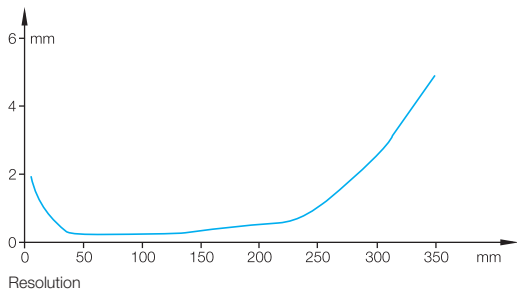
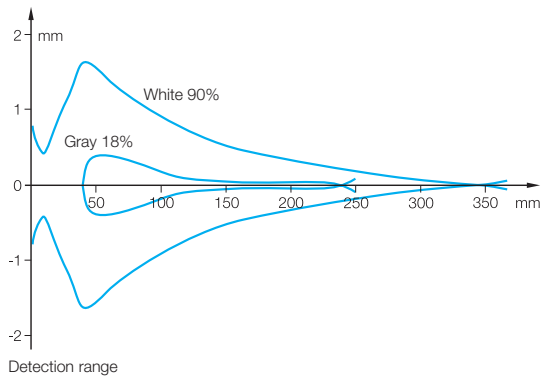
**Diffuse sensor BOS 18M...RD23
response curve**



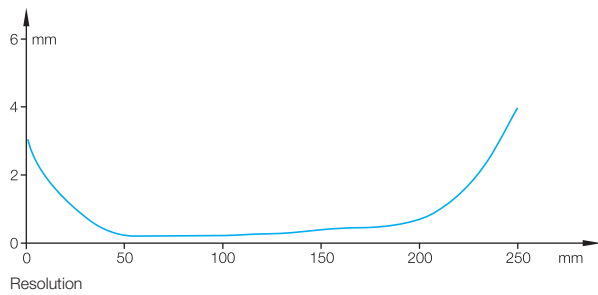
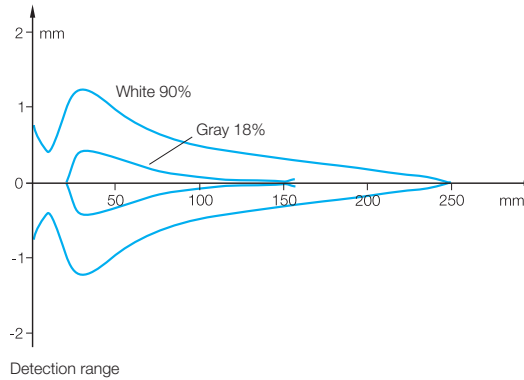
**Diffuse sensor BOS 18M...RD23
function reserve**



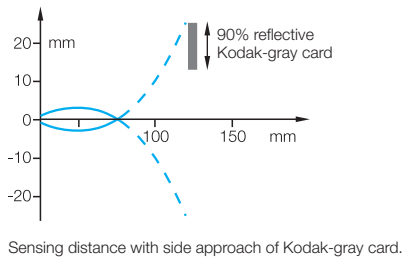
Diffuse sensor BOS 18M-...-LD10-...



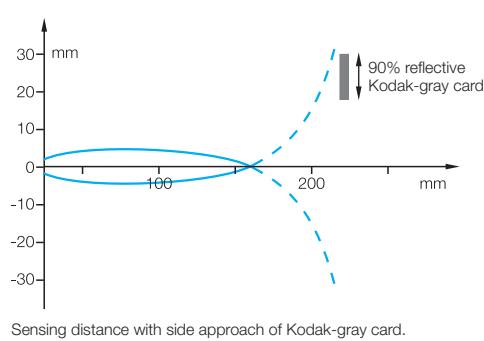
Diffuse sensor BOS 18MR-...-LD10-...



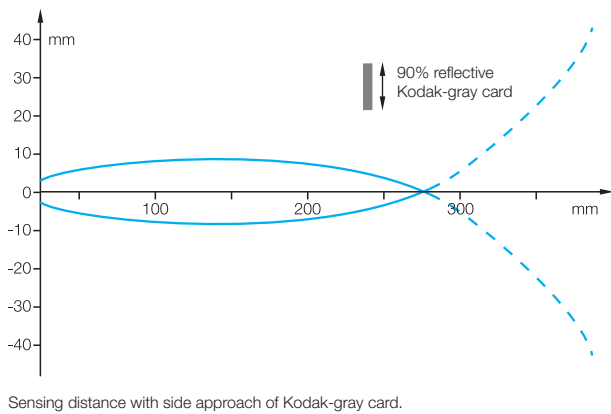
Diffuse sensor BOS 18E-...-1YA-...



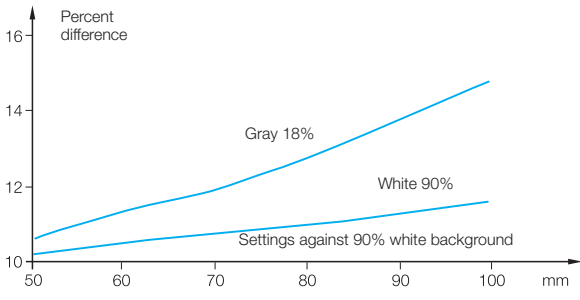
Diffuse sensor BOS 18E-...-1YB-...



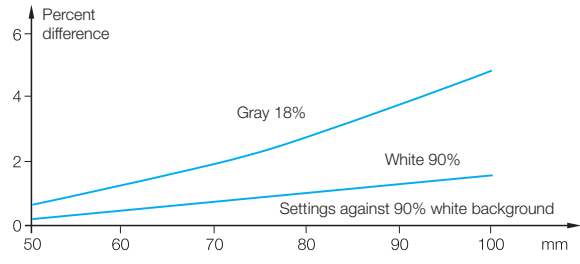
Diffuse sensor BOS 18E-...-1YD-...



Diffuse sensor BOS 18KF--1HA--...

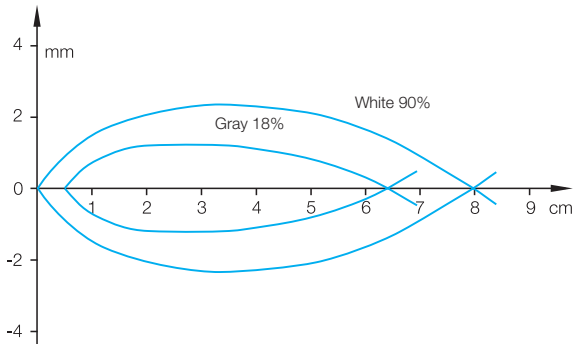


Tolerance with standard setting

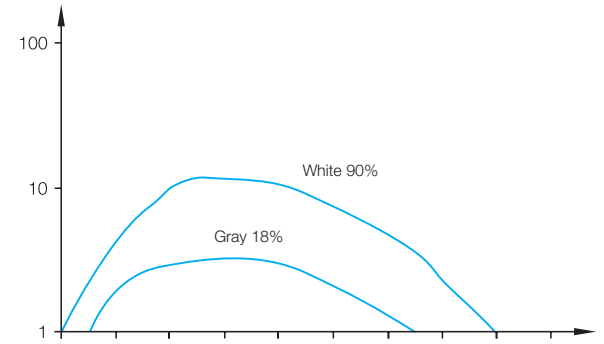


Tolerance with fine setting

Diffuse sensor BOS 18KF--1N1R--...

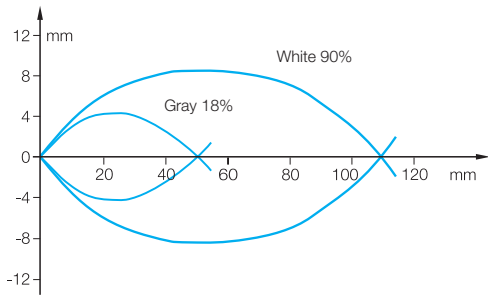


Detection range

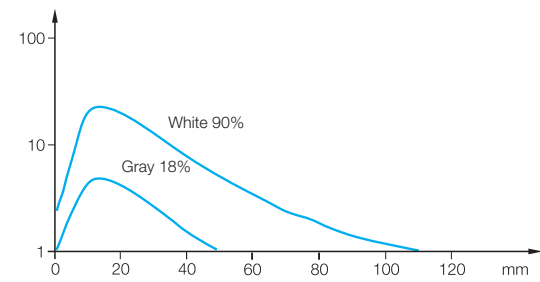


Function reserve

Diffuse sensor BOS 18KF--1XA--...

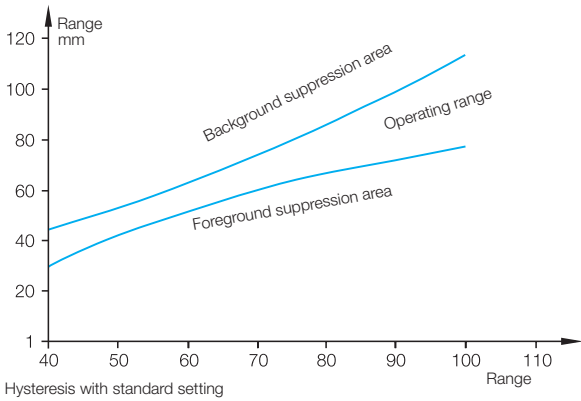


Detection range

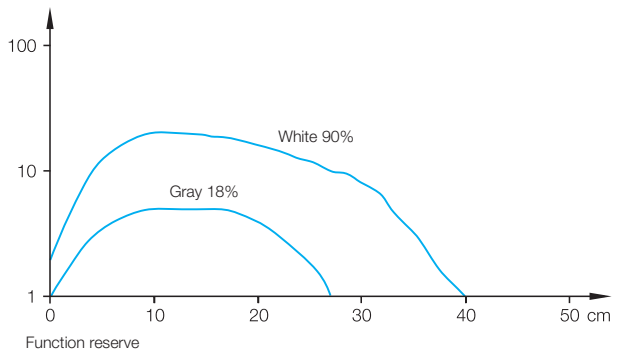
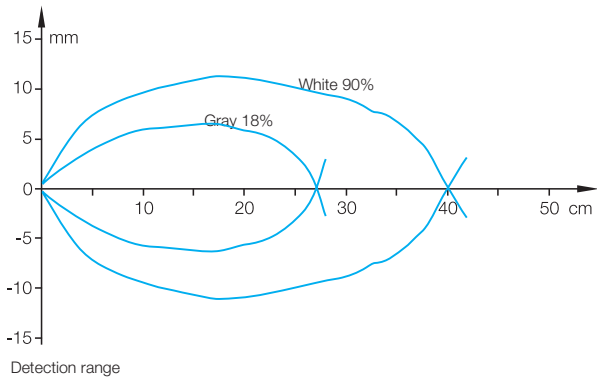


Function reserve

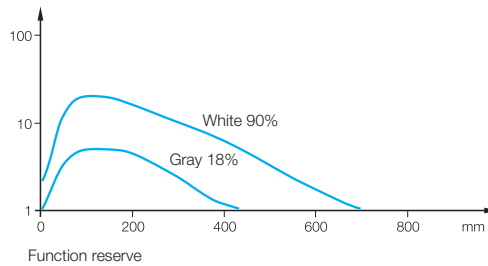
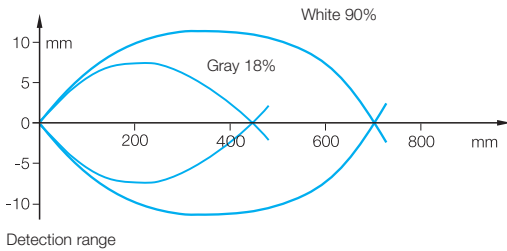
Diffuse sensor BOS 18KF-..-1GA-...



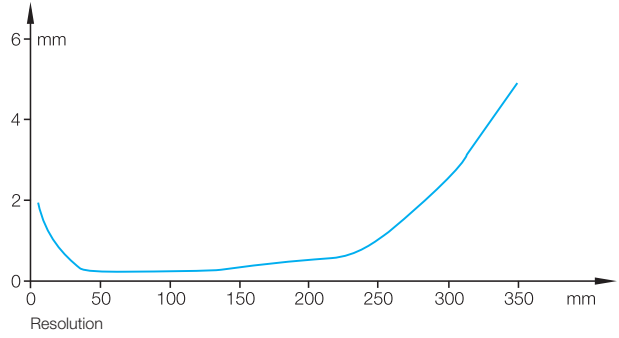
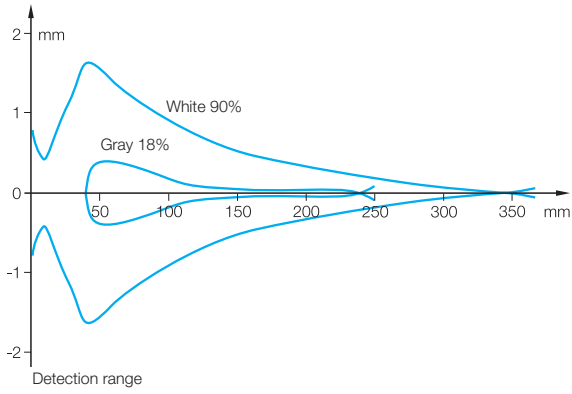
Diffuse sensor BOS 18KF-..-1PD-...



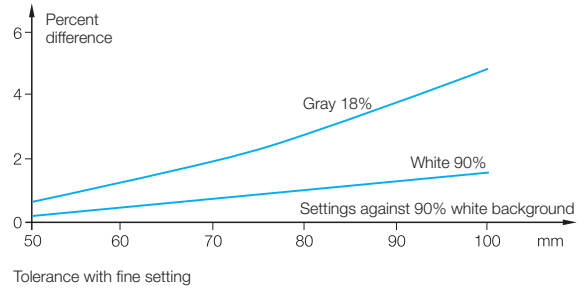
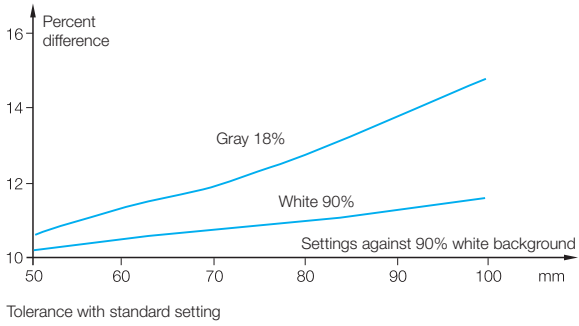
Diffuse sensor BOS 18KF-..-1PE-...



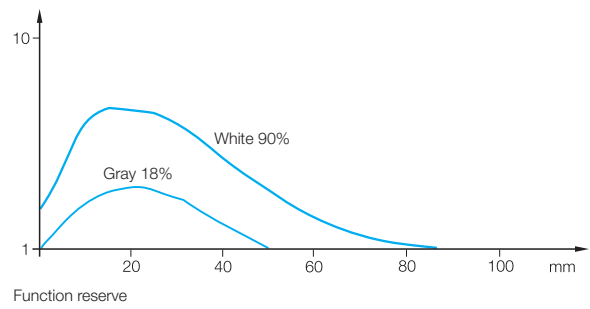
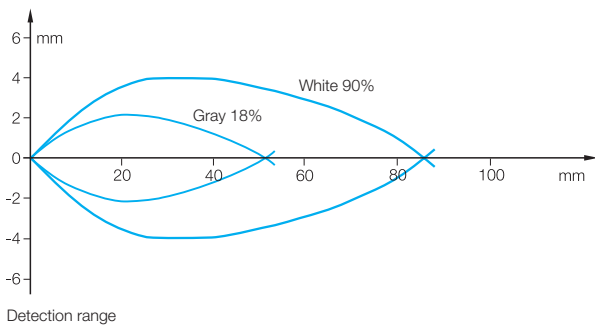
Diffuse sensor BOS 18KF--1LOC--...



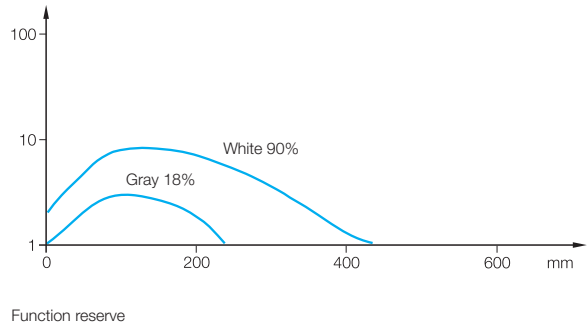
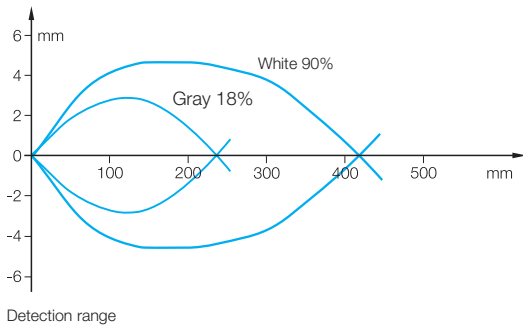
Diffuse sensor BOS 18KW--1HA--...



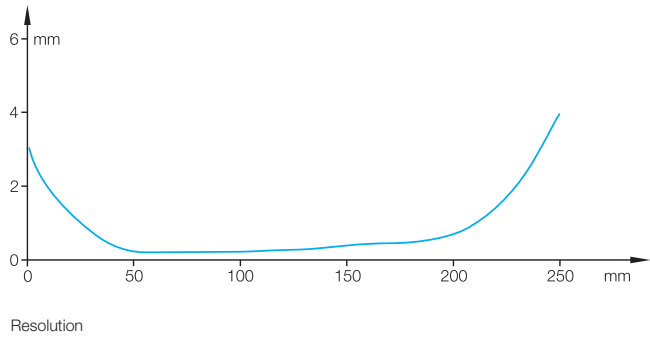
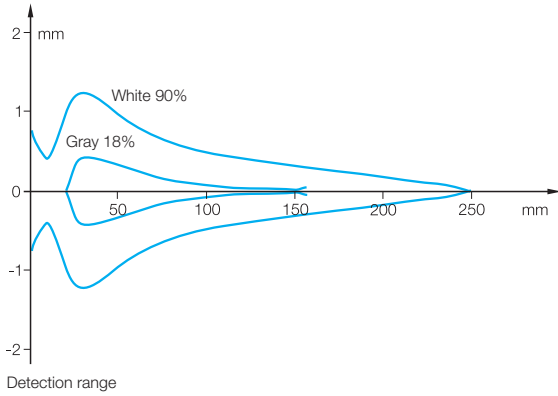
Diffuse sensor BOS 18KW--1XA--...



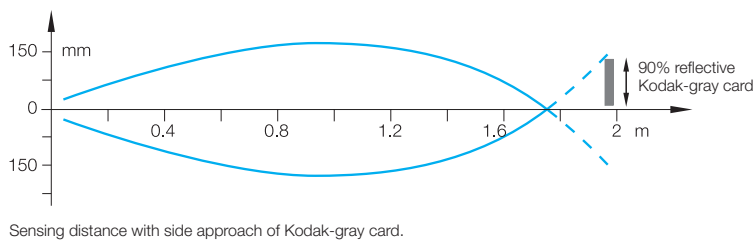
Diffuse sensor BOS 18KW--1PD...



Diffuse sensor BOS 18KW--1LOB...



Diffuse sensor BOS 30M--1PH...





PNP normally open			BOS01H2 BOS 08E-PS-KF20-00,2-S49	
PNP normally open, IO-Link 1.1	BOS0246 BOS 08E-PI-KH22-00,2-S49	BOS0247 BOS 08E-PI-KH22-S49		
PNP normally open, PNP normally closed				
Series	08E	08E	08E	
Dimension	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 8 x 40 mm	
Supplementary output	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	
Special optical feature	Background suppression	Background suppression	Background suppression	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	
Range	30 mm Adjustable	30 mm Adjustable	20 mm	
Connection	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	
Housing material	Stainless steel	Stainless steel	Stainless steel	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	cULus, CE, IO-Link, EAC	CE, cULus, IO-Link, EAC	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 398	Page 398	Page 398	



	BOS01H6 BOS 08E-PS-KF20-S49	BOS01H0 BOS 08E-PS-KH22-00,2-S49	BOS01H4 BOS 08E-PS-KH22-S49		
				BOS01UM BOS 12M-PA-RF10-S4	BOS01ZT BOS 12M-PA-RF11-S4
	08E	08E	08E	12M	12M
	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 12 x 60 mm	Ø 12 x 60 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation
	Background suppression	Background suppression	Background suppression	Fixed focus, Fixed background suppression	Fixed background suppression
	Divergent	Divergent	Divergent	Focus, typical at 25 mm	Divergent
	LED, red light	LED, red light	LED, red light	LED, red light	LED, red light
	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 1.5 mm at 25 mm	Ø 4 mm at 50 mm
	20 mm	7...30 mm	7...30 mm	1...25 mm	0...50 mm
	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Connector, M8x1 connector, 3-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Stainless steel	Stainless steel	Stainless steel	Brass	Brass
	PMMA	PMMA	PMMA	PMMA	PMMA
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	cULus, CE, EAC	cULus, CE, EAC	cULus, CE, EAC	CE, cULus, EAC	CE, cULus, EAC
	—	—	—	—	—
	Page 398	Page 398	Page 398	Page 398	Page 398



PNP normally open			BOS002H BOS 18M-PS-LH22-S4	
PNP normally open, PNP normally closed	BOS017U BOS 12M-PA-RH12-S4	BOS01C5 BOS 18M-PA-LH23-S4		
Series	12M	18M	18M	
Dimension	Ø 12 x 60 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	
Supplementary output	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	
Special optical feature	Background suppression	Background suppression	Background suppression	
Beam characteristic	Divergent	Focus, typical at 100 mm	Focus, typical at 100 mm	
Light type	LED, red light	Laser red light	Laser red light	
Light spot size	Ø 6 mm at 100 mm	0.05 x 0.1 mm at focal point	0.05 x 0.1 mm at focal point	
Range	25...100 mm	30...150 mm	30...150 mm	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	Brass	Brass	Brass	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 398	Page 399	Page 399	



	BOS002K BOS 18M-PSV-LH22-S4	BOS010J BOS 18MR-PS-1HA-E5-C-S4			
			BOS0081 BOS 18MR-PA-1HA-S4-C	BOS014W BOS 18M-PA-RH22-S4	BOS01J4 BOS 18M-PA-RH23-S4
	18M	18MR	18MR	18M	18M
	Ø 18 x 75 mm	Ø 18 x 18 mm	20 x 82 x 28 mm	Ø 18 x 75 mm	Ø 18 x 75 mm
	Error output PNP	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation
	Background suppression	Background suppression	Background suppression	Background suppression	Background suppression
	Focus, typical at 100 mm	Divergent	Divergent	Divergent	Divergent
	Laser red light	LED, red light	LED, red light	LED, red light	LED, red light
	0.05 x 0.1 mm at focal point	—	8 x 10 mm at 100 mm	27 x 27 mm at 300 mm	10 x 10 mm at 150 mm
	30...150 mm	10...120 mm	40...120 mm	30...300 mm	30...150 mm
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Brass	Brass	Brass	Brass	Brass
	PMMA	Glass	Glass	Glass	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus, EAC	CE, EAC	CE, cULus, EAC	cULus, CE, EAC	CE, cULus, EAC
	—	—	—	—	—
	Page 399	Page 399	Page 399	Page 399	Page 399



2 × PNP normally open/normally closed		BOS00LH BOS 18KW-PA-1HA-S4-C	BOS00JK BOS 18KF-PA-1GA-S4-C	
PNP normally open	BOS0016 BOS 18E-PS-1N2M-S4-D			
Series	18E	18KW	18KF	
Dimension	Ø 18 x 72 mm	Ø 18 x 14 mm	Ø 18 x 96 mm	
Supplementary output	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	
Special optical feature	Fixed background suppression	Background suppression	Background suppression, Foreground suppression	
Beam characteristic	Focus, typical at 16 mm	—	—	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	Ø 5 mm at 20 mm	Ø 10 mm at 100 mm	Ø 8 mm at 100 mm	
Range	0...40 mm	50...100 mm	40...110 mm	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	Stainless steel (1.4571)	PBT	PBT	
Material sensing surface	Glass	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE	CE, cULus	CE, cULus	
Trademark	—	Global	Global	
Productview	Page 399	Page 399	Page 399	



	BOS00JW BOS 18KF-PA-1N1R-S4-C	BOS00JM BOS 18KF-PA-1HA-S4-C			
			BOS0163 BOS Q08M-PS-KF20-00,2-S49	BOS0160 BOS Q08M-PS-KF20-S49	BOS021C BOS R020K-PS-RF10-00,2-S49
	18KF	18KF	Q08M	Q08M	R020K
	Ø 18 x 71.5 mm	Ø 18 x 96 mm	8 x 44 x 8 mm	8 x 59 x 8 mm	7.7 x 26.8 x 13.5 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, HGA fixed
	Fixed background suppression	Background suppression	Fixed background suppression	Fixed background suppression	Background suppression
	Focused	—	Divergent	Divergent	Focus, typical at 7.5 mm
	LED, red light	LED, red light	LED, red light	LED, red light	LED, red light
	Ø 20 mm at 100 mm	Ø 8 mm at 100 mm	Ø 3 mm at 50 mm	Ø 3 mm at 50 mm	Ø 2 mm at 8 mm
	5...100 mm	50...100 mm	5...50 mm	5...50 mm	1...15 mm
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PVC
	PBT	PBT	Zinc, die-cast	Zinc, die-cast	ABS
	PMMA	PMMA	PMMA PC	PMMA PC	PMMA
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus	CE, cULus	CE, cULus, EAC	cULus, CE, EAC	CE, cULus
	Global	Global	—	—	—
	Page 399	Page 399	Page 400	Page 400	Page 400



PNP normally open	BOS020M BOS R020K-PS-RF11-00,2-S49	BOS020N BOS R020K-PS-RF11-00,2-S75	BOS020K BOS R020K-PS-RF11-02	
Series	R020K	R020K	R020K	
Dimension	7.7 x 26.8 x 13.5 mm	7.7 x 26.8 x 13.5 mm	7.7 x 26.8 x 13.5 mm	
Supplementary output	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, HGA fixed	Diffuse sensor, HGA fixed	Diffuse sensor, HGA fixed	
Special optical feature	Background suppression	Background suppression	Background suppression	
Beam characteristic	Focus, typical at 15 mm	Focus, typical at 15 mm	Focus, typical at 15 mm	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	Ø 3 mm at 15 mm	Ø 3 mm at 15 mm	Ø 3 mm at 15 mm	
Range	1...30 mm	1...30 mm	1...30 mm	
Connection	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PVC	Cable with connector, M8x1 connector, 4-pin, 0.20 m, PVC	Cable, 2.00 m, PVC	
Housing material	ABS	ABS	ABS	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus	CE, cULus	
Trademark	—	—	—	
Productview	Page 400	Page 400	Page 400	



BOS0217 BOS R020K-PS-RF12-00,2-S49	BOS0234 BOS R020K-PS-RH12-00,2-S75	BOS022C BOS R020K-PS-RH12-02	BOS021U BOS R01E-PS-KF20-00,2-S49	BOS021W BOS R01E-PS-KF20-02
R020K	R020K	R020K	R01E	R01E
7.7 x 26.8 x 13.5 mm	7.7 x 32.5 x 13.5 mm	7.7 x 32.5 x 13.5 mm	20 x 32 x 9 mm	20 x 32 x 9 mm
—	—	—	—	—
Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
Diffuse sensor, HGA fixed	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation
Background suppression	Background suppression	Background suppression	Fixed background suppression	Fixed background suppression
Focus, typical at 15 mm	Focus, typical at 15 mm	Focus, typical at 15 mm	Divergent	Divergent
LED, red light	LED, red light	LED, red light	LED, red light	LED, red light
Ø 4.5 mm at 40 mm	Ø 4.4 mm at 80 mm	Ø 4.4 mm at 80 mm	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit
1...60 mm	1...150 mm	1...150 mm	100 mm	100 mm
Cable with connector, M8x1 connector, 3-pin, 0.20 m, PVC	Cable with connector, M8x1 connector, 4-pin, 0.20 m, PVC	Cable, 2.00 m, PVC	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Cable, 2.00 m, PUR
ABS	ABS	ABS	Stainless steel (1.4404)	Stainless steel (1.4404)
PMMA	PMMA	PMMA	PA	PA
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
CE, cULus	CE, cULus	CE, cULus	cULus, CE, Ecolab, EAC	cULus, CE, Ecolab, EAC
—	—	—	—	—
Page 400	Page 400	Page 400	Page 400	Page 401



PNP normally open	BOS022M BOS R01E-PS-KF21-00,2-S49	BOS022N BOS R01E-PS-KF21-02		
PNP normally open, IO-Link 1.1			BOS0265 BOS R01E-UI-KH22-00,2-S49	
PNP normally open/normally closed				
NPN normally open				
Series	R01E	R01E	R01E	
Dimension	20 x 32 x 9 mm	20 x 32 x 9 mm	20 x 32 x 9 mm	
Supplementary output	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	
Special optical feature	Fixed background suppression	Fixed background suppression	Background suppression	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	
Range	50 mm	50 mm	1...100 mm	
Connection	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	
Housing material	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4404)	
Material sensing surface	PA	PA	PA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	cULus, CE, Ecolab, EAC	cULus, CE, Ecolab, EAC	cULus, CE, Ecolab, EAC, IO-Link	
Trademark	—	—	—	
Productview	Page 400	Page 401	Page 400	



			BOS015U BOS 5K-PS-RH12-S49	BOS012A BOS 5K-PS-RH12-S75	
	BOS01JK BOS 5K-PU-LH12-S75				BOS01LE BOS 6K-PU-LH10-S75
		BOS011E BOS 5K-NS-RH12-02			
	5K	5K	5K	5K	6K
	10.8 x 43.5 x 19.5 mm	10.8 x 32.7 x 19.5 mm	10.8 x 43.2 x 19.5 mm	10.8 x 43.2 x 19.5 mm	12 x 41.5 x 21.6 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation
	Background suppression	Background suppression	Background suppression	Background suppression	Background suppression
	Focus, typical at 260 mm	Focus, typical at 60 mm	Focus, typical at 60 mm	Focus, typical at 60 mm	Focused
	Laser red light	LED, red light	LED, red light	LED, red light	Laser red light
	0.2 x 0.3 mm at focal point	Ø 5 mm at 60 mm	Ø 5 mm at 60 mm	Ø 5 mm at 60 mm	Ø 1.2 mm at 120 mm
	20...300 mm	20...200 mm	20...200 mm	20...200 mm	4...120 mm
	Connector, M8x1 connector, 4-pin	Cable, 2.00 m, PVC	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin
	PC PBT	PC PBT	PC PBT	PC PBT	ABS
	PMMA	PMMA	PMMA	PMMA	PMMA
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus, CDRH	cULus, CE	cULus, CE	cULus, CE	CE, cULus, EAC
	Global	Global	Global	Global	—
	Page 401	Page 401	Page 401	Page 401	Page 401



2 × PNP/NPN/push-pull, normally open/normally closed, IO-Link 1.1				
PNP normally open, PNP normally closed				
PNP normally open/normally closed	BOS01KW BOS 6K-PU-RH10-S49	BOS01KY BOS 6K-PU-RH10-S75	BOS01L3 BOS 6K-PU-RH11-S75	
Series	6K	6K	6K	
Dimension	12 x 41.5 x 21.6 mm	12 x 41.5 x 21.6 mm	12 x 41.5 x 21.6 mm	
Supplementary output	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	
Special optical feature	Background suppression	Background suppression	Background suppression	
Beam characteristic	Focus, typical at 50 mm	Focus, typical at 50 mm	Focus, typical at 60 mm	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	5 x 5 mm at focal point	5 x 5 mm at focal point	8 x 8 mm at focal point	
Range	1...200 mm	1...200 mm	3...400 mm	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	
Housing material	ABS	ABS	ABS	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, Ecolab, EAC	cULus, CE, EAC	cULus, CE, EAC	
Trademark	—	—	—	
Productview	Page 401	Page 401	Page 401	



		BOS026K BOS 21M-UUI-LH31-S4			
	BOS0179 BOS 21M-PA-LH23-S4		BOS0178 BOS 21M-PA-RH22-S4		BOS01FR BOS 23K-PA-LH10-S4
				BOS0036 BOS 21M-PUS-RV13-S4	BOS017C BOS 23K-PU-LH10-S4
	21M	21M	21M	21M	23K
	15 x 51 x 42.5 mm	15 x 51 x 42.5 mm	15 x 51 x 42.5 mm	15 x 50 x 42.5 mm	23 x 51 x 52.4 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation
	Background suppression	Background suppression, CCD technology	Background suppression	Background suppression, Foreground suppression	Background suppression
	Focus, typical at 400 mm	Focus, typical at 400 mm	Focus, typical at 200 mm	—	Collimated
	Laser red light	Laser red light	LED, red light	LED, red light	Laser red light
	Ø 3 mm at 200 mm	0.5 x 1.5 mm at 200 mm	6 x 6 mm at 200 mm	—	2.2 x 2.2 mm at 800 mm
	1...250 mm	30...200 mm	1...400 mm	70...200 mm	5...800 mm
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum, glass, PC	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum	PC ABS
	Glass	Glass, anti-glare	Glass	PMMA	PMMA
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	12...30 VDC
	CE, cULus, CDRH, EAC	CE, EAC, cULus	CE, cULus, EAC	CE, cULus, EAC	CE, Ecolab, cULus, EAC
	—	—	—	—	—
	Page 401	Page 402	Page 401	Page 402	Page 402



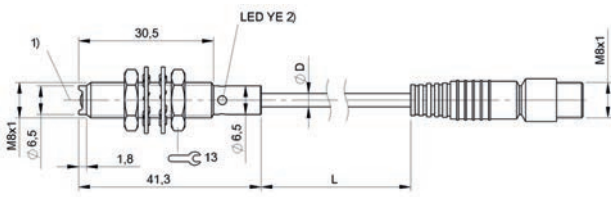
PNP normally open				
PNP normally open, PNP normally closed			BOS01FL BOS 23K-PA-RH10-S4	
PNP normally open/normally closed	BOS017H BOS 23K-PU-LH20-S4		BOS0178 BOS 23K-PU-RH10-S4	
Normally open/normally closed		BOS01UW BOS 23K-UU-LH11-S92		
Series	23K	23K	23K	
Dimension	23 x 51 x 52.4 mm	23 x 51 x 52.4 mm	23 x 51 x 52.4 mm	
Supplementary output	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, triangulation	Light time-of-flight	Diffuse sensor, triangulation	
Special optical feature	Background suppression	Background suppression	Background suppression	
Beam characteristic	Collimated	Divergent	Focus, typical at 500 mm	
Light type	Laser red light	Laser red light	LED, red light	
Light spot size	2.5 x 3.5 mm at 800 mm	Ø 7 mm at 5 m	15 x 15 mm at focal point	
Range	5...800 mm	—	3...800 mm	
Connection	Connector, M12x1 connector, 4-pin	Connector	Connector, M12x1 connector, 4-pin	
Housing material	PC ABS	PC ABS	PC ABS	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	12...30 VDC	18...30 VDC	10...30 VDC	
Approval/Conformity	Ecolab, CE, cULus, EAC	CE, Ecolab, cULus, EAC	CE, Ecolab, cULus, EAC	
Trademark	—	—	—	
Productview	Page 402	Page 402	Page 402	



					BOS018N BOS 50K-PS-RH12-S4
BOS008A BOS 26K-PA-1IE-S4-C	BOS008E BOS 26K-PA-1LHB-S4-C	BOS008F BOS 26K-PA-1LHC-S4-C	BOS0089 BOS 26K-PA-1HC-S4-C	BOS018P BOS 50K-PA-RH12-S4	
26K	26K	26K	26K	26K	50K
17 x 50 x 50 mm	17 x 50 x 50 mm	17 x 50 x 50 mm	17 x 50 x 50 mm	17 x 50 x 50 mm	28.5 x 80.5 x 62 mm
—	—	—	—	—	—
Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation	Diffuse sensor, triangulation
Background suppression	Background suppression	Background suppression	Background suppression	Background suppression	Background suppression
—	Focus, typical at 80 mm	Collimated	—	—	Divergent
Infrared	Laser red light	Laser red light	LED, red light	LED, red light	LED, red light
20 x 20 mm at 400 mm	Ø 0.1 mm at focal point	3 x 1 mm at 300 mm	Ø 8 mm at 200 mm	Ø 8 mm at 200 mm	60 x 60 mm at Sr
150...600 mm	30...150 mm	50...300 mm	30...300 mm	30...300 mm	200...2000 mm
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
ABS	ABS	ABS	ABS	ABS	PC ABS
PMMA	PMMA	PMMA	PMMA	PMMA	Glass
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
cULus, CE	cULus, CE, EAC	cULus, CE, EAC	cULus, CE, EAC	cULus, CE, EAC	CE, cULus, EAC
—	—	—	—	—	—
Page 402	Page 402	Page 402	Page 402	Page 402	Page 402

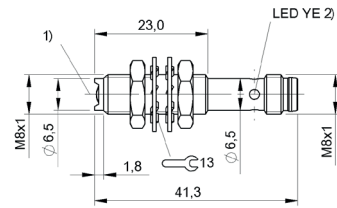


2 × PNP normally open		BOS019J BOS 63M-PS-LH13-S4		
PNP normally open	BOS0156 BOS 50K-PSV-RH12-S4			
Relay normally open/normally closed			BOS01K1 BOS 64K-AA-IH12-TG	
Series	50K	63M	64K	
Dimension	28.5 x 80.5 x 62 mm	35 x 70 x 90 mm	25 x 69.7 x 100.4 mm	
Supplementary output	Error output PNP	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Diffuse sensor, triangulation	Light time-of-flight	Diffuse sensor, triangulation	
Special optical feature	Background suppression	Background suppression	Background suppression	
Beam characteristic	Divergent	Collimated	Divergent	
Light type	LED, red light	Laser red light	Infrared	
Light spot size	60 x 60 mm at Sr	Ø 10 mm at 6 m	—	
Range	200...2000 mm	200...6000 mm	200...2000 mm	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Screw terminals	
Housing material	PC ABS	Aluminum, die-cast	PBT, GF30	
Material sensing surface	Glass	Glass	PC	
Operating voltage U_b	10...30 VDC	15...30 VDC	24...60 VDC/24...240 VAC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	cULus, CE	
Trademark	—	—	—	
Productview	Page 402	Page 402	Page 402	



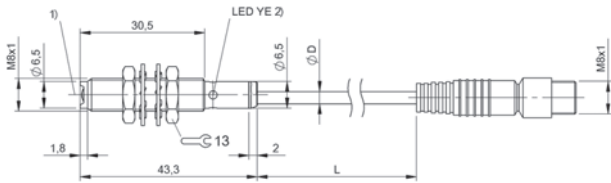
1) Optical axis, 2) Output function

BOS0246



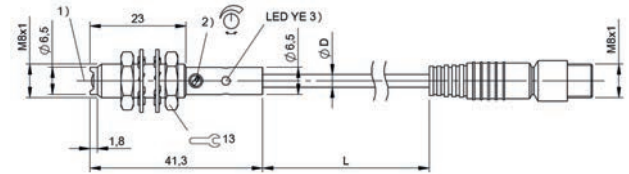
1) Optical axis, 2) Output function

BOS0247, BOS01H6



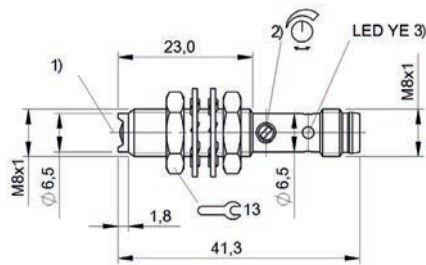
1) Optical axis, 2) Output function

BOS01H2



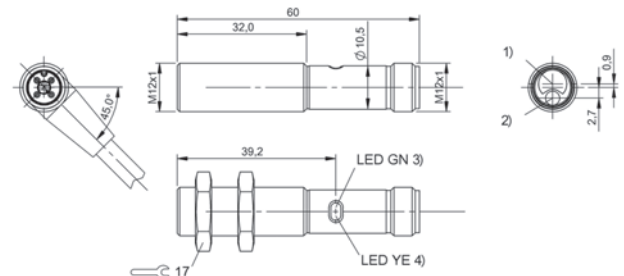
1) Optical axis, 2) Sn, 3) Output function

BOS01H0



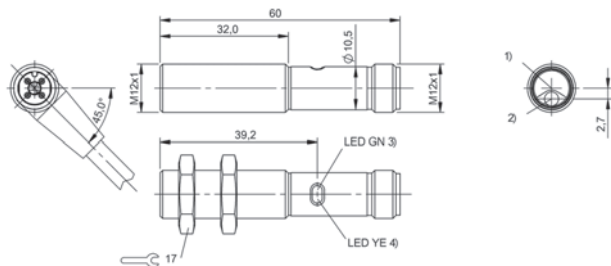
1) Optical axis, 2) Sn, 3) Output function

BOS01H4



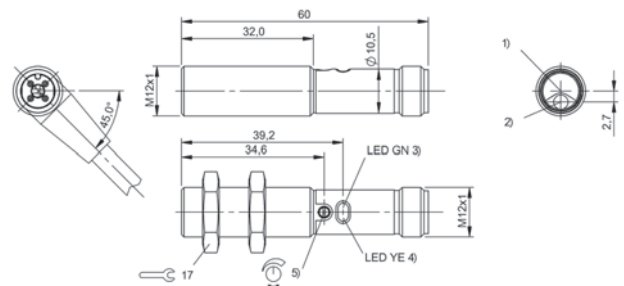
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage/Error, 4) Light reception/limit area

BOS01UM



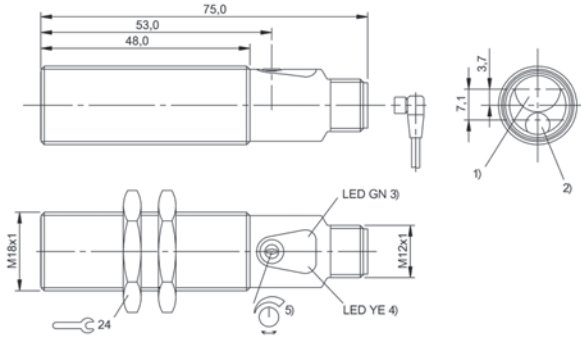
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area

BOS01ZT



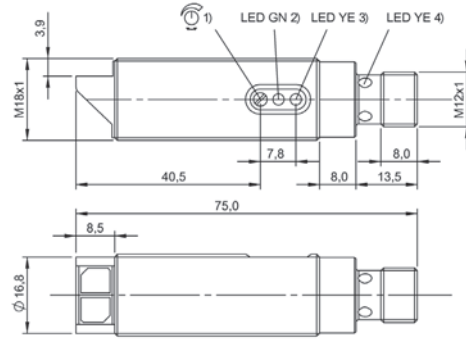
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn

BOS01ZU



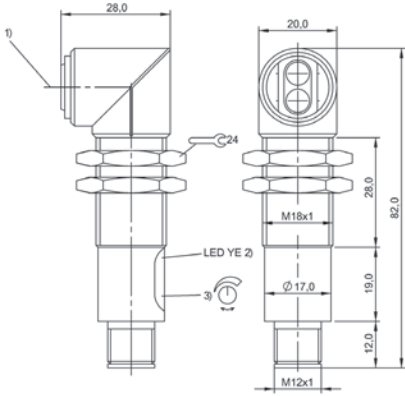
1) Optical axis receiver, 2) Optical axis emitter, 3) Power/short-circuit, 4) Output function/Error, 5) Sn

BOS01C5, BOS002H, BOS002K



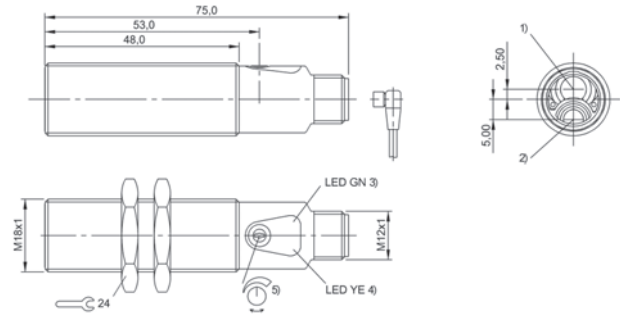
1) Sn, 2) Stability, 3) Output function

BOS010J



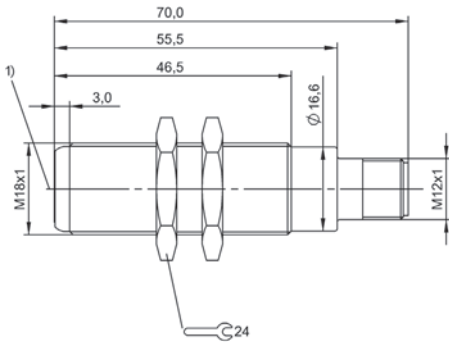
1) Optical axis, 2) Sn, 3) Output function

BOS0081



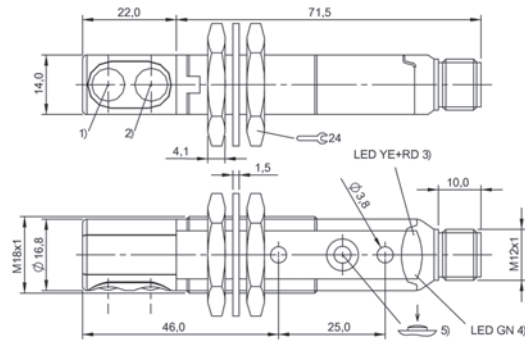
1) Optical axis receiver, 2) Optical axis emitter, 3) Power/short-circuit, 4) Output function/Error, 5) Sn

BOS014W, BOS01J4



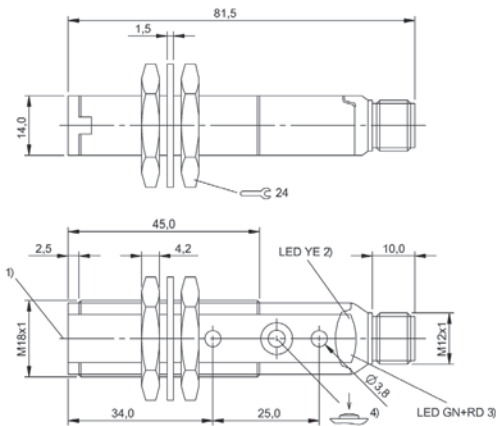
1) Optical axis

BOS0016



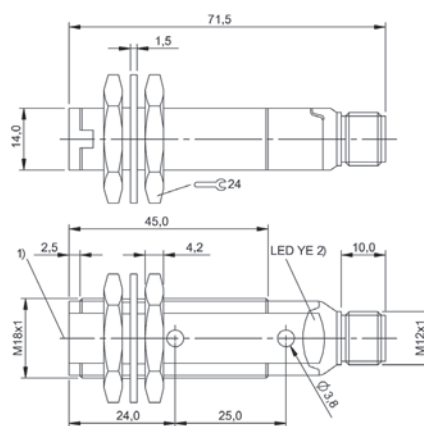
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function, 4) stability/error, 5) Sn

BOS00LH



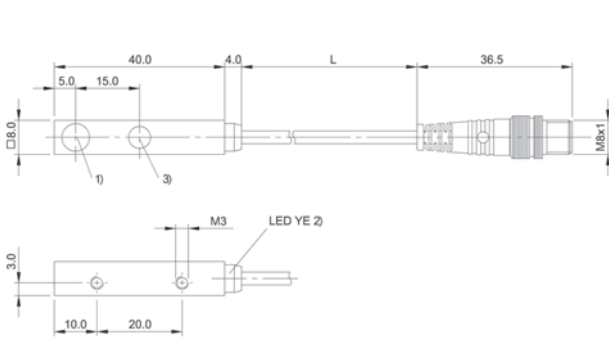
1) Optical axis, 2) Output function, 3) stability/error, 4) Sn

BOS00JK, BOS00JM



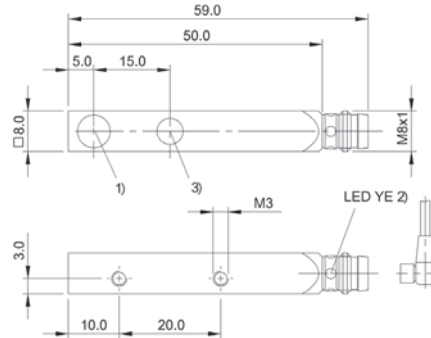
1) Optical axis, 2) Output function

BOS00JW



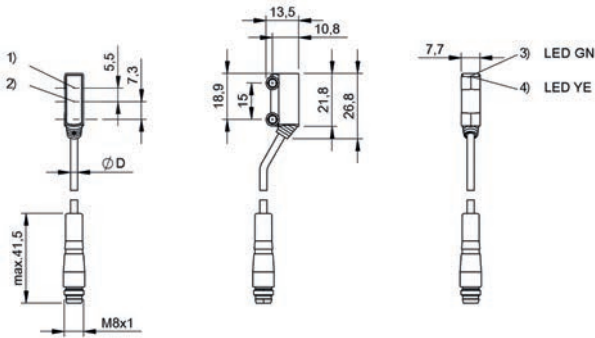
1) Emitter, 2) Light reception/limit area, 3) Receiver

BOS0163



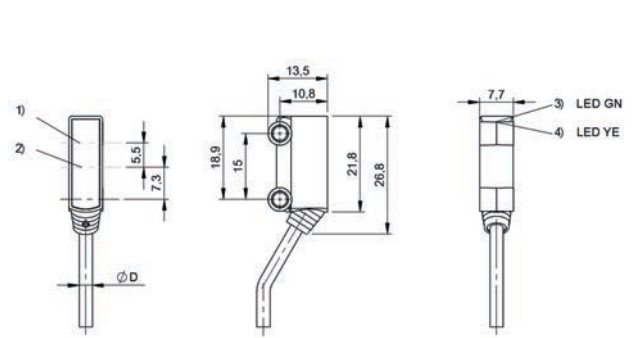
1) Emitter, 2) Light reception/limit area, 3) Receiver

BOS0160



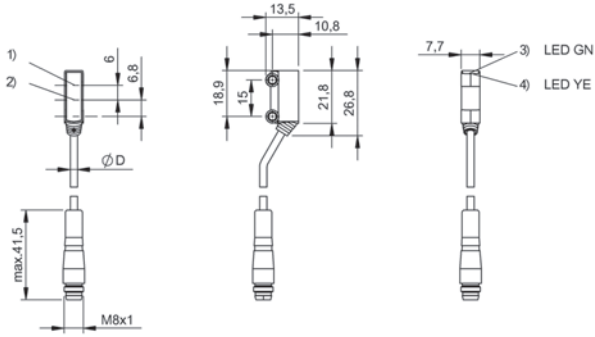
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception

BOS021C, BOS020M, BOS020N



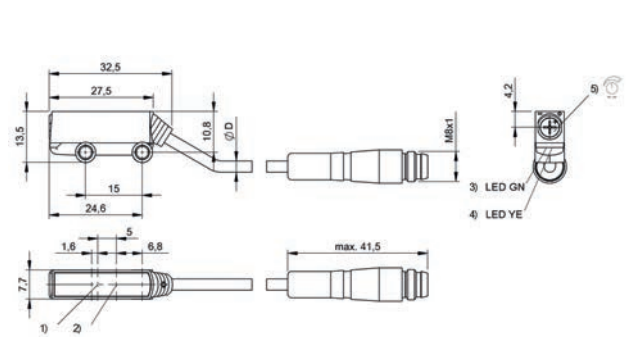
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception

BOS020K



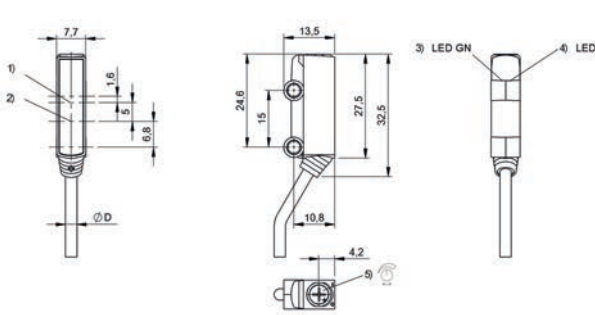
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception

BOS0217



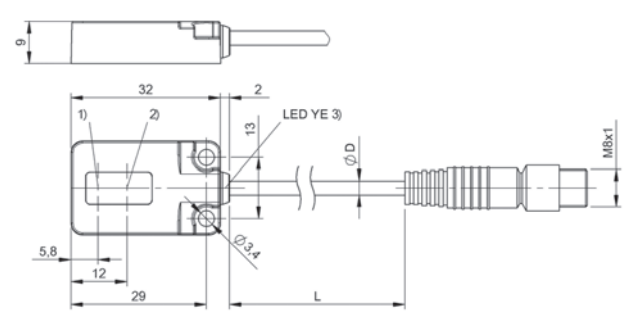
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception, 5) Sn

BOS0234



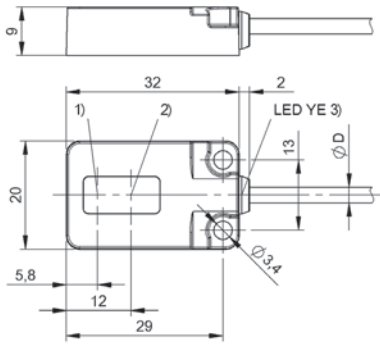
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception, 5) Sn

BOS022C



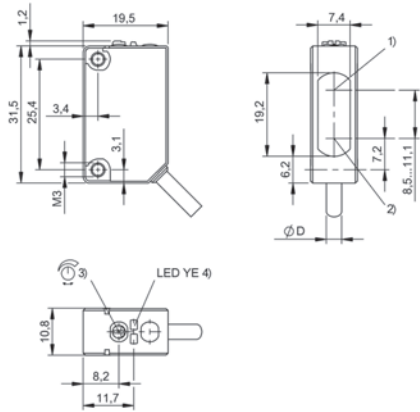
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

BOS021U, BOS022M, BOS0265



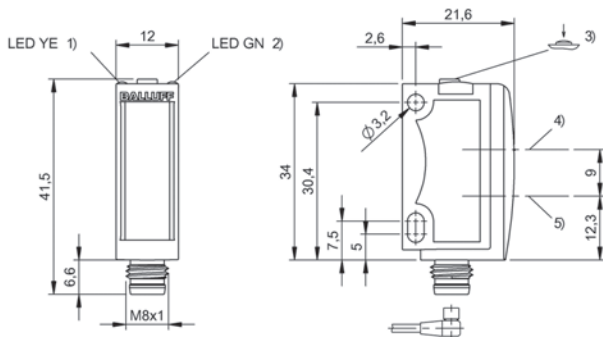
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

BOS021W, BOS022N



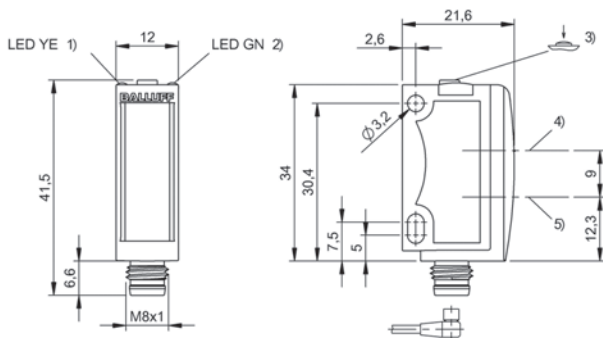
1) Optical axis receiver, 2) Optical axis emitter, 3) Sn, 4) Output function

BOS011E



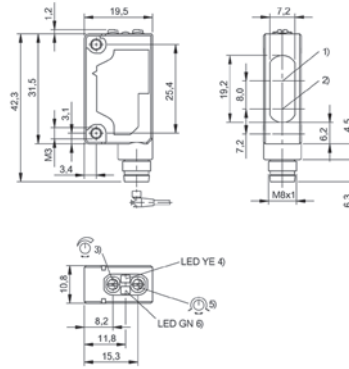
1) Output function, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter

BOS01LE



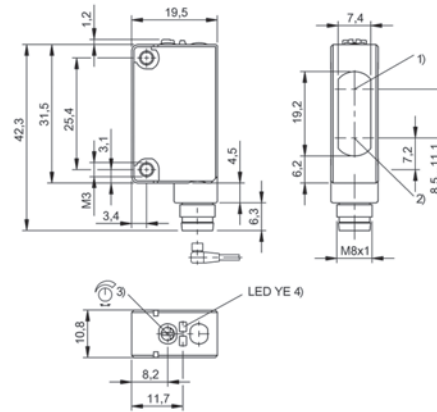
1) Output function, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter

BOS01L3



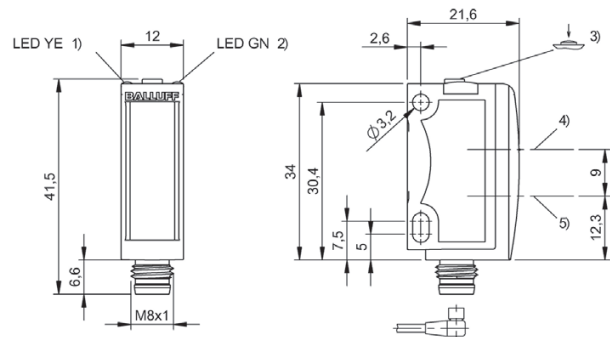
1) Optical axis receiver, 2) Optical axis emitter, 3) Sn, 4) Output function, 5) Light-on/dark-on, 6) stability

BOS01JK



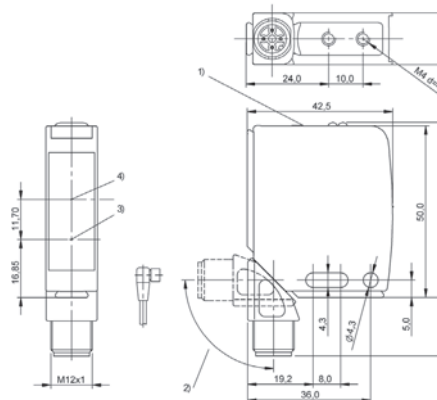
1) Optical axis receiver, 2) Optical axis emitter, 3) Sn, 4) Output function

BOS015U, BOS012A



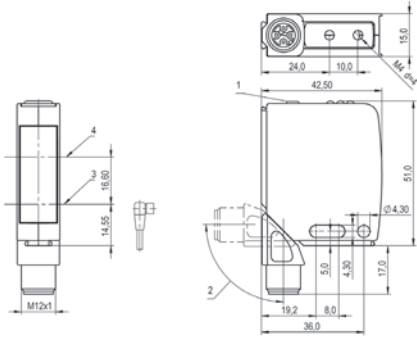
1) Output function, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter

BOS01KW, BOS01KY



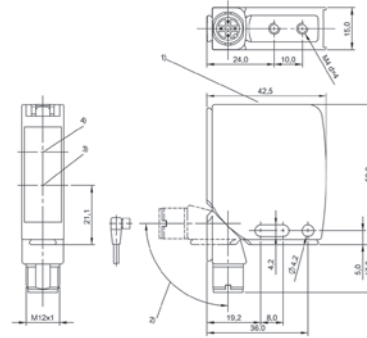
1) Display and control panel, 2) rotatable 270°, 3) Optical axis emitter, 4) Optical axis receiver

BOS01Z9, BOS01Z8



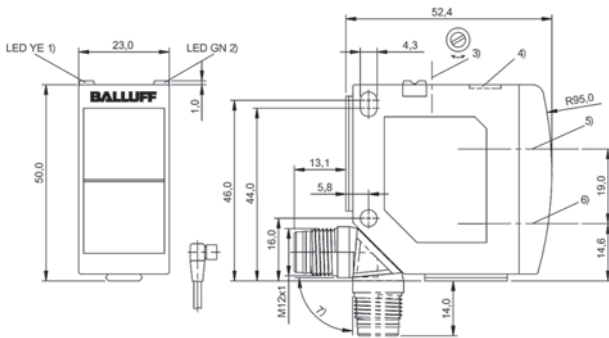
1) Display and control panel, 2) rotatable 270°, 3) Optical axis emitter, 4) Optical axis receiver

BOS026K



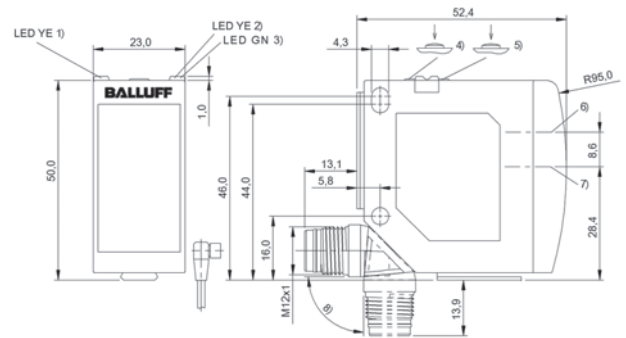
1) Display and control panel, 2) rotatable 270°, 3) Optical axis emitter, 4) Optical axis receiver

BOS0036



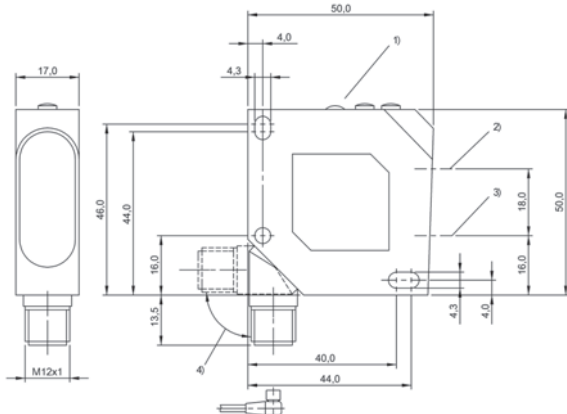
1) Output function/Error, 2) Operating voltage, 3) Sn, 4) Bar display for switching distance, 5) Optical axis receiver, 6) Optical axis emitter, 7) rotatable 270°

BOS01FR, BOS017C, BOS017H, BOS01FL, BOS0178



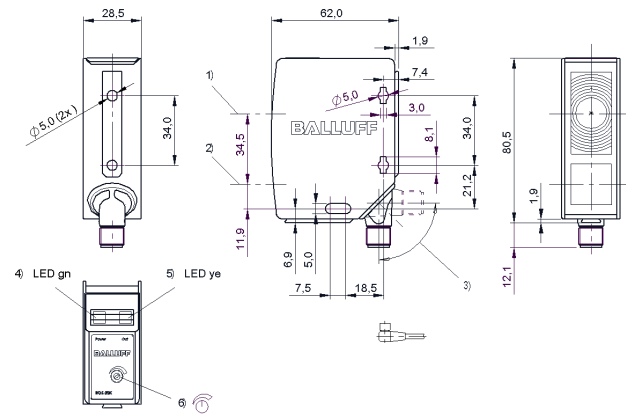
1) Output function Q1, 2) Output function Q2, 3) Operating voltage, 4) Setting Q1, 5) Setting Q2, 6) Optical axis emitter, 7) Optical axis receiver, 8) rotatable 270°

BOS01UW



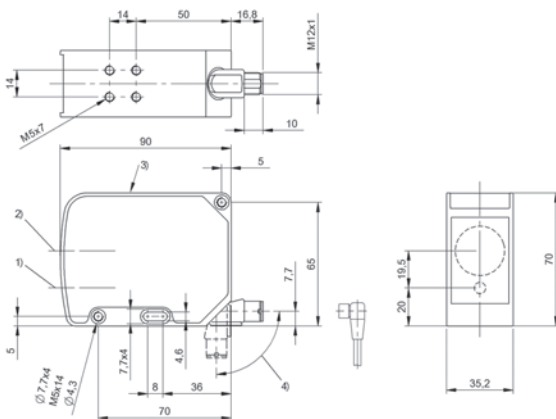
1) Display and control panel, 2) Optical axis receiver, 3) Optical axis emitter, 4) rotatable 270°

BOS008A, BOS008E, BOS008F, BOS0089



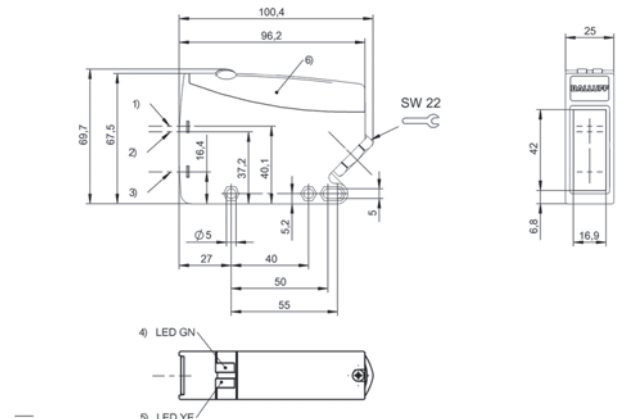
1) Optical axis receiver, 2) Optical axis emitter, 3) rotatable 270°, 4) Power/short-circuit, 5) Output function/Error, 6) Sn

BOS018P, BOS018N, BOS0156



1) Optical axis emitter, 2) Optical axis receiver, 3) Display and control panel, 4) rotatable 270°

BOS019J

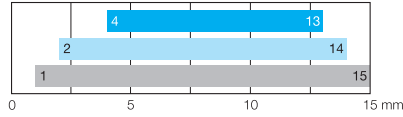
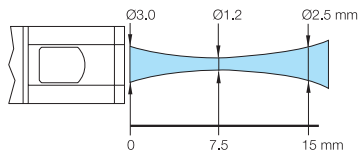


1) Opt. axis receiver max., 2) Opt. axis receiver min., 3) Optical axis emitter, 4) stability, 5) Output function, 6) Removable cover

BOS01K1

BOS 2K

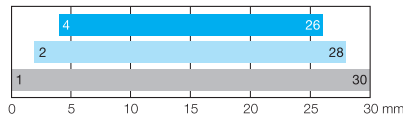
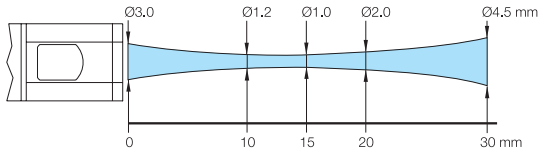
Light spot diameter
Diffuse sensor with background suppression, 15 mm



Diffuse sensors with background suppression 15 mm

- Sensing range on black, 6% remission
- Sensing range on gray, 18% remission
- Sensing range on white, 90% remission

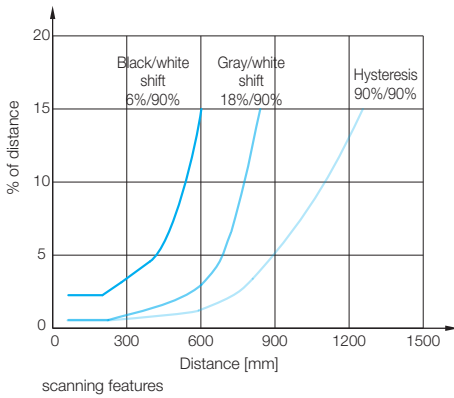
Light spot diameter
Diffuse sensor with background suppression, 30 mm



Diffuse sensors with background suppression 30 mm

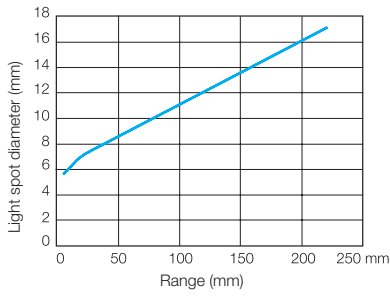
- Sensing range on black, 6% remission
- Sensing range on gray, 18% remission
- Sensing range on white, 90% remission

BOS01FL, BOS0178

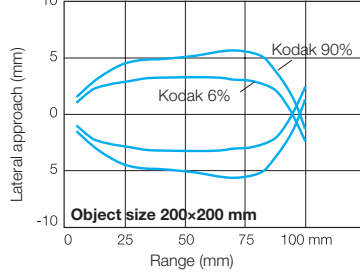


Diffuse sensor with background suppression BOS 5K-...-RH12-...

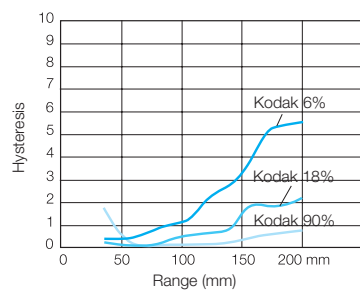
Light spot diameter



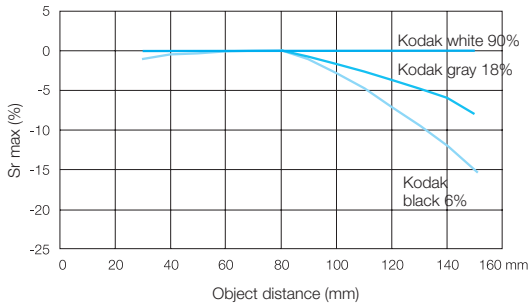
Characteristic response curve (background suppression 100 mm)



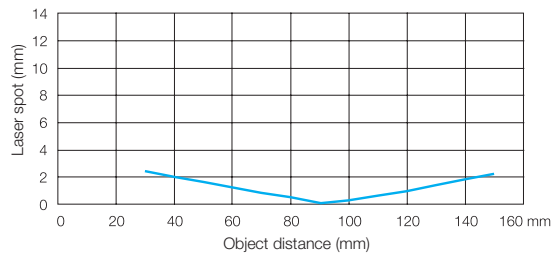
Range vs. hysteresis



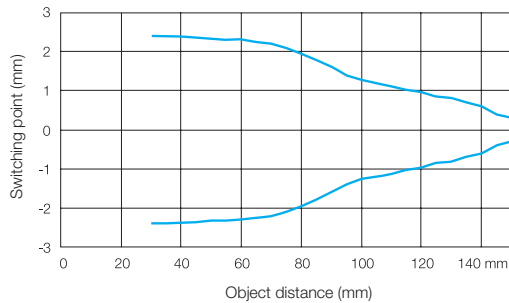
Diffuse sensor with background suppression BOS 18M-...LH
Gray value shift



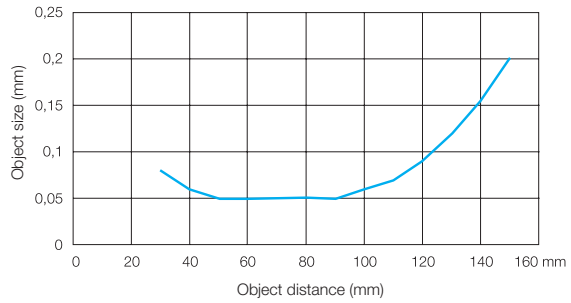
Diffuse sensor with background suppression BOS 18M-...LH
Light spot diameter at distance



Diffuse sensor with background suppression BOS 18M-...LH
Turn-on point for lateral approach



Diffuse sensor with background suppression BOS 18M-...LH
Smallest detectable part





PNP normally open	BOS01RK BOS 08E-PS-PR20-S49	BOS01RL BOS 08E-PS-PR20-00,2-S49	BOS01TT BOS 12M-PS-PR10-S4	
PNP normally closed	BOS01RM BOS 08E-P0-PR20-S49			
PNP normally open, PNP normally closed				
Series	08E	08E	12M	
Dimension	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 12 x 60 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	Ø 160 mm at 3 m	
Range	0...1 m	0...1 m	0...3 m	
Connection	Connector, M8x1 connector, 3-pin	Cable with connector, 0.20 m, PUR	Connector, M12x1 connector, 4-pin	
Housing material	Stainless steel	Stainless steel	Brass	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Trademark	—	—	Global	
Productview	Page 420	Page 420	Page 420	



			BOS01HK BOS 18M-PS-IR23-S4		
	BOS01F0 BOS 18M-PA-IR20-S4	BOS01HR BOS 18M-PA-IR21-S4		BOS01NE BOS 18M-PA-LR20-S4	BOS01CE BOS 18M-PA-PR20-S4
	18M	18M	18M	18M	18M
	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor
	—	—	—	—	—
	Divergent	Divergent	Divergent	Collimated	Divergent
	LED infrared	LED infrared	LED infrared	Laser red light	LED, red light
	Ø 300 mm at 7 m	Ø 300 mm at 7 m	Ø 300 mm at 7 m	Ø 10 mm at 16 m	Ø 300 mm at 7 m
	0...10 m	0...7 m	0...6 m	0...16 m	0...7 m
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Brass	Brass	Brass	Brass	Brass
	Glass, anti-glare	Glass, anti-glare	Glass, anti-glare	Glass	Glass, anti-glare
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	cULus, CE, EAC	CE, cULus, EAC	cULus, CE, EAC	cULus, CE, EAC	CE, cULus, EAC
	—	—	—	—	—
	Page 420	Page 420	Page 420	Page 420	Page 420

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open			BOS01F8 BOS 18M-PS-PR23-S4	
PNP normally open, PNP normally closed	BOS01FJ BOS 18M-PA-PR20-S4S			
PNP normally open/normally closed/IO-Link 1.1		BOS01UE BOS 18M-PI-PR30-S4		
Series	18M	18M	18M	
Dimension	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	Ø 300 mm at 7 m	Ø 300 mm at 7 m	Ø 300 mm at 7 m	
Range	0...7 m	0...5 m	0...4 m	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	Brass	Brass	Brass	
Material sensing surface	Glass, anti-glare	Glass	Glass, anti-glare	
Operating voltage U _b	10...30 VDC	18...30 VDC	10...30 VDC	
Approval/Conformity	cULus, CE, EAC	CE, cULus, EAC	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 420	Page 420	Page 420	



	BOS01KL BOS 18E-PA-PR20-S4	BOS023Y BOS 18E-PA-PR30-S4		BOS01KK BOS G18E-PA-PR20-S4	BOS0245 BOS G18E-PA-PR30-S4
			BOS023F BOS 18E-PI-PR30-S4		
	18E	18E	18E	G18E	G18E
	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor
	—	—	—	—	—
	Divergent	Divergent	Divergent	Divergent	Divergent
	LED, red light	LED, red light	LED, red light	LED, red light	LED, red light
	Ø 300 mm at 7 m	Ø 300 mm at 7 m	Ø 300 mm at 7 m	Ø 300 mm at 7 m	Ø 300 mm at 7 m
	5 m	5 m	0...5 m	5 m	5 m
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4571)	Stainless steel (1.4404)	Stainless steel (1.4404)
	Glass	PMMA	Glass	Glass	PMMA
	10...30 VDC	10...30 VDC	18...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus, Ecolab, FDA compliant, EAC	Ecolab, cULus, CE, EAC	cULus, CE, EAC	FDA compliant, Ecolab, cULus, CE, EAC	Ecolab, cULus, CE, EAC
	—	—	—	—	—
	Page 420	Page 420	Page 420	Page 420	Page 420



PNP normally open, PNP normally closed	BOS00LM BOS 18KW-PA-1LQH-S4-C	BOS00LW BOS 18KW-PA-1QC-S4-C	BOS00LZ BOS 18KW-PA-1TB-S4-C	
Series	18KW	18KW	18KW	
Dimension	Ø 18 x 14 mm	Ø 18 x 14 mm	Ø 18 x 14 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	
Special optical feature	—	—	Transparency detection	
Beam characteristic	—	—	—	
Light type	Laser red light	LED, red light	LED, red light	
Light spot size	—	—	—	
Range	0...9 m	0...3 m	0...1.7 m	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	PBT	PBT	PBT	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus	CE, cULus	
Trademark	Global	Global	Global	
Productview	Page 421	Page 421	Page 421	



	BOS00K5 BOS 18KF-PA-1RE-S4-C	BOS00JT BOS 18KF-PA-1LQP-S4-C	BOS00K3 BOS 18KF-PA-1QD-S4-C	BOS00K7 BOS 18KF-PA-1TB-S4-C	
	18KF	18KF	18KF	18KF	
	Ø 18 x 71.5 mm	Ø 18 x 81.5 mm	Ø 18 x 81.5 mm	Ø 18 x 81.5 mm	
	—	—	—	—	
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	
	—	—	—	Transparency detection	
	—	—	—	—	
	Infrared	Laser red light	LED, red light	LED, red light	
	—	—	—	—	
	0...5 m	0...16 m	0...4.5 m	0...1.7 m	
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector	Connector, M12x1 connector, 4-pin	
	PBT	PBT	PBT	PBT	
	PMMA	PMMA	PMMA	PMMA	
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
	CE, cULus, EAC	CE, cULus	CE, cULus	CE, cULus	
	Global	Global	Global	Global	
	Page 421	Page 421	Page 421	Page 421	



PNP normally open	BOS01MU BOS Q08M-PS-LR20-00,2-S49	BOS01MP BOS Q08M-PS-LR20-S49	BOS01T9 BOS Q08M-PS-PR20-00,2-S49	
PNP normally closed	BOS01MW BOS Q08M-PO-LR20-00,2-S49			
Series	Q08M	Q08M	Q08M	
Dimension	8 x 59 x 8 mm	8 x 59 x 8 mm	8 x 44 x 8 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	Laser red light	Laser red light	LED, red light	
Light spot size	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	
Range	0...1 m	0...1 m	0...1 m	
Connection	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Connector, M8x1 connector, 3-pin	Cable with connector, 0.20 m, PUR	
Housing material	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	cULus, CE, EAC	CE, cULus, EAC	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 421	Page 421	Page 421	



	BOS01T8 BOS Q08M-PS-PR20-S49	BOS020T BOS R020K-PS-PR11-00,2-S49	BOS020U BOS R020K-PS-PR11-00,2-S75	BOS020R BOS R020K-PS-PR11-02	
	Q08M	R020K	R020K	R020K	
	8 x 59 x 8 mm	7.7 x 26.8 x 13.5 mm	7.7 x 26.8 x 13.5 mm	7.7 x 26.8 x 13.5 mm	
	—	—	—	—	
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	
	—	—	—	—	
	Divergent	Divergent	Divergent	Divergent	
	LED, red light	LED, red light	LED, red light	LED, red light	
	Ø 3.0 mm Light exit	Ø 10 mm at 100 mm	Ø 10 mm at 100 mm	Ø 11 mm at 250 mm	
	0...1 m	0...3 m	0...3 m	0...3 m	
	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PVC	Cable with connector, M8x1 connector, 4-pin, 0.20 m, PVC	Cable, 2.00 m, PVC	
	Zinc, die-cast	ABS	ABS	ABS	
	PMMA	PMMA	PMMA	PMMA	
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
	cULus, CE, EAC	CE, cULus	CE, cULus	CE, cULus	
	—	—	—	—	
	Page 421	Page 421	Page 421	Page 422	



PNP normally open	BOS021L BOS R01E-PS-KR20-00,2-S49	BOS021M BOS R01E-PS-KR20-02		
PNP normally closed				
PNP normally open/normally closed			BOS01JT BOS 5K-PU-LR10-02	
Series	R01E	R01E	5K	
Dimension	20 x 32 x 9 mm	20 x 32 x 9 mm	10.8 x 32.7 x 19.5 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	Laser red light	
Light spot size	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	Ø 5 mm at 3 m	
Range	1 m	1 m	0...10 m	
Connection	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Cable, 2.00 m, PUR	Cable, 2.00 m, PVC	
Housing material	Stainless steel (1.4404)	Stainless steel (1.4404)	PC PBT	
Material sensing surface	PA	PA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, Ecolab, EAC	CE, cULus, Ecolab, EAC	CE, cULus, CDRH, EAC	
Trademark	—	—	Global	
Productview	Page 422	Page 422	Page 422	



	BOS012E BOS 5K-PS-RR10-S75	BOS012C BOS 5K-PS-RR10-02	BOS015E BOS 5K-PS-RR10-S49	
	BOS0121 BOS 5K-PO-RR10-S75			
BOS01JW BOS 5K-PU-LR10-S75				
5K	5K	5K	5K	
10.8 x 43.5 x 19.5 mm	10.8 x 43.5 x 19.5 mm	10.8 x 32.7 x 19.5 mm	10.8 x 43.5 x 19.5 mm	
—	—	—	—	
Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	
—	—	—	—	
Divergent	Divergent	Divergent	Divergent	
Laser red light	LED, red light	LED, red light	LED, red light	
Ø 5 mm at 3 m	Ø 160 mm at 2 m	Ø 160 mm at 2 m	Ø 160 mm at 2 m	
0...10 m	0...4 m	0...4 m	0...4 m	
Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	Cable, 2.00 m, PVC	Connector, M8x1 connector, 3-pin	
PC PBT	PC PBT	PC PBT	PC PBT	
PMMA	PMMA	PMMA	PMMA	
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
cULus, CE, CDRH, EAC	cULus, CE, EAC	cULus, CE, EAC	cULus, CE, EAC	
Global	Global	Global	Global	
Page 422	Page 422	Page 422	Page 422	



PNP normally open, PNP normally closed				
PNP normally open/normally closed	BOS01M4 BOS 6K-PU-LK10-S75	BOS01MH BOS 6K-PU-PR10-S49	BOS01MJ BOS 6K-PU-PR10-S75	
Series	6K	6K	6K	
Dimension	12 x 41.5 x 21.6 mm	12 x 41.5 x 21.6 mm	12 x 41.5 x 21.6 mm	
Input function	Same function as button, Key disable on/off	—	Key disable on/off, Same function as button	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	
Special optical feature	Coaxial optics	—	—	
Beam characteristic	Collimated	Divergent	Divergent	
Light type	Laser red light	LED, red light	LED, red light	
Light spot size	Ø 2 mm at 2.5 m	600 x 600 mm at 7 m	600 x 600 mm at 7 m	
Range	0...4 m	0...6 m	0...6 m	
Connection	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 4-pin	
Housing material	ABS	ABS	ABS	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	cULus, CE, EAC	
Trademark	—	—	—	
Productview	Page 422	Page 423	Page 423	



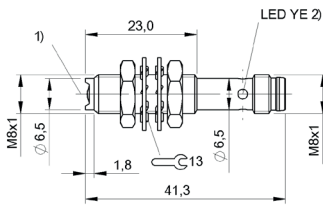
	BOS01L8 BOS 6K-PU-PT10-S75	BOS00TL BOS 21M-PA-LR10-S4	BOS00TN BOS 21M-PA-PK10-S4	BOS00TR BOS 21M-PA-PR10-S4	BOS00TU BOS 21M-PA-PT10-S4
	6K	21M	21M	21M	21M
	12 x 41.5 x 21.6 mm	15 x 50 x 42.5 mm	15 x 50 x 42.5 mm	15 x 50 x 42.5 mm	15 x 50 x 42.5 mm
	Key disable on/off, Same function as button	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor
	Coaxial optics, Transparency detection	—	Coaxial optics	—	Coaxial optics, Transparency detection
	Divergent	Collimated	Divergent	Divergent	—
	LED, red light	Laser red light	LED, red light	LED, red light	LED, red light
	50 x 50 mm at 2 m	—	—	—	—
	0...2 m	0...20 m	0...4 m	0...8 m	0...2 m
	Connector, M8x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	ABS	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum
	PMMA	PMMA	Glass	PMMA	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	cULus, CE, EAC	CE, cULus	CE, cULus, EAC	CE, cULus, EAC	cULus, CE, EAC
	—	—	—	—	—
	Page 423	Page 423	Page 423	Page 423	Page 423



PNP normally open, PNP normally closed	BOS01NC BOS 23K-PA-LK10-S4		BOS01FN BOS 23K-PA-RR10-S4	
PNP normally open/normally closed		BOS016U BOS 23K-PU-LR10-S4		
Relay normally open/normally closed				
Series	23K	23K	23K	
Dimension	23 x 51 x 52.4 mm	23 x 51 x 52.4 mm	23 x 51 x 52.4 mm	
Input function	—	Key disable on/off, Same function as button	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	Laser red light	Laser red light	LED, red light	
Light spot size	Ø 22 mm at 20 m	9 x 9 mm at 12 mm	300 x 300 mm at 12 m	
Range	0...20 m	0...14 m	0...14 m	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	PC ABS	PC ABS	PC ABS	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	Ecolab, CE, cULus, EAC	Ecolab, CE, cULus, EAC	Ecolab, CE, cULus	
Trademark	—	—	—	
Productview	Page 423	Page 423	Page 423	

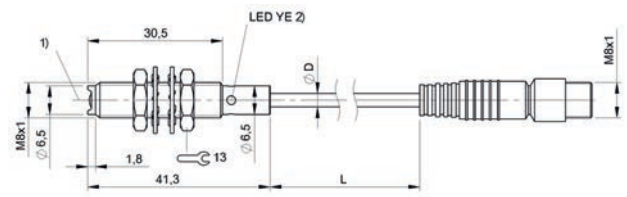


	BOS008L BOS 26K-PA-1LQP-S4-C	BOS008M BOS 26K-PA-1QE-S4-C	BOS01CR BOS 50K-PA-PR10-S4	
BOS016P BOS 23K-PU-RR10-S4				
				BOS01K3 BOS 64K-AA-PR10-TG
23K	26K	26K	50K	64K
23 x 51 x 52.4 mm	17 x 50 x 50 mm	17 x 50 x 50 mm	28.5 x 80.5 x 62 mm	25 x 69.7 x 100.4 mm
Key disable on/off, Same function as button	—	—	—	—
Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor	Retroreflective sensor
—	Coaxial optics	Coaxial optics	—	—
Divergent	Collimated	—	Divergent	Divergent
LED, red light	Laser red light	LED, red light	LED, red light	LED, red light
300 x 300 mm at 12 m	Ø 20 mm at 20 m	—	200 x 200 mm at 10 m	—
0...14 m	0...25 m	0...5.5 m	0...18 m	0...10 m
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Screw terminals
PC ABS	ABS	ABS	PC ABS	PBT, GF30
PMMA	PMMA	PMMA	Glass	PC
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	24...60 VDC/24...240 VAC
Ecolab, CE, cULus	cULus, CE, EAC	CE, cULus	CE, cULus, EAC	CE, cULus, EAC
—	—	—	—	—
Page 423	Page 424	Page 424	Page 424	Page 424



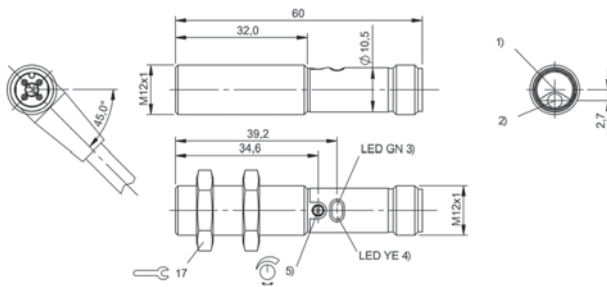
1) Optical axis, 2) Output function

BOS01RM, BOS01RK



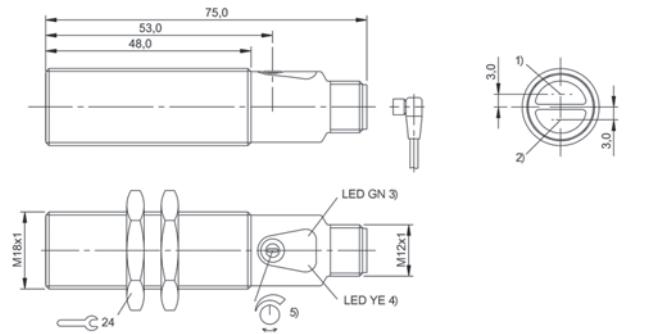
1) Optical axis, 2) Output function

BOS01RL



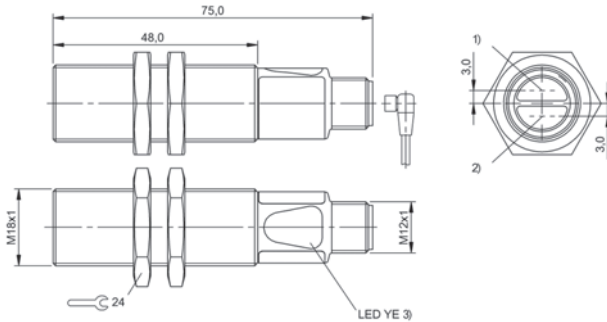
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn

BOS01TT



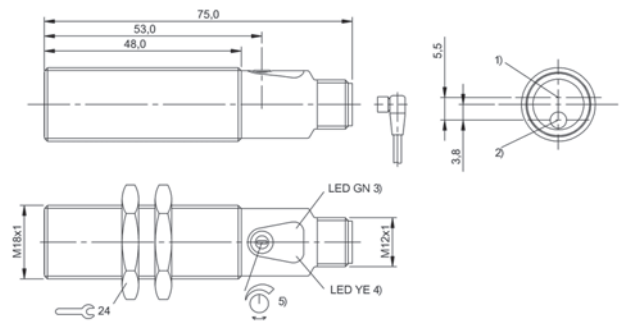
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn

BOS01F0, BOS01HR, BOS01CE, BOS01FJ



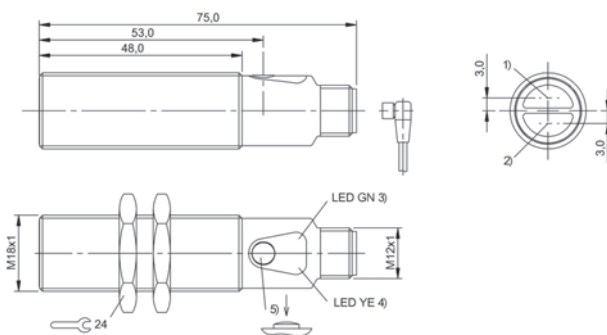
1) Optical axis receiver, 2) Optical axis emitter, 3) Light reception/limit area

BOS01HK, BOS01F8



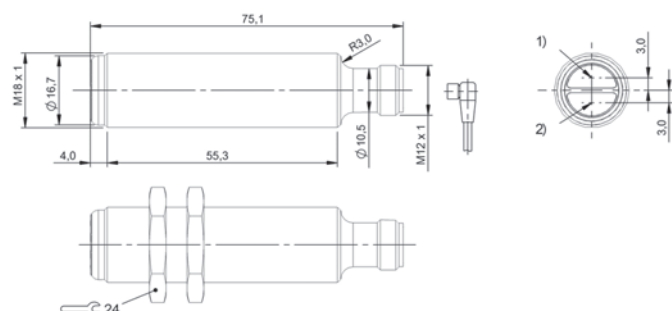
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage/Error, 4) Light reception/limit area, 5) Sn

BOS01NE



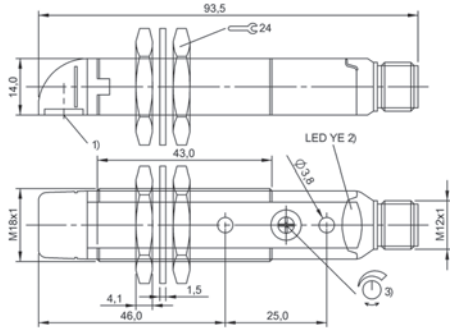
1) Optical axis receiver, 2) Optical axis emitter, 3) Power/short-circuit, 4) Light reception/limit area, 5) Sn

BOS01UE



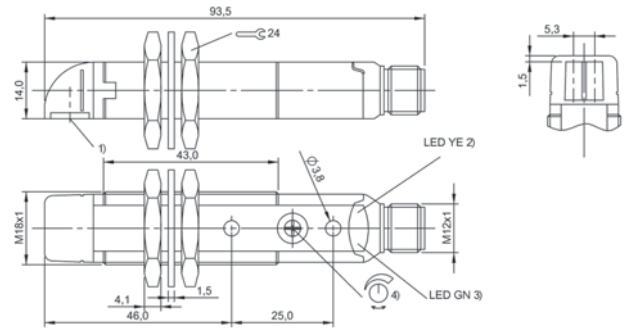
1) Optical axis receiver, 2) Optical axis emitter

BOS01KL, BOS023Y, BOS023F, BOS01KK, BOS0245



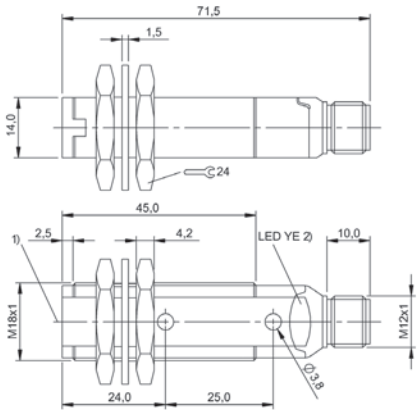
1) Optical axis, 2) Output function, 3) Sn

BOS00LM, BOS00LZ



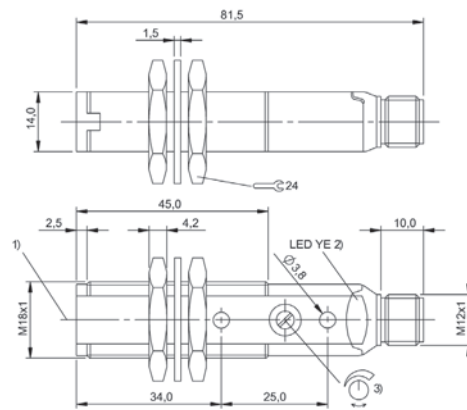
1) Optical axis, 2) Output function, 3) Stability, 4) Sn

BOS00LW



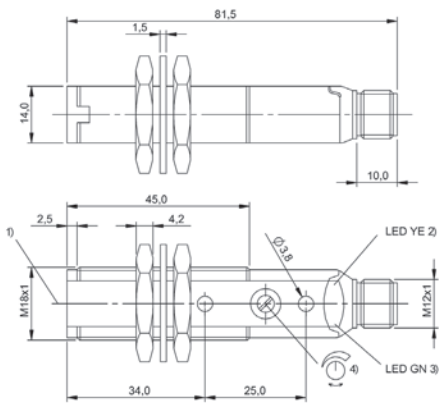
1) Optical axis, 2) Output function

BOS00K5



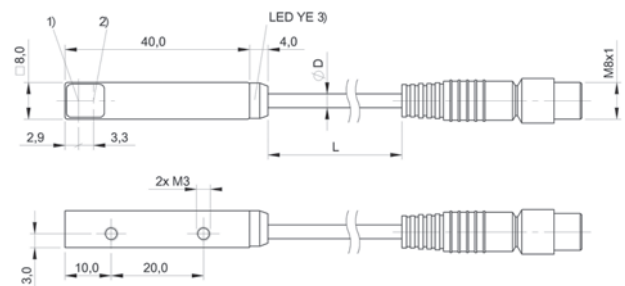
1) Optical axis, 2) Output function, 3) Sn

BOS00JT, BOS00K7



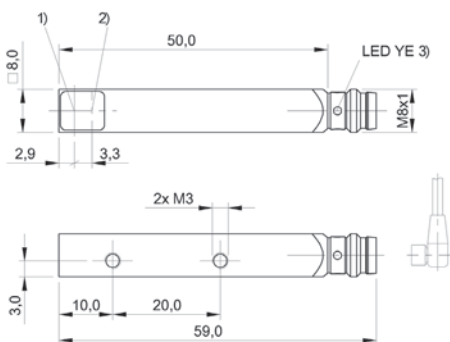
1) Optical axis, 2) Output function, 3) Stability, 4) Sn

BOS00K3



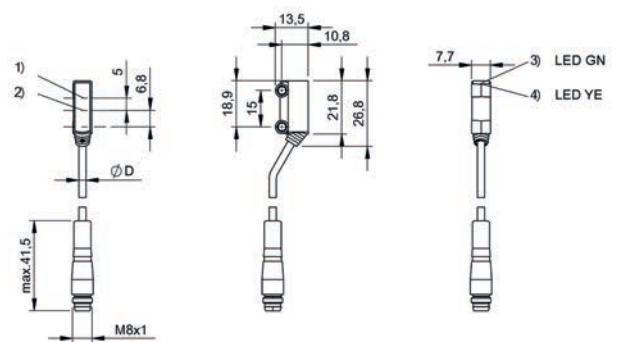
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

BOS01MW, BOS01MU, BOS01T9



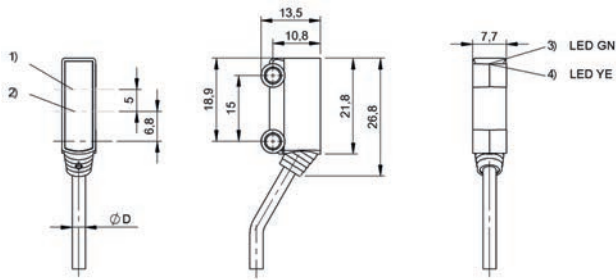
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

BOS01MP, BOS01T8



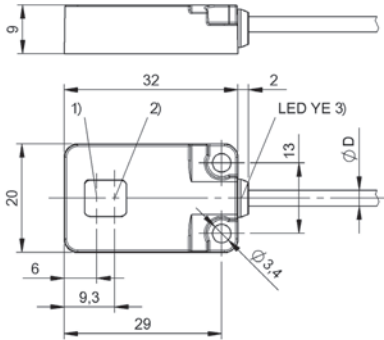
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception

BOS020T, BOS020U



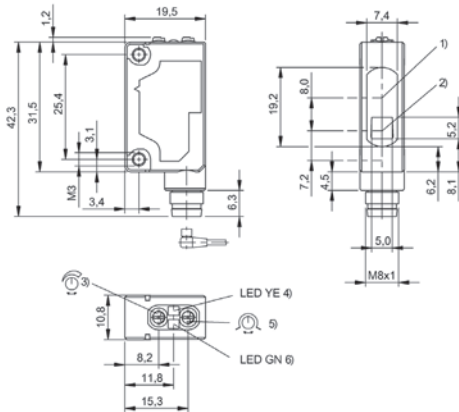
1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception

BOS020R



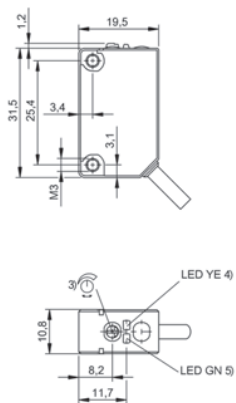
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

BOS021M



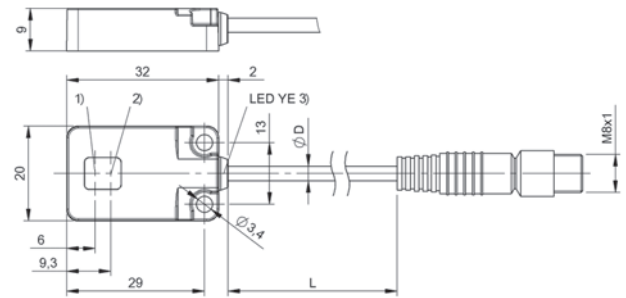
1) Optical axis receiver, 2) Optical axis emitter, 3) Sensitivity, 4) Output function, 5) Light-on/dark-on, 6) stability

BOS01JW



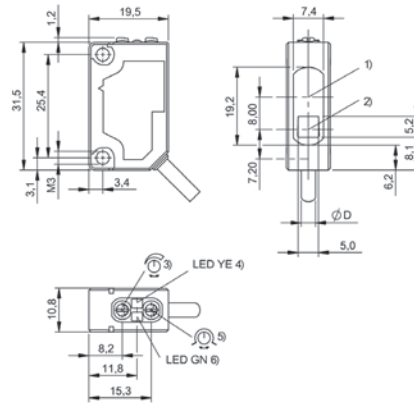
1) Optical axis receiver, 2) Optical axis emitter, 3) Sn, 4) Output function, 5) stability

BOS012C



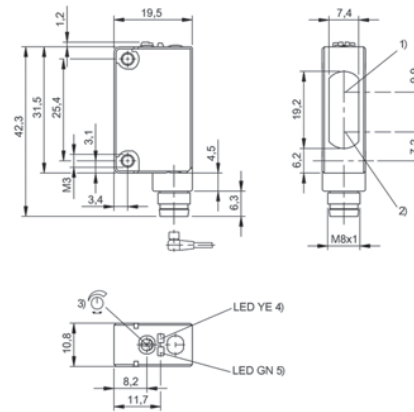
1) Optical axis emitter, 2) Optical axis receiver, 3) Output function

BOS021L



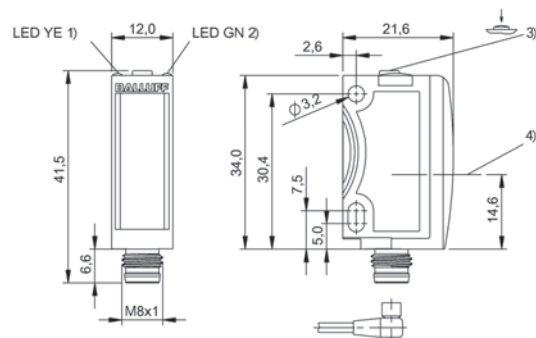
1) Optical axis receiver, 2) Optical axis emitter, 3) Sensitivity, 4) Output function, 5) Light-on/dark-on, 6) stability

BOS01JT



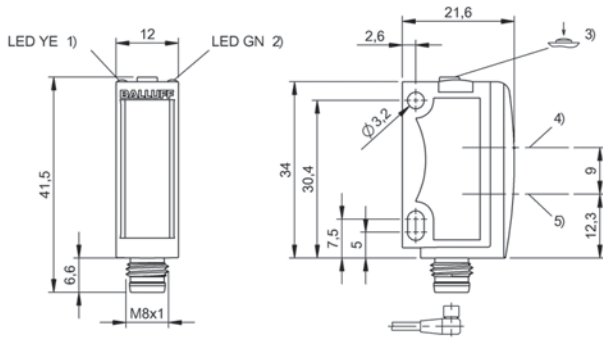
1) Optical axis receiver, 2) Optical axis emitter, 3) Sn, 4) Output function, 5) stability

BOS0121, BOS015E, BOS012E



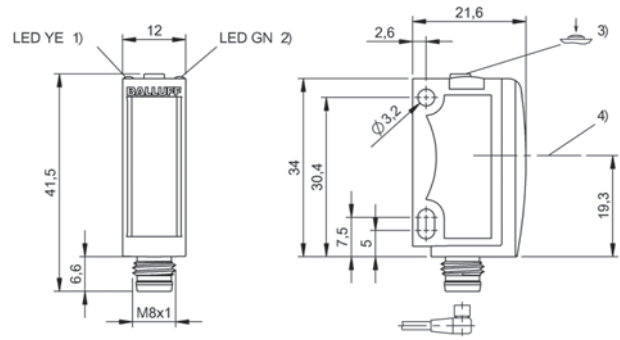
1) Output function, 2) Operating voltage, 3) Sensitivity, light/dark, 4) Optical axis

BOS01M4



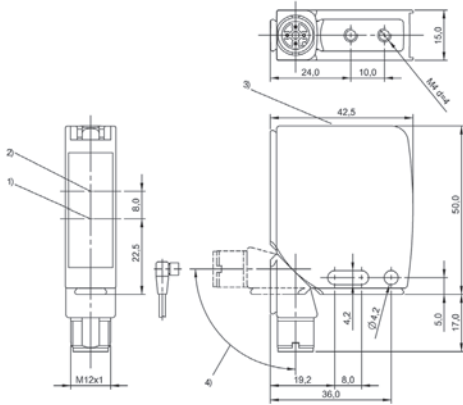
1) Output function, 2) Operating voltage, 3) Sensitivity, light/dark, 4) Optical axis receiver, 5) Optical axis emitter

BOS01MH, BOS01MJ



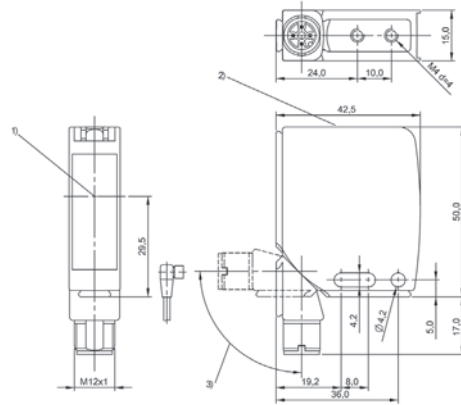
1) Output function, 2) Operating voltage, 3) Sensitivity, light/dark, 4) Optical axis

BOS01L8



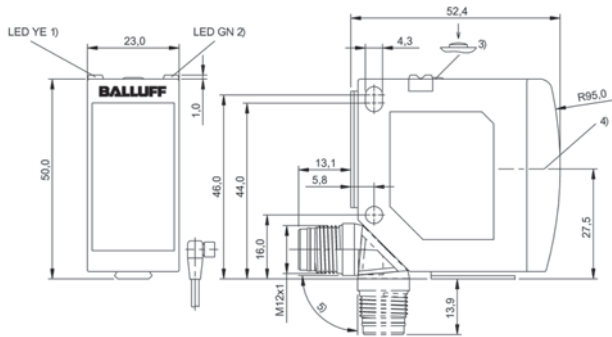
1) Optical axis emitter, 2) Optical axis receiver, 3) Display and control panel, 4) rotatable 270°

BOS00TL, BOS00TR



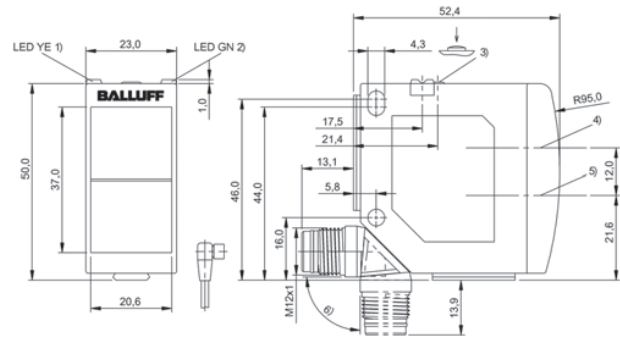
1) Optical axis, 2) Display and control panel, 3) rotatable 270°

BOS00TN, BOS00TU



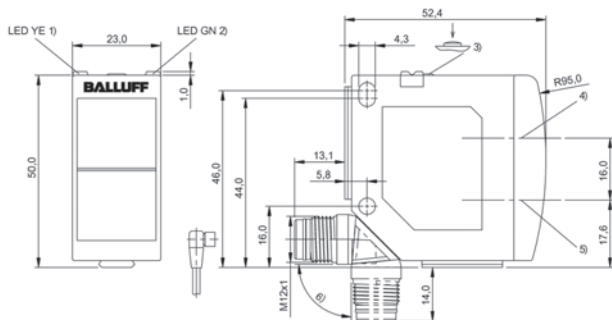
1) Output function/Error, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis, 5) rotatable 270°

BOS01NC



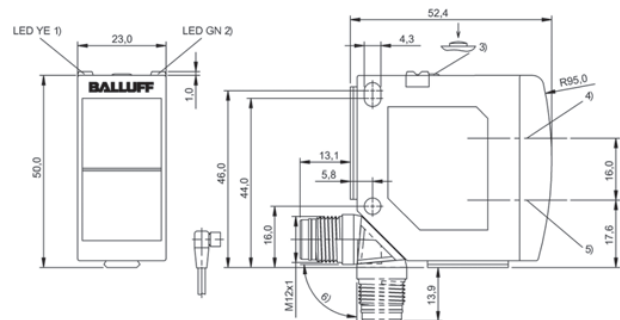
1) Output function/Error, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter, 6) rotatable 270°

BOS016U



1) Output function/Error, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter, 6) rotatable 270°

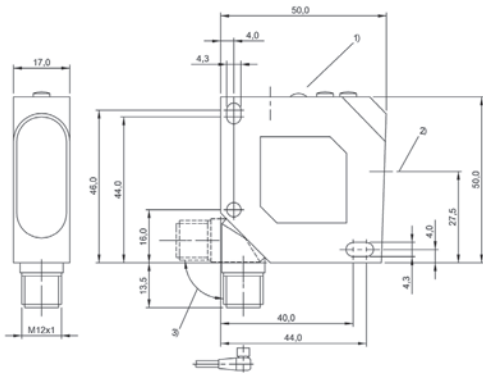
BOS01FN



1) Output function/Error, 2) Power/setting mode, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter, 6) rotatable 270°

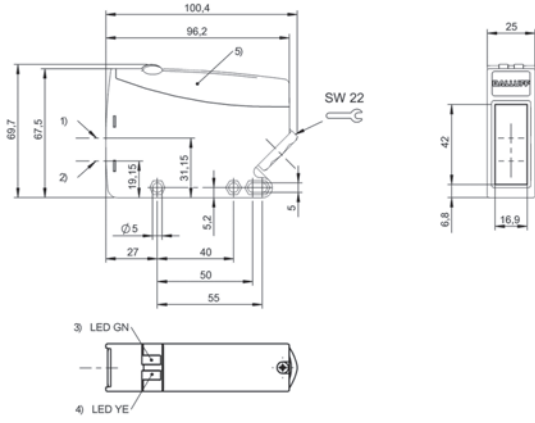
BOS016P

424 | Sensors | Photoelectric Sensors



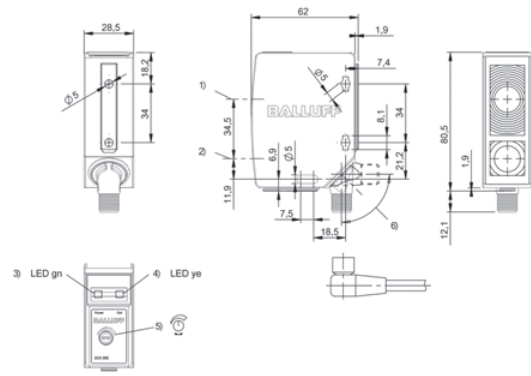
1) Display and control panel, 2) Optical axis, 3) rotatable 270°

BOS008L, BOS008M



1) Optical axis receiver, 2) Optical axis emitter, 3) Stability, 4) Output function, 5) Removable cover

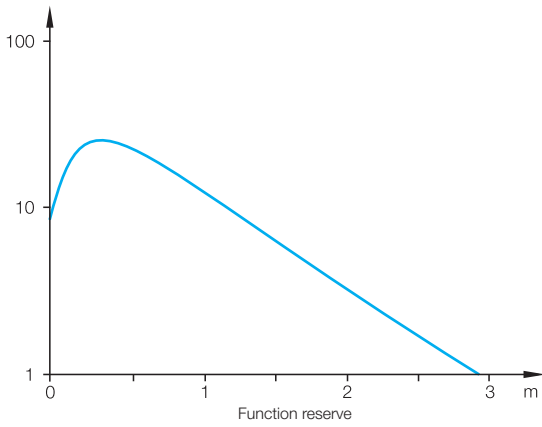
BOS01K3



1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn, 6) rotatable 270°

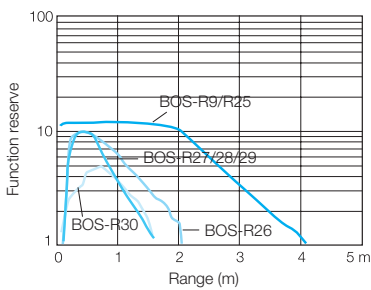
BOS01CR

Retroreflective sensor BOS 2K

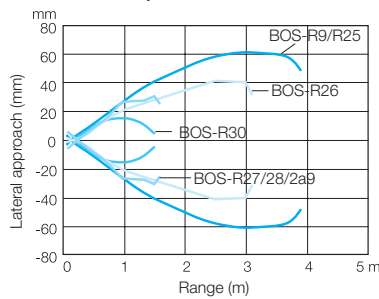


Retroreflective sensor BOS 5K-...-RR10-...

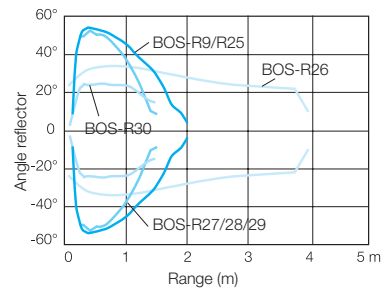
Receiving characteristics



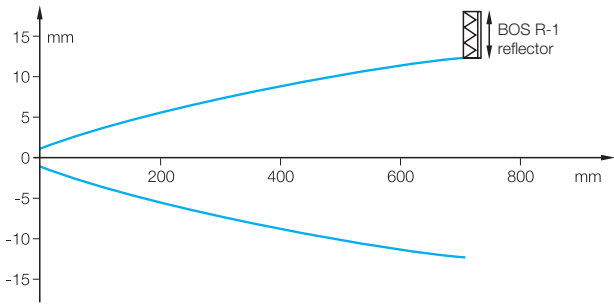
Characteristic response curve



Angular Offset

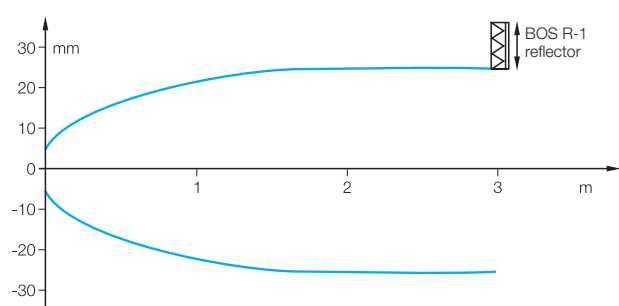


Retroreflective sensor BOS 6K-...-1QA-...



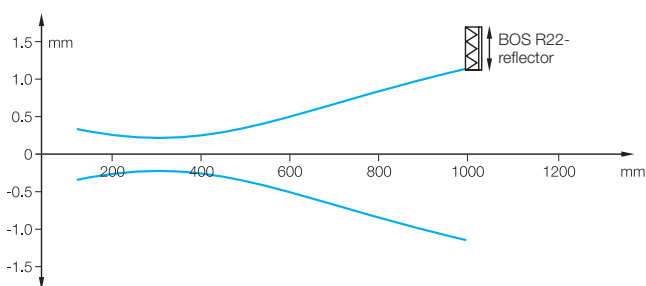
Range measured with side approach with reflector.

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



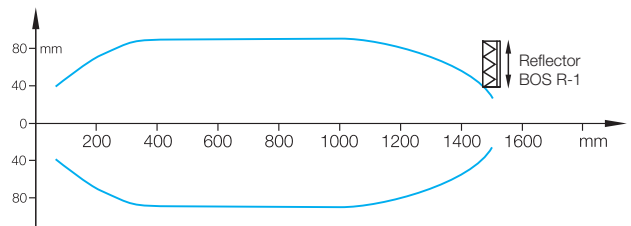
Range measured with side approach with reflector.

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



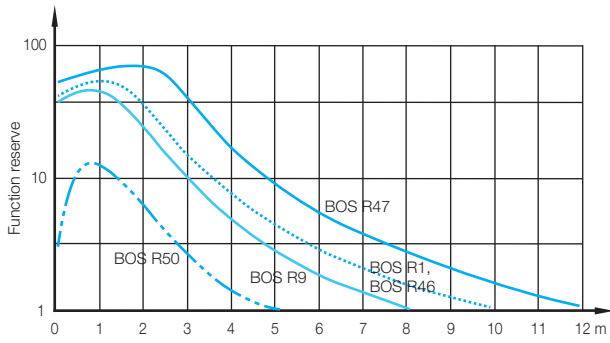
Range measured with side approach with reflector.

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

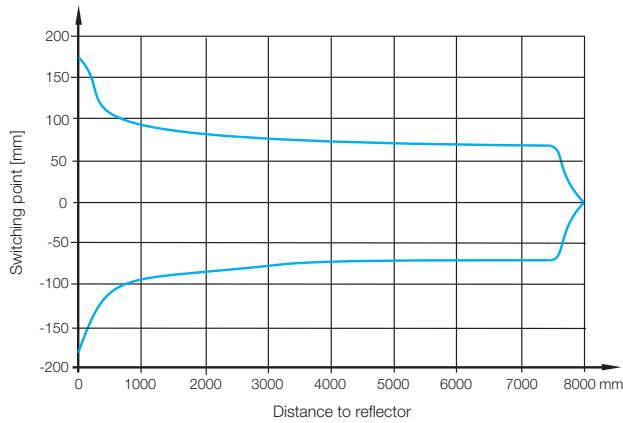


Range measured with side approach with reflector.

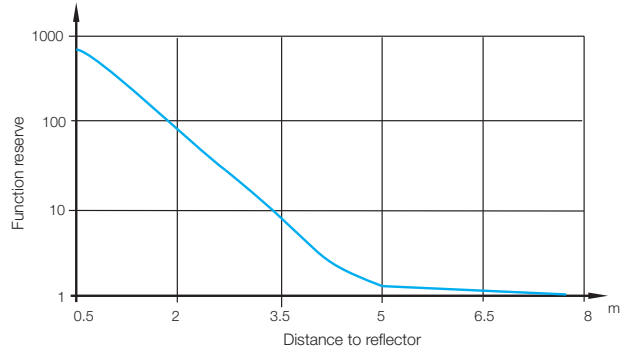
Retroreflective sensor BOS 18M...IR20/IR21-S4



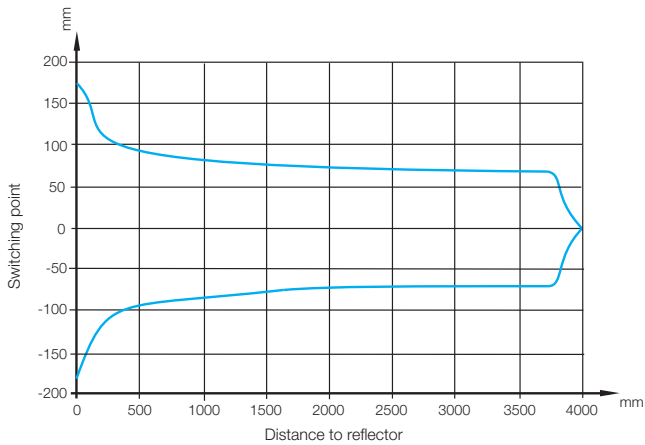
**Retroreflective sensor BOS 18M...PR20...
Response curve**



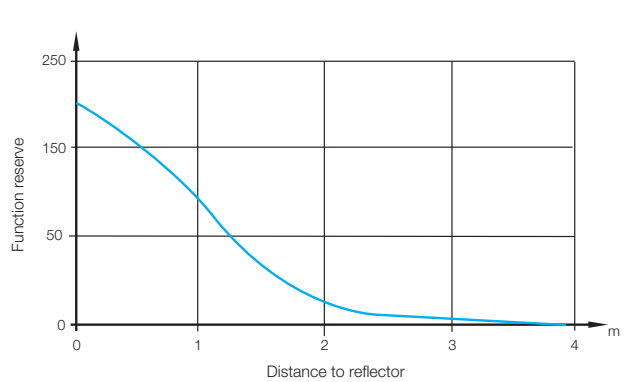
**Retroreflective sensor BOS 18M...PR20...
Function reserve**



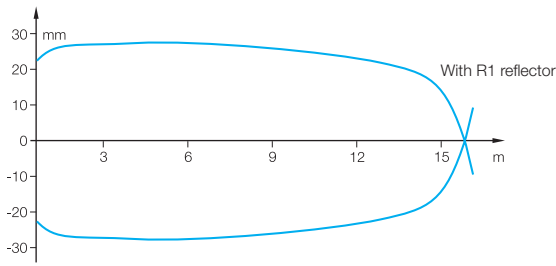
**Retroreflective sensor BOS 18M...PR23
response curve**



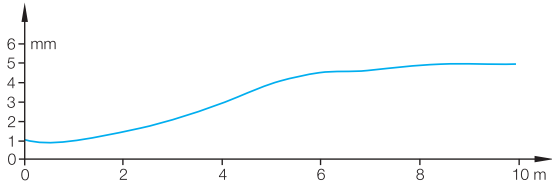
**Retroreflective sensor BOS 18M...PR23
Function reserve**



Retroreflective sensor BOS 18M-...-LR10-...

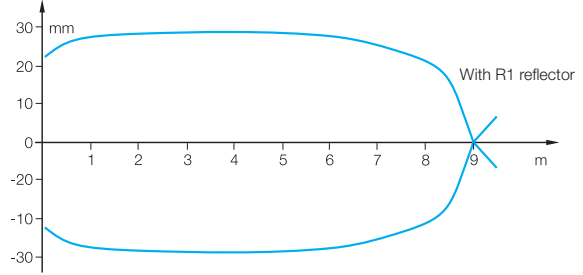


Detection range

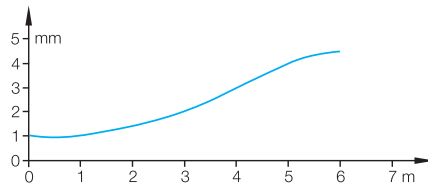


Resolution

Retroreflective sensor BOS 18MR-...-LR10-...

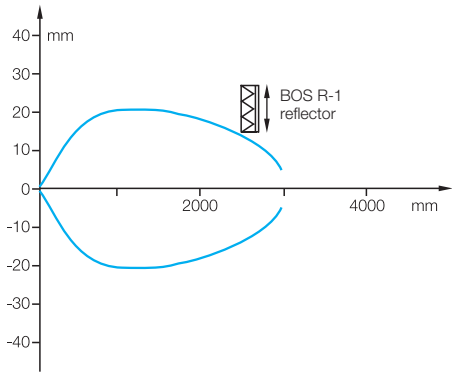


Detection range



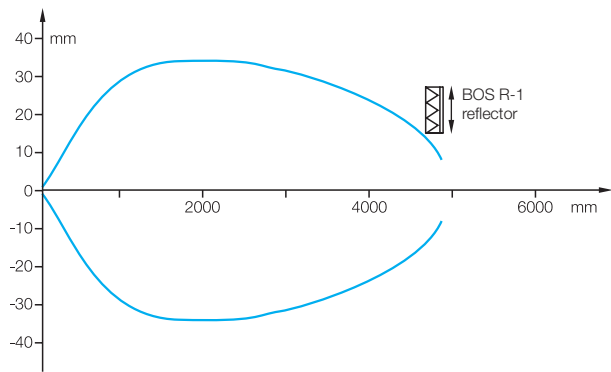
Resolution

Retroreflective sensor BOS 18E-...-1UB-...



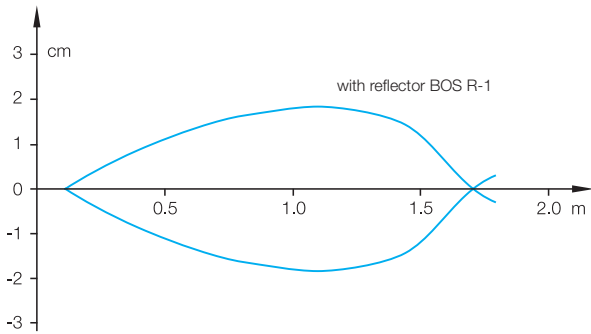
Range measured with side approach with reflector.

Retroreflective sensor BOS 18E-...-1WD-...

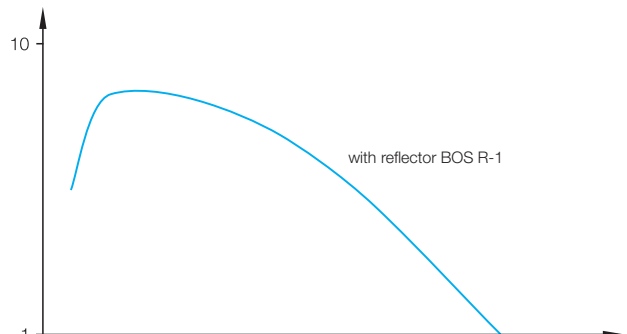


Range measured with side approach with reflector.

Retroreflective sensor BOS 18KF-...-1TB-...

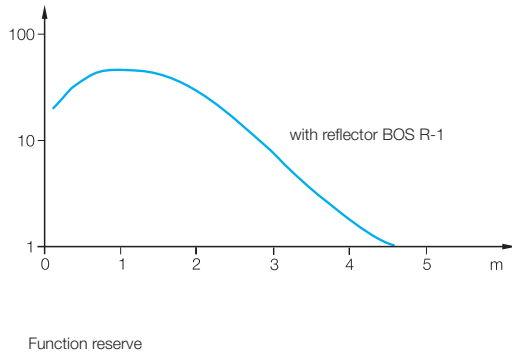
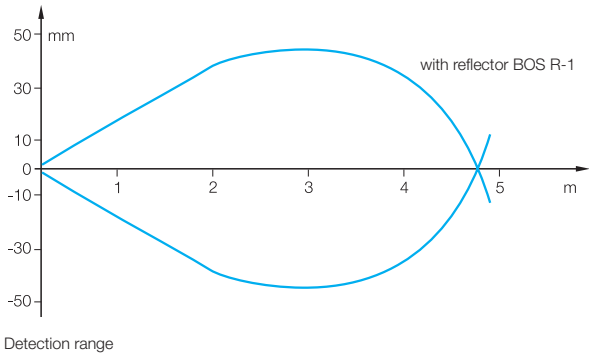


Detection range

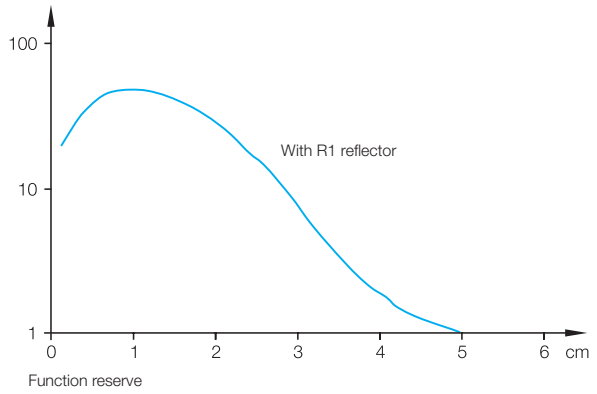
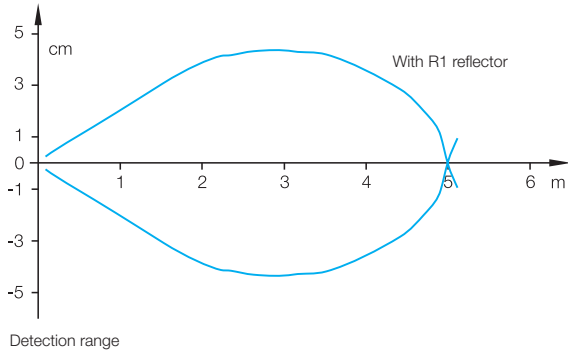


Function reserve

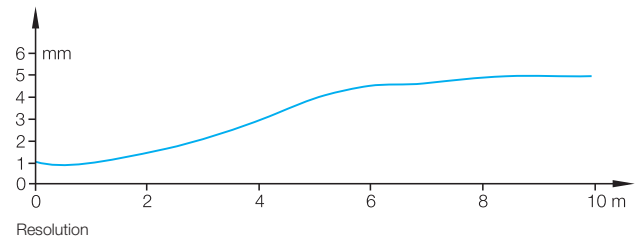
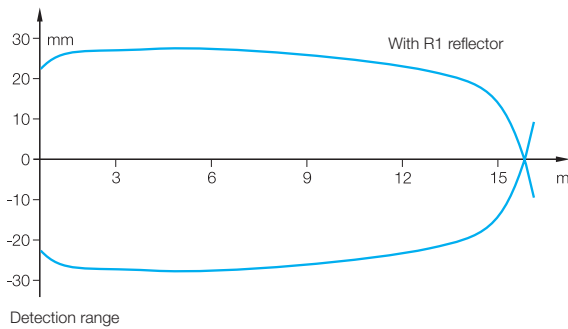
Retroreflective sensor BOS 18KF-...-1QD-...



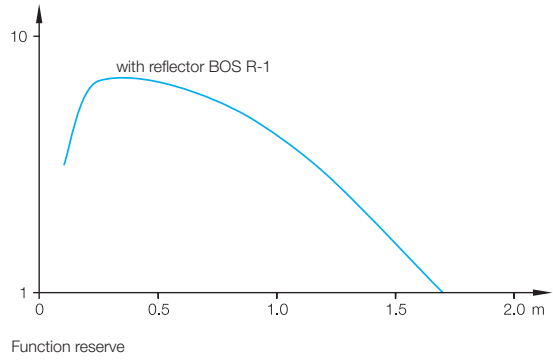
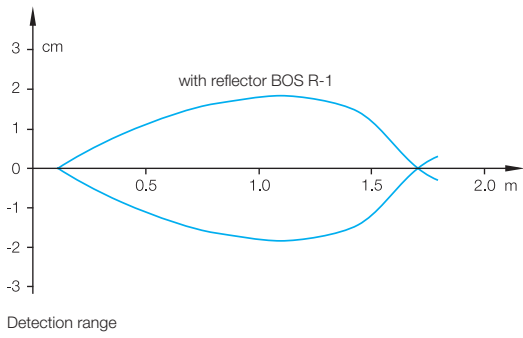
Retroreflective sensor BOS 18KF-...-1RE-...



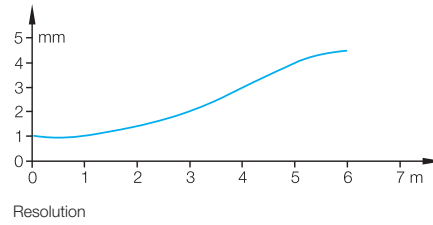
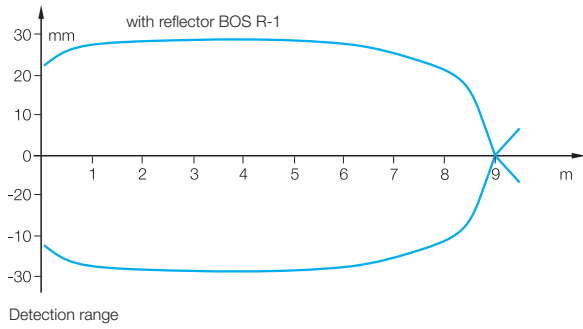
Retroreflective sensor BOS 18KF-...-1LQP-...



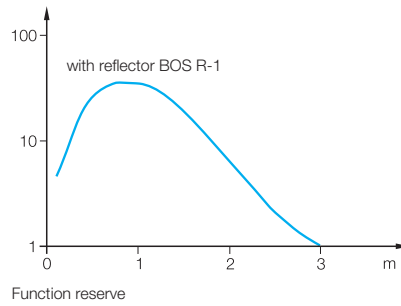
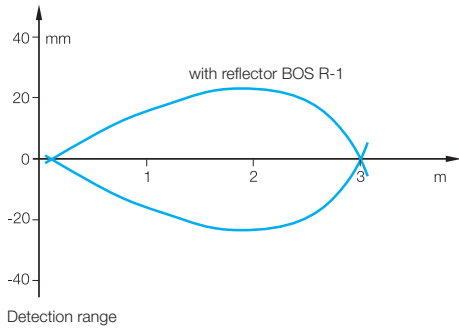
Retroreflective sensor BOS 18KW-..-1TB-...



Retroreflective BOS 18KW-..-1LQH-...



Retroreflective sensor BOS 18KW-..-1QC-...





PNP normally open	BOS024L BOS 08E-PS-LE20-00,2-S49	BOS01U3 BOS 08E-PS-LE20-S49	BOS020F BOS 08E-PS-KE20-S49	
PNP normally closed			BOS020A BOS 08E-P0-KE20-S49	
Emitter				
Series	08E	08E	08E	
Dimension	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 8 x 40 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Through-beam sensor (receiver)	Through-beam sensor (receiver)	Through-beam sensor (receiver)	
Special optical feature	—	—	—	
Beam characteristic	—	—	—	
Light type	Laser red light	Laser red light	LED, red light	
Light spot size	—	—	—	
Range	0...3 m	0...3 m	0...2.2 m	
Connection	—	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Housing material	Stainless steel	Stainless steel	Stainless steel	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	—	cULus, CE, EAC	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 452	Page 452	Page 452	



	BOS020C BOS 08E-PS-KE20-00,2-S49				
		BOS024N BOS 08E-X-LS20-00,2-S49	BOS01U8 BOS 08E-X-LS20-S49	BOS01Z7 BOS 08E-X-KS20-00,2-S49	BOS01Z5 BOS 08E-X-KS20-S49
	08E	08E	08E	08E	08E
	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 8 x 40 mm	Ø 8 x 40 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Through-beam sensor (receiver)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)
	—	—	—	—	—
	—	Collimated	Collimated	Divergent	Divergent
	LED, red light	Laser red light	Laser red light	LED, red light	LED, red light
	—	Ø 3.0 mm Light exit	Ø 3.0 mm Light exit	—	—
	0...2.2 m	0...3 m	0...3 m	0...2.2 m	0...2.2 m
	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	—	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Connector, M8x1 connector, 3-pin
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	PMMA	PMMA	PMMA	PMMA	PMMA
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	cULus, CE, EAC	—	cULus, CE, EAC	cULus, CE, EAC	cULus, CE, EAC
	—	—	—	—	—
	Page 452	Page 452	Page 452	Page 452	Page 452



PNP normally open		BOS01TY BOS 12M-PS-RE10-S4		
PNP normally open, PNP normally closed	BOS00WF BOS 12M-PA-LE10-S4			
Emitter			BOS00WH BOS 12M-X-LS11-S4	
Series	12M	12M	12M	
Dimension	Ø 12 x 70 mm	Ø 12 x 60 mm	Ø 12 x 70 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Through-beam sensor (receiver)	Through-beam sensor (receiver)	Through-beam sensor (Emitter)	
Special optical feature	—	—	—	
Beam characteristic	—	—	Focus, typical at 500 mm	
Light type	Laser red light	LED, red light	Laser red light	
Light spot size	—	—	Ø 2.5 mm Light exit	
Range	0...30 m	0...8 m	0...3 m	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	Brass	Brass	Brass	
Material sensing surface	PMMA	PMMA	Glass	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus, EAC	CE, cULus	
Trademark	—	Global	—	
Productview	Page 452	Page 452	Page 453	



					BOS01F3 BOS 18M-PA-IE20-S4
	BOS00WJ BOS 12M-X-LS12-S4	BOS00WL BOS 12M-XT-LS11-S4	BOS00WN BOS 12M-XT-LS12-S4	BOS01TW BOS 12M-X-RS10-S4	
	12M	12M	12M	12M	18M
	Ø 12 x 70 mm	Ø 12 x 70 mm	Ø 12 x 70 mm	Ø 12 x 60 mm	Ø 18 x 75 mm
	—	Test (Emitter off)	Test (Emitter off)	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (receiver)
	—	—	—	—	—
	Collimated	Focus, typical at 500 mm	Collimated	—	—
	Laser red light	Laser red light	Laser red light	LED, red light	Infrared
	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 280 mm at 8 m	—
	0...30 m	0...3 m	0...30 m	0...8 m	0...50 m
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Brass	Brass	Brass	Brass	Brass
	Glass	Glass	Glass	PMMA	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus	CE, cULus	CE, cULus	CE, cULus, EAC	cULus, CE, EAC
	—	—	—	Global	—
	Page 453	Page 453	Page 453	Page 453	Page 453



PNP normally open		BOS01C2 BOS 18M-PS-RE20-S4		
PNP normally open, PNP normally closed	BOS01NJ BOS 18M-PA-LE20-S4	BOS01CC BOS 18M-PA-RE20-S4		
PNP normally open/normally closed				
PNP normally open/normally closed, IO-Link 1.1			BOS01UC BOS 18M-PI-RE30-S4	
Emitter				
Series	18M	18M	18M	
Dimension	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Through-beam sensor (receiver)	Through-beam sensor (receiver)	Through-beam sensor (receiver)	
Special optical feature	—	—	—	
Beam characteristic	—	—	—	
Light type	Laser red light	LED, red light	LED, red light	
Light spot size	—	—	—	
Range	0...60 m	0...20 m	0...20 m	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	Brass	Brass	Brass	
Material sensing surface	Glass	Glass	Glass	
Operating voltage U_b	10...30 VDC	10...30 VDC	18...30 VDC	
Approval/Conformity	cULus, CE, EAC	CE, cULus, EAC	cULus, CE, EAC	
Trademark	—	—	—	
Productview	Page 453	Page 453	Page 453	



	BOS01FE BOS 18M-PS-RE23-S4				
		BOS01J7 BOS 18M-PUV-RE30-S4			
			BOS01F5 BOS 18M-X-IS20-S4	BOS01HN BOS 18M-XT-IS20-S4	BOS01NH BOS 18M-XT-LS20-S4
	18M	18M	18M	18M	18M
	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm
	—	—	—	Test (Emitter off)	Test (Emitter off)
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Through-beam sensor (receiver)	Through-beam sensor (receiver)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)
	—	—	—	—	—
	—	—	—	—	Collimated
	LED, red light	LED, red light	Infrared	Infrared	Laser red light
	—	—	—	—	Ø 40 mm at 60 m
	0...20 m	0...20 m	0...50 m	0...50 m	0...60 m
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Brass	Brass	Brass	Brass	Brass
	Glass	Glass	Glass	Glass	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	cULus, CE, EAC	cULus, CE, EAC	CE, cULus, EAC	CE, cULus, EAC	cULus, CE, EAC
	Global	—	—	—	—
	Page 453	Page 453	Page 453	Page 453	Page 453



PNP normally open, PNP normally closed				
PNP normally open/normally closed, IO-Link 1.1				
Emitter	BOS01C0 BOS 18M-X-RS20-S4	BOS01FH BOS 18M-X-RS23-S4	BOS01CY BOS 18M-X-RS30-S4	
Series	18M	18M	18M	
Dimension	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	
Interface	—	—	—	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	
Special optical feature	—	—	—	
Beam characteristic	—	—	—	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	—	—	—	
Range	0...20 m	0...20 m	0...20 m	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	Brass	Brass	Brass	
Material sensing surface	Glass	Glass	Glass	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Trademark	—	Global	—	
Productview	Page 453	Page 454	Page 453	



	BOS01KM BOS 18E-PA-RE20-S4	BOS023W BOS 18E-PA-RE30-S4		BOS023H BOS 18E-PI-RE30-S4	BOS01KR BOS G18E-PA-RE20-S4
BOS01UF BOS 18M-XI-RS30-S4					
18M	18E	18E	18E	18E	G18E
Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm
IO-Link 1.1	—	—	—	—	—
—	—	—	—	—	—
Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
Through-beam sensor (Emitter)	Through-beam sensor (receiver)	Through-beam sensor (receiver)	Through-beam sensor (receiver)	Through-beam sensor (receiver)	Through-beam sensor (receiver)
—	—	—	—	—	—
—	—	—	—	—	—
LED, red light	LED, red light	LED, red light	LED, red light	LED, red light	LED, red light
—	—	—	—	—	—
0...20 m	0...20 m	0...20 m	0...20 m	0...20 m	0...20 m
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
Brass	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4571)	Stainless steel (1.4404)	Stainless steel (1.4404)
Glass	Glass	PMMA	Glass	Glass	Glass
18...30 VDC	10...30 VDC	10...30 VDC	18...30 VDC	10...30 VDC	10...30 VDC
cULus, CE, EAC	FDA compliant, Ecolab, CE, cULus, EAC	CE, cULus, Ecolab, EAC	cULus, CE, EAC	Ecolab, CE, FDA compliant, cULus, EAC	Ecolab, CE, FDA compliant, cULus, EAC
—	—	—	—	—	—
Page 453	Page 454	Page 454	Page 454	Page 454	Page 454



PNP normally open, PNP normally closed	BOS0243 BOS G18E-PA-RE30-S4			
Emitter		BOS01KT BOS 18E-X-RS20-S4	BOS023U BOS 18E-X-RS30-S4	
Series	G18E	18E	18E	
Dimension	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	
Interface	—	—	—	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Through-beam sensor (receiver)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	
Special optical feature	—	—	—	
Beam characteristic	—	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	—	—	—	
Range	0...20 m	0...20 m	0...20 m	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4404)	
Material sensing surface	PMMA	Glass	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	Ecolab, cULus, CE, EAC	FDA compliant, Ecolab, cULus, CE, EAC	CE, cULus, Ecolab, EAC	
Trademark	—	—	—	
Productview	Page 454	Page 454	Page 454	



				BOS00CT BLE 18KW-PA-1LT-S4-C	BOS00CW BLE 18KW-PA-1PP-S4-C
	BOS023J BOS 18E-XI-RS30-S4	BOS01KU BOS G18E-X-RS20-S4	BOS0242 BOS G18E-X-RS30-S4		
	18E	G18E	G18E	18KW	18KW
	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 75 mm	Ø 18 x 14 mm	Ø 18 x 14 mm
	IO-Link 1.1	—	—	—	—
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (receiver)	Through-beam sensor (receiver)
	—	—	—	—	—
	—	Divergent	Divergent	—	—
	LED, red light	LED, red light	LED, red light	Laser red light	Infrared
	—	—	—	—	—
	0...20 m	0...20 m	0...20 m	0...50 m	0...15 m
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Stainless steel (1.4571)	Stainless steel (1.4404)	Stainless steel (1.4404)	PBT	PBT
	Glass	Glass	PMMA	PMMA	PMMA
	18...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	cULus, CE, EAC	CE, cULus, Ecolab, FDA compliant, EAC	CE, cULus, Ecolab, EAC	CE, cULus	CE, cULus
	—	—	—	Global	Global
	Page 454	Page 454	Page 454	Page 454	Page 454



PNP normally open				
PNP normally closed				
PNP normally open, PNP normally closed			BOS00CH BLE 18KF-PA-1LT-S4-C	
Emitter	BOS00EW BLS 18KW-XX-1P-S4-L	BOS00ET BLS 18KW-XX-1LT-S4-L		
Series	18KW	18KW	18KF	
Dimension	Ø 18 x 14 mm	Ø 18 x 14 mm	Ø 18 x 81.5 mm	
Input function	Test (Emitter off)	Test (Emitter off)	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (receiver)	
Special optical feature	—	—	—	
Beam characteristic	—	—	—	
Light type	Infrared	Laser red light	Laser red light	
Light spot size	—	—	—	
Range	0...15 m	0...50 m	0...60 m	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	PBT	PBT	PBT	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus	CE, cULus	
Trademark	Global	Global	Global	
Productview	Page 454	Page 454	Page 455	



				BOS0199 BOS Q08M-PS-LE20-S49	BOS0197 BOS Q08M-PS-LE20-00,2-S49
				BOS0196 BOS Q08M-PO-LE20-S49	
BOS00CK BLE 18KF-PA-1PP-S4-C					
	BOS00EP BLS 18KF-XX-1P-S4-L	BOS00EM BLS 18KF-XX-1LT-S4-L			
18KF	18KF	18KF	Q08M	Q08M	
Ø 18 x 81.5 mm	Ø 18 x 71.5 mm	Ø 18 x 71.5 mm	8 x 59 x 8 mm	8 x 44 x 8 mm	
—	Test (Emitter off)	Test (Emitter off)	—	—	
Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Through-beam sensor (receiver)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (receiver)	Through-beam sensor (receiver)	
—	—	—	—	—	
—	—	—	—	—	
Infrared	Infrared	Laser red light	Laser red light	Laser red light	
—	—	—	—	—	
0...20 m	0...20 m	0...60 m	0...3 m	0...3 m	
Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	
PBT	PBT	PBT	Zinc, die-cast	Zinc, die-cast	
PMMA	PMMA	PMMA	PMMA	PMMA	
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
CE, cULus	CE, cULus, EAC	CE, cULus	CE, cULus, EAC	CE, cULus, EAC	
Global	Global	Global	—	—	
Page 455	Page 455	Page 455	Page 455	Page 455	



PNP normally open	BOS01Y4 BOS Q08M-PS-KE21-S49	BOS01Y6 BOS Q08M-PS-KE21-00,2-S49		
PNP normally closed	BOS01Y7 BOS Q08M-PO-KE21-S49			
Emitter			BOS019M BOS Q08M-X-LS20-00,2-S49	
Series	Q08M	Q08M	Q08M	
Dimension	8 x 59 x 8 mm	8 x 44 x 8 mm	8 x 44 x 8 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Through-beam sensor (receiver)	Through-beam sensor (receiver)	Through-beam sensor (Emitter)	
Special optical feature	—	—	—	
Beam characteristic	—	—	divergent, 2 mrad	
Light type	Red light	Red light	Laser red light	
Light spot size	—	—	Ø 3.0 mm Light exit	
Range	0...2.2 m	0...2.2 m	0...3 m	
Connection	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	
Housing material	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 455	Page 455	Page 455	



				BOS0214 BOS R020K-PS-RX11-00,2-S49	BOS0211 BOS R020K-PS-RX11-02
	BOS018K BOS Q08M-X-LS20-S49	BOS01YM BOS Q08M-X-KS21-00,2-S49	BOS01YK BOS Q08M-X-KS21-S49		
	Q08M	Q08M	Q08M	R020K	R020K
	8 x 59 x 8 mm	8 x 44 x 8 mm	8 x 59 x 8 mm	7.7 x 26.8 x 13.5 mm	7.7 x 26.8 x 13.5 mm
	—	—	—	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor	Through-beam sensor
	—	—	—	—	—
	divergent, 2 mrad	Divergent	Divergent	Divergent	Divergent
	Laser red light	LED, red light	LED, red light	LED, red light	LED, red light
	Ø 3.0 mm Light exit	—	—	Ø 23 mm at 500 mm	Ø 23 mm at 500 mm
	0...3 m	0...2.2 m	0...2.2 m	0...2 m	0...2 m
	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Connector, M8x1 connector, 3-pin	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PVC	Cable, 2.00 m, PVC
	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	PC PBT	PC PBT
	PMMA	PMMA	PMMA	PMMA	PMMA
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus, EAC	cULus, CE, EAC	CE, cULus, EAC	cULus, CE	cULus, CE
	—	—	—	—	—
	Page 456	Page 456	Page 456	Page 456	Page 456



PNP normally open	BOS021N BOS R01E-PS-KE20-00,2-S49	BOS021P BOS R01E-PS-KE20-02		
PNP normally closed				
PNP normally open/normally closed				
Emitter			BOS021R BOS R01E-X-KS20-00,2-S49	
Series	R01E	R01E	R01E	
Dimension	20 x 32 x 9 mm	20 x 32 x 9 mm	20 x 32 x 9 mm	
Input function	—	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	—	—	—	
Beam characteristic	—	—	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	—	—	Ø 3.0 mm Light exit	
Range	0...2.2 m	0...2.2 m	0...2.2 m	
Connection	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	Cable, 2.00 m, PUR	Cable with connector, M8x1 connector, 3-pin, 0.20 m, PUR	
Housing material	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4404)	
Material sensing surface	PA	PA	PA	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, Ecolab, EAC	cULus, CE, Ecolab, EAC	cULus, CE, Ecolab, EAC	
Trademark	—	—	—	
Productview	Page 456	Page 456	Page 456	



		BOS0126 BOS 5K-PS-IX10-S75	BOS0125 BOS 5K-PS-IX10-02		
		BOS011R BOS 5K-P0-IX10-S75			
				BOS01JP BOS 5K-PU-LX10-S75	BOS01LU BOS 6K-PU-LE10-S49
BOS021T BOS R01E-X-KS20-02					
R01E	5K	5K	5K	5K	6K
20 x 32 x 9 mm	10.8 x 43.5 x 19.5 mm	10.8 x 32.7 x 19.5 mm	10.8 x 43.5 x 19.5 mm	10.8 x 43.5 x 19.5 mm	12 x 41.5 x 21.6 mm
—	—	—	—	—	—
Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor (receiver)
—	—	—	—	—	—
Divergent	Divergent	Divergent	Divergent	Divergent	—
LED, red light	Infrared	Infrared	Laser red light	Laser red light	—
Ø 3.0 mm Light exit	Ø 90 mm at 2 m	Ø 90 mm at 2 m	Ø 5 mm at 3 m	—	—
0...2.2 m	0...20 m	0...20 m	0...30 m	0...18 m	—
Cable, 2.00 m, PUR	Connector, M8x1 connector, 4-pin	Cable, 2.00 m, PVC	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 3-pin	—
Stainless steel (1.4404)	PC PBT	PC PBT	PC PBT	ABS	—
PA	PMMA	PMMA	PMMA	PMMA	—
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	—
cULus, CE, Ecolab, EAC	cULus, CE, EAC	cULus, CE, EAC	CE, cULus, CDRH, EAC	CE, cULus, EAC	—
—	Global	Global	Global	—	—
Page 457	Page 457	Page 457	Page 457	Page 457	—



PNP normally open, PNP normally closed				
PNP normally open/normally closed	BOS01LW BOS 6K-PU-LE10-S75			
Emitter		BOS01M1 BOS 6K-XT-LS10-S49	BOS01M2 BOS 6K-XT-LS10-S75	
Series	6K	6K	6K	
Dimension	12 x 41.5 x 21.6 mm	12 x 41 x 21.6 mm	12 x 41 x 21.6 mm	
Input function	Same function as button, Key disable on/off	—	—	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Through-beam sensor (receiver)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	
Special optical feature	—	—	—	
Beam characteristic	—	Divergent	Divergent	
Light type	Laser red light	Laser red light	Laser red light	
Light spot size	—	14 x 14 mm at 20 m	14 x 14 mm at 20 m	
Range	0...18 m	0...18 m	0...18 m	
Connection	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 4-pin	
Housing material	ABS	ABS	ABS	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	cULus, CE, EAC	cULus, CE, EAC	cULus, CE, EAC	
Trademark	—	—	—	
Productview	Page 457	Page 457	Page 457	



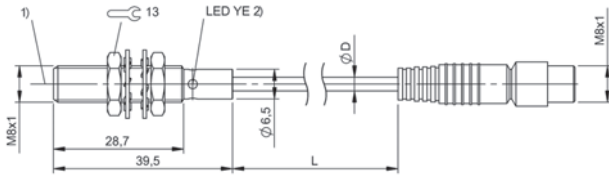
	BOS00WT BOS 21M-PA-IE10-S4	BOS00WW BOS 21M-PA-LE10-S4			BOS01FU BOS 23K-PA-LE10-S4
					BOS016L BOS 23K-PU-LE10-S4
			BOS00WZ BOS 21M-XT-IS11-S4	BOS00YO BOS 21M-XT-LS11-S4	
	21M	21M	21M	21M	23K
	15 x 50 x 42.5 mm	15 x 50 x 42.5 mm	15 x 50 x 42.5 mm	15 x 50 x 42.5 mm	23 x 51 x 52.4 mm
	—	—	Test (Emitter off)	Test (Emitter off)	Same function as button, Key disable on/off
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Through-beam sensor (receiver)	Through-beam sensor (receiver)	Through-beam sensor (Emitter)	Through-beam sensor (Emitter)	Through-beam sensor (receiver)
	—	—	—	—	—
	—	—	—	—	—
	Infrared	Laser red light	Infrared	Laser red light	Laser red light
	—	—	—	—	—
	0...20 m	0...60 m	0...20 m	0...60 m	0...30 m
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum	PC ABS
	PMMA	PMMA	PMMA	PMMA	PMMA
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus	CE, cULus	CE, cULus	CE, cULus	Ecolab, CE, cULus
	—	—	—	—	—
	Page 457	Page 457	Page 457	Page 457	Page 458



PNP normally open, PNP normally closed	BOS01FP BOS 23K-PA-RE10-S4			
PNP normally open/normally closed		BOS016F BOS 23K-PU-RE10-S4		
Relay normally open/normally closed				
Emitter			BOS016K BOS 23K-XT-LS11-S4	
Series	23K	23K	23K	
Dimension	23 x 51 x 52.4 mm	23 x 51 x 52.4 mm	23 x 51 x 52.4 mm	
Input function	—	Same function as button, Key disable on/off	Test (Emitter off)	
Principle of operation	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	
Principle of optical operation	Through-beam sensor (receiver)	Through-beam sensor (receiver)	Through-beam sensor (Emitter)	
Special optical feature	—	—	—	
Beam characteristic	—	—	Divergent	
Light type	LED, red light	LED, red light	Laser red light	
Light spot size	—	—	30 x 30 mm at 25 m	
Range	0...25 m	0...25 m	0...30 m	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	PC ABS	PC ABS	PC ABS	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage Ub	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	Ecolab, CE, cULus, EAC	CE, Ecolab, cULus, EAC	CE, cULus, Ecolab	
Trademark	—	—	—	
Productview	Page 458	Page 458	Page 458	

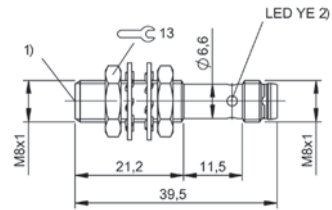


		BOS01CK BOS 50K-PA-RE10-S4			
				BOS01K4 BOS 64K-AA-IE10-TG	
	BOS016E BOS 23K-XT-RS11-S4		BOS01CN BOS 50K-XT-RS10-S4		BOS01K5 BOS 64K-AA-IS10-TG
	23K	50K	50K	64K	64K
	23 x 51 x 52.4 mm	28.5 x 80.5 x 62 mm	28.5 x 80.5 x 62 mm	25 x 69.7 x 100.4 mm	25 x 69.7 x 100.4 mm
	Test (Emitter off)	—	Test (Emitter off)	—	—
	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor	Photoelectric sensor
	Through-beam sensor (Emitter)	Through-beam sensor (receiver)	Through-beam sensor (Emitter)	Through-beam sensor (receiver)	Through-beam sensor (Emitter)
	—	—	—	—	—
	Divergent	—	Divergent	—	Divergent
	LED, red light	LED, red light	LED, red light	Infrared	Infrared
	600 x 600 mm at 20 m	—	200 x 200 mm at 10 m	—	—
	0...25 m	0...60 m	0...60 m	0...50 m	0...50 m
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Screw terminals	Screw terminals
	PC ABS	PC ABS	PC ABS	PBT, GF30	PBT, GF30
	PMMA	Glass	Glass	PC	PC
	10...30 VDC	10...30 VDC	10...30 VDC	24...60 VDC/24...240 VAC	24...60 VDC/24...240 VAC
	CE, Ecolab, cULus, EAC	CE, cULus, EAC	CE, cULus	cULus, CE, EAC	cULus, CE, EAC
	—	—	—	—	—
	Page 458	Page 458	Page 458	Page 458	Page 458



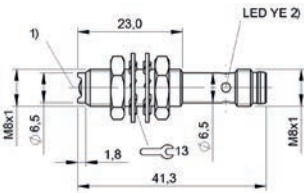
1) Optical axis, 2) Output function

BOS024L



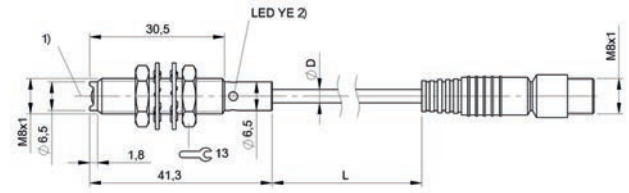
1) Optical axis, 2) Output function

BOS01U3



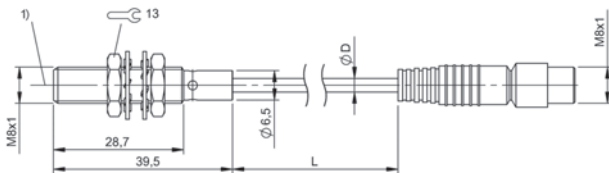
1) Optical axis, 2) Output function

BOS020A, BOS020F, BOS01Z5



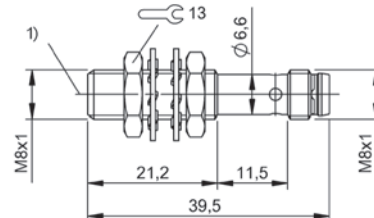
1) Optical axis, 2) Output function

BOS020C, BOS01Z7



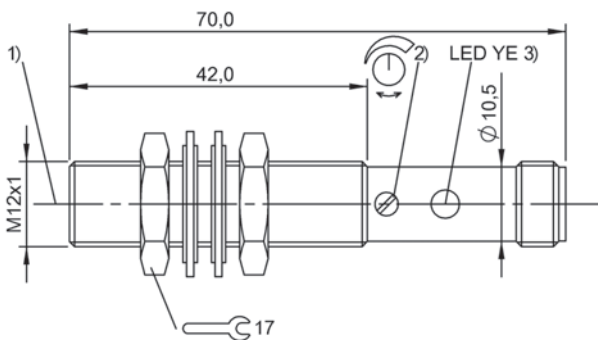
1) Optical axis

BOS024N



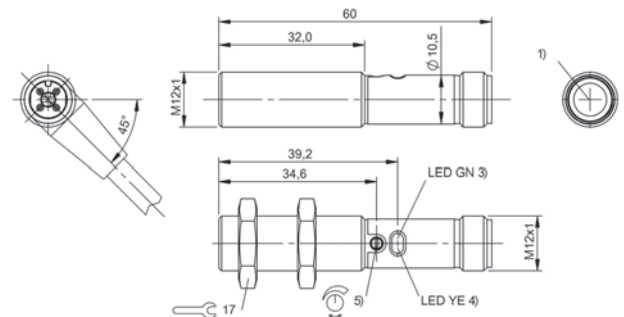
1) Optical axis

BOS01U8



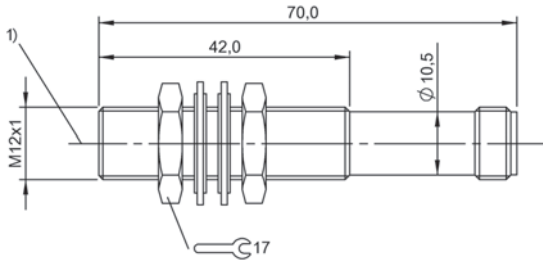
1) Optical axis, 2) Sn, 3) Output function

BOS00WF



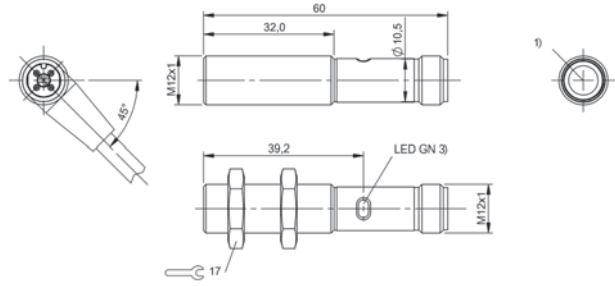
1) Optical axis receiver, 3) Operating voltage, 4) Light reception/limit area, 5) Sn

BOS01TY



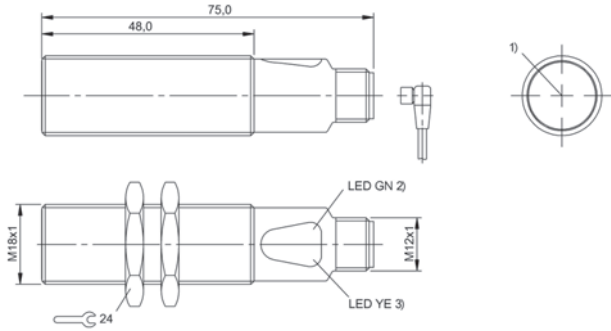
1) Optical axis

BOS00WH, BOS00WJ, BOS00WL, BOS00WN



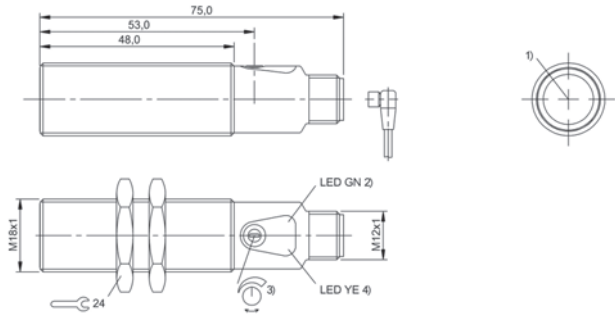
1) Optical axis emitter, 3) Operating voltage

BOS01TW



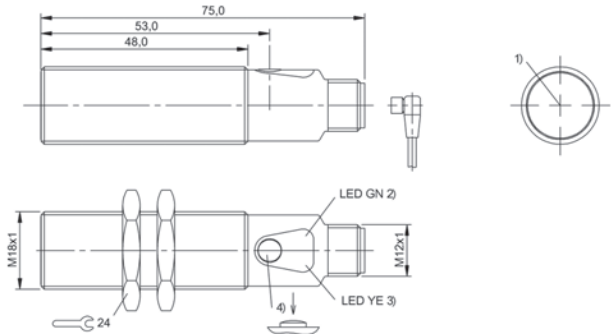
1) Optical axis, 2) Operating voltage, 3) Light reception/limit area

BOS01F3, BOS01CC, BOS01FK, BOS01C2



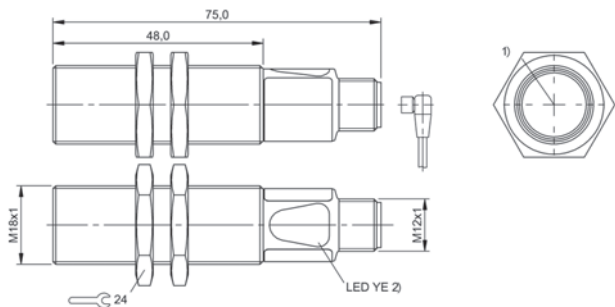
1) Optical axis, 2) Operating voltage/Error, 3) Sn, 4) Light reception/limit area

BOS01N1



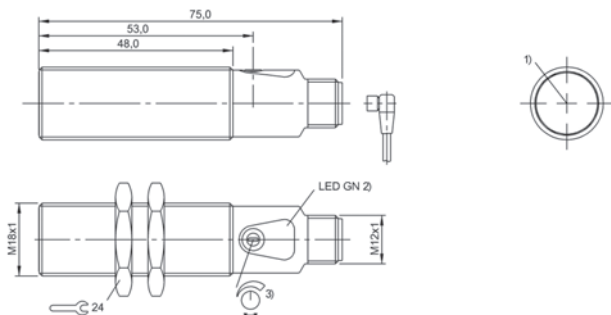
1) Optical axis, 2) Power/short-circuit, 3) Light reception/limit area, 4) Sn

BOS01UC, BOS01J7



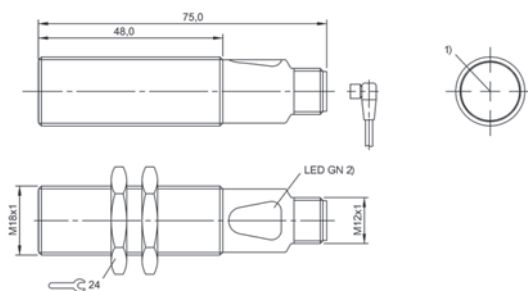
1) Optical axis, 2) Light reception

BOS01FE



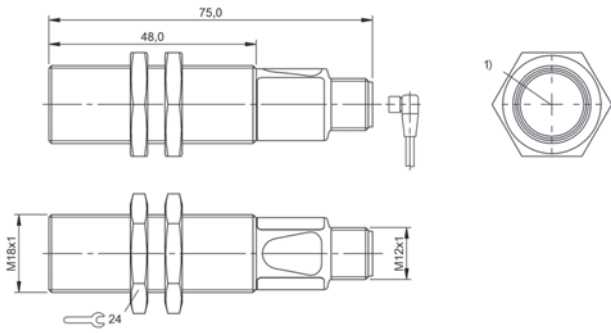
1) Optical axis, 2) Operating voltage, 3) Sn

BOS01F5, BOS01HN, BOS01C0



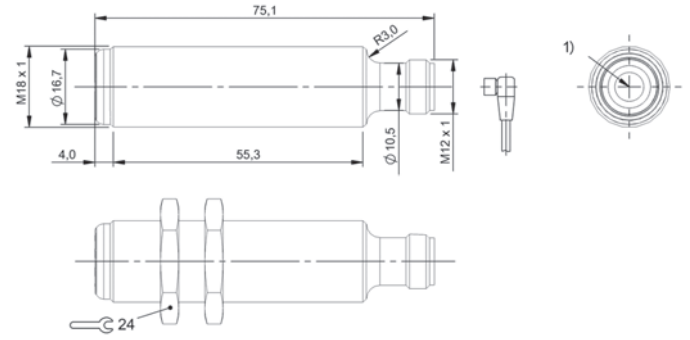
1) Optical axis, 2) Operating voltage

BOS01NH, BOS01CY, BOS01UF



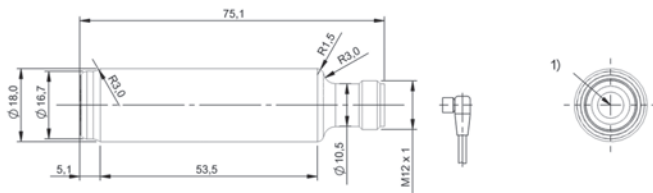
1) Optical axis

BOS01FH



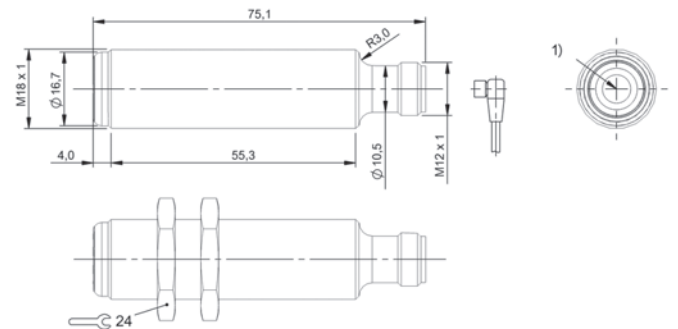
1) Optical axis receiver

BOS01KM, BOS023W, BOS023H



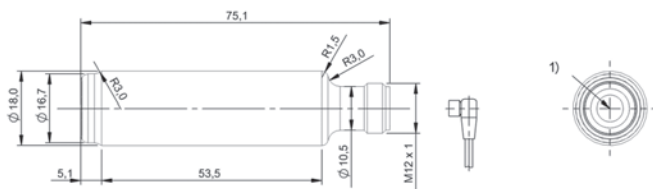
1) Optical axis receiver

BOS01KR, BOS0243



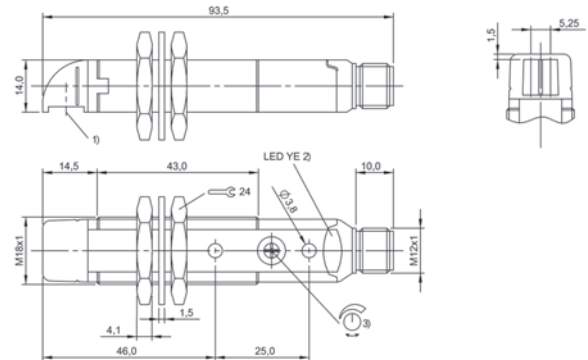
1) Optical axis emitter

BOS01KT, BOS023U, BOS023J



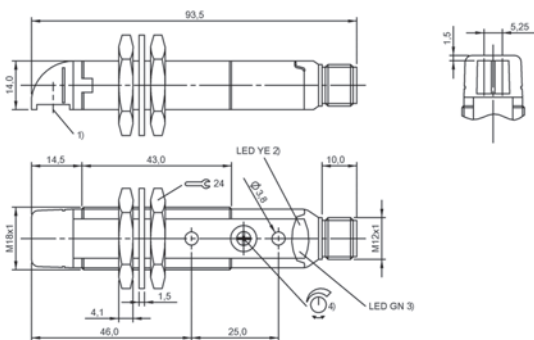
1) Optical axis emitter

BOS01KU, BOS0242



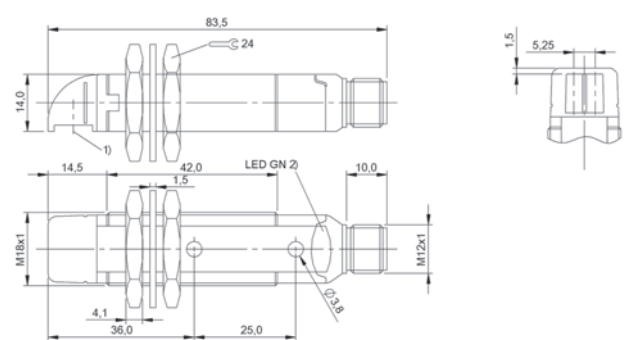
1) Optical axis, 1) Output function, 3) Sn

BOS00CT



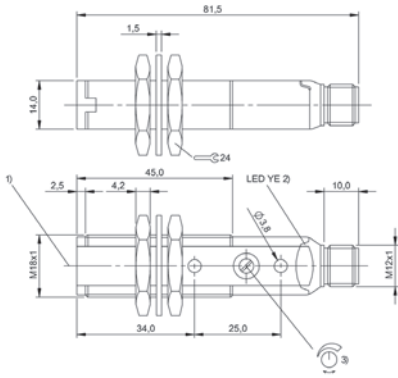
1) Optical axis, 2) Output function, 3) Stability, 4) Sn

BOS00CW



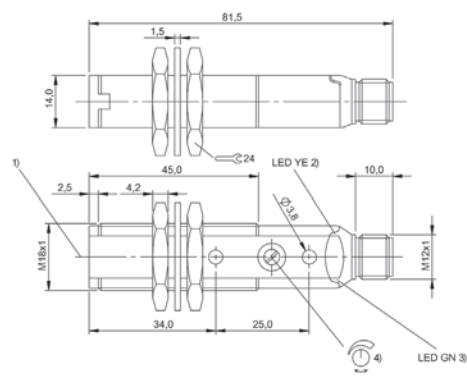
1) Optical axis, 2) Operating voltage

BOS00EW, BOS00ET



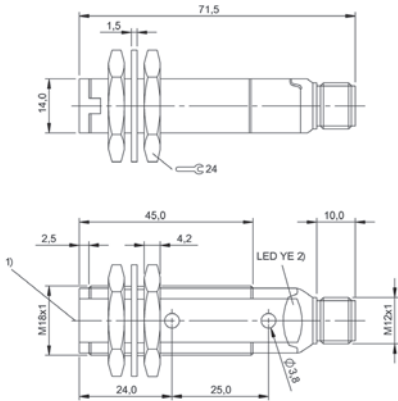
1) Optical axis, 2) Output function, 3) Sn

BOS00CH



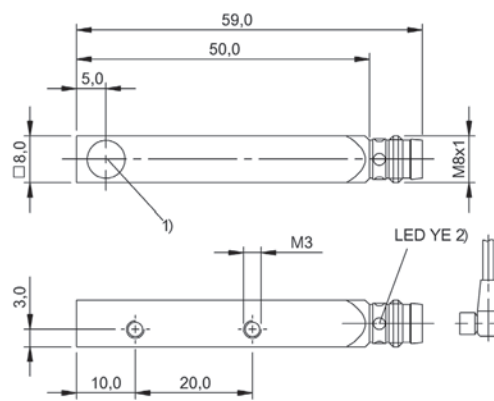
1) Optical axis, 2) Output function, 3) Stability, 4) Sn

BOS00CK



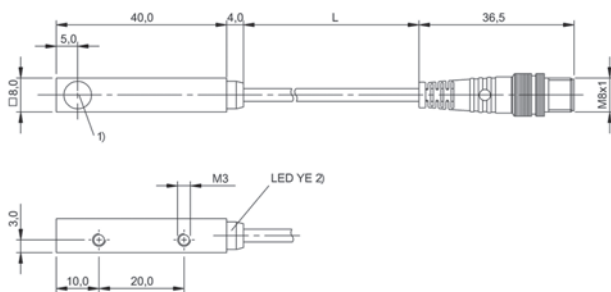
1) Optical axis, 2) Operating voltage

BOS00EP, BOS00EM



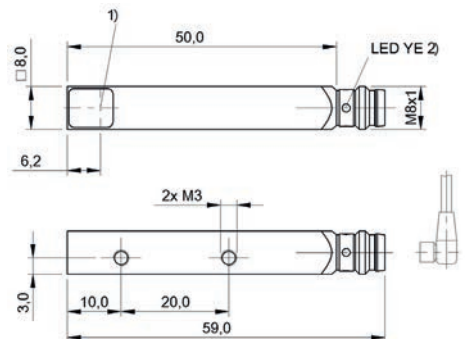
1) Optical axis, 2) Light reception

BOS0196, BOS0199



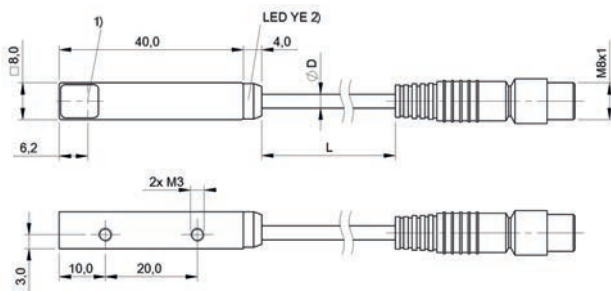
1) Optical axis, 2) Light reception

BOS0197



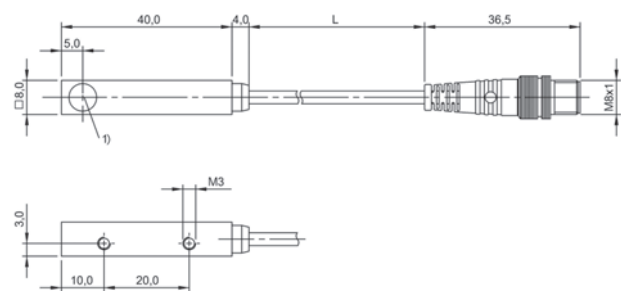
1) Optical axis receiver, 2) Output function

BOS01Y7, BOS01Y4



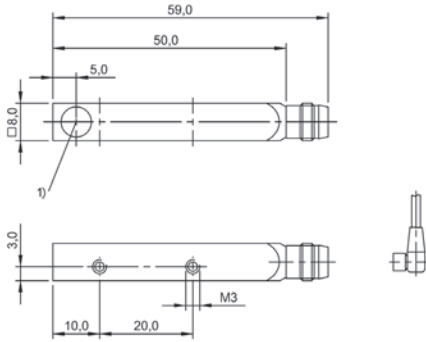
1) Optical axis receiver, 2) Output function

BOS01Y6



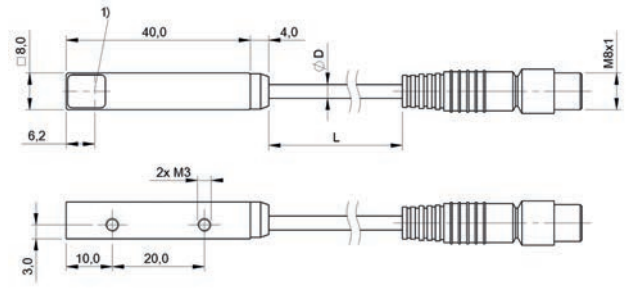
1) Sensing surface

BOS019M



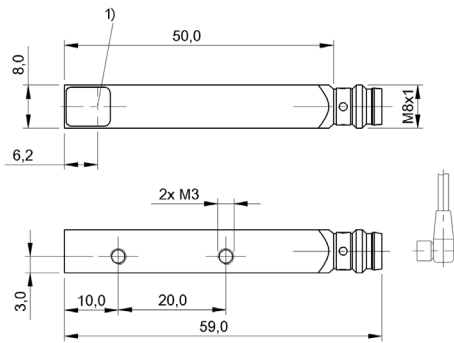
1) Sensing surface

BOS018K



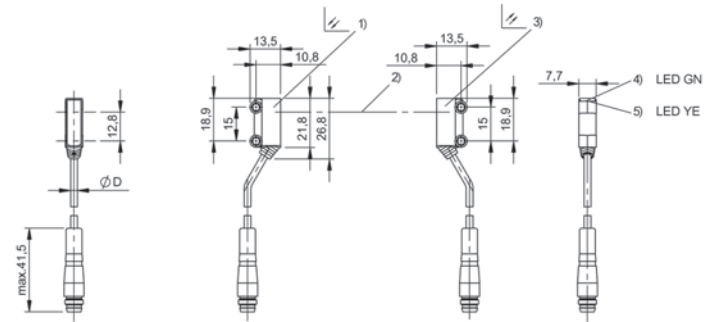
1) Optical axis emitter

BOS01YM



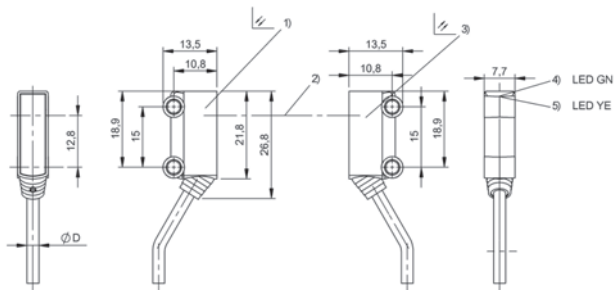
1) Optical axis emitter

BOS01YK



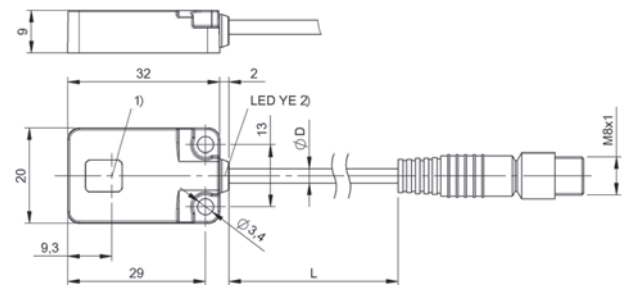
1) Emitter, 2) Optical axis, 3) Receiver, 4) Operating voltage, 5) Output function

BOS0214



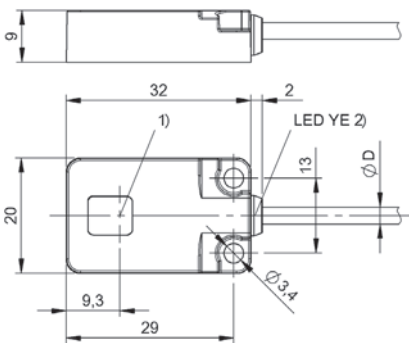
1) Emitter, 2) Optical axis, 3) Receiver, 4) Operating voltage, 5) Output function

BOS0211



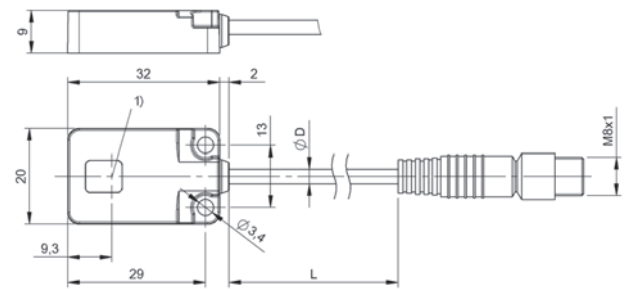
1) Optical axis receiver, 2) Output function

BOS021N



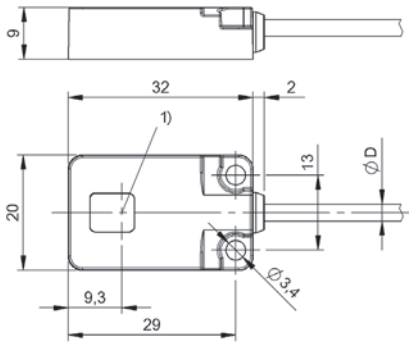
1) Optical axis receiver, 2) Output function

BOS021P



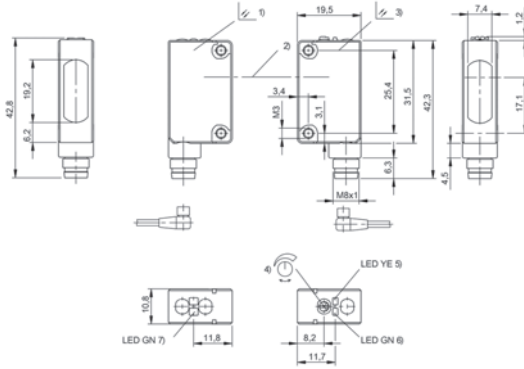
1) Optical axis emitter

BOS021R



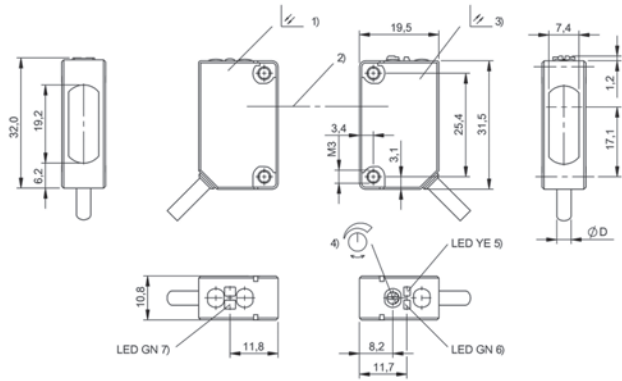
1) Optical axis emitter

BOS021T



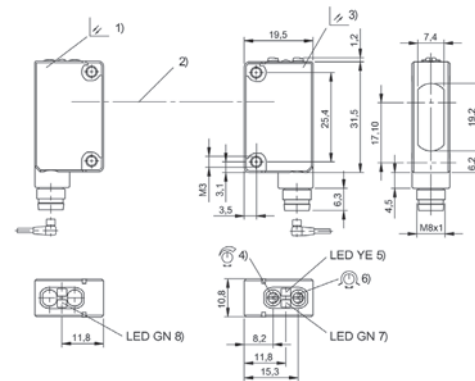
1) Emitter, 2) Optical axis, 3) Receiver, 4) Sensitivity, 5) Output function, 6) stability, 7) Operating voltage

BOS011R, BOS0126



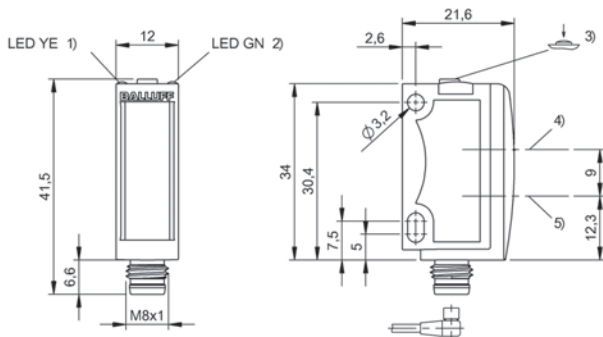
1) Emitter, 2) Optical axis, 3) Receiver, 4) Sensitivity, 5) Output function, 6) stability, 7) Operating voltage

BOS0125



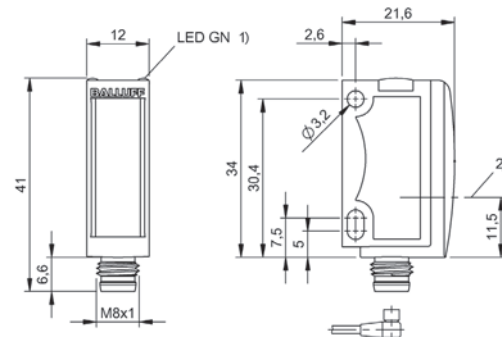
1) Emitter, 2) Optical axis, 3) Receiver, 4) Sensitivity, 5) Output function, 6) Light-on/dark-on, 7) stability, 8) Operating voltage

BOS01JP



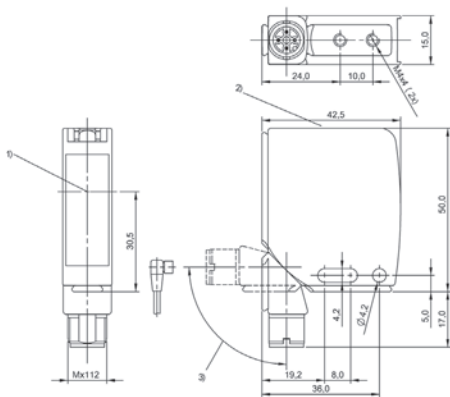
1) Output function, 2) Operating voltage, 3) Sensitivity, light/dark, 4) Optical axis

BOS01LU, BOS01LW



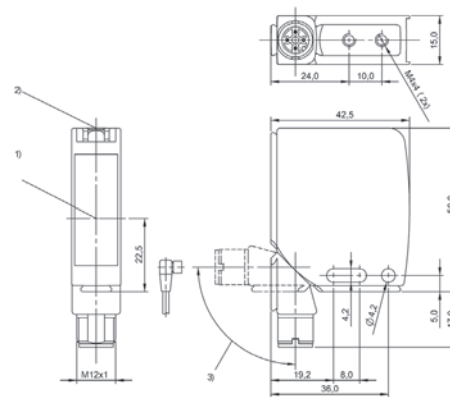
1) Operating voltage, 2) Optical axis

BOS01M1, BOS01M2



1) Optical axis, 2) Display and control panel, 3) rotatable 270°

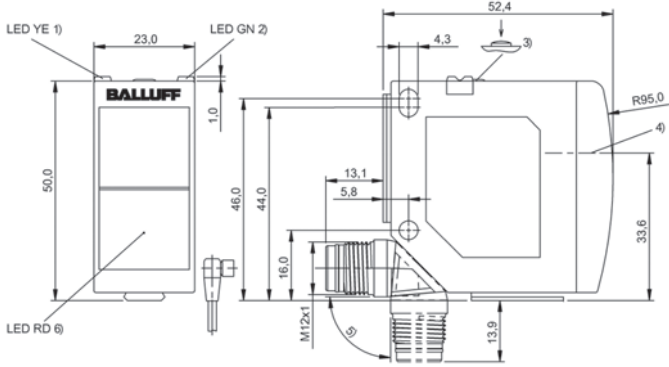
BOS00WT, BOS00WW



1) Optical axis, 2) Operating voltage, 3) rotatable 270°

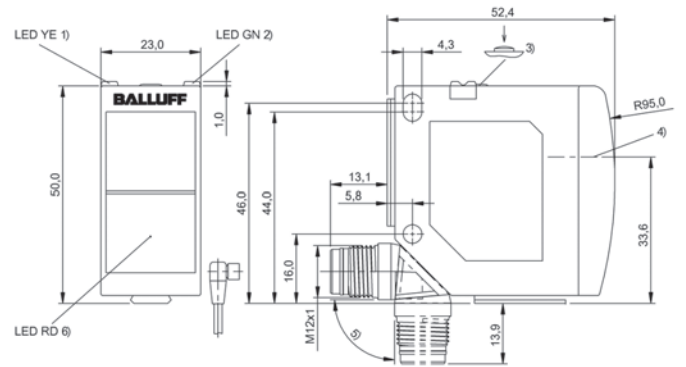
BOS00WZ, BOS00Y0

458 | Sensors | Photoelectric Sensors



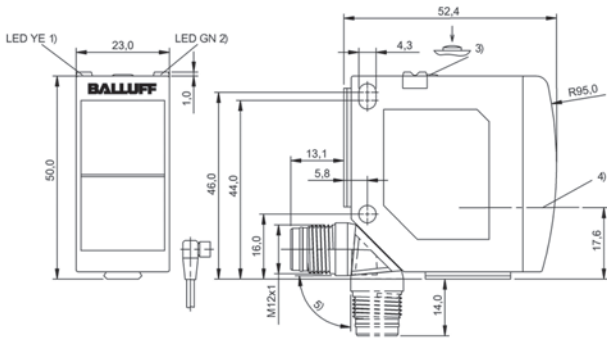
- 1) Output function/Error, 2) Power/setting mode, 3) Sn, light/dark, 4) Optical axis, 5) rotatable 270°, 6) Alignment good/limit area

BOS01FU, BOS016L, BOS016F



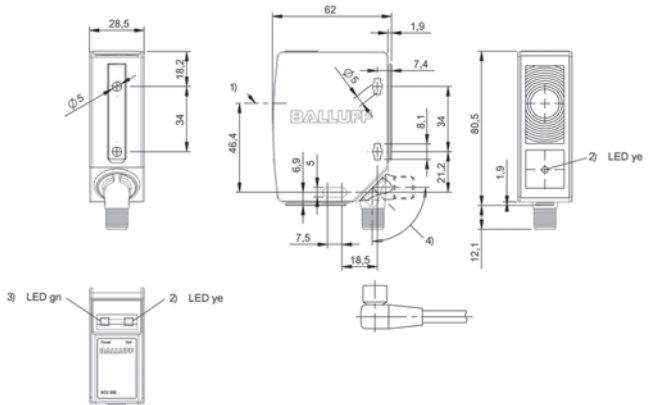
- 1) Output function/Error, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis, 5) rotatable 270°, 6) Alignment good/limit area

BOS01FP



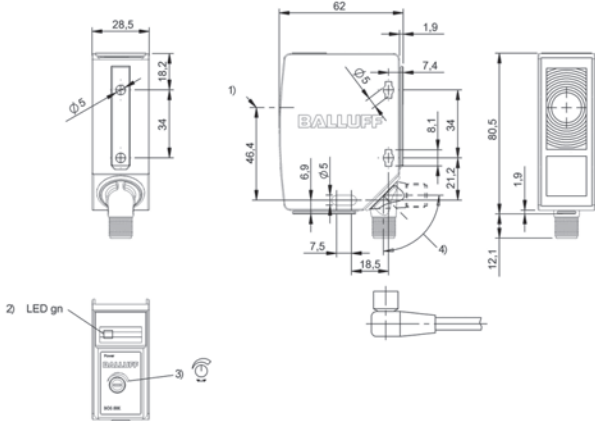
- 1) Alignment mode active, 2) Power/alignment mode active, 3) Alignment mode on/off, 4) Optical axis, 5) rotatable 270°

BOS016K, BOS016E



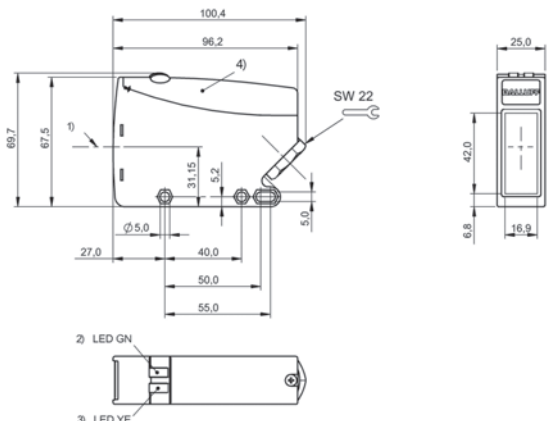
- 1) Optical axis receiver, 2) Light reception, 3) Operating voltage, 4) rotatable 270°

BOS01CK



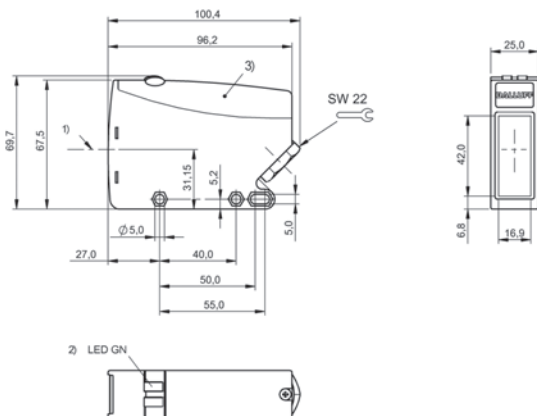
- 1) Optical axis emitter, 2) Operating voltage, 3) Sn, 4) rotatable 270°

BOS01CN



- 1) Optical axis, 2) Stability, 3) Output function, 4) Removable cover

BOS01K4

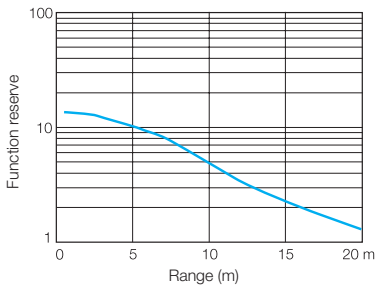


- 1) Optical axis, 2) Operating voltage, 3) Removable cover

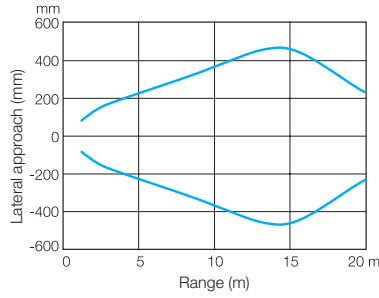
BOS01K5

Through-beam sensor BOS 5K-...-IX10-...

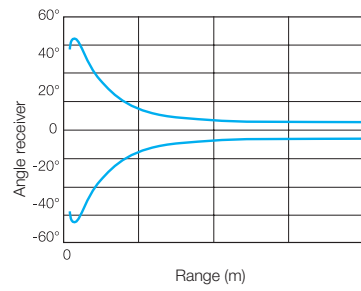
Receiving characteristics



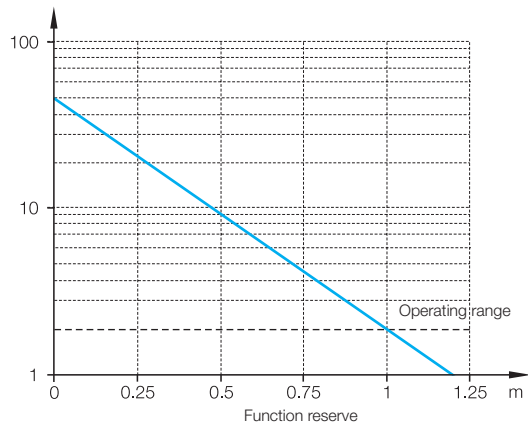
Characteristic response curve



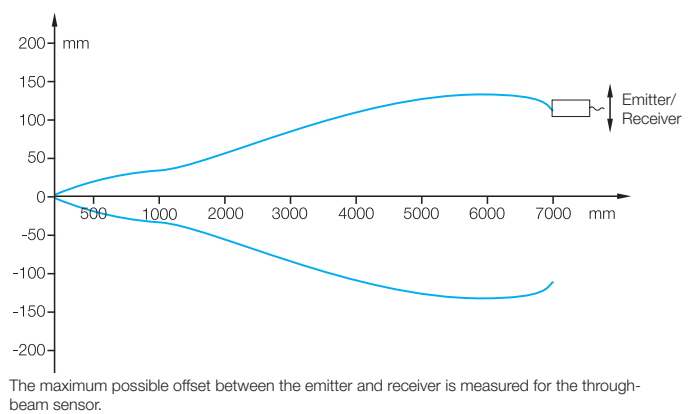
Angular Offset



Through-beam sensor BOS 2K

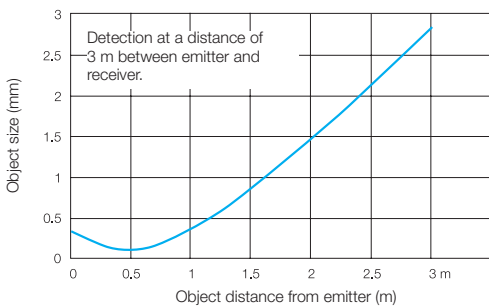


Through-beam sensor BLE/BLS 12M-...

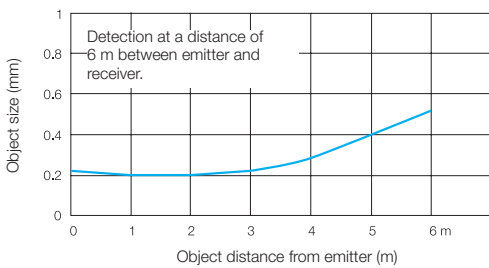


The maximum possible offset between the emitter and receiver is measured for the through-beam sensor.

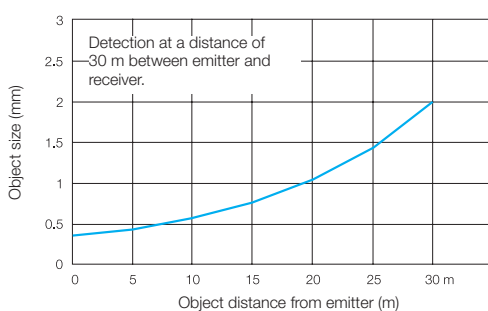
Through-beam sensor small parts detection BOS 12M-XT-LS11-..



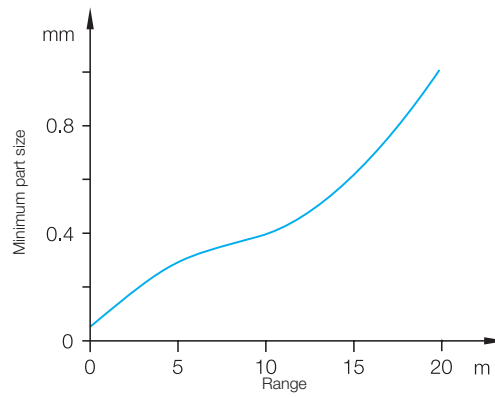
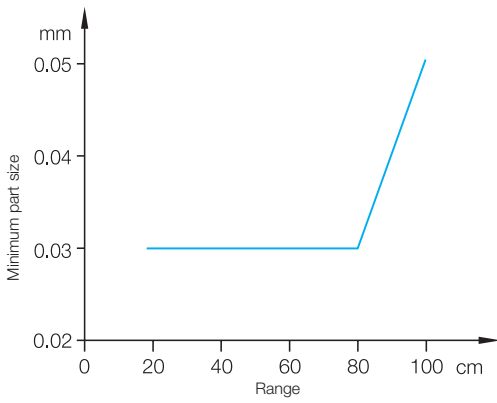
Through-beam sensor small parts detection BOS 12M-XT-LS12-..



Through-beam sensor small parts detection BOS 12M-XT-LS12-..

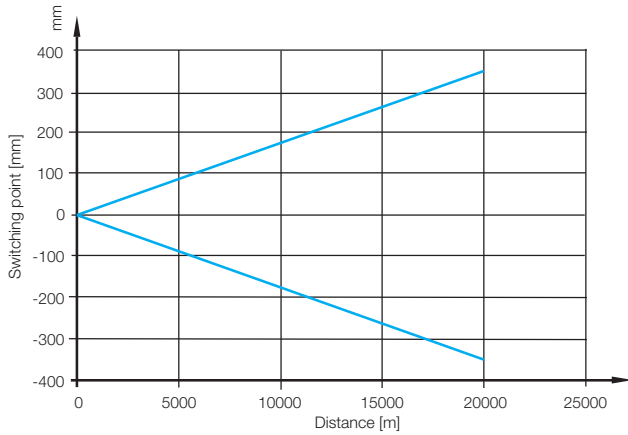


Accuracy diagram for BOS 18M laser through-beam sensor
Smallest detectable part size as a function of range.

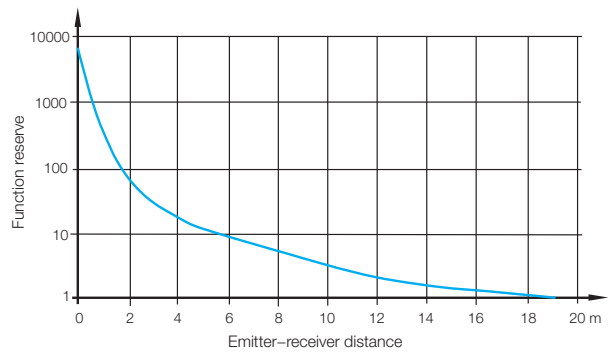


Light spot perpendicular to transport direction of the object.

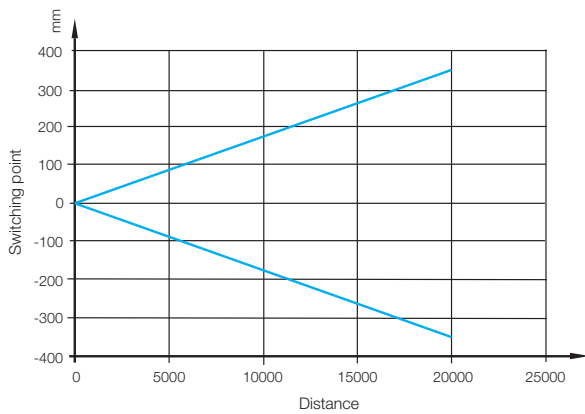
Through-beam sensor BOS 18M...RE/RS20
Response curve



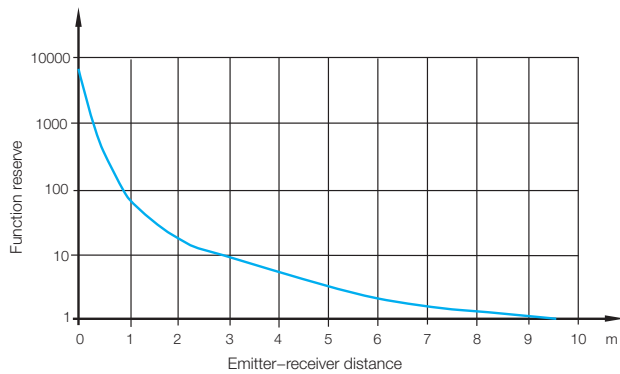
Through-beam sensor BOS 18M...RE/RS20
Function reserve



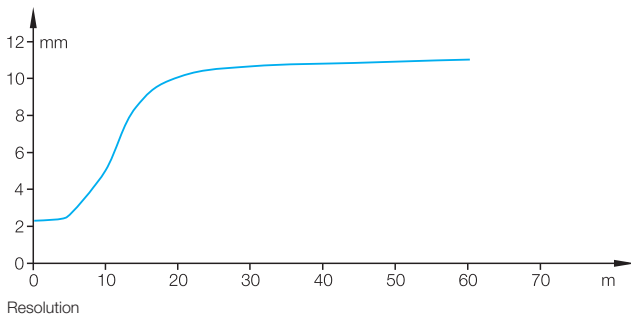
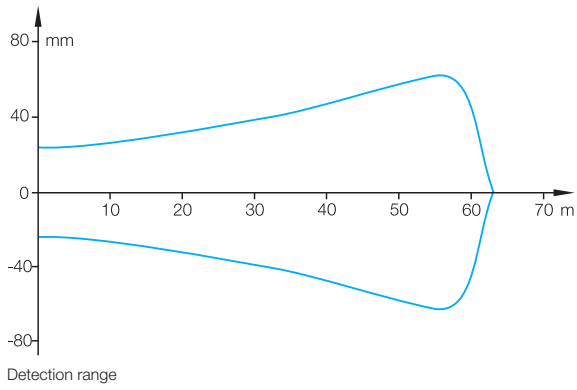
Through-beam sensor BOS 18M...RE/RS23
response curve



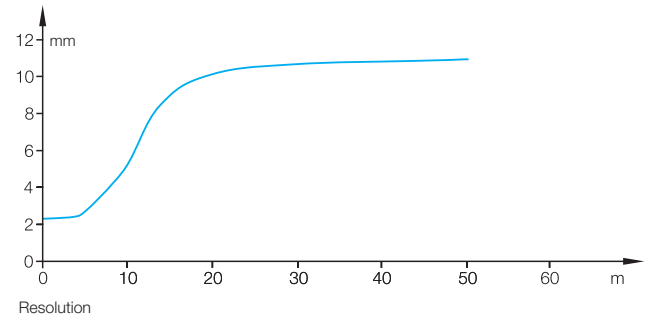
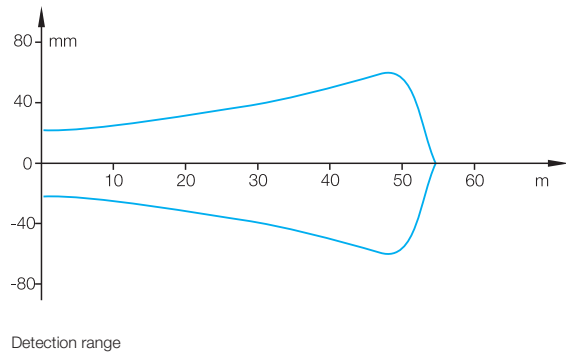
Through-beam sensor BOS 18M...RE/RS23
Function reserve



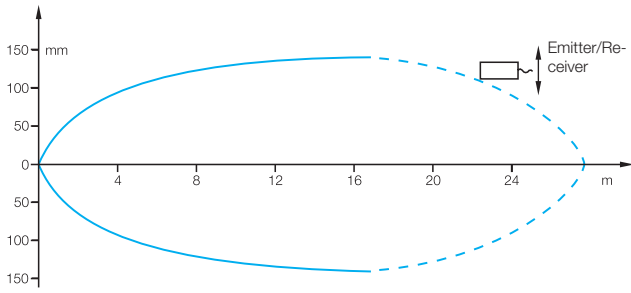
Through-beam sensor BOS 18M...-LE/LS10-...



Through-beam sensor BOS 18MR...-LE/LS10-...

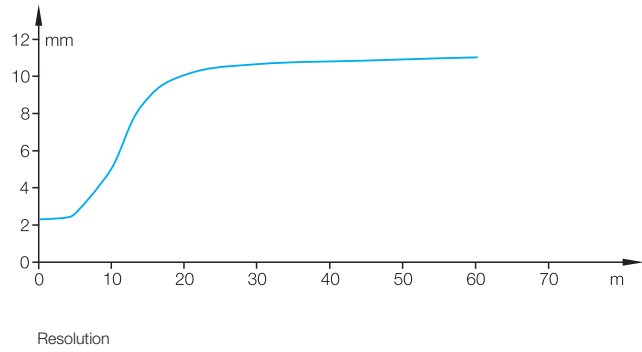
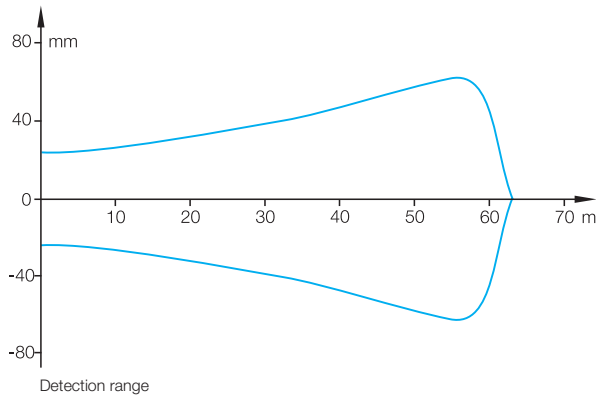


Through-beam BLE/BLS 18E-...

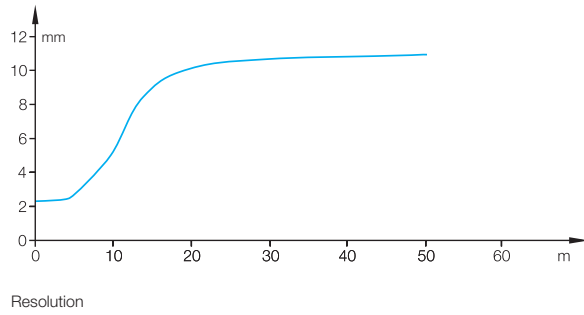
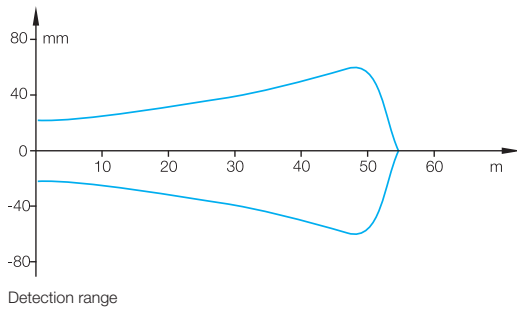


For a through-beam sensor, the maximum possible offset between the emitter and receiver is measured.

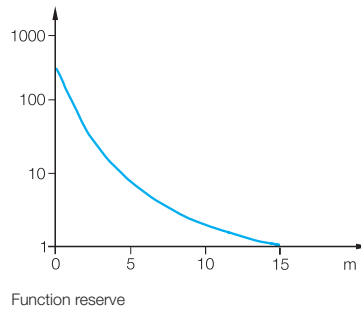
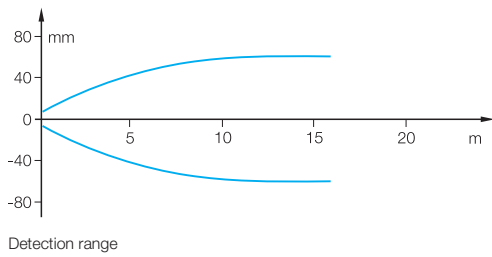
Through-beam sensor BLE/BLS 18KF--1LT--...



Through-beam sensor BLE/BLS 18KW--1LT--...



Through-beam BLE/BLS 18KW--1PP/1P--...





PNP normally open/normally closed			BGL0021 BGL 5A-007-S49	
PNP normally open/normally closed, NPN normally open/normally closed	BGL002L BGL 21-IR	BGL002M BGL 21-RG		
Series	21	21	A	
Dimension	20 x 26 x 90 mm	20 x 26 x 90 mm	10 x 25 x 54 mm	
Fork opening	2 mm	2 mm	5 mm	
Principle of operation	Fork sensor	Fork sensor	Fork sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	Infrared	green light/red light	Infrared	
Light spot size	0.5 x 4 mm Light exit	0.5 x 4 mm Light exit	Ø 2.0 mm Light exit	
Connection	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 3-pin	
Housing material	Aluminum	Aluminum	Zinc, die-cast	
Material sensing surface	Glass	Glass	Glass	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE	CE	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 476	Page 476	Page 476	



	BGL0005 BGL 10A-007-S49	BGL000Y BGL 20A-007-S49	BGL001F BGL 30A-007-S49	BGL003J BGL 30A-011-S49	BGL001T BGL 50A-007-S49
	A	A	A	A	A
	10 x 30 x 54 mm	10 x 40 x 58 mm	10 x 50 x 68 mm	10 x 50 x 68 mm	10 x 70 x 88 mm
	10 mm	20 mm	30 mm	30 mm	50 mm
	Fork sensor	Fork sensor	Fork sensor	Fork sensor	Fork sensor
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	—	—	—	Water detection	—
	Divergent	Divergent	Divergent	Divergent	Divergent
	Infrared	Infrared	Infrared	Infrared	Infrared
	Ø 2.0 mm Light exit	Ø 2.0 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin
	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast
	Glass	Glass	Glass	Glass	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, EAC	CE, cULus, EAC
	—	—	—	—	—
	Page 477	Page 477	Page 478	Page 478	Page 478



PNP normally open/normally closed	BGL0029 BGL 80A-007-S49	BGL003L BGL 80A-011-S49	BGL000F BGL 120A-007-S49	
Series	A	A	A	
Dimension	10 x 100 x 88 mm	10 x 100 x 88 mm	10 x 140 x 93 mm	
Fork opening	80 mm	80 mm	120 mm	
Principle of operation	Fork sensor	Fork sensor	Fork sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	—	Water detection	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	Infrared	Infrared	Infrared	
Light spot size	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Housing material	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	
Material sensing surface	Glass	Glass	Glass	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, EAC	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 479	Page 479	Page 479	



	BGL000N BGL 180A-007-S49	BGL0014 BGL 220A-007-S49	BGL0019 BGL 30A-003-S49	BGL001M BGL 50A-003-S49	BGL0025 BGL 80A-003-S49
	A	A	A	A	A
	10 x 200 x 153 mm	10 x 240 x 153 mm	10 x 50 x 68 mm	10 x 70 x 88 mm	10 x 100 x 88 mm
	180 mm	220 mm	30 mm	50 mm	80 mm
	Fork sensor	Fork sensor	Fork sensor	Fork sensor	Fork sensor
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	—	—	—	—	—
	Divergent	Divergent	Collimated	Collimated	Collimated
	Infrared	Infrared	Laser red light	Laser red light	Laser red light
	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 0.3 mm Light exit	Ø 0.3 mm Light exit	Ø 0.3 mm Light exit
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin
	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast
	Glass	Glass	Glass	Glass	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	—	—	—	—	—
	Page 480	Page 480	Page 481	Page 481	Page 482

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open/normally closed	BGL0009 BGL 120A-003-S49	BGL001Z BGL 5A-005-S49	BGL0003 BGL 10A-005-S49	
Series	A	A	A	
Dimension	10 x 140 x 93 mm	10 x 25 x 54 mm	10 x 30 x 54 mm	
Fork opening	120 mm	5 mm	10 mm	
Principle of operation	Fork sensor	Fork sensor	Fork sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	—	—	—	
Beam characteristic	Collimated	Divergent	Divergent	
Light type	Laser red light	Red light	Red light	
Light spot size	Ø 0.3 mm Light exit	Ø 1.0 mm Light exit	Ø 1.0 mm Light exit	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Housing material	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	
Material sensing surface	Glass	Glass	Glass	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	cULus, CE, EAC	cULus, CE, EAC	
Trademark	—	—	—	
Productview	Page 482	Page 483	Page 483	



	BGL000U BGL 20A-005-S49	BGL001C BGL 30A-005-S49	BGL001P BGL 50A-005-S49	BGL0027 BGL 80A-005-S49	BGL000C BGL 120A-005-S49
	A	A	A	A	A
	10 x 40 x 58 mm	10 x 50 x 68 mm	10 x 70 x 88 mm	10 x 100 x 88 mm	10 x 140 x 93 mm
	20 mm	30 mm	50 mm	80 mm	120 mm
	Fork sensor	Fork sensor	Fork sensor	Fork sensor	Fork sensor
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	—	—	—	—	—
	Divergent	Divergent	Divergent	Divergent	Divergent
	Red light	Red light	Red light	Red light	Red light
	Ø 1.0 mm Light exit	Ø 1.0 mm Light exit	Ø 1.5 mm Light exit	Ø 2.0 mm Light exit	Ø 2.5 mm Light exit
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin
	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast
	Glass	Glass	Glass	Glass	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	cULus, CE, EAC	cULus, CE, EAC	cULus, CE, EAC	cULus, CE, EAC	cULus, CE, EAC
	—	—	—	—	—
	Page 484	Page 481	Page 481	Page 482	Page 482

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open/normally closed	BGL000L BGL 180A-005-S49	BGL0012 BGL 220A-005-S49	BGL001W BGL 5A-001-S49	
Series	A	A	A	
Dimension	10 x 200 x 153 mm	10 x 240 x 153 mm	10 x 25 x 54 mm	
Fork opening	180 mm	220 mm	5 mm	
Principle of operation	Fork sensor	Fork sensor	Fork sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	Red light	Red light	LED, red light	
Light spot size	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 1.0 mm Light exit	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Housing material	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	
Material sensing surface	Glass	Glass	Glass	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	cULus, CE, EAC	cULus, CE, EAC	CE, cULus, EAC	
Trademark	—	—	Global	
Productview	Page 484	Page 485	Page 483	



	BGL0001 BGL 10A-001-S49	BGL000R BGL 20A-001-S49	BGL0016 BGL 30A-001-S49	BGL001J BGL 50A-001-S49	BGL0023 BGL 80A-001-S49
	A	A	A	A	A
	10 x 30 x 54 mm	10 x 40 x 58 mm	10 x 50 x 68 mm	10 x 70 x 88 mm	10 x 100 x 88 mm
	10 mm	20 mm	30 mm	50 mm	80 mm
	Fork sensor	Fork sensor	Fork sensor	Fork sensor	Fork sensor
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	—	—	—	—	—
	Divergent	Divergent	Divergent	Divergent	Divergent
	LED, red light	LED, red light	LED, red light	LED, red light	LED, red light
	Ø 1.2 mm Light exit	Ø 1.0 mm Light exit	Ø 1.2 mm Light exit	Ø 1.5 mm Light exit	Ø 2.0 mm Light exit
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin
	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast
	Glass	Glass	Glass	Glass	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	Global	Global	Global	Global	Global
	Page 483	Page 484	Page 481	Page 481	Page 482



IO-Link, normally open/normally closed				
PNP normally open/normally closed	BGL0007 BGL 120A-001-S49	BGL000J BGL 180A-001-S49	BGL0010 BGL 220A-001-S49	
PNP normally open/normally closed, analog, voltage 0...10 V				
PNP normally open/normally closed, analog, current 4...20 mA				
Series	A	A	A	
Dimension	10 x 140 x 93 mm	10 x 200 x 153 mm	10 x 25 x 54 mm	
Fork opening	120 mm	180 mm	220 mm	
Principle of operation	Fork sensor	Fork sensor	Fork sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Housing material	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	
Material sensing surface	Glass	Glass	Glass	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Trademark	Global	Global	Global	
Productview	Page 482	Page 484	Page 485	



	BGL0035 BGL 30C-007-S4	BGL003F BGL 50C-007-S4			
				BGL0033 BGL 30C-005-S4	
			BGL0031 BGL 30C-003-S4		BGL0039 BGL 50C-003-S4
	C	C	C	C	C
	18 x 80 x 93.5 mm	18 x 100 x 93.5 mm	18 x 80 x 93.5 mm	18 x 80 x 93.5 mm	18 x 100 x 93.5 mm
	30 mm	50 mm	30 mm	30 mm	50 mm
	Fork sensor	Fork sensor	Fork sensor	Fork sensor	Fork sensor
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	Light array	Light array	Light array	Light array	Light array
	Divergent	Divergent	Divergent	Divergent	Divergent
	LED, red light	LED, red light	LED, red light	LED, red light	LED, red light
	3 x 28 mm Light exit	3 x 28 mm Light exit	3 x 28 mm Light exit	3 x 28 mm Light exit	3 x 28 mm Light exit
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin
	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
	PMMA	PMMA	PMMA	PMMA	PMMA
	18...30 VDC	18...30 VDC	18...30 VDC	18...30 VDC	18...30 VDC
	CE	CE	CE	CE	CE
	—	—	—	—	—
	Page 485	Page 486	Page 486	Page 486	Page 487

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

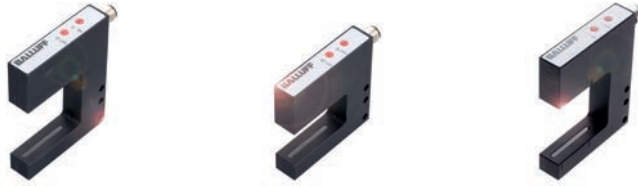
Safety

Industrial Networking

Power Supply

Connectivity

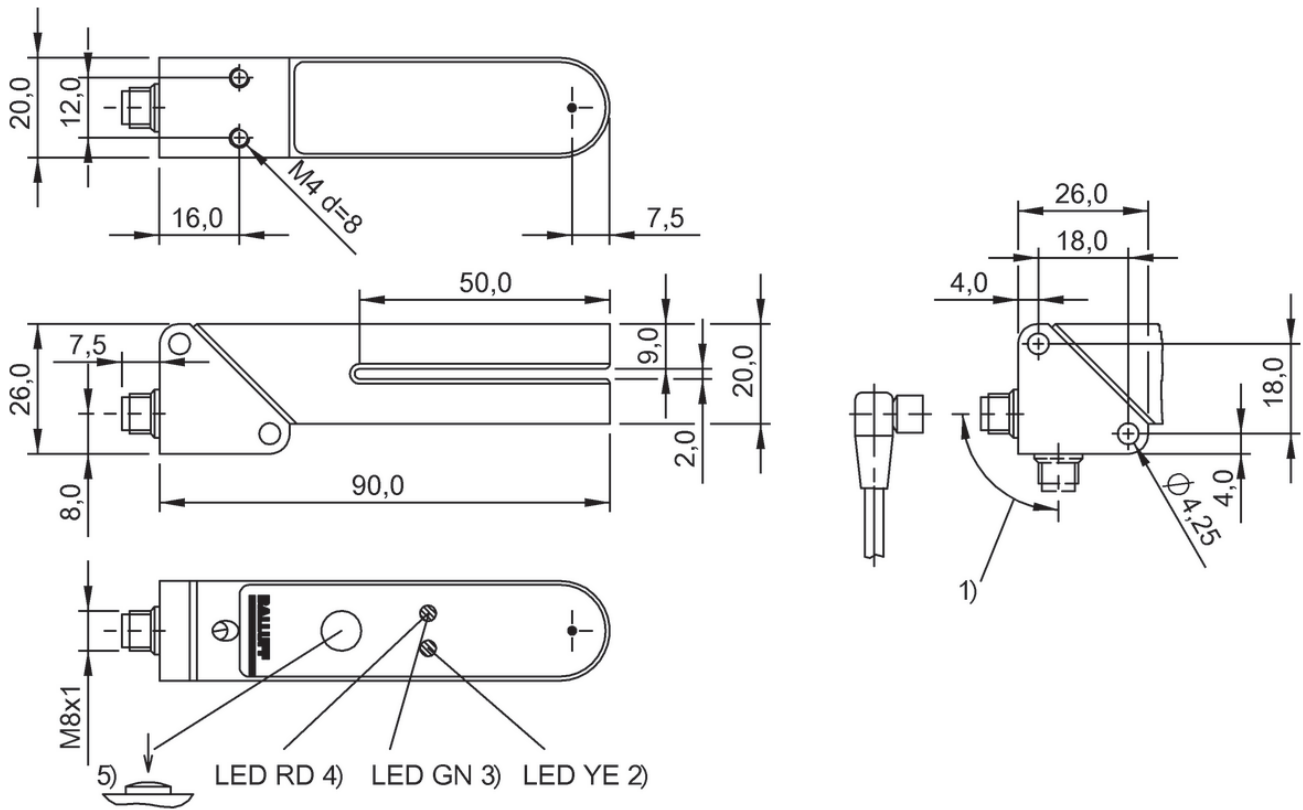
Accessories



2 × PNP normally open/normally closed		BGL002Z BGL 30C-001-S4	BGL0037 BGL 50C-001-S4	
PNP normally open/normally closed, analog, voltage 0...10 V	BGL003C BGL 50C-005-S4			
Series	C	C	C	
Dimension	18 x 100 x 93.5 mm	18 x 80 x 93.5 mm	18 x 100 x 93.5 mm	
Fork opening	50 mm	30 mm	50 mm	
Principle of operation	Fork sensor	Fork sensor	Fork sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	Light array	Light array	Light array	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	3 x 28 mm Light exit	3 x 28 mm Light exit	3 x 28 mm Light exit	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	Aluminum	Aluminum	Aluminum	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U _b	18...30 VDC	18...30 VDC	18...30 VDC	
Approval/Conformity	CE	CE	CE	
Trademark	—	—	—	
Productview	Page 487	Page 487	Page 488	

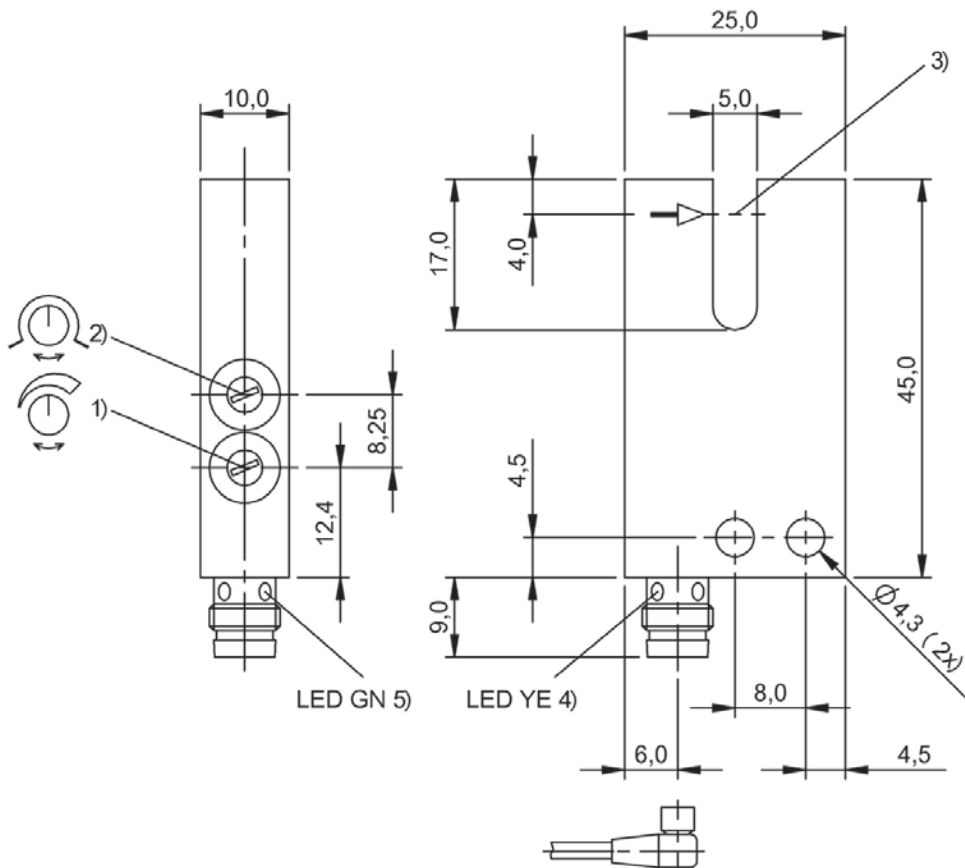


	BGL004M BGL 50F-007-00,2-S4	BGL004P BGL 80F-007-00,2-S4	BGL004L BGL 50F-001-00,2-S4	BGL004N BGL 80F-001-00,2-S4	
	F	F	F	F	
	12 x 85 x 86 mm	12 x 115 x 86 mm	12 x 85 x 86 mm	12 x 115 x 86 mm	
	50 mm	80 mm	50 mm	80 mm	
	Fork sensor	Fork sensor	Fork sensor	Fork sensor	
	Fork sensor	Fork sensor	Fork sensor	Fork sensor	
	—	—	—	—	
	Divergent	Divergent	Divergent	Divergent	
	Infrared	Infrared	LED, red light	LED, red light	
	Ø 2.0 mm Light exit	Ø 2.5 mm Light exit	Ø 1.25 mm Light exit	Ø 1.75 mm Light exit	
	Cable with connector, M12x1 connector, 4-pin, 0.25 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.25 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.25 m, PUR	Cable with connector, M12x1 connector, 4-pin, 0.25 m, PUR	
	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4404)	
	PMMA	PMMA	PMMA	PMMA	
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
	CE, Ecolab	CE, Ecolab	Ecolab, CE	Ecolab, CE	
	—	—	—	—	
	Page 488	Page 489	Page 488	Page 489	



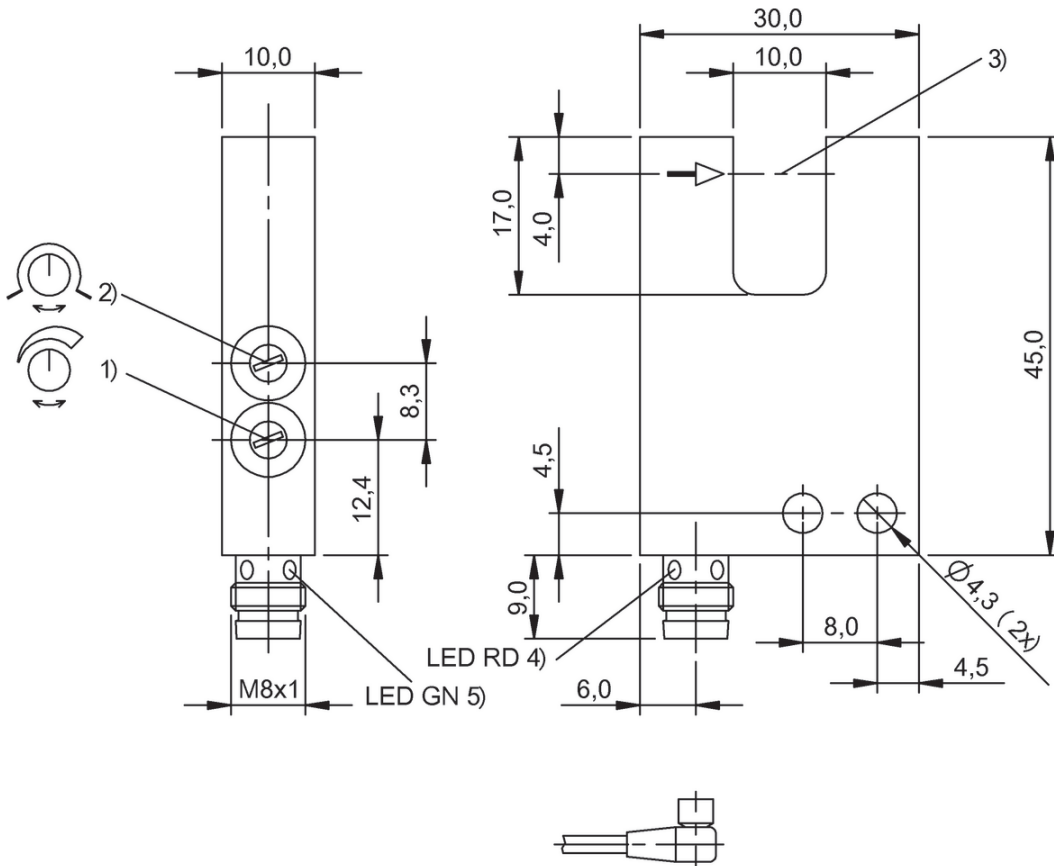
1) rotatable 180°, 2) Output function, 3) stability/error, 4) Fail/short circuit/error, 5) Sensitivity, light/dark

BGL002L, BGL002M



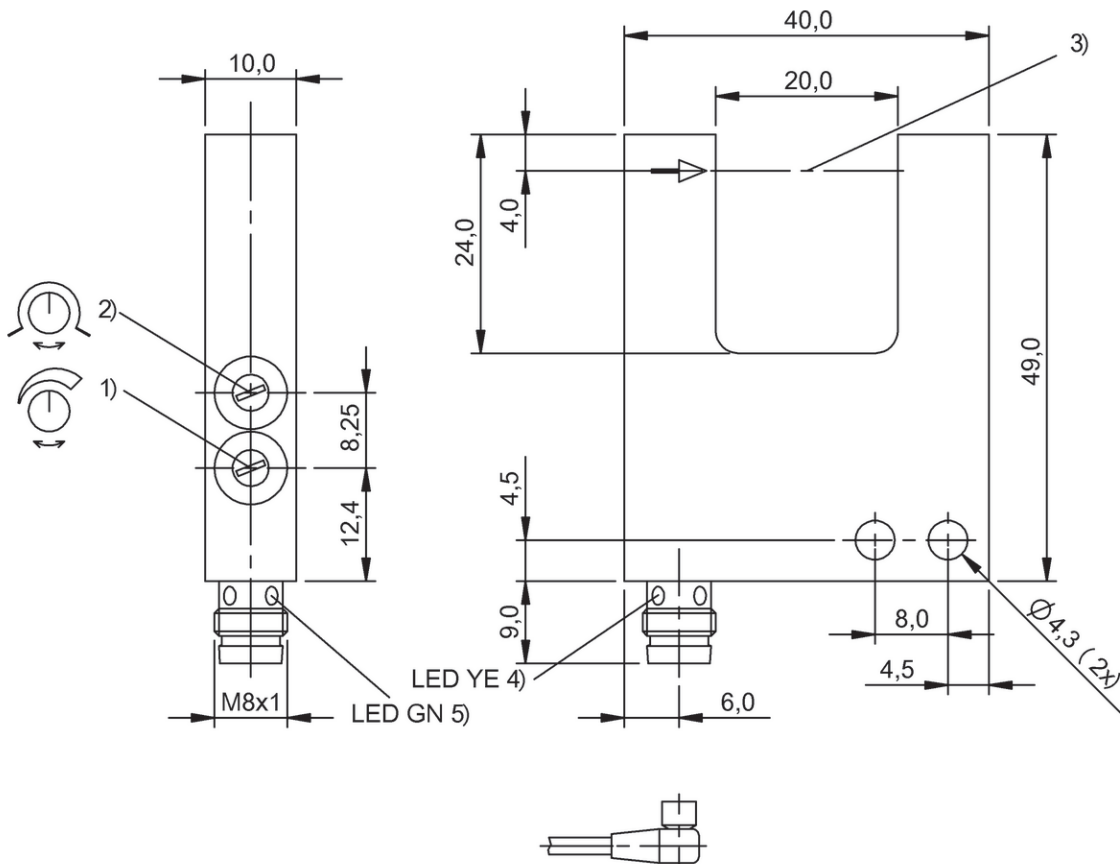
1) Sensitivity, 2) Light-on/dark-on, 3) Optical axis, 4) Output function, 5) Operating voltage

BGL0021



1) Sensitivity, 2) Light-on/dark-on, 3) Optical axis, 4) Output function, 5) Operating voltage

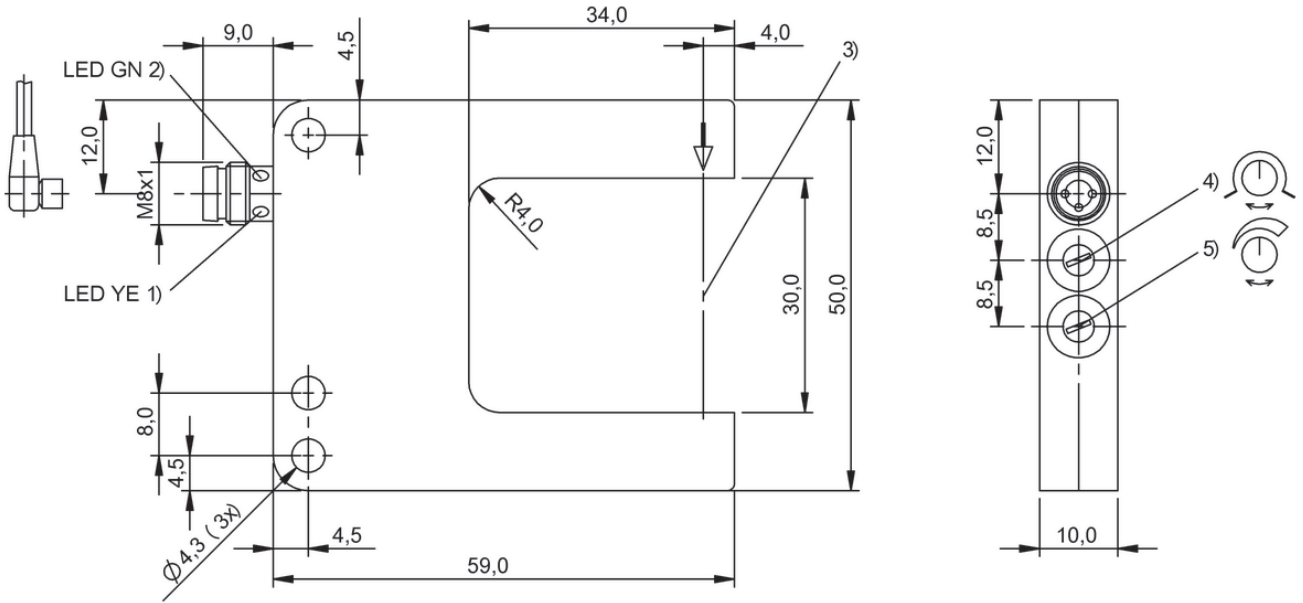
BGL0005



1) Sensitivity, 2) Light-on/dark-on, 3) Optical axis, 4) Output function, 5) Operating voltage

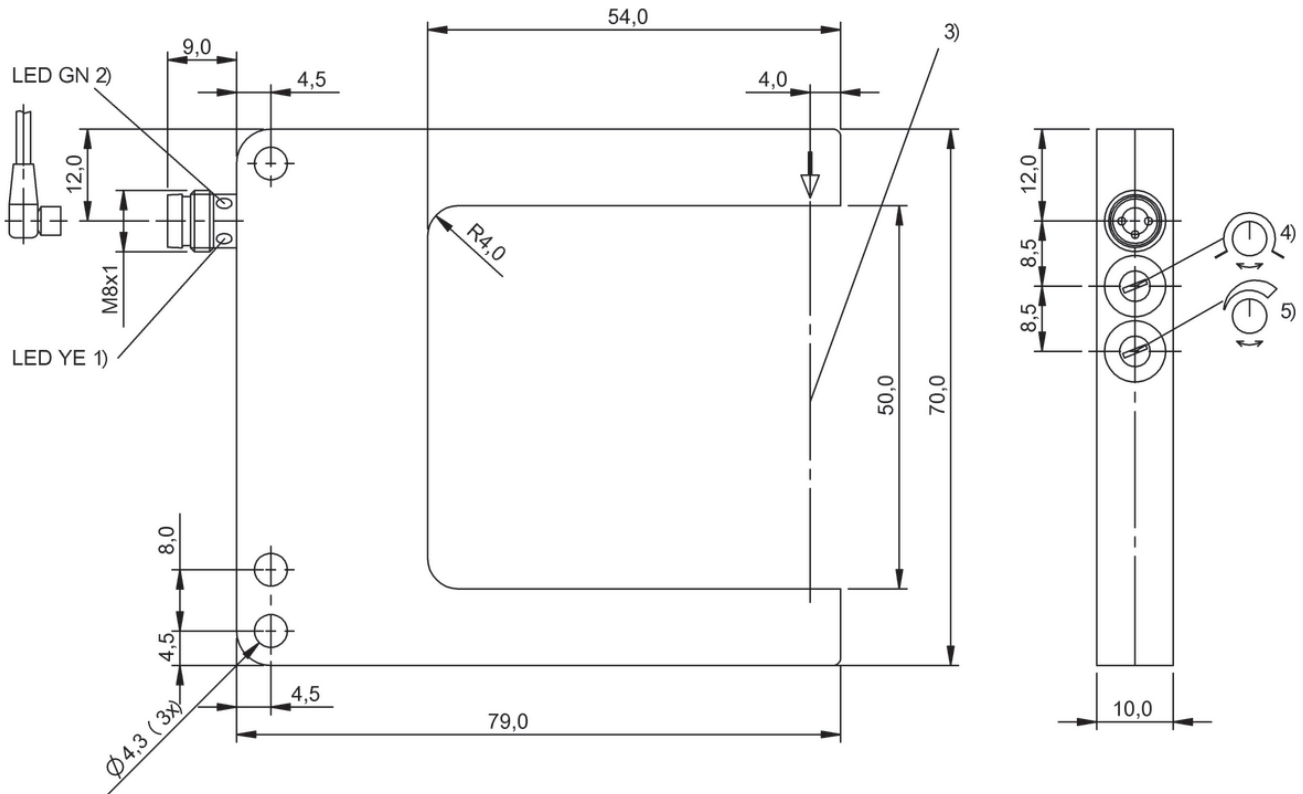
BGL000Y

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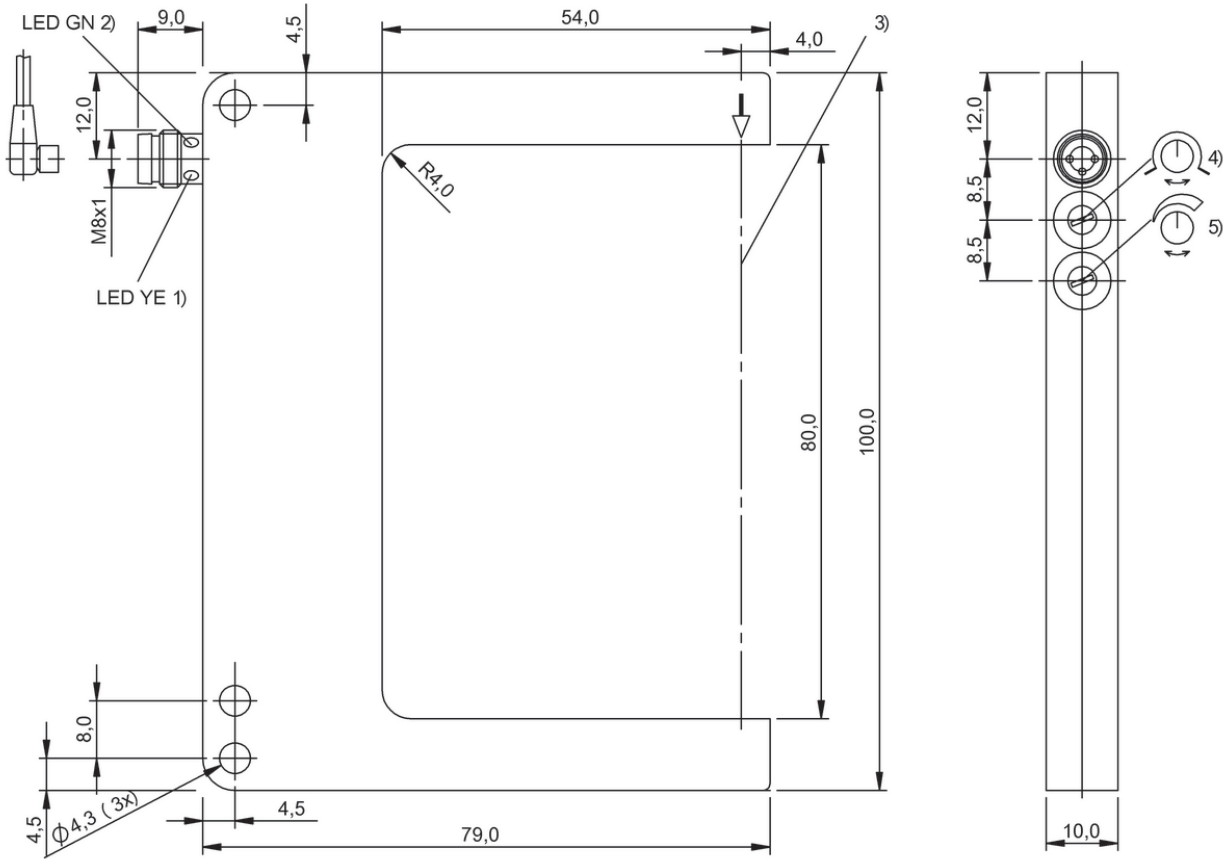
1) Output function, 2) Operating voltage, 3) Optical axis, 4) Light-on/dark-on, 5) Sensitivity

BGL001F, BGL003J



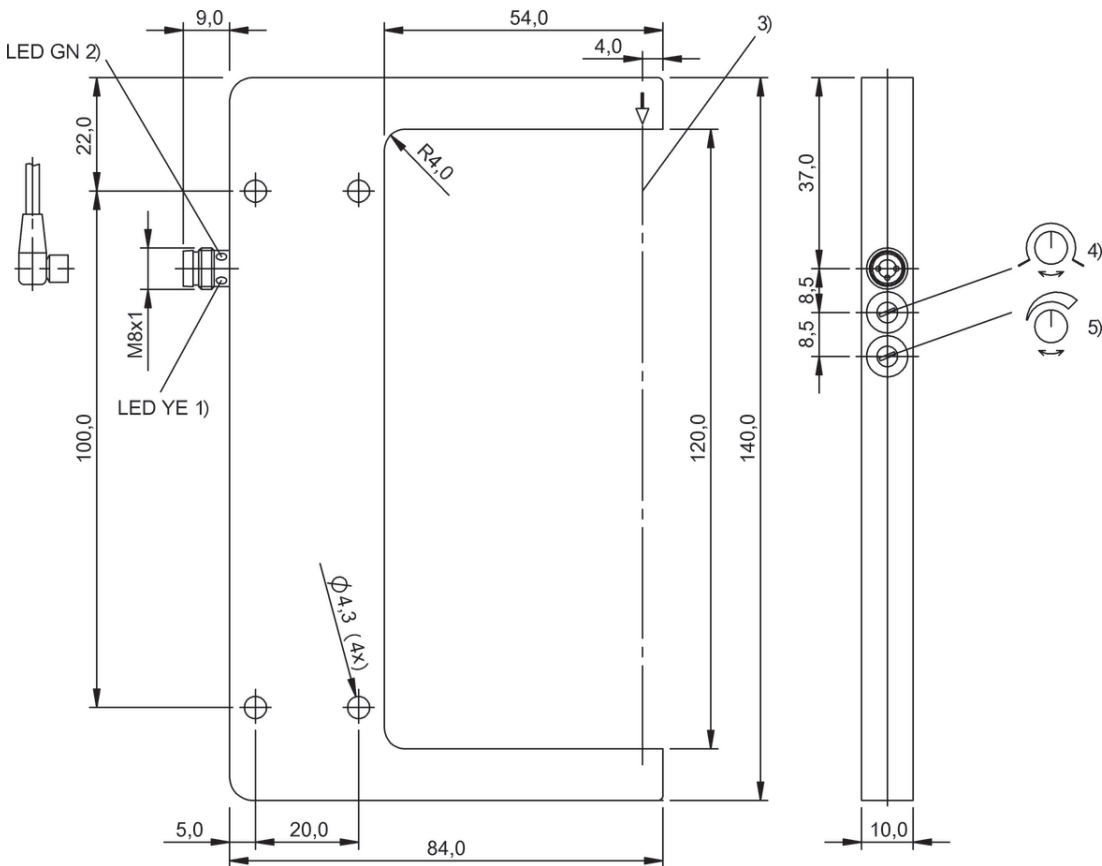
1) Output function, 2) Operating voltage, 3) Optical axis, 4) Light-on/dark-on, 5) Sensitivity

BGL001T



1) Output function, 2) Operating voltage, 3) Optical axis, 4) Light-on/dark-on, 5) Sensitivity

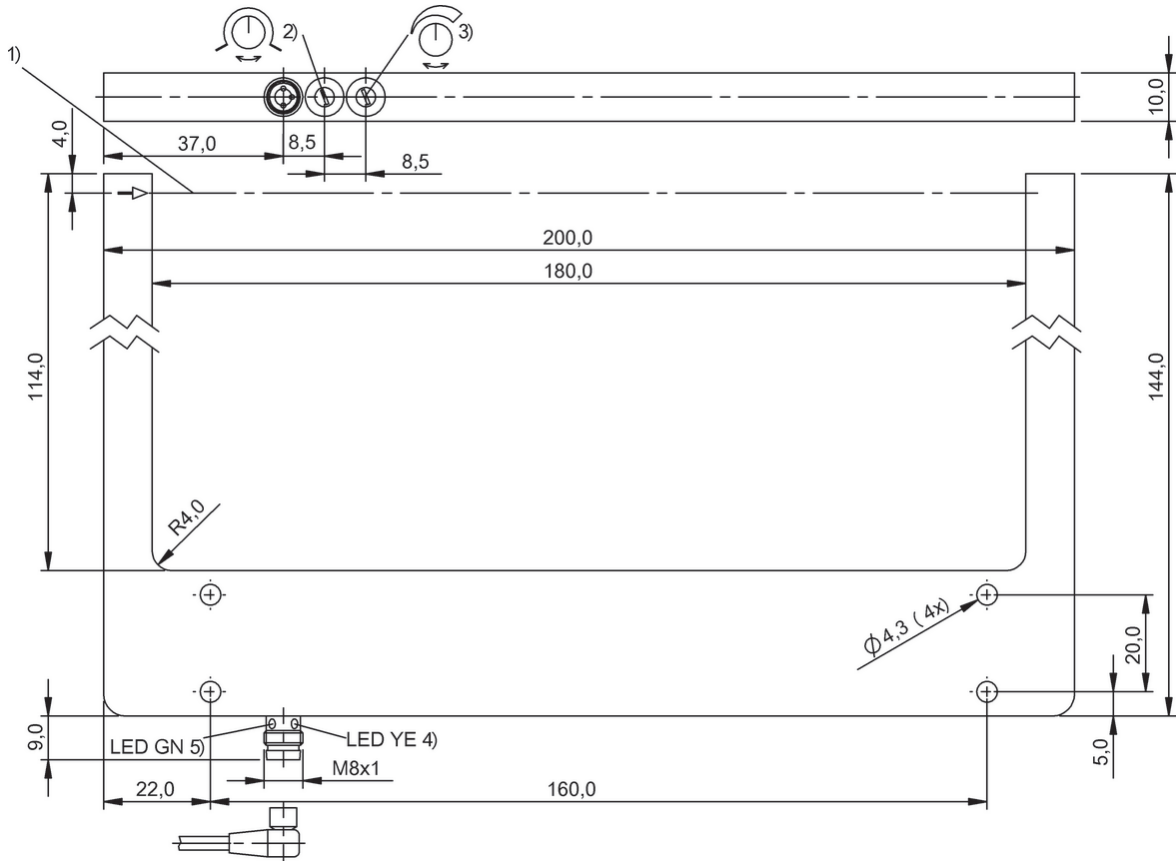
BGL0029, BGL003L



1) Output function, 2) Operating voltage, 3) Optical axis, 4) Light-on/dark-on, 5) Sensitivity

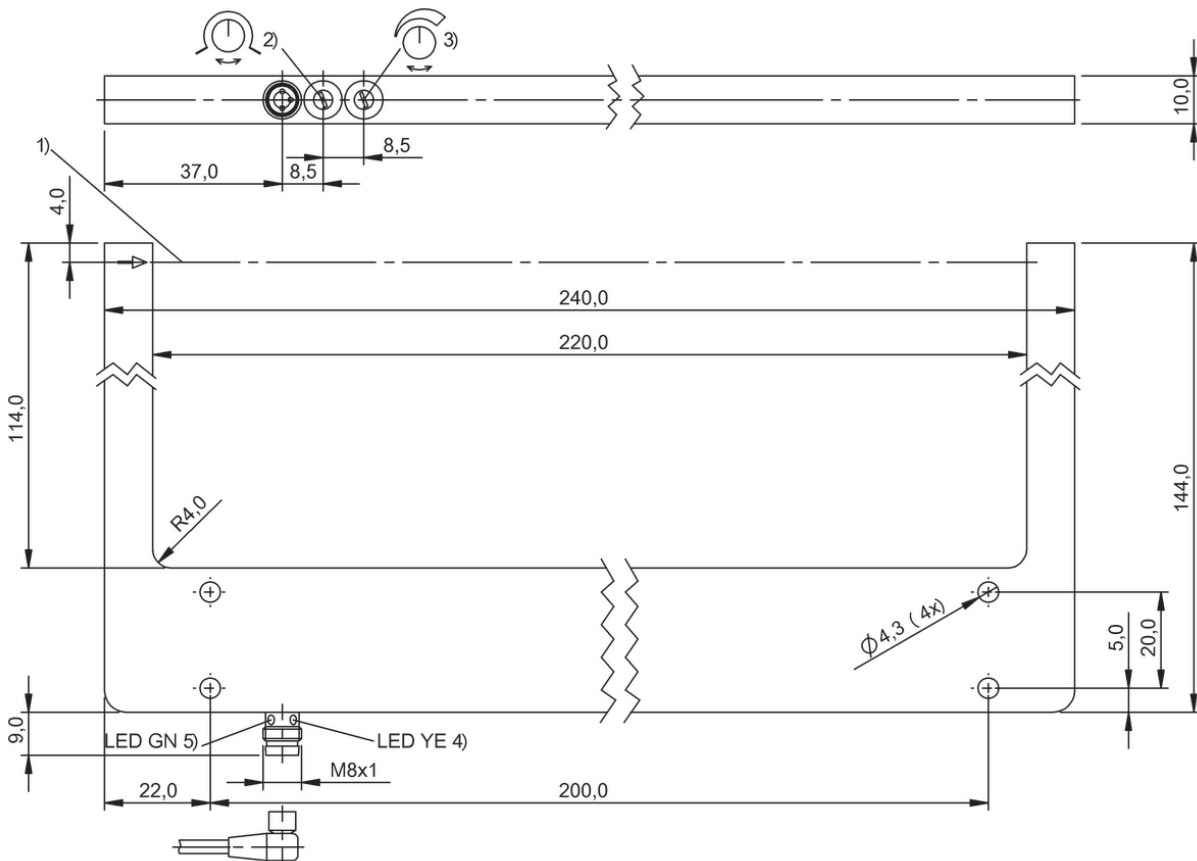
BGL000F

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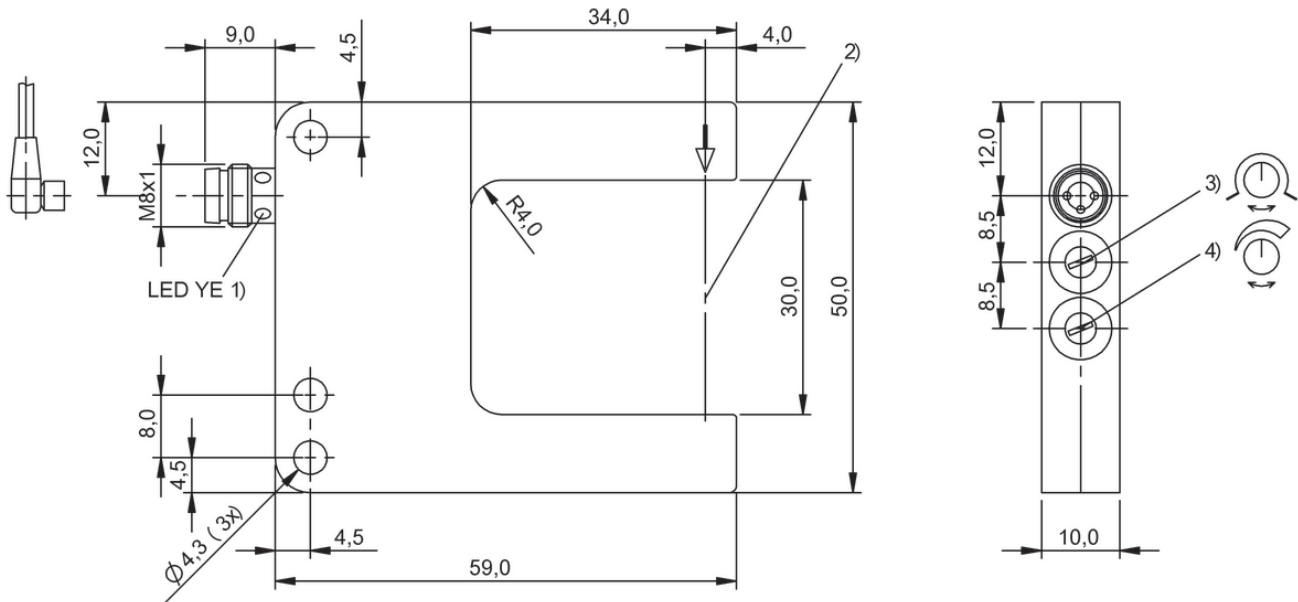
1) Optical axis, 2) Sensitivity, 3) Light-on/dark-on, 4) Output function, 5) Operating voltage

BGL000N



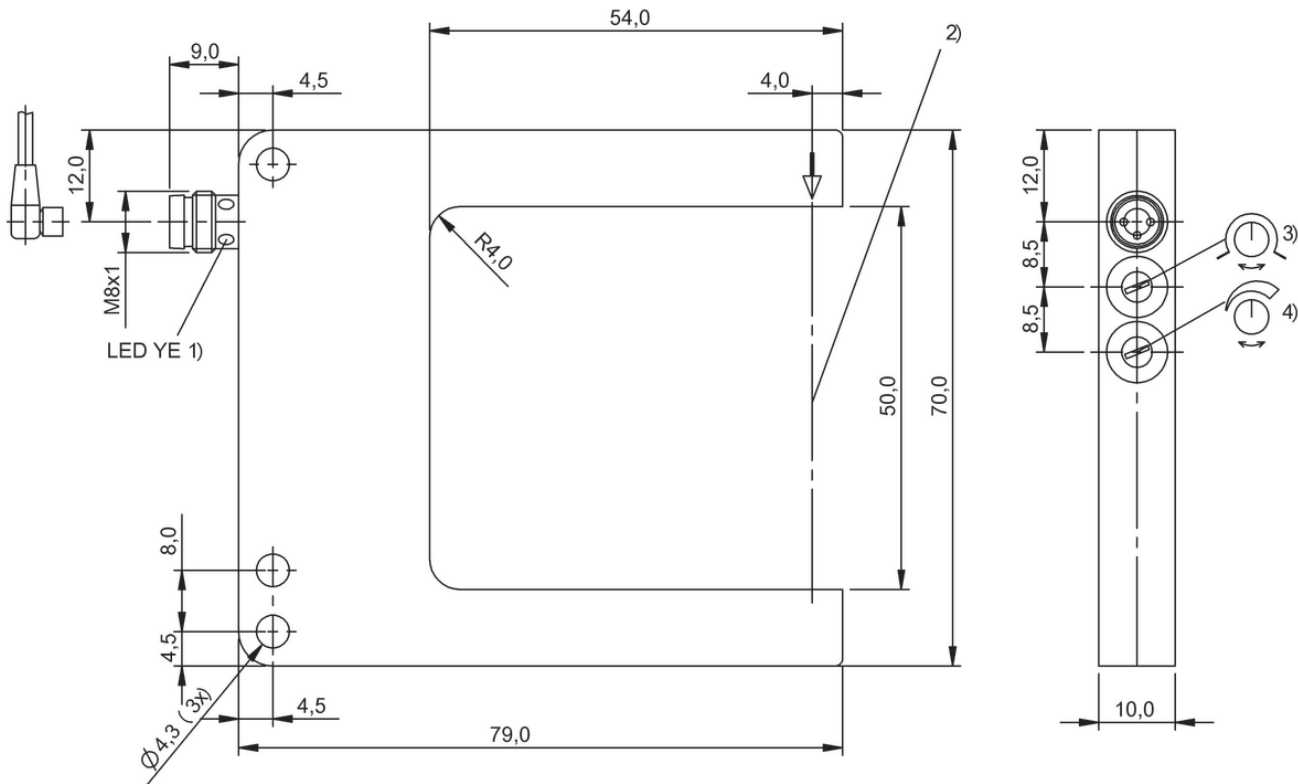
1) Optical axis, 2) Sensitivity, 3) Light-on/dark-on, 4) Output function, 5) Operating voltage

BGL0014



1) Output function, 2) Optical axis, 3) Light-on/dark-on, 4) Sensitivity

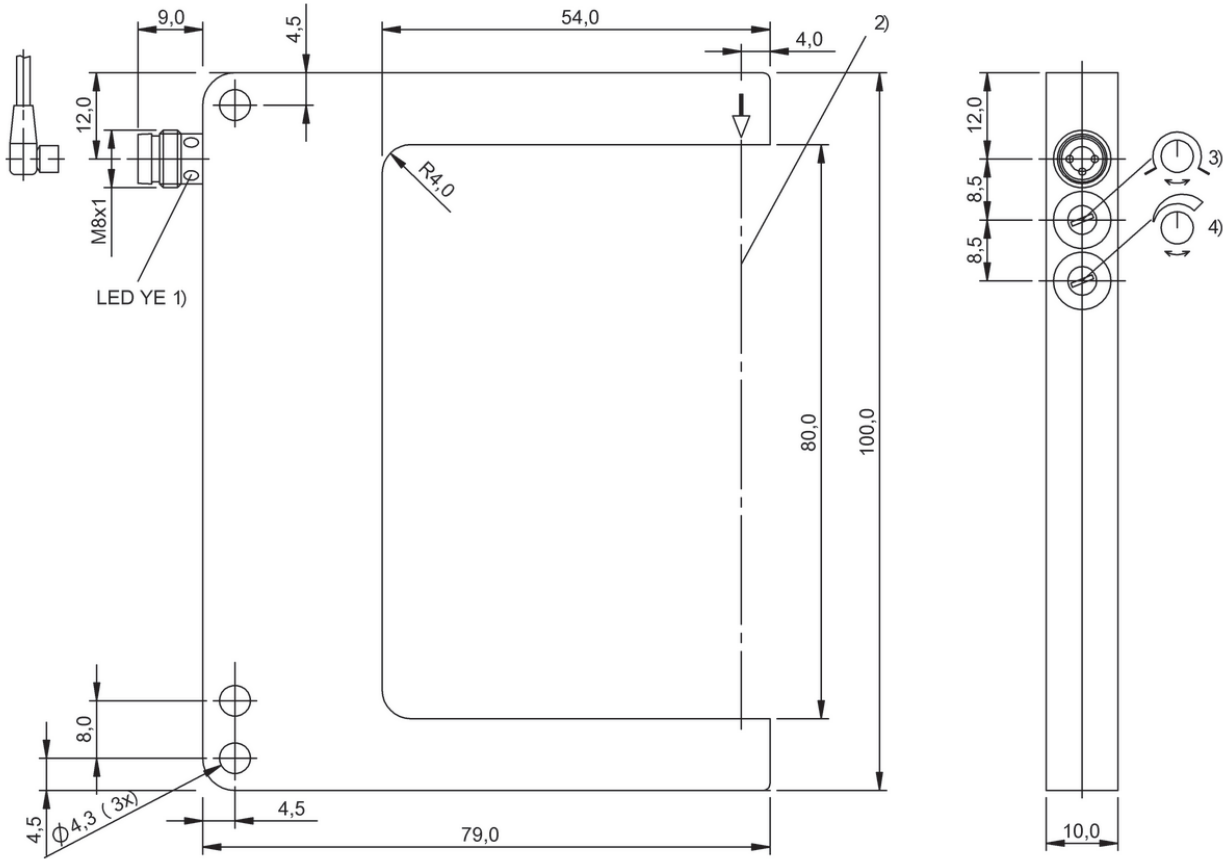
BGL0019, BGL001C, BGL0016



1) Output function, 2) Optical axis, 3) Light-on/dark-on, 4) Sensitivity

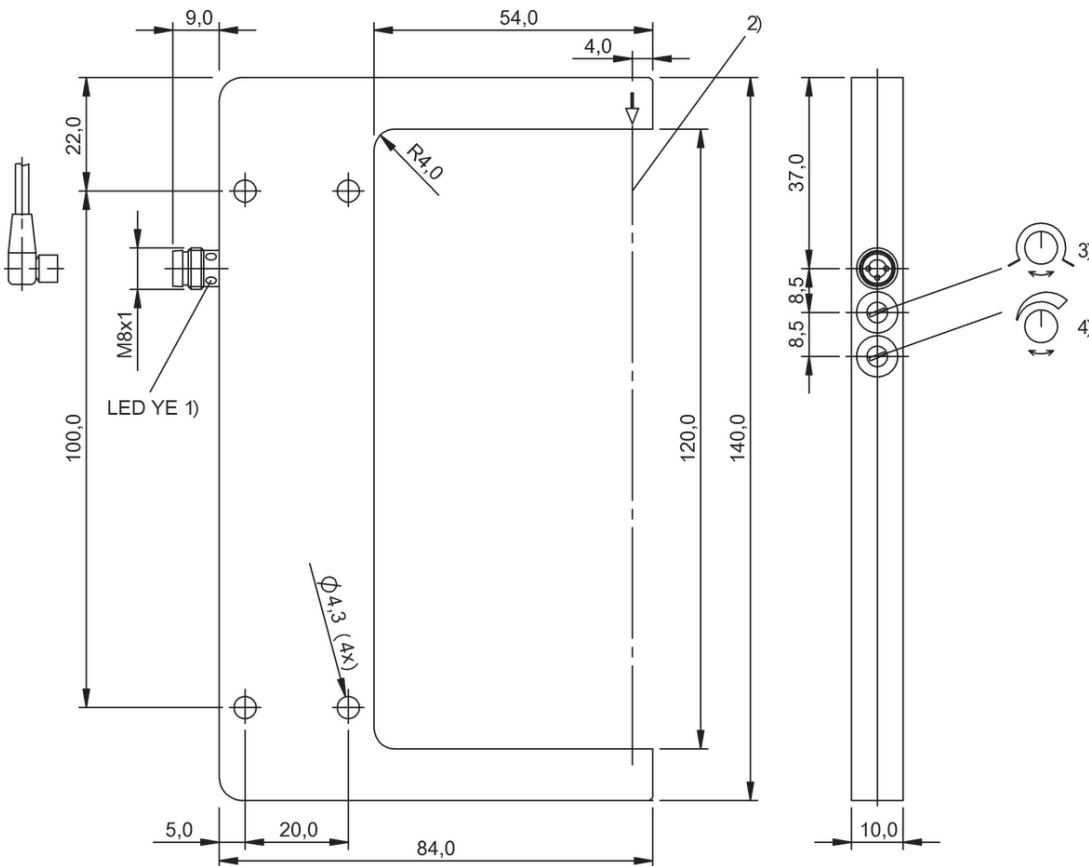
BGL001M, BGL001P, BGL001J

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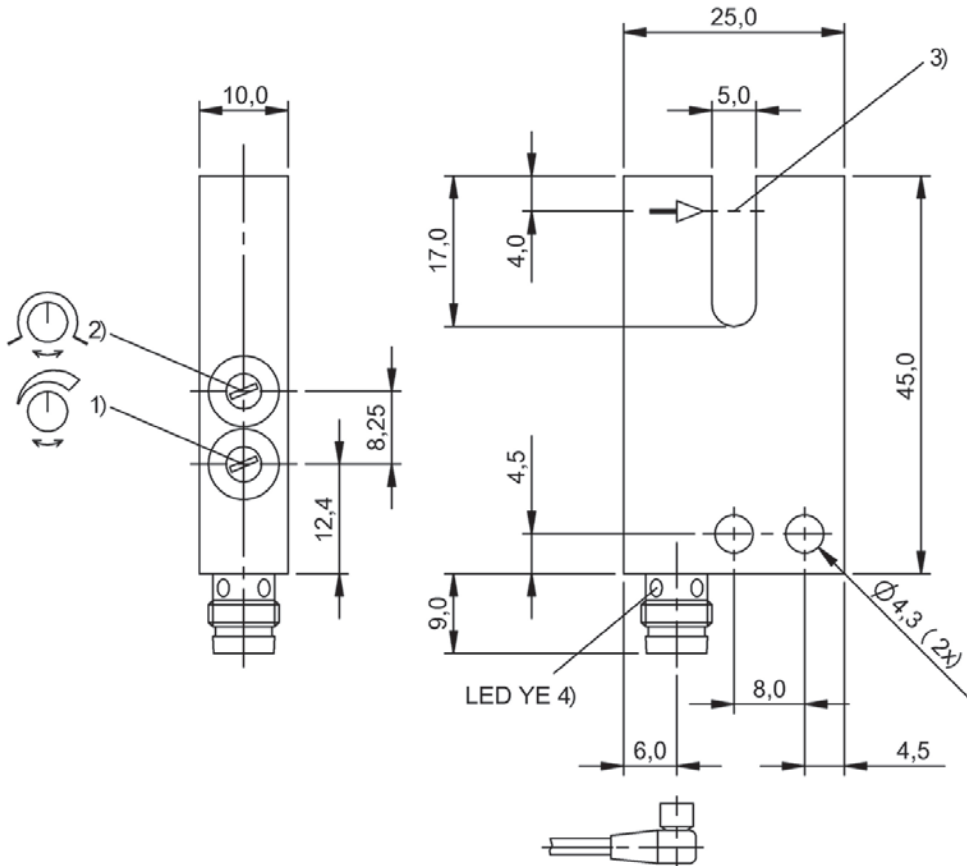
1) Output function, 2) Optical axis, 3) Light-on/dark-on, 4) Sensitivity

BGL0025, BGL0027, BGL0023



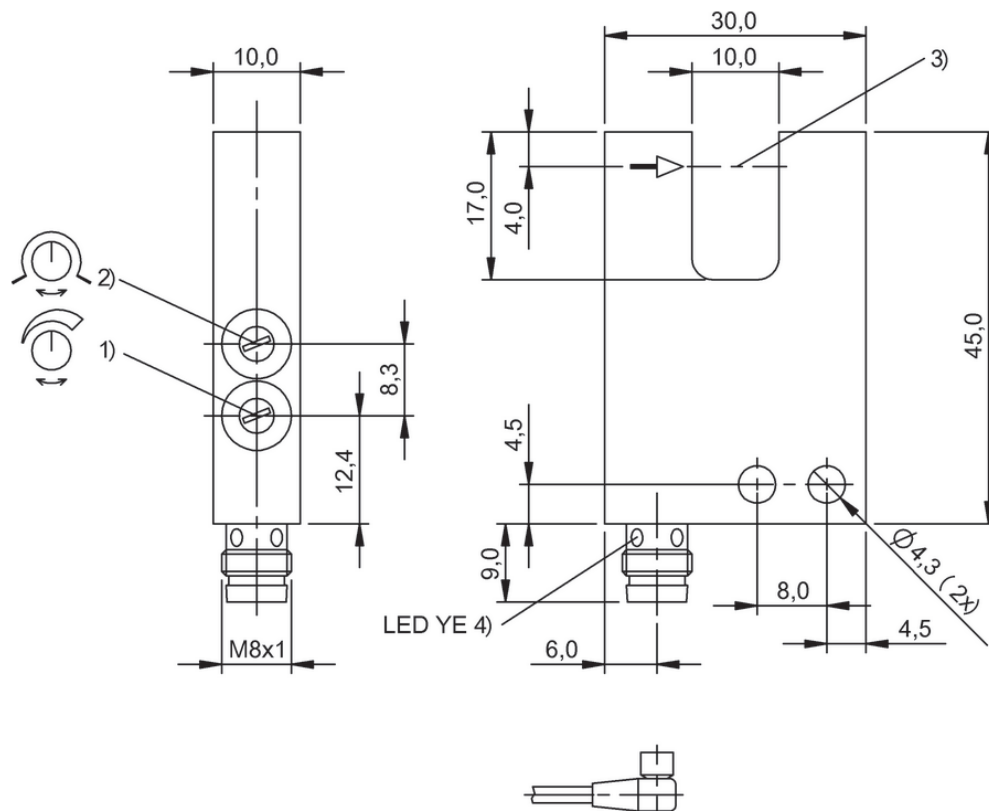
1) Output function, 2) Optical axis, 3) Light-on/dark-on, 4) Sensitivity

BGL0009, BGL000C, BGL0007



1) Sensitivity, 2) Light-on/dark-on, 3) Optical axis, 4) Output function

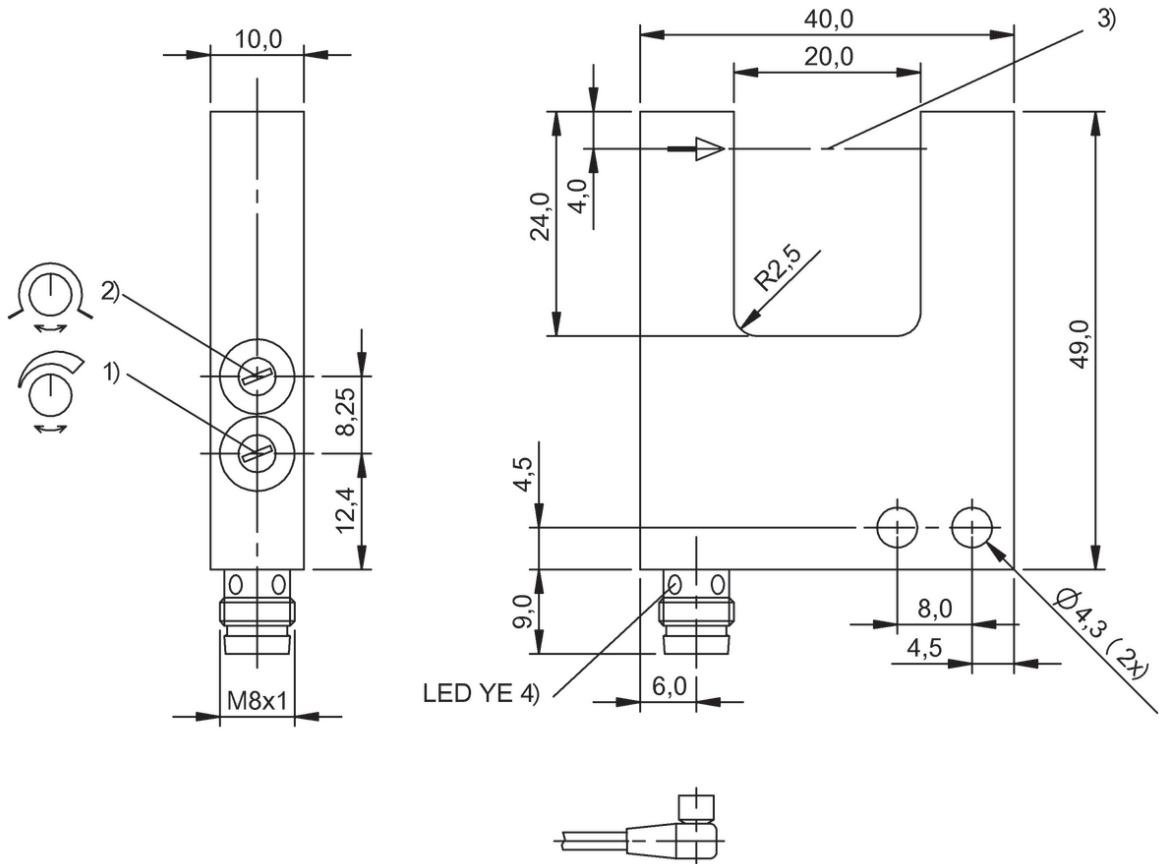
BGL001Z, BGL001W



1) Sensitivity, 2) Light-on/dark-on, 3) Optical axis, 4) Output function

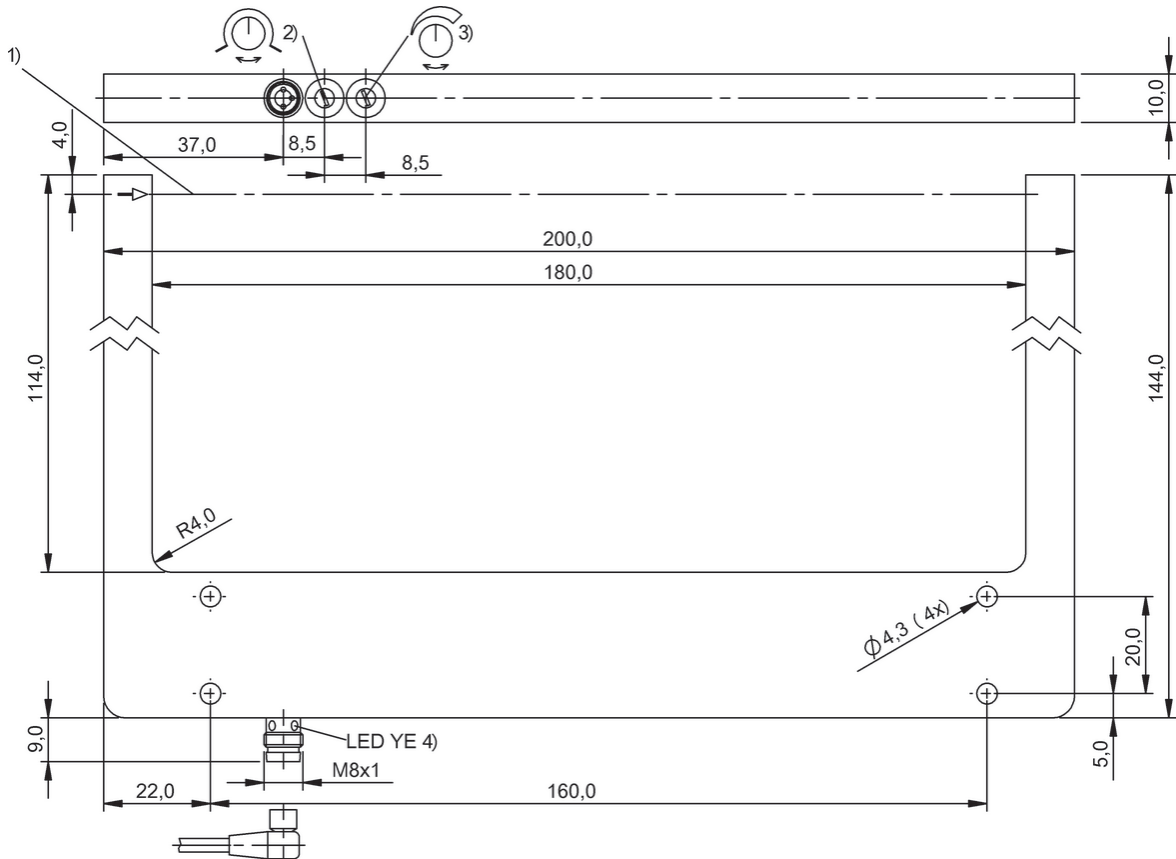
BGL0003, BGL0001

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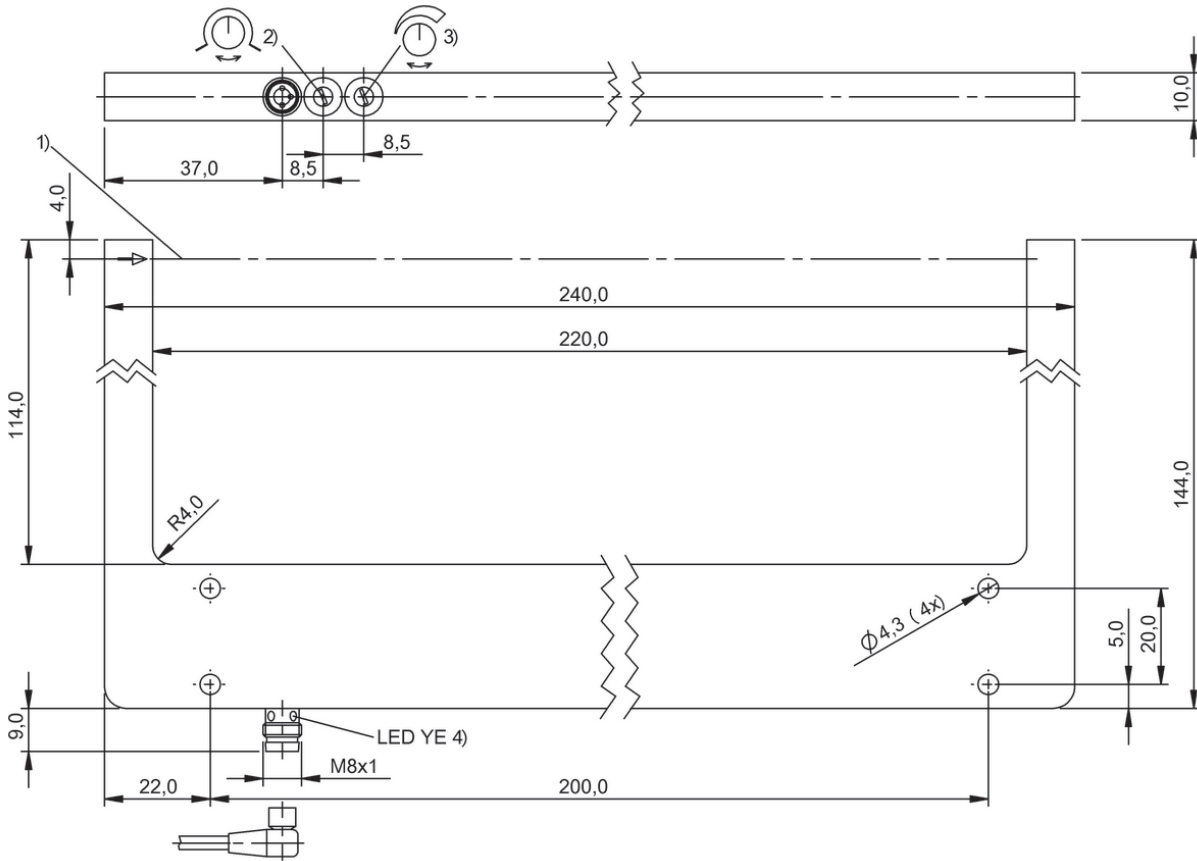
1) Sensitivity, 2) Light-on/dark-on, 3) Optical axis, 4) Output function

BGL000U, BGL000R



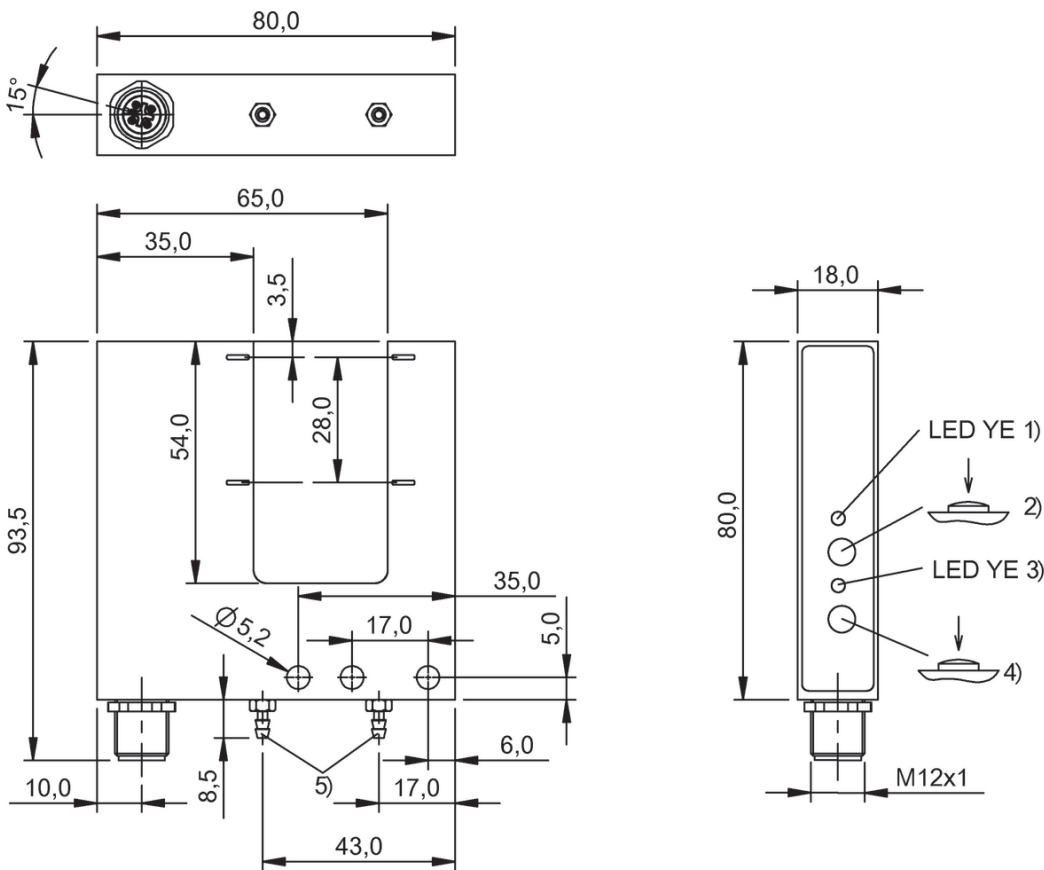
1) Optical axis, 2) Sensitivity, 3) Light-on/dark-on, 4) Output function

BGL000L, BGL000J



1) Optical axis, 2) Sensitivity, 3) Light-on/dark-on, 4) Output function

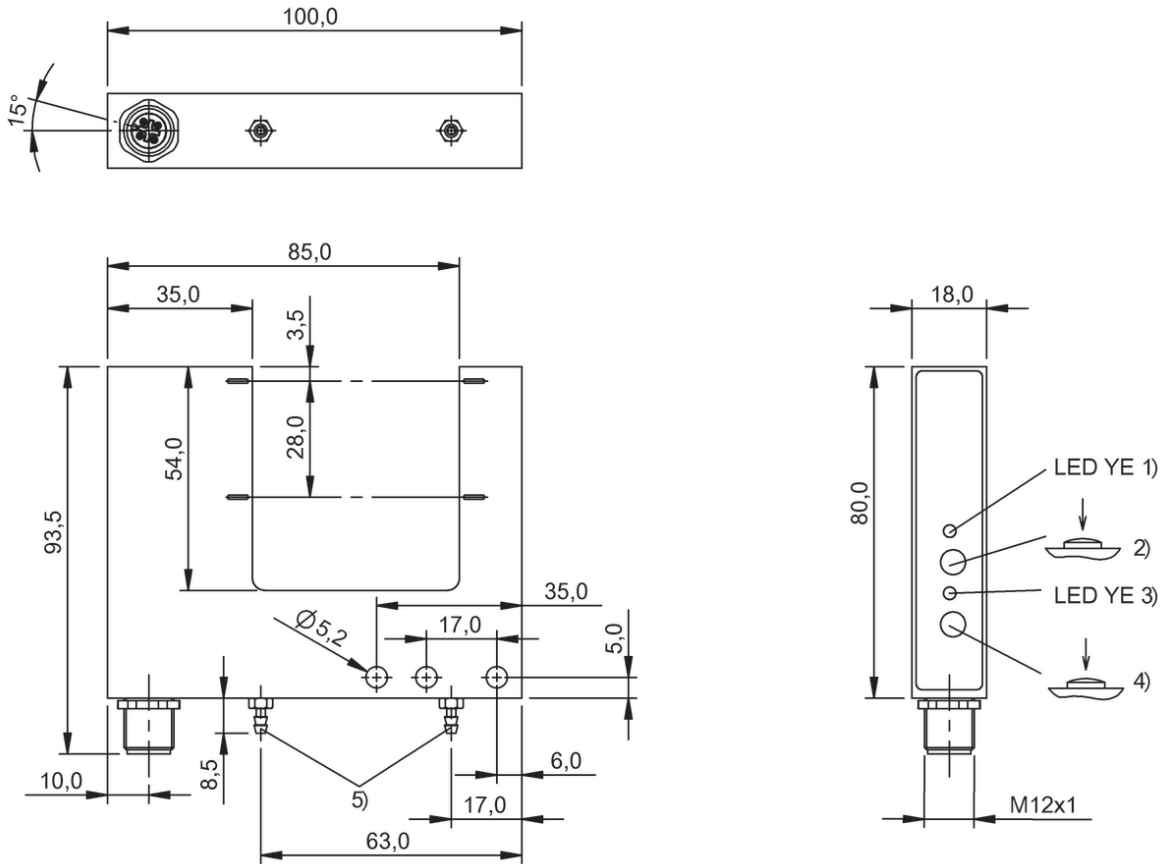
BGL0012, BGL0010



1) SP1 active / error, 2) SP1: recvr., light/dark, 3) SP2 active / error, 4) SP2: recvr., light/dark, 5) Pneumatics connection PK-3

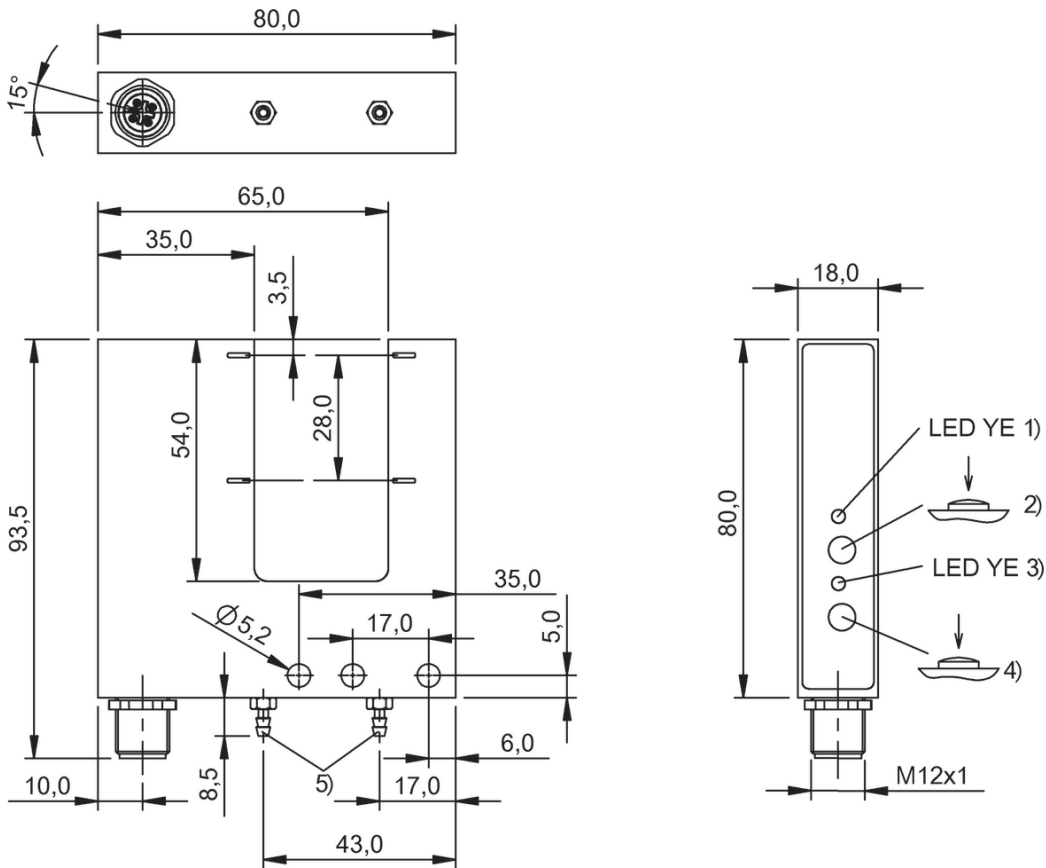
BGL0035

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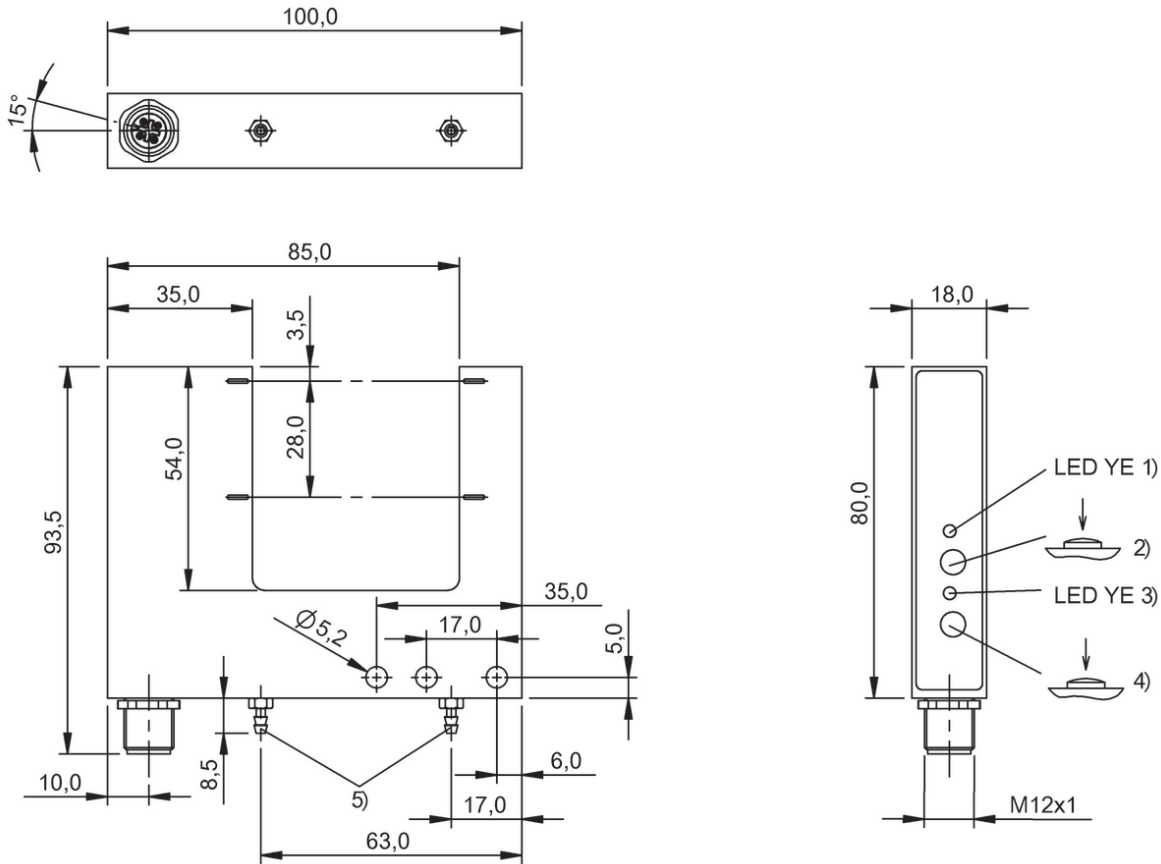
1) SP1 active / error, 2) SP1: recvr., light/dark, 3) SP2 active / error, 4) SP2: recvr., light/dark, 5) Pneumatics connection PK-3

BGL003F



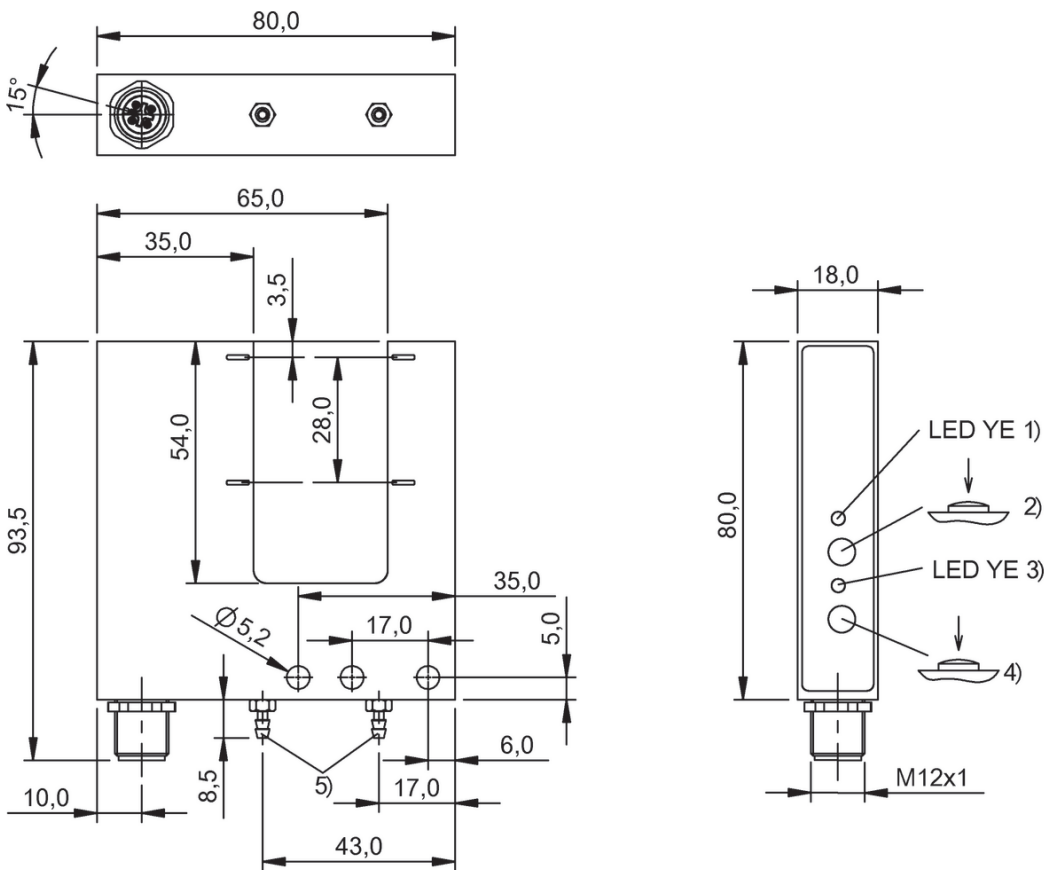
1) Output function/Error, 2) Output mode, recvr., L/D, 3) Error, 4) Output curve rising/falling, 5) Pneumatics connection PK-3

BGL0031, BGL0033



1) Output function/Error, 2) Output mode, recvr., L/D, 3) Error, 4) Output curve rising/falling, 5) Pneumatics connection PK-3

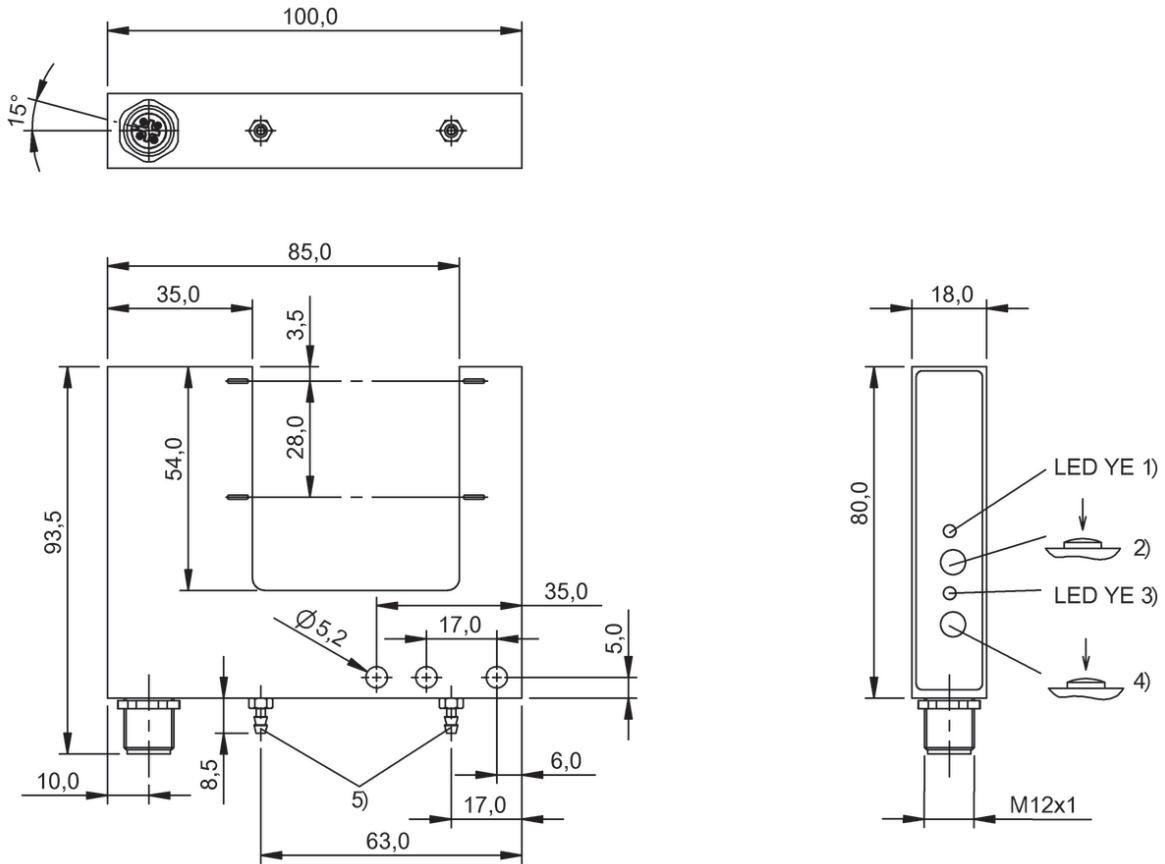
BGL0039, BGL003C



1) Q1 active / error, 2) Q1: recvr., light/dark, 3) Q2 active / error, 4) Q2: recvr., light/dark, 5) Pneumatics connection PK-3

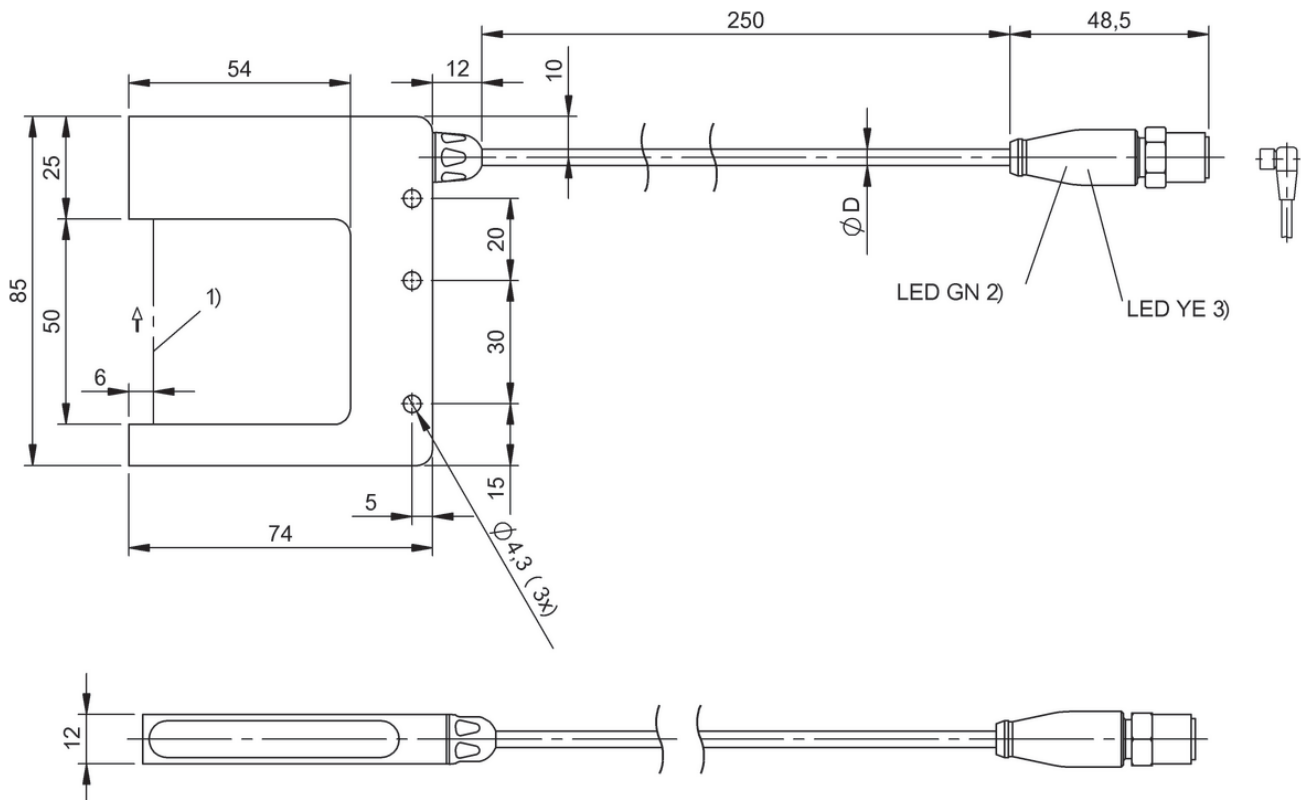
BGL002Z

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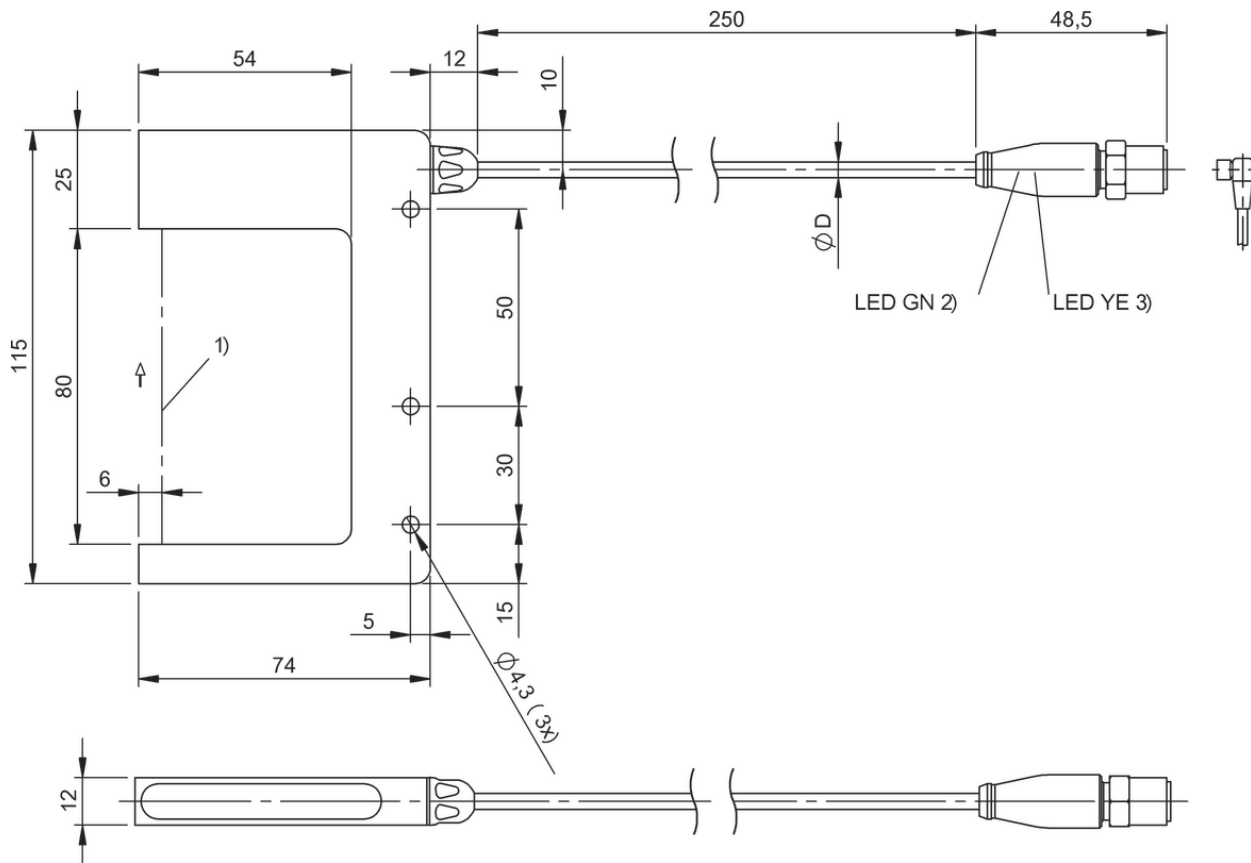
1) Q1 active / error, 2) Q1: recvr., light/dark, 3) Q2 active / error, 4) Q2: recvr., light/dark, 5) Pneumatics connection PK-3

BGL0037



1) Optical axis, 2) Operating voltage, 3) Output function normally open

BGL004M, BGL004L



1) Optical axis, 2) Operating voltage, 3) Output function normally open

BGL004P, BGL004N



PNP normally open/normally closed	BWL0009 BWL 4040D-I011-S49	BWL000L BWL 5454D-I011-S49	BWL000Y BWL 6868D-I011-S49	
Series	D	D	D	
Dimension	10 x 75 x 84 mm	10 x 90 x 99 mm	10 x 105 x 114 mm	
Principle of operation	Angle sensor	Angle sensor	Angle sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	Infrared	Infrared	Infrared	
Light spot size	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Housing material	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	
Material sensing surface	Glass	Glass	Glass	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	CE, cULus	CE, cULus	
Trademark	—	—	—	
Productview	Page 496	Page 496	Page 497	



	BWL0015 BWL 9090D-I011-S49	BWL0001 BWL 110110D-I011-S49	BWL000C BWL 4040D-L011-S49	BWL000N BWL 5454D-L011-S49	BWL0010 BWL 6868D-L011-S49
	D	D	D	D	D
	12 x 125 x 134 mm	12 x 150 x 159 mm	10 x 75 x 84 mm	10 x 90 x 99 mm	10 x 105 x 114 mm
	Angle sensor	Angle sensor	Angle sensor	Angle sensor	Angle sensor
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	Divergent	Divergent	Collimated	Collimated	Collimated
	Infrared	Infrared	Laser red light	Laser red light	Laser red light
	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 0.2 mm Light exit	Ø 0.2 mm Light exit	Ø 0.2 mm Light exit
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin
	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast
	Glass	Glass	Glass	Glass	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus	CE, cULus	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	—	—	—	—	—
	Page 497	Page 498	Page 498	Page 499	Page 499

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open/normally closed	BWL0017 BWL 9090D-L011-S49	BWL0003 BWL 110110D-L011-S49	BWL000J BWL 4040D-R013-S49	
Series	D	D	D	
Dimension	12 x 125 x 134 mm	12 x 150 x 159 mm	10 x 75 x 84 mm	
Principle of operation	Angle sensor	Angle sensor	Angle sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Beam characteristic	Collimated	Collimated	Divergent	
Light type	Laser red light	Laser red light	Red light	
Light spot size	Ø 0.2 mm Light exit	Ø 0.2 mm Light exit	Ø 1.7 mm Light exit	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Housing material	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	
Material sensing surface	Glass	Glass	Glass	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus	
Trademark	—	—	—	
Productview	Page 500	Page 500	Page 498	



	BWL000U BWL 5454D-R013-S49	BWL001N BWL 6868D-R013-S49	BWL001C BWL 9090D-R013-S49	BWL0007 BWL 110110D-R013-S49	BWL000F BWL 4040D-R011-S49
	D	D	D	D	D
	10 x 90 x 99 mm	10 x 105 x 114 mm	12 x 125 x 134 mm	12 x 150 x 159 mm	10 x 75 x 84 mm
	Angle sensor	Angle sensor	Angle sensor	Angle sensor	Angle sensor
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	Divergent	Divergent	Divergent	Divergent	Divergent
	Red light	Red light	Red light	Red light	LED, red light
	Ø 2.0 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	Ø 1.7 mm Light exit
	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin
	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast
	Glass	Glass	Glass	Glass	Glass
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	CE, cULus	CE, cULus	CE, cULus	CE, cULus	CE, cULus, EAC
	—	—	—	—	Global
	Page 499	Page 499	Page 500	Page 500	Page 498

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

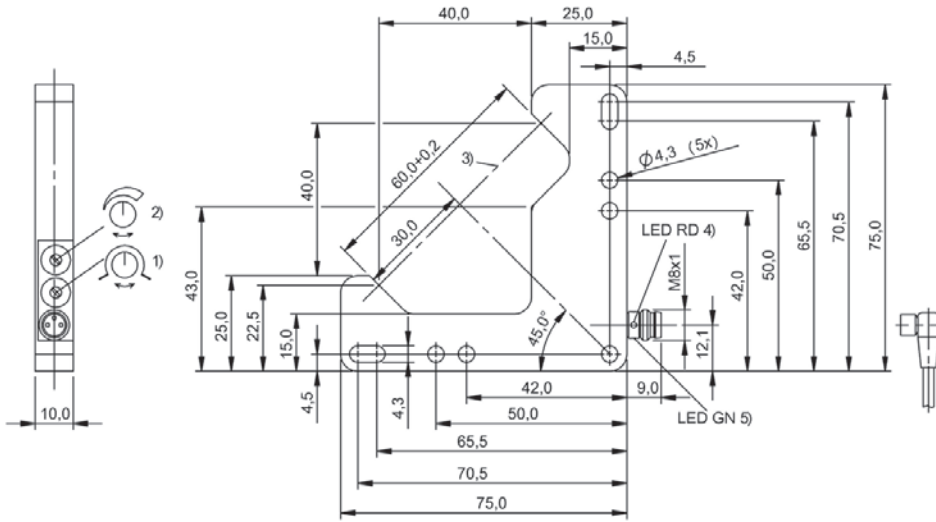
Accessories



PNP normally open/normally closed	BWL000R BWL 5454D-R011-S49	BWL0012 BWL 6868D-R011-S49	BWL0019 BWL 9090D-R011-S49	
Series	D	D	D	
Dimension	10 x 90 x 99 mm	10 x 105 x 114 mm	12 x 125 x 134 mm	
Principle of operation	Angle sensor	Angle sensor	Angle sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	Ø 2.0 mm Light exit	Ø 2.5 mm Light exit	Ø 2.5 mm Light exit	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Housing material	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	
Material sensing surface	Glass	Glass	Glass	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Trademark	Global	Global	Global	
Productview	Page 499	Page 499	Page 500	

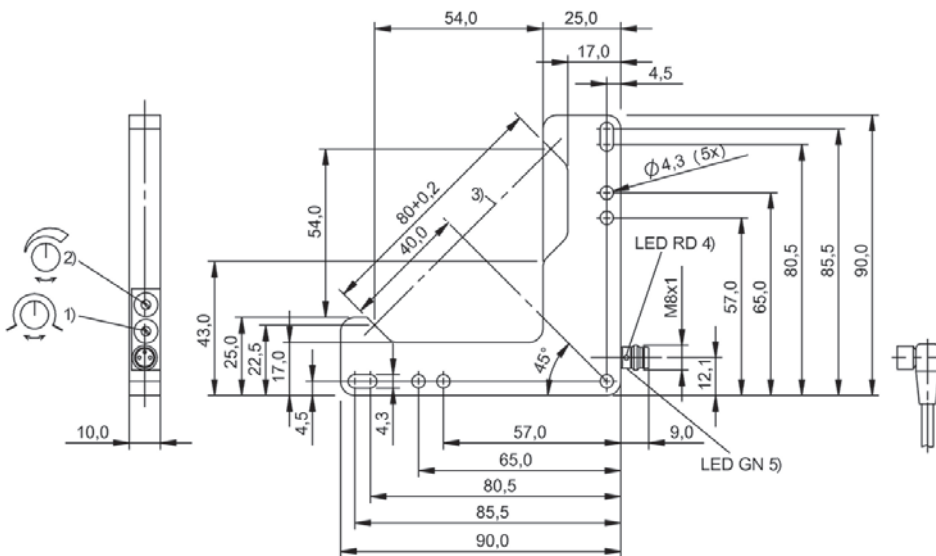


BWL0005 BWL 110110D-R011-S49				
D				
12 x 150 x 159 mm				
Angle sensor				
Through-beam sensor				
Divergent				
LED, red light				
Ø 2.5 mm Light exit				
Connector, M8x1 connector, 3-pin				
Zinc, die-cast				
Glass				
10...30 VDC				
CE, cULus, EAC				
Global				
Page 500				



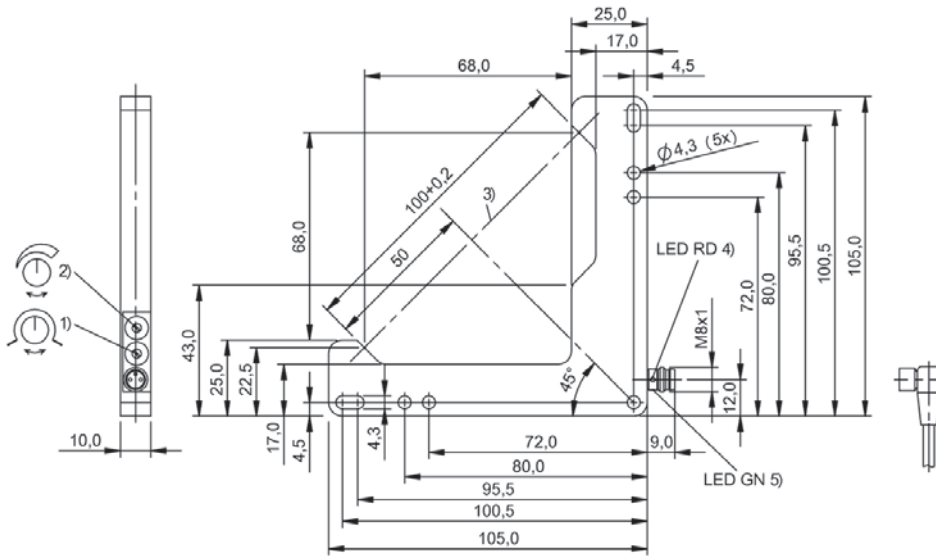
1) Light-on/dark-on, 2) Sensitivity, 3) Optical axis, 4) Output function, 5) Operating voltage

BWL0009



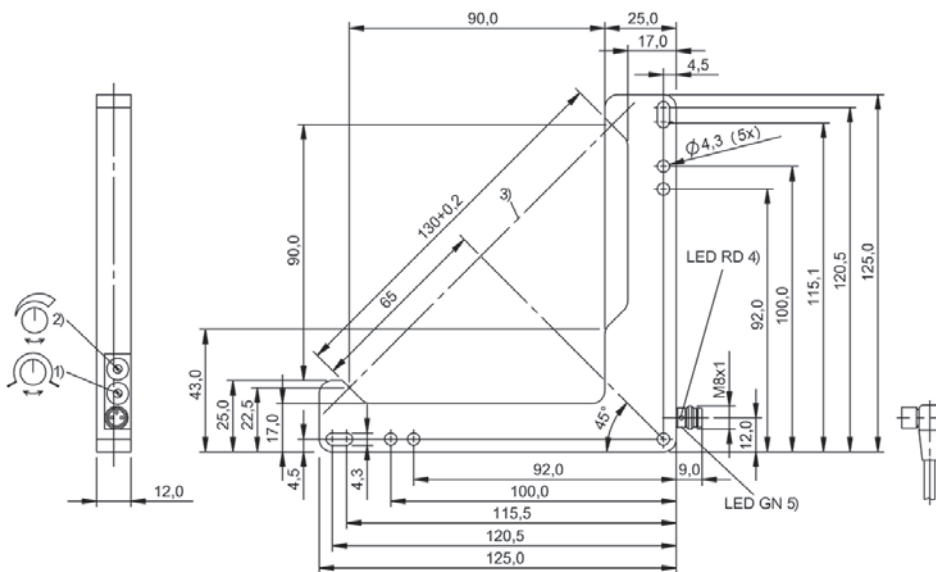
1) Light-on/dark-on, 2) Sensitivity, 3) Optical axis, 4) Output function, 5) Operating voltage

BWL000L



1) Light-on/dark-on, 2) Sensitivity, 3) Optical axis, 4) Output function, 5) Operating voltage

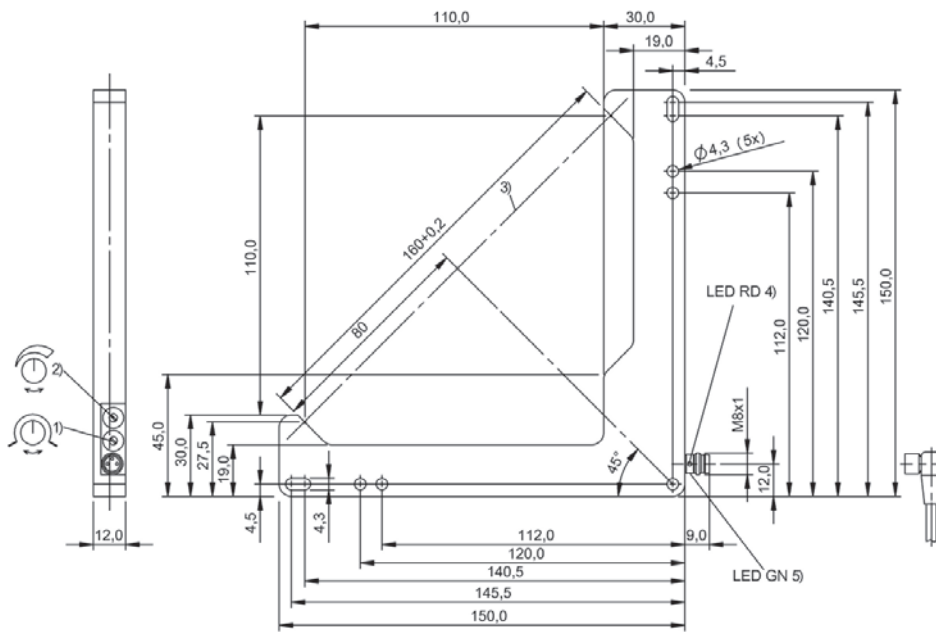
BWL000Y



1) Light-on/dark-on, 2) Sensitivity, 3) Optical axis, 4) Output function, 5) Operating voltage

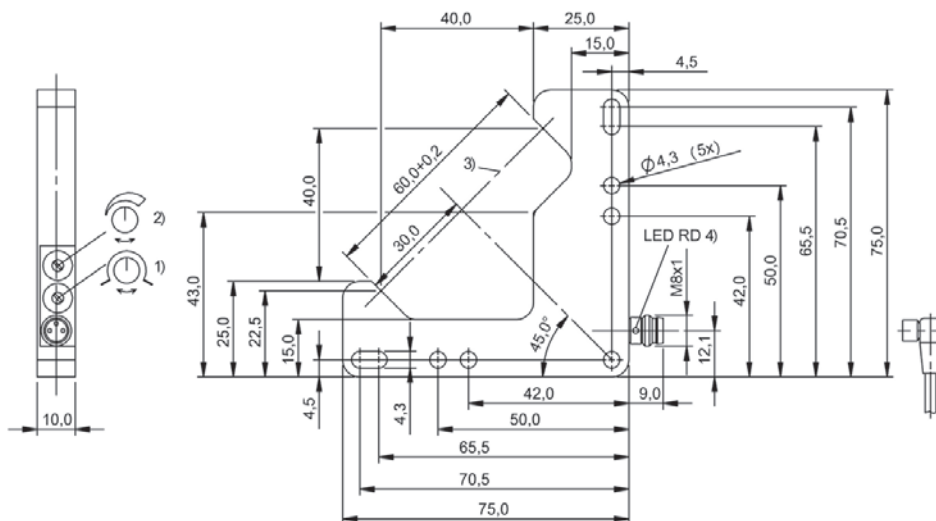
BWL0015

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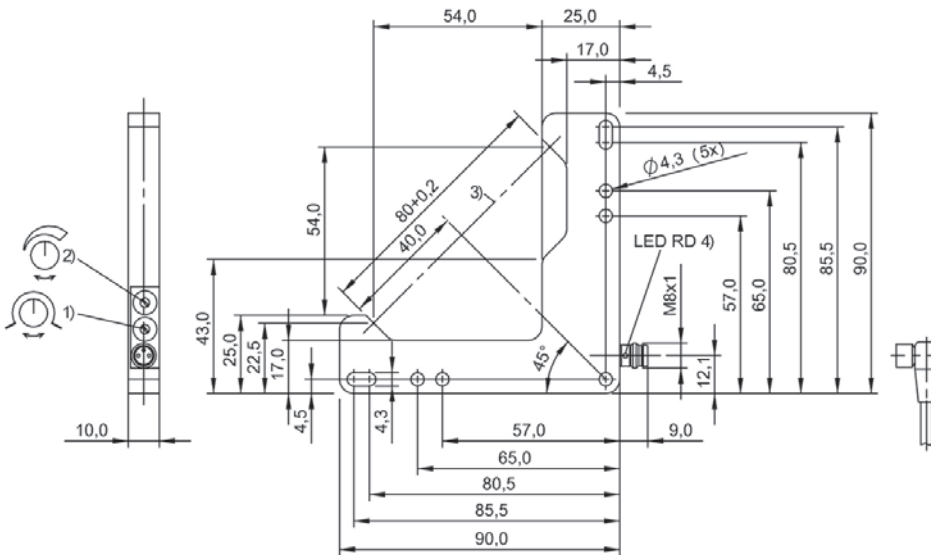
1) Light-on/dark-on, 2) Sensitivity, 3) Optical axis, 4) Output function, 5) Operating voltage

BWL0001



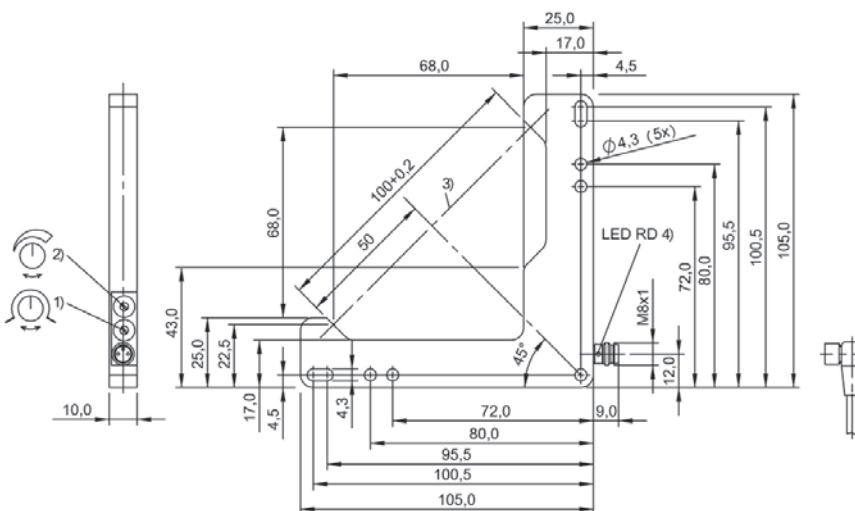
1) Light-on/dark-on, 2) Sensitivity, 3) Optical axis, 4) Output function

BWL000C, BWL000J, BWL000F



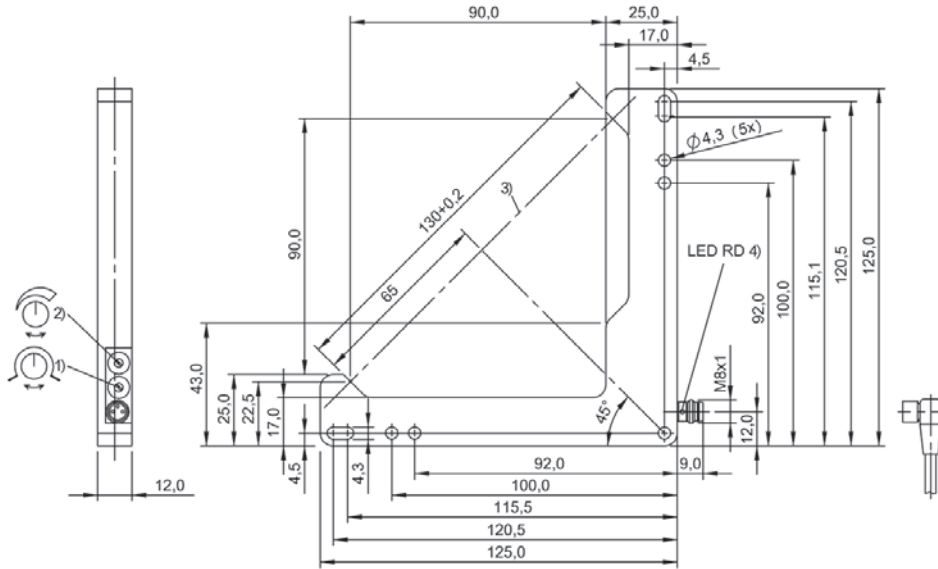
1) Light-on/dark-on, 2) Sensitivity, 3) Optical axis, 4) Output function

BWL000N, BWL000U, BWL000R



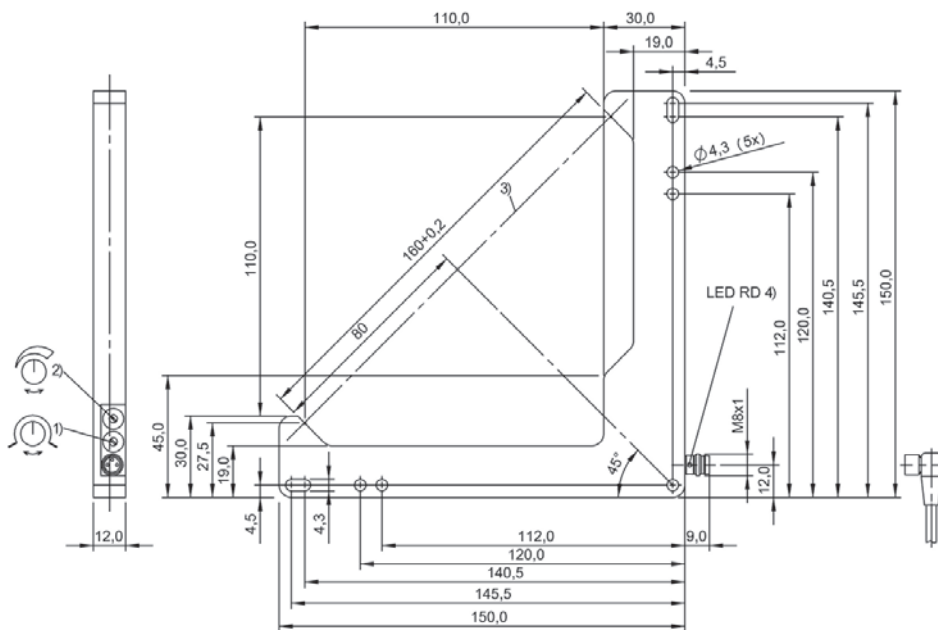
1) Light-on/dark-on, 2) Sensitivity, 3) Optical axis, 4) Output function

BWL0010, BWL001N, BWL0012



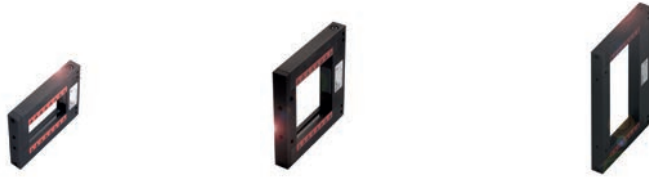
1) Light-on/dark-on, 2) Sensitivity, 3) Optical axis, 4) Output function

BWL0017, BWL001C, BWL0019



1) Light-on/dark-on, 2) Sensitivity, 3) Optical axis, 4) Output function

BWL0003, BWL0007, BWL0005



PNP dynamic normally open	BOW001A BOW A-0408-PS-C-S49	BOW001J BOW A-0808-PS-C-S49	BOW0012 BOW A-1208-PS-C-S49	
NPN dynamic normally open				
PNP statisch normally open/normally closed, NPN statisch normally open/normally closed				
Series	A	A	A	
Dimension	18 x 90 x 140 mm	18 x 130 x 140 mm	18 x 170 x 140 mm	
Active window (PL x AL)	40 x 80 mm	80 x 80 mm	120 x 80 mm	
Principle of operation	Optical window sensor	Optical window sensor	Optical window sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	Infrared	Infrared	Infrared	
Connection	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	
Housing material	Aluminum	Aluminum	Aluminum	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE	CE	CE	
Productview	Page 506	Page 506	Page 507	



	BOW002H BOW A-1216-PS-C-S49		BOW002J BOW A-1616-PS-C-S49	
BOW0029 BOW A-1216-NS-C-S49		BOW002A BOW A-1616-NS-C-S49		BOW002U BOW B-0404-DU-C-S75
A	A	A	A	B
18 x 170 x 220 mm	18 x 170 x 220 mm	18 x 210 x 220 mm	18 x 210 x 220 mm	15 x 90 x 104 mm
120 x 160 mm	120 x 160 mm	160 x 160 mm	160 x 160 mm	40 x 40 mm
Optical window sensor	Optical window sensor	Optical window sensor	Optical window sensor	Optical window sensor
Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
Divergent	Divergent	Divergent	Divergent	Divergent
Infrared	Infrared	Infrared	Infrared	Infrared
Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 3-pin	Connector, M8x1 connector, 4-pin
Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
PMMA	PMMA	PMMA	PMMA	PMMA
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	15...30 VDC
CE	CE	CE	CE	CE, EAC
Page 507	Page 507	Page 508	Page 508	Page 508



PNP statisch normally open/normally closed, NPN statisch normally open/normally closed	BOW002Y BOW B-0808-DU-C-S75	BOW0031 BOW B-1212-DU-C-S75	BOW0034 BOW B-1616-DU-C-S75	
Series	B	B	B	
Dimension	15 x 130 x 134 mm	15 x 170 x 174 mm	15 x 210 x 214 mm	
Active window (PL x AL)	80 x 80 mm	120 x 120 mm	160 x 160 mm	
Principle of operation	Optical window sensor	Optical window sensor	Optical window sensor	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	Infrared	Infrared	Infrared	
Connection	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	
Housing material	Aluminum	Aluminum	Aluminum	
Material sensing surface	PMMA	PMMA	PMMA	
Operating voltage U_b	15...30 VDC	15...30 VDC	15...30 VDC	
Approval/Conformity	CE, EAC	CE, EAC	CE, EAC	
Productview	Page 509	Page 509	Page 510	



BOW0037 BOW B-2020-DU-C-S75				
B				
15 x 250 x 244 mm				
200 x 200 mm				
Optical window sensor				
Through-beam sensor				
Divergent				
Infrared				
Connector, M8x1 connector, 4-pin				
Aluminum				
PMMA				
15...30 VDC				
CE, EAC				
Page 510				

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

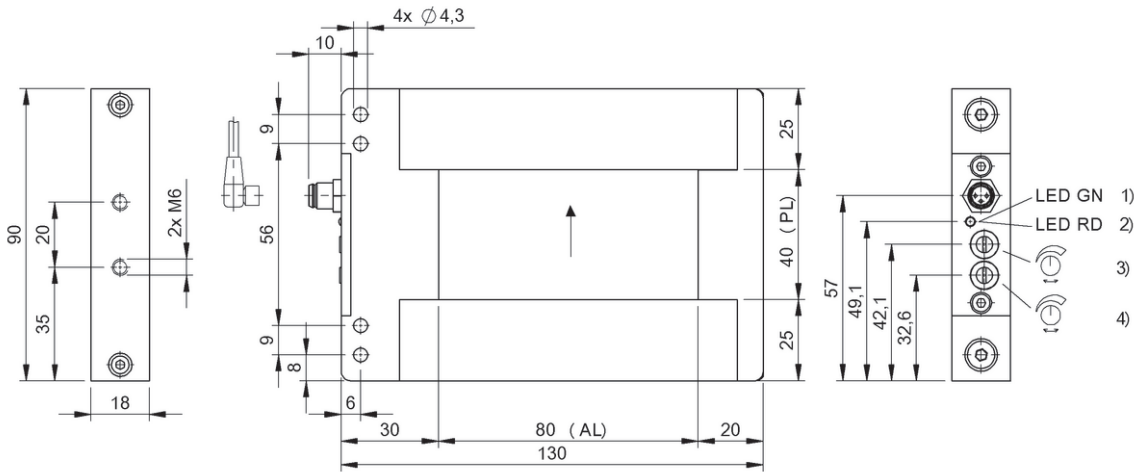
Safety

Industrial Networking

Power Supply

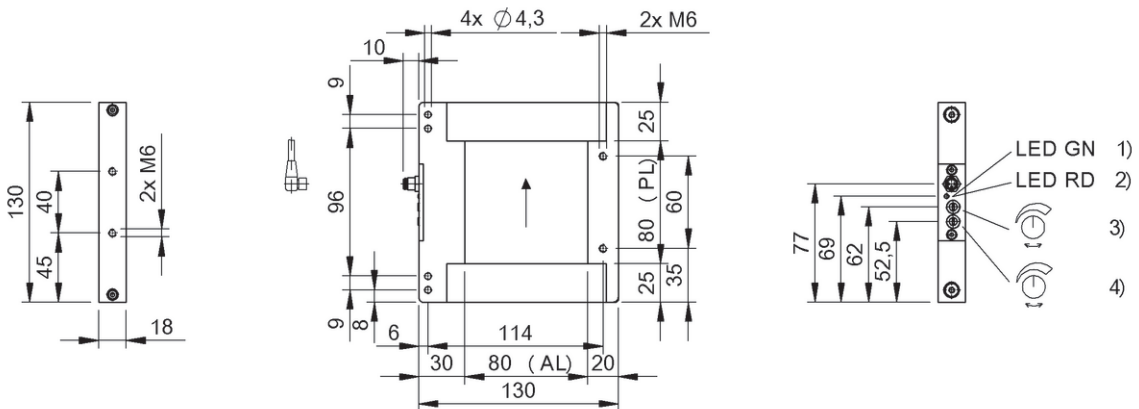
Connectivity

Accessories



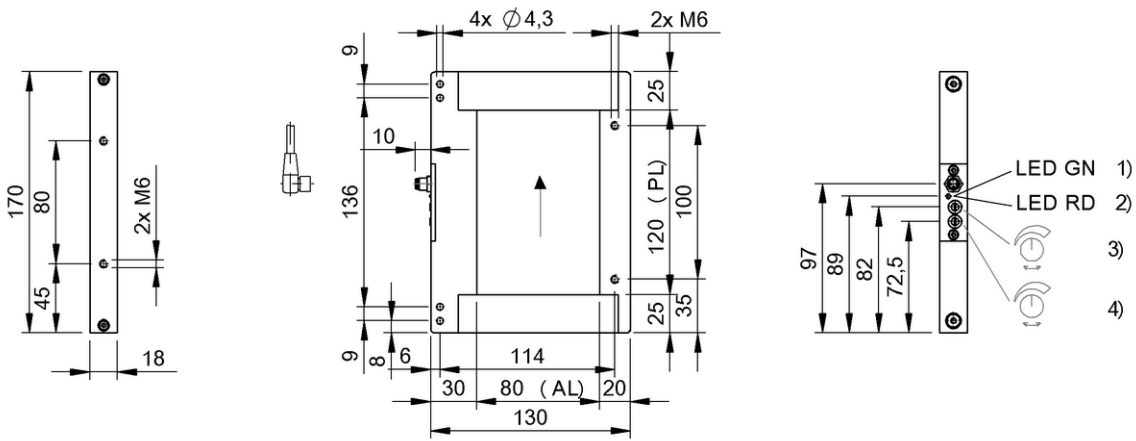
1) Power, 2) Output function, 3) Delay time, 4) Sensitivity

BOW001A



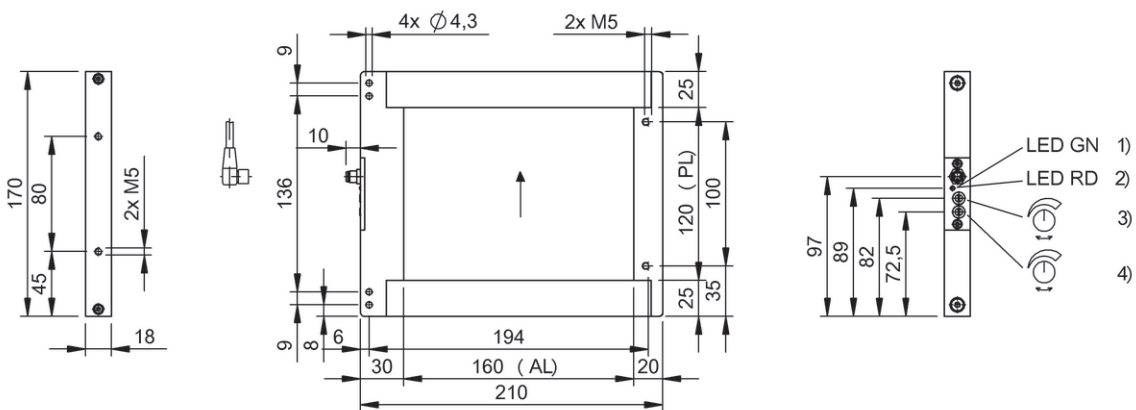
1) Power, 2) Output function, 3) Delay time, 4) Sensitivity

BOW001J



1) Power, 2) Output function, 3) Delay time, 4) Sensitivity

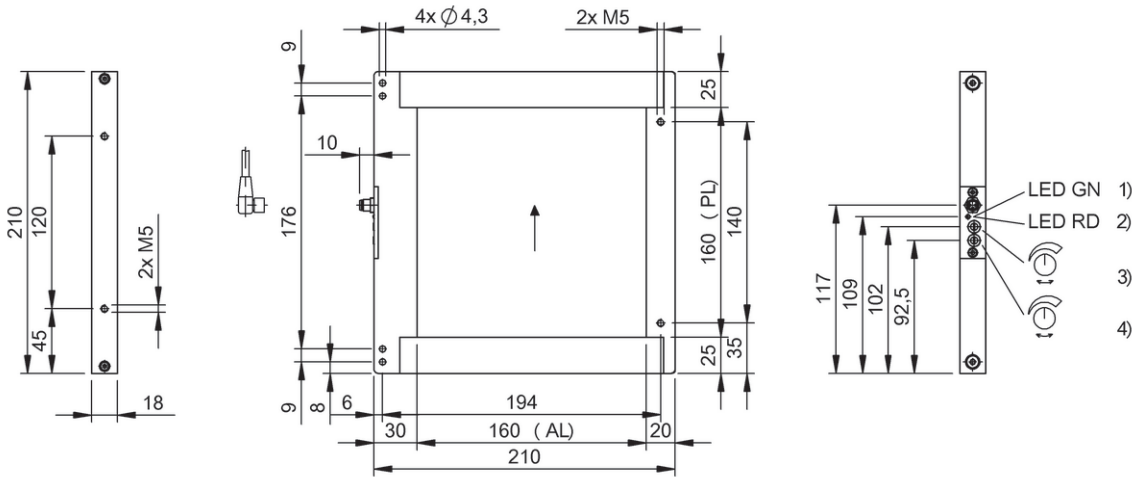
BOW0012



1) Power, 2) Output function, 3) Delay time, 4) Sensitivity

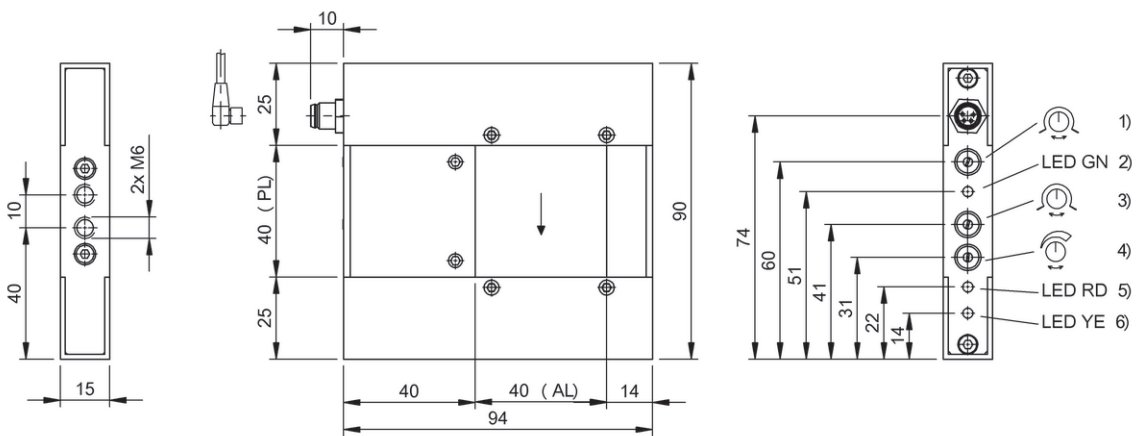
BOW0029, BOW002H

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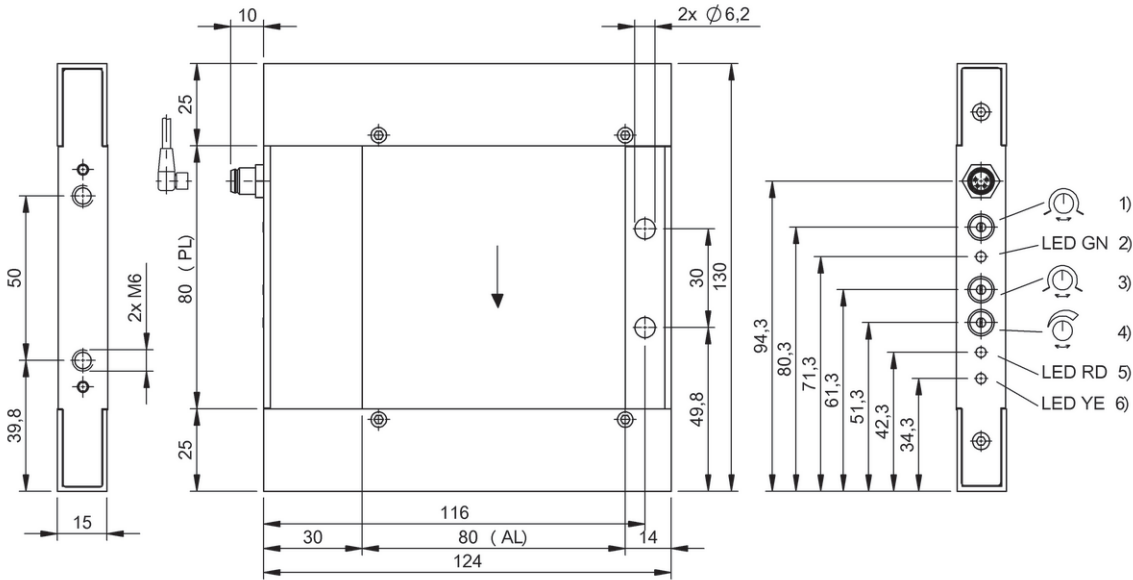
1) Power, 2) Output function, 3) Delay time, 4) Sensitivity

BOW002A, BOW002J



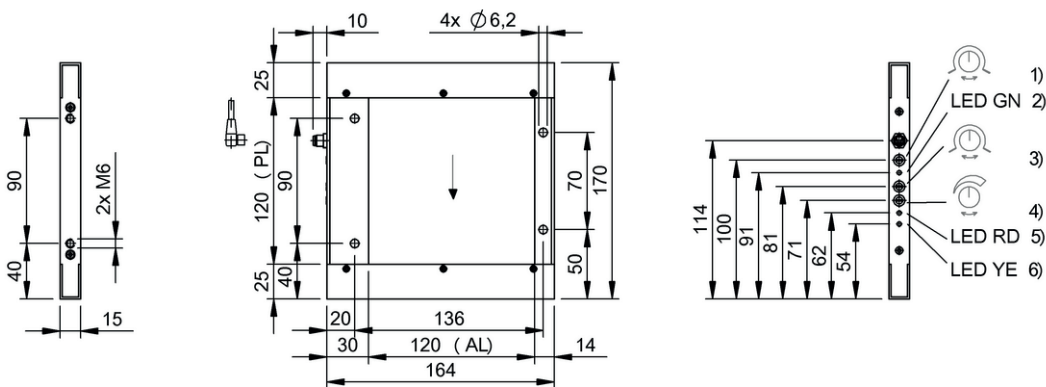
1) Pulse extender, 2) LED Power, 3) Switching function, 4) Object resolution, 5) LED warning indicator, 6) LED function indicator, 7) Optical axis

BOW002U



1) Pulse extender, 2) LED Power, 3) Switching function, 4) Object resolution, 5) LED warning indicator, 6) LED function indicator, 7) Optical axis

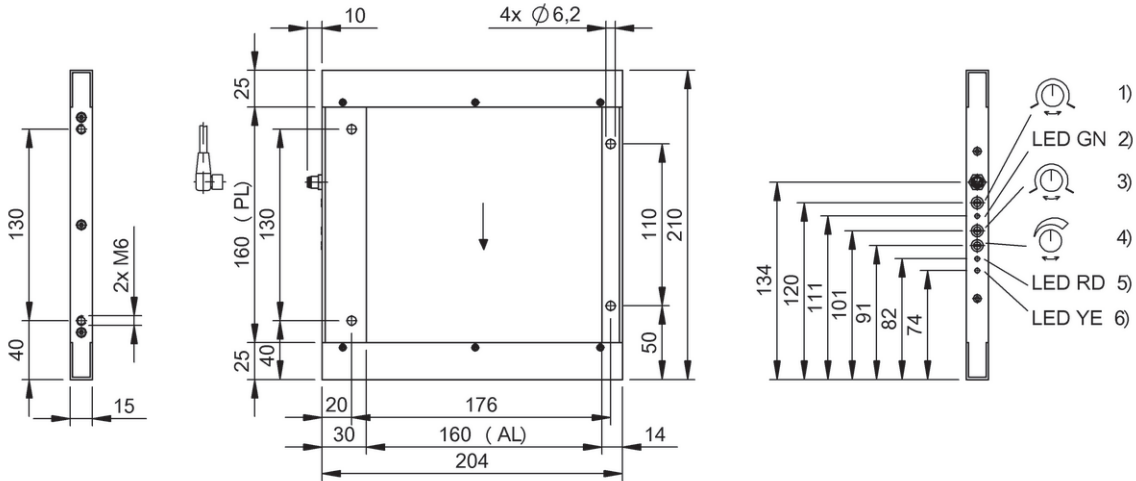
BOW002Y



1) Pulse extender, 2) LED Power, 3) Switching function, 4) Object resolution, 5) LED warning indicator, 6) LED function indicator, 7) Optical axis

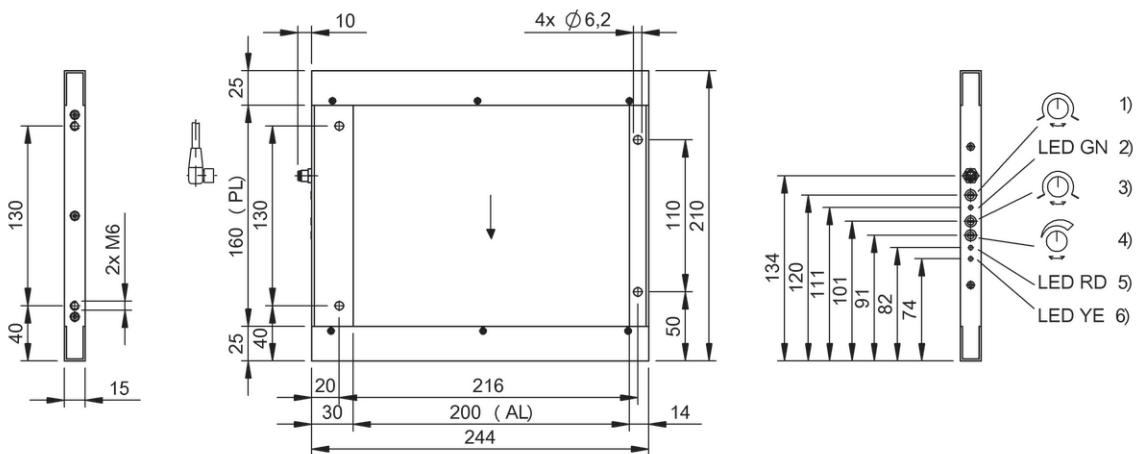
BOW0031

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1) Pulse extender, 2) LED Power, 3) Switching function, 4) Object resolution, 5) LED warning indicator, 6) LED function indicator, 7) Optical axis

BOW0034



1) Pulse extender, 2) LED Power, 3) Switching function, 4) Object resolution, 5) LED warning indicator, 6) LED function indicator, 7) Optical axis

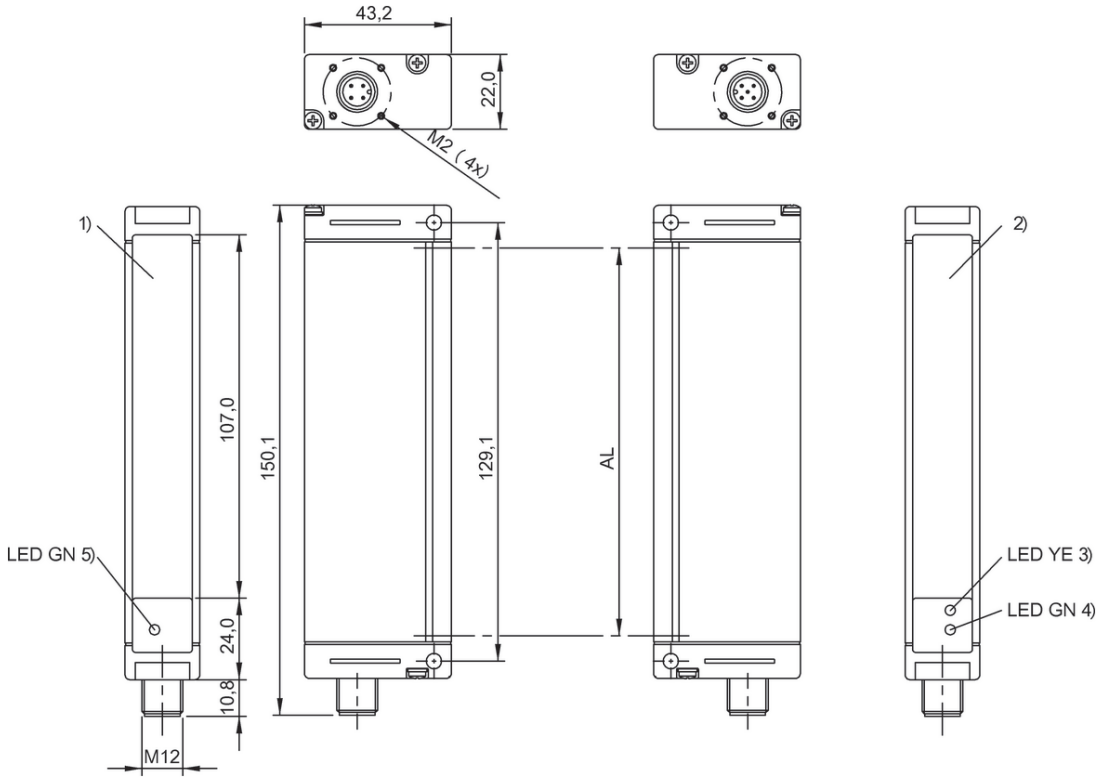
BOW0037



	BLG0001 BLG 1-010-210-050-PV01-SX	
Series	1-010	
Dimension	22 x 150.1 x 43.2 mm	
Active length AL 1	100 mm	
Interface	Analog, voltage 0...10 V PNP Normally open (NO)	
Principle of operation	Light grid	
Principle of optical operation	Through-beam sensor	
Special optical feature	—	
Beam characteristic	Divergent	
Light type	Infrared	
Range	0...2.1 m	
Smallest part typ.	5.0 at t 0.5 x Sn, R 0 = 2.1 m	
Connection	Connector, M12x1 connector	
Housing material	Aluminum	
Material sensing surface	PMMA	
Operating voltage U_b	20...28 VDC	
Approval/Conformity	CE	
Productview	Page 514	

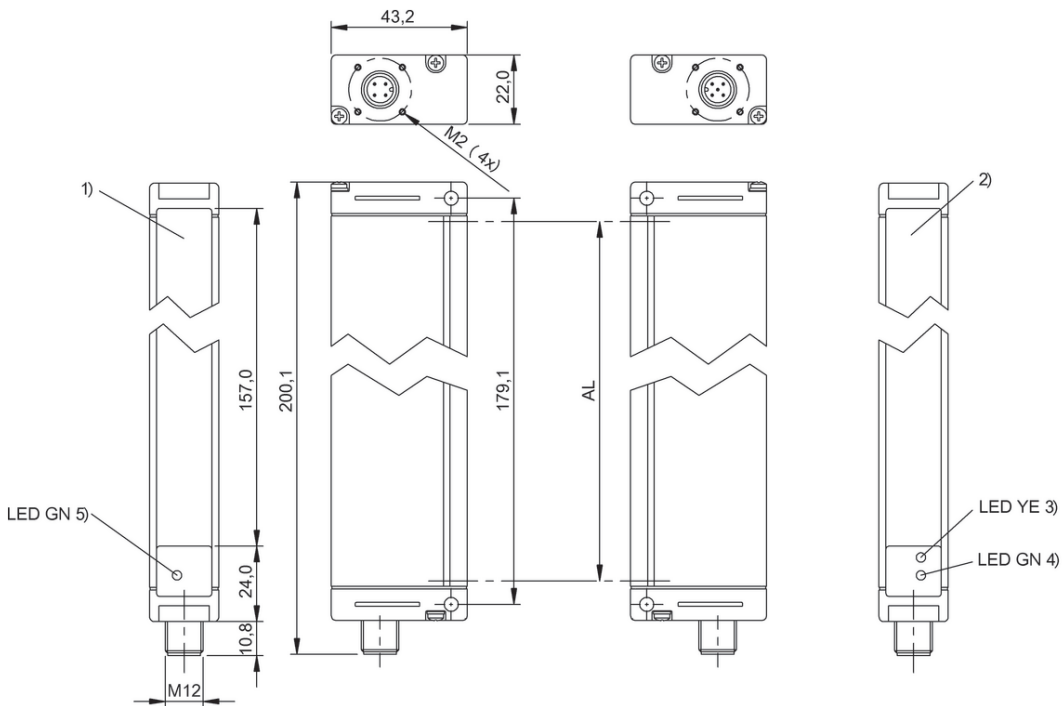


	BLG0002 BLG 1-010-210-070-PV01-SX	BLG0003 BLG 1-015-210-050-PV01-SX	BLG0005 BLG 1-030-210-070-PV01-SX
	1-010	1-015	1-030
	22 x 150.1 x 43.2 mm	22 x 200.1 x 43.2 mm	22 x 350.1 x 43.2 mm
	100 mm	150 mm	300 mm
	Analog, voltage 0...10 V PNP Normally open (NO)	Analog, voltage 0...10 V PNP Normally open (NO)	Analog, voltage 0...10 V PNP Normally open (NO)
	Light grid	Light grid	Light grid
	Through-beam sensor	Through-beam sensor	Through-beam sensor
	—	—	—
	Divergent	Divergent	Divergent
	Infrared	Infrared	Infrared
	0...2.1 m	0...2.1 m	0...2.1 m
	7.0 at t 0.5 x Sn, R0 = 2.1 m	5.0 at t 0.5 x Sn, R0 = 2.1 m	7.0 at t 0.5 x Sn, R0 = 2.1 m
	Connector, M12x1 connector	Connector, M12x1 connector	Connector, M12x1 connector
	Aluminum	Aluminum	Aluminum
	PMMA	PMMA	PMMA
	20...28 VDC	20...28 VDC	20...28 VDC
	CE	CE	CE
	Page 514	Page 514	Page 515



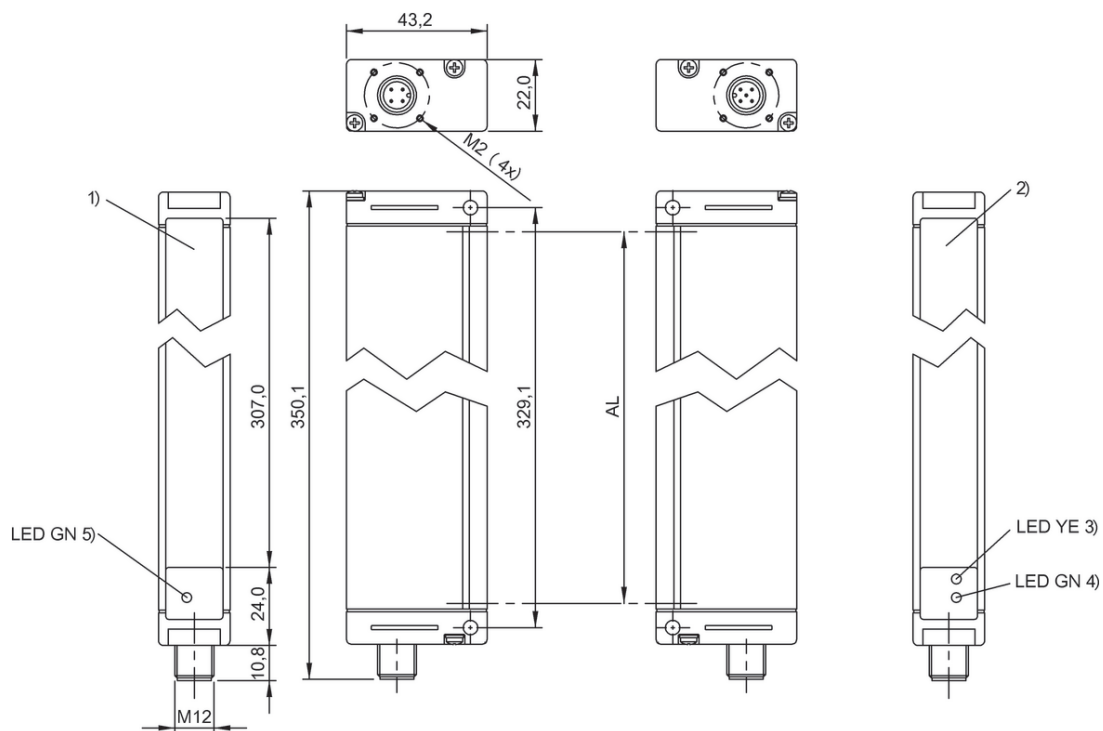
1) Sensing surface, 2) Sensing surface, 3) Output function, 4) stability/error, 5) Operating voltage

BLG0001, BLG0002



1) Sensing surface, 2) Sensing surface, 3) Output function, 4) stability/error, 5) Operating voltage

BLG0003



1) Sensing surface, 2) Sensing surface, 3) Output function, 4) stability/error, 5) Operating voltage

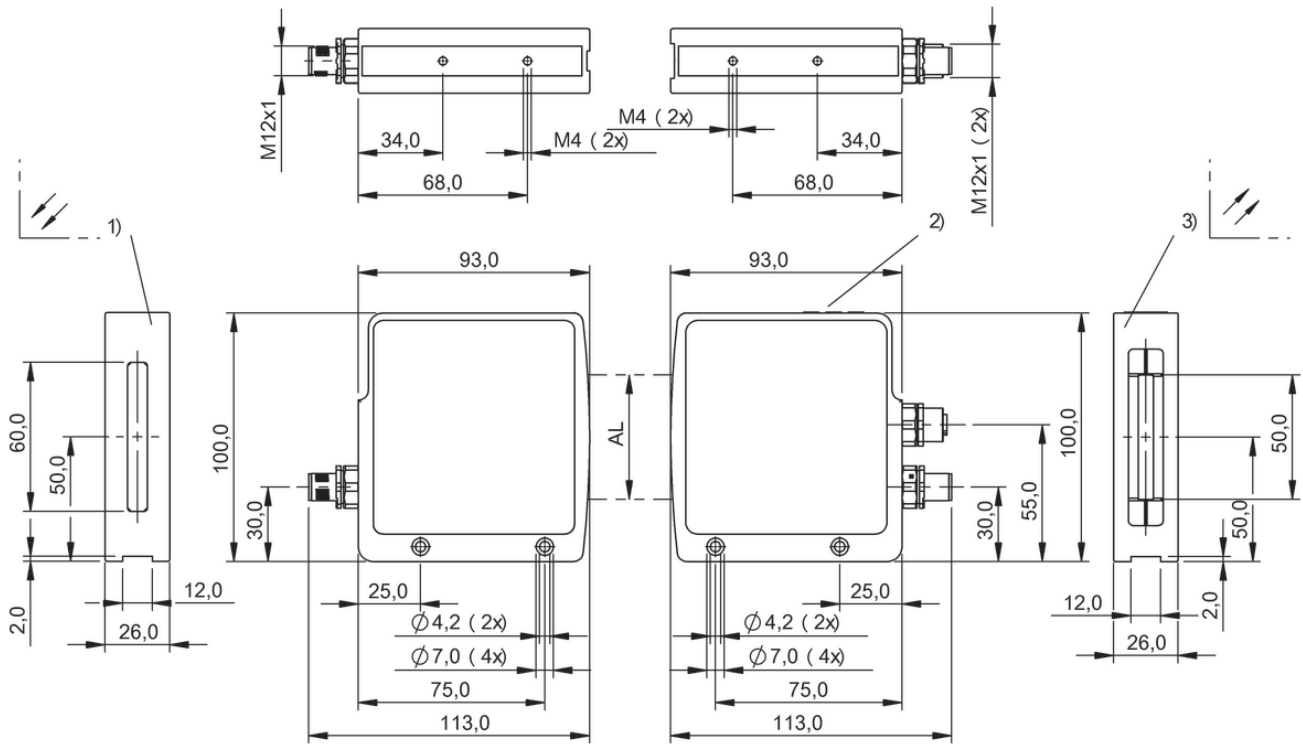
BLG0005



	BLA0001 BLA 50A-001-S115	
Series	A	
Dimension	100 x 26 x 93 mm	
Interface	2x Analog, voltage/analog, current 0...10 V/4...20 mA 3x PNP Normally open (NO)	
Principle of operation	Light array	
Special optical feature	CCD technology	
Beam characteristic	Collimated light strip, width 54 mm	
Light type	Laser red light	
Range	0...2 m	
Connection 1	M12x1-Male, 4-pole, A-coded	
Connection 2	M12x1-Female, 4-pole, A-coded	
Connection 3	M12x1-Male, 8-pole, A-coded	
Housing material	Aluminum	
Operating voltage U_b	15...30 VDC	
Approval/Conformity	CE	
Productview	Page 518	



BLA0003 BLA 50A-002-S4	
A	
100 x 27 x 93 mm	
IO-Link 1.1	
Light array	
CCD technology	
Collimated light strip, width 54 mm	
Laser red light	
0...2 m	
M12x1-Male, 4-pole	
M12x1-Female, 4-pole	
M12x1-Male, 4-pole	
Aluminum	
18...30 VDC	
CE	
Page 518	



1) Emitter, 2) Display and control panel, 3) Receiver

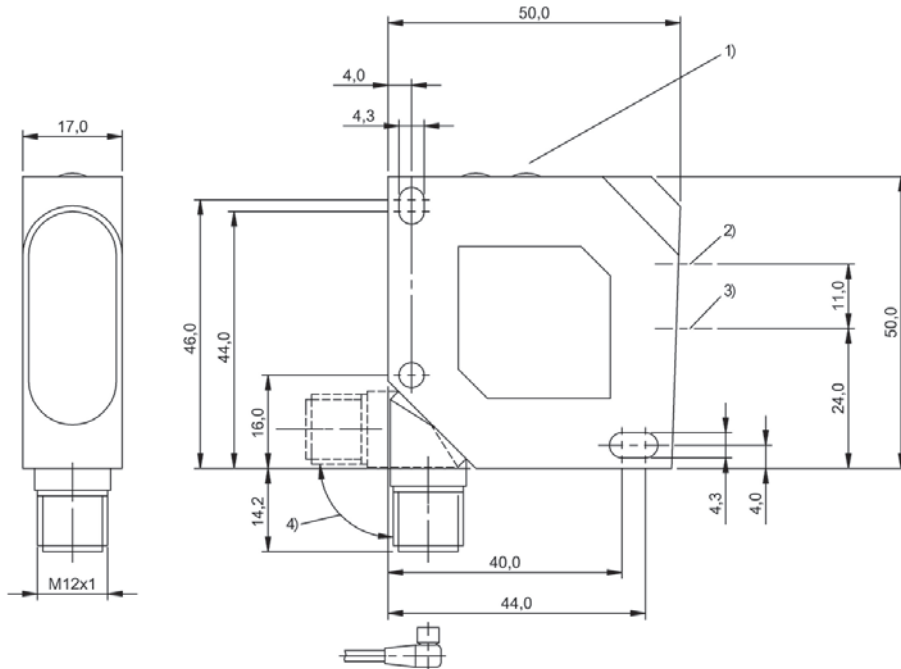
BLA0001, BLA0003



	BFS0001 BFS 26K-PS-L01-S115	
Series	26K	
Dimension	17 x 50 x 50 mm	
Interface	3x PNP normally open (NO)	
Input function	Emitter on/off, Key disable on/off, Teach color (switchpoint)	
Principle of operation	Color sensor	
Principle of optical operation	Diffuse sensor, fixed focus	
Beam characteristic	Focused	
Light type	White light	
Light spot size	Ø 4 mm at 22 mm	
Range	12...32 mm	
Connection	Connector, M12x1 connector, 8-pin	
Housing material	ABS	
Material sensing surface	PMMA	
Operating voltage U_b	12...28 VDC	
Approval/Conformity	CE, cULus, EAC	
Productview	Page 522	

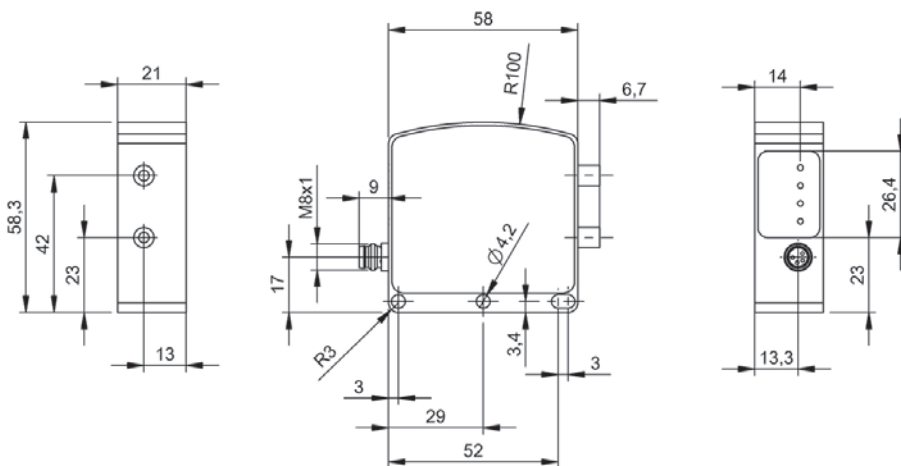


	BFS000M BFS 33M-GSI-F01-S75	BFS000L BFS 33M-GSS-F01-PU-02	
	33M	33M	
	21 x 58.3 x 58 mm	21 x 58.3 x 74 mm	
	IO-Link 1.1 2x NO/NC	3x PNP/NPN normally open/normally closed (NO/NC)	
	—	—	
	Color sensor	Color sensor	
	Diffuse sensor	—	
	—	—	
	White light	White light	
	—	—	
	—	—	
	Connector, M8x1 connector, 4-pin	Cable, 2.00 m, PUR	
	Aluminum	Aluminum	
	—	—	
	21.6...26.4 VDC	21.6...26.4 VDC	
	CE	CE	
	Page 522	Page 523	

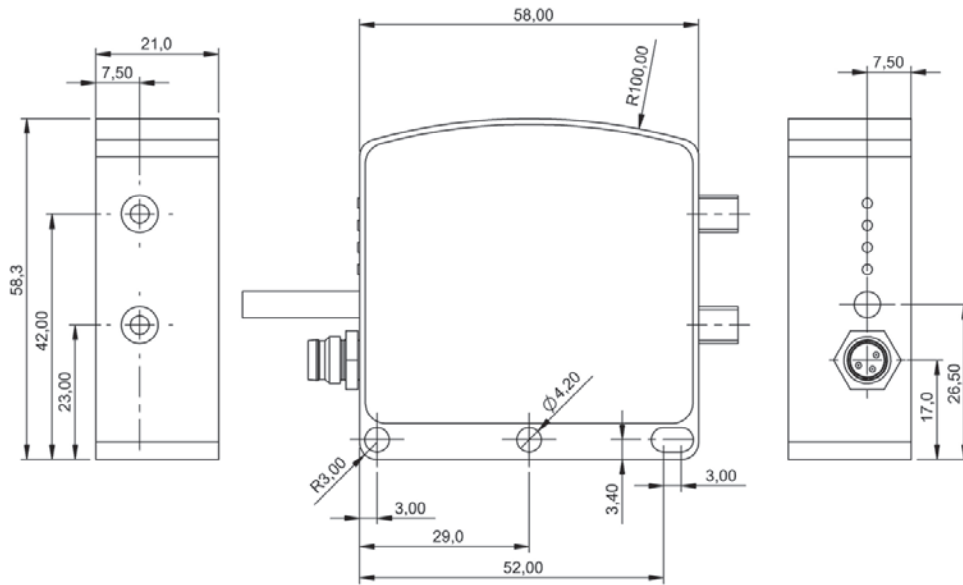


1) Display and control panel, 2) Optical axis emitter, 3) Optical axis receiver, 4) rotatable 270°

BFS0001



BFS000M



BFS000L



PNP normally open, PNP normally closed	BKT000H BKT 18KF-001-P-S4			
PNP normally open/normally closed		BKT0010 BKT 6K-002-P-S75	BKT000Y BKT 21M-002-P-S4	
PNP/NPN normally open/normally closed, analog, voltage 1...5.5 V				
PNP/NPN normally open/normally closed				
Series	18KF	6K	21M	
Dimension	Ø 18 x 81.5 mm	12 x 41.5 x 21.6 mm	12 x 50 x 42.5 mm	
Input function	—	Key disable on/off, Same function as button	Key disable on/off, Teach Contrast (switching point)	
Principle of operation	Contrast sensor	Contrast sensor	Contrast sensor	
Principle of optical operation	Diffuse sensor, Focused	Diffuse sensor, Focused	Diffuse sensor, Focused	
Special optical feature	—	—	Coaxial Optics	
Beam characteristic	Focused	Focused	Focused	
Light type	White light	Laser red light	White light	
Light spot size	Ø 4.5 mm at 10 mm	0.7 x 0.7 mm at 250 mm	Ø 3.5 mm at 19 mm	
Range	8...12 mm	1...250 mm	17...21 mm	
Connection	Connector, M12x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Housing material	PBT	ABS	Zinc, die-cast Aluminum	
Material sensing surface	PMMA	PMMA	Glass	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, cULus	cULus, CE, EAC	cULus, CE, EAC	
Productview	Page 526	Page 526	Page 527	



	BKT003 BKT 67M-003-U-S92			BKT001 BKT 67M-001-U-S92	
		BKT005 BKT 67M-005-U-S92	BKT006 BKT 67M-006-U-S92		
	67M	67M	67M	67M	
	32 x 64 x 82 mm	32 x 64 x 82 mm	32 x 64 x 82 mm	32 x 64 x 82 mm	
	Same function as SET button	Same function as SET button	Same function as SET button	Time function on/off	
	Contrast sensor	Contrast sensor	Contrast sensor	Contrast sensor	
	Diffuse sensor, Focused	Diffuse sensor, Focused	Diffuse sensor, Focused	Diffuse sensor, Focused	
	—	—	—	—	
	Focused	Focused	Focused	Focused	
	blue light/green light/ red light	blue light/green light/ red light	blue light/green light/ red light	blue light/green light/ red light	
	1.5 x 5 mm at 9 mm	1.5 x 5 mm at 9 mm	5 x 1.5 mm at 9 mm	1.5 x 5 mm at 9 mm	
	6...12 mm	6...12 mm	6...12 mm	6...12 mm	
	Connector, M12x1 connector	Connector, M12x1 connector	Connector, M12x1 connector	Connector, M12x1 connector	
	Aluminum, die-cast	Aluminum, die-cast	Aluminum, die-cast	Aluminum, die-cast	
	Glass	Glass	Glass	PMMA	
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
	CE, cULus	CE, cULus	CE, cULus	CE, cULus	
	Page 527	Page 528	Page 528	Page 528	

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

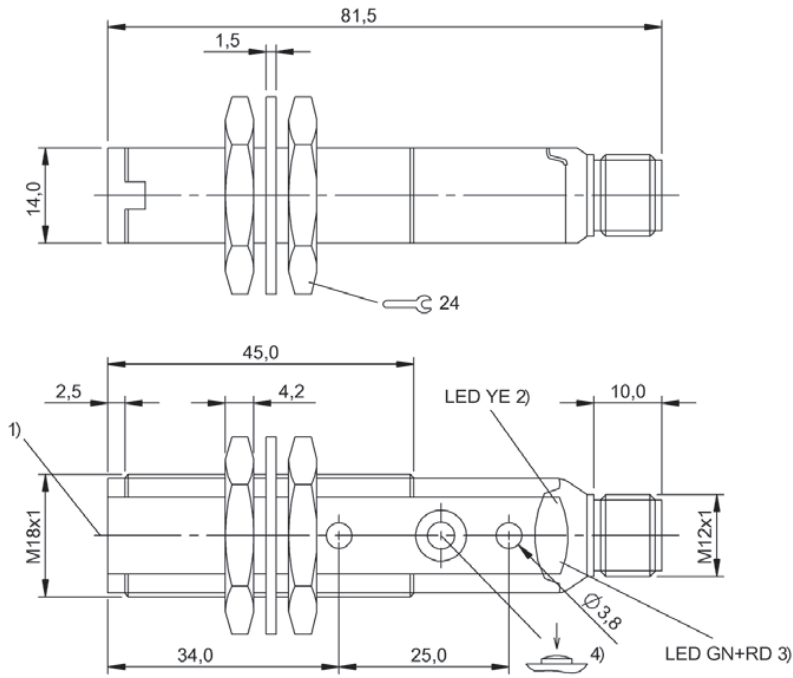
Safety

Industrial Networking

Power Supply

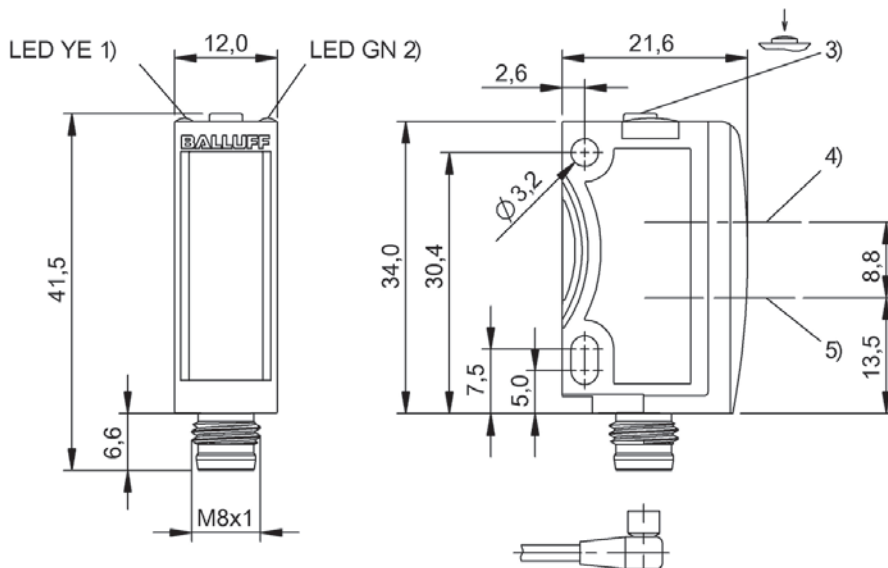
Connectivity

Accessories



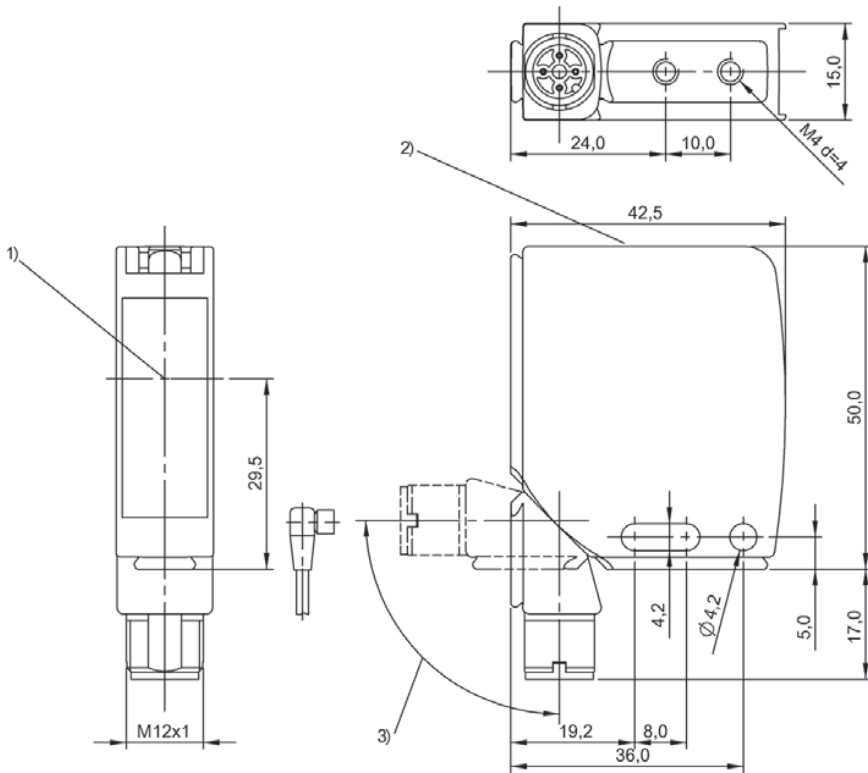
1) Optical axis, 2) Output function, 3) stability/error, 4) Sn

BKT000H



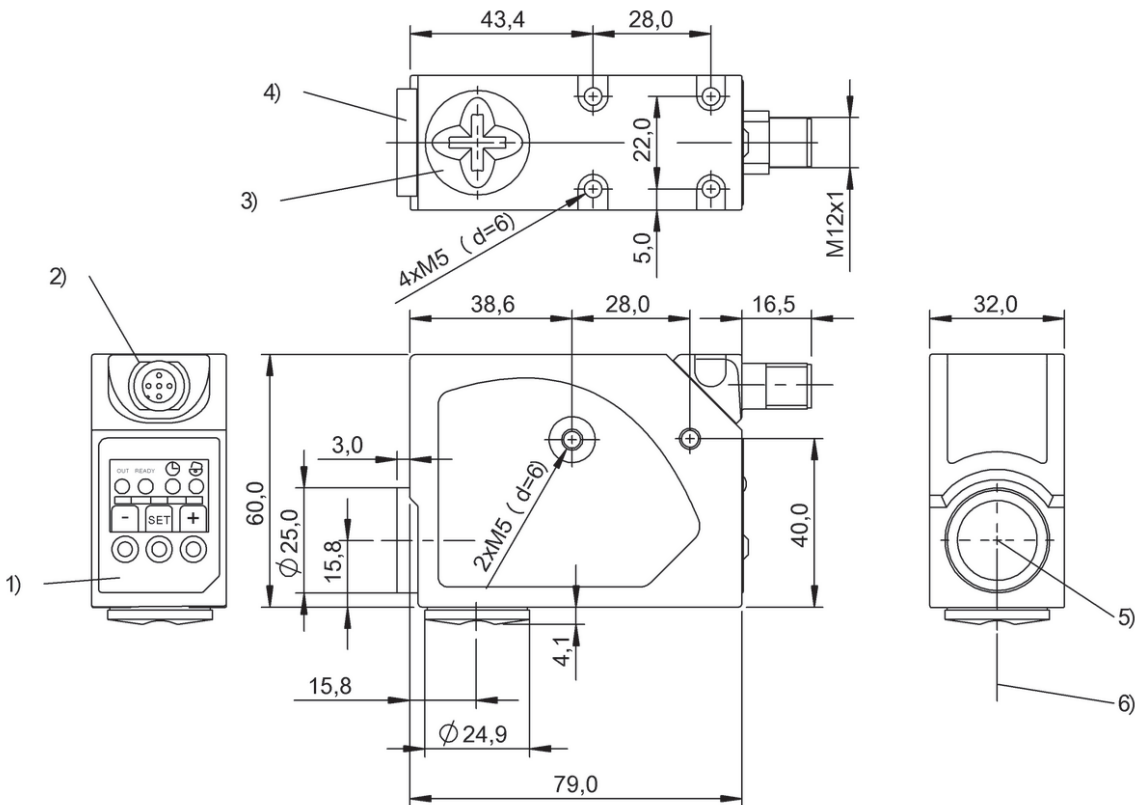
1) Output function, 2) Operating voltage, 3) Sensitivity, light/dark, 4) Optical axis receiver, 5) Optical axis emitter

BKT0010



1) Optical axis, 2) Display and control panel, 3) rotatable 270°

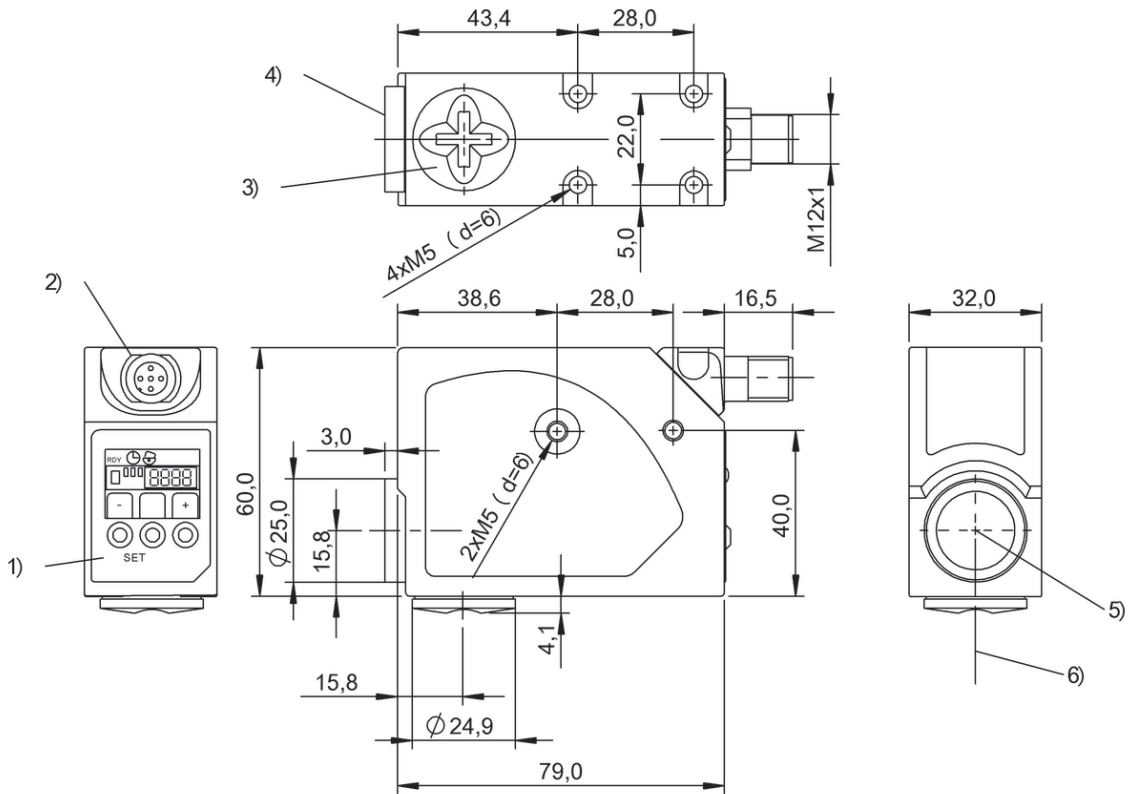
BKT000Y



1) Display and control panel, 2) rotatable 270°, 3) Cover cap, removable, 4) standard lens, removable, 5) Light exit standard, 6) Light exit optional

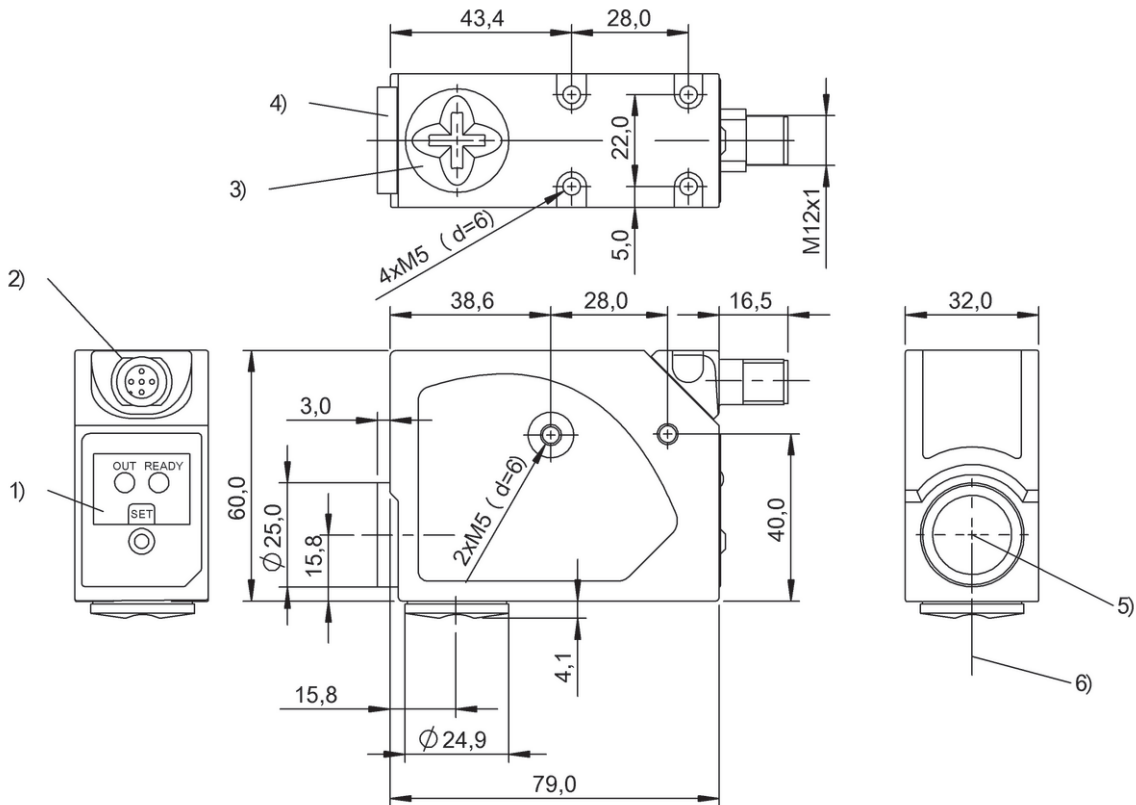
BKT0003

Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



1) Display and control panel, 2) rotatable 270°, 3) Cover cap, removable, 4) standard lens, removable, 5) Light exit standard, 6) Light exit optional

BKT0005, BKT0006



1) Display and control panel, 2) rotatable 270°, 3) Cover cap, removable, 4) standard lens, removable, 5) Light exit standard, 6) Light exit optional

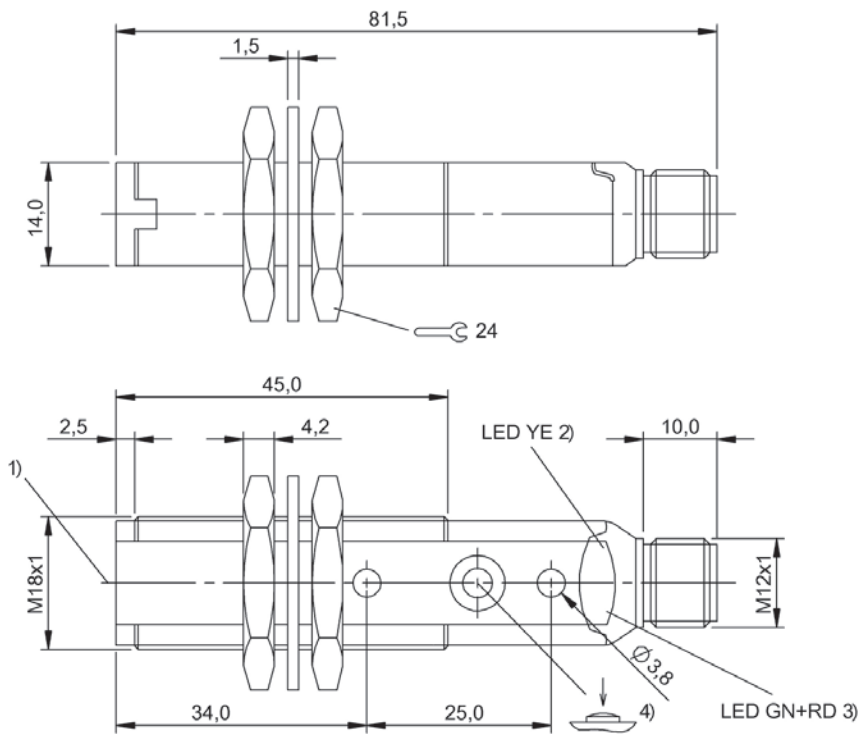
BKT0001



PNP normally open, PNP normally closed	BLT0004 BLT 18KF-001-P-S4	
PNP normally open/normally closed		
Series	18KF	
Dimension	Ø 18 x 81.5 mm	
Input function	—	
Principle of operation	Luminescence sensor	
Principle of optical operation	Diffuse sensor, Focused	
Special optical feature	—	
Beam characteristic	Focused	
Light type	Ultraviolet light	
Light spot size	Ø 3 mm at 20 mm	
Range	8...20 mm	
Connection	Connector, M12x1 connector, 4-pin	
Housing material	PBT	
Material sensing surface	PMMA	
Operating voltage U_b	10...30 VDC	
Approval/Conformity	CE, cULus	
Productview	Page 532	

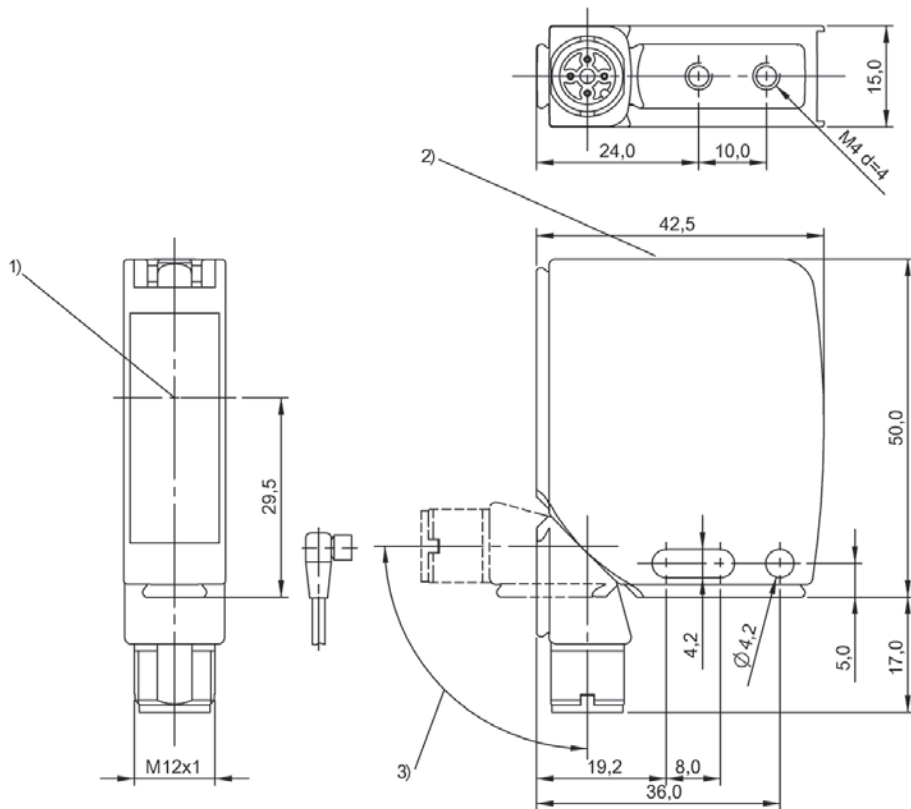


	BLT0009 BLT 21M-001-P-S4	
	21M	
	12 x 50 x 42.5 mm	
	Key disable on/off, Teach Contrast (switching point)	
	Luminescence sensor	
	Diffuse sensor, Focused	
	Coaxial Optics	
	Focused	
	Ultraviolet light	
	Ø 1.5 mm at 10 mm	
	0...40 mm	
	Connector, M12x1 connector, 4-pin	
	Zinc, die-cast Aluminum	
	Glass	
	10...30 VDC	
	cULus, CE	
	Page 532	



1) Optical axis, 2) Output function, 3) stability/error, 4) Sn

BLT0004



1) Optical axis, 2) Display and control panel, 3) rotatable 270°

BLT0009



2 × PNP normally open/normally closed			
PNP normally open/normally closed		BFB0006 BFB 75K-002-P-S75	
PNP normally open/normally closed, analog, voltage 0...10 V	BFB0008 BFB 75K-003-P-02		
Series	75K	75K	
Dimension	10.4 x 35.4 x 79.3 mm	10.4 x 35.4 x 84 mm	
Principle of operation	Fiber optic device	Fiber optic device	
Input function	Teach Sn, Key disable on/off	Teach Sn, Key disable on/off	
Setting	Rated switching distance (Sn), 2 values, Duration of single pulse, Mode normal/fine/fast/far, LCD read direction, Time function, Factory setting (Reset), display on/off, Delay time, Key disable on/off, Light-on/dark-on, Sensitivity (Sn)	LCD read direction, Time function, Factory setting (Reset), Mode normal/fine/fast/far, Duration of single pulse, Rated switching distance (Sn), 2 values, display on/off, Delay time, Key disable on/off, Light-on/dark-on, Sensitivity (Sn)	
Operating voltage Ub	—	10...30 VDC	
Light type	LED, red light	LED, red light	
Connection	Cable, 2.00 m, PVC	Connector, M8x1 connector, 4-pin	
Housing material	ABS	ABS	
Switching frequency	8000 Hz /1000 Hz/125 Hz	8000 Hz /1000 Hz/125 Hz	
Approval/Conformity	cULus, CE	cULus, CE	
Productview	Page 538	Page 538	



			BFB000C BFB M18M-011-P-S4	BFB000E BFB M18M-012-P-S4
	BFB0003 BFB 75K-001-P-02	BFB0004 BFB 75K-001-P-S75		
	75K	75K	18M	18M
	10.4 x 35.4 x 79.3 mm	10.4 x 35.4 x 84 mm	Ø 18 x 75 mm	Ø 18 x 75 mm
	Fiber optic device	Fiber optic device	Photoelectric sensor	Photoelectric sensor
	Key disable on/off, Same function as button	Same function as button, Key disable on/off	—	—
	Factory setting (Reset), Light-on/dark-on, Sensitivity (Sn)	Light-on/dark-on, Factory setting (Reset), Sensitivity (Sn)	Sensitivity (Sn)	Sensitivity (Sn)
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	LED, red light	LED, red light	LED infrared	LED infrared
	Cable, 2.00 m, PVC	Connector, M8x1 connector, 4-pin	Connector-plug, 4-pin	Connector-plug, 4-pin
	ABS	ABS	Brass	Brass
	1500 Hz	1500 Hz	1000 Hz	3000 Hz
	cULus, CE, EAC	CE, cULus, EAC	CE, EAC, cULus, DC, Code 81U2	CE, EAC, cULus, DC, Code 81U2
	Page 538	Page 538	Page 538	Page 538



2 × PNP normally open/normally closed	BFB0009 BFB M18M-001-P-S4	BFB000A BFB M18M-002-P-S4	
PNP normally open, PNP normally closed			
Series	18M	18M	
Dimension	Ø 18 x 75 mm	Ø 18 x 75 mm	
Principle of operation	Photoelectric sensor	Photoelectric sensor	
Input function	—	—	
Setting	Sensitivity (Sn)	Sensitivity (Sn)	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Light type	LED, red light	LED, red light	
Connection	Connector-plug, 4-pin	Connector-plug, 4-pin	
Housing material	Brass	Brass	
Switching frequency	1000 Hz	3000 Hz	
Approval/Conformity	CE, EAC, cULus, DC, Code 81U2	CE, EAC, cULus, DC, Code 81U2	
Productview	Page 538	Page 538	



	BOS00JJ BOS 18KF-PA-1FR-S4-C			
	18KF			
	Ø 18 x 87 mm			
	Fiber optic device			
	—			
	Sensitivity (Sn)			
	10...30 VDC			
	LED, red light			
	Connector, M12x1 connector, 4-pin			
	PBT			
	1000 Hz			
	CE, cULus			
	Page 538			

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

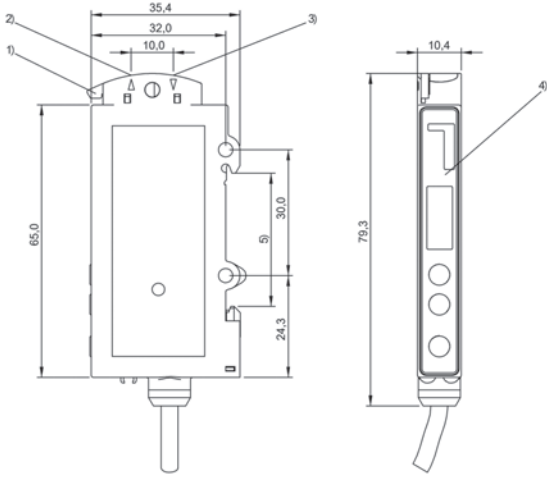
Safety

Industrial Networking

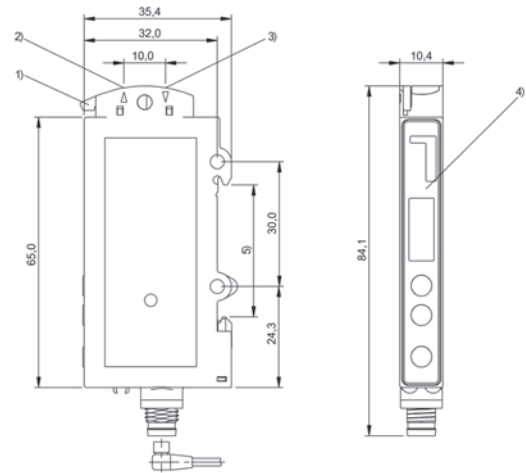
Power Supply

Connectivity

Accessories



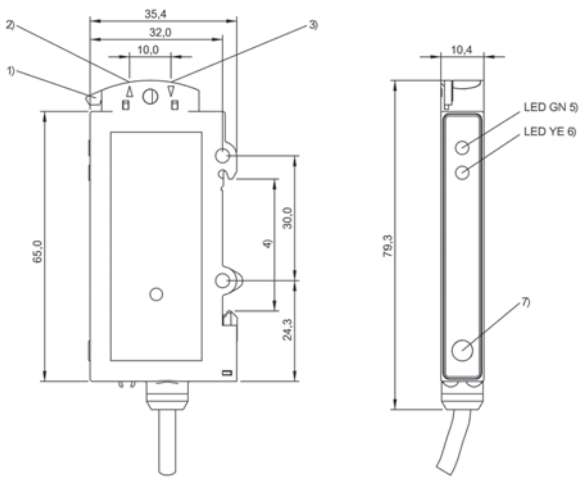
1) Fiber clamp, 2) Receiver, 3) Emitter, 4) Display and control panel, 5) For DIN rail 35mm



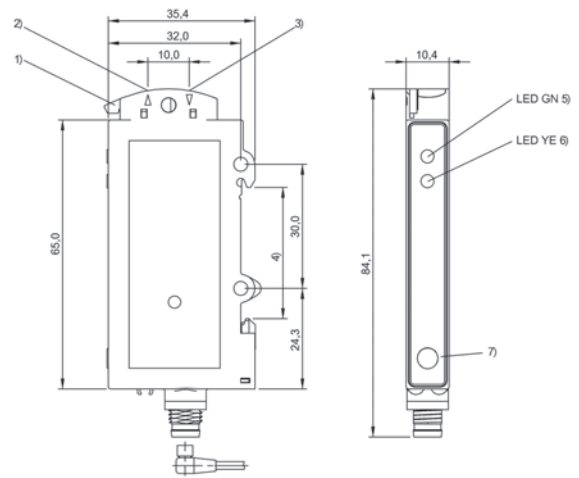
1) Fiber clamp, 2) Receiver, 3) Emitter, 4) Display and control panel, 5) For DIN rail 35mm

BFB0008

BFB0006



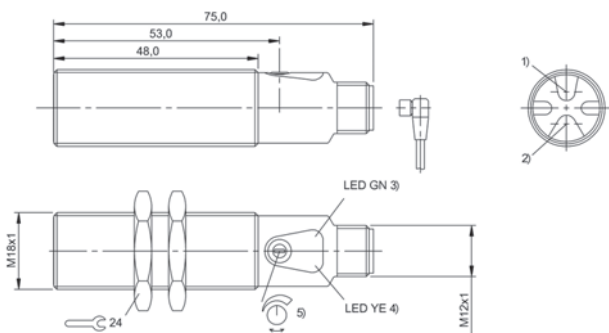
1) Fiber clamp, 2) Emitter, 3) Receiver, 4) For DIN rail 35mm, 5) stability, 6) Output function, 7) Sn



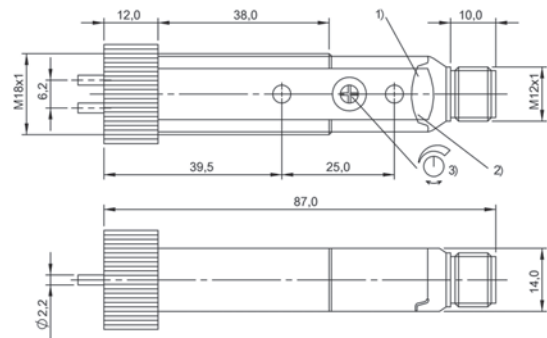
1) Fiber clamp, 2) Emitter, 3) Receiver, 4) For DIN rail 35mm, 5) stability, 6) Output function, 7) Sn

BFB0003

BFB0004



1) Optical axis receiver, 2) Optical axis emitter, 3) Operating voltage, 4) Light reception/limit area, 5) Sn



1) Output function, 2) Stability, 3) Sn

BFB000C, BFB000E, BFB0009, BFB000A

BOS00JJ

Accessories

Connectivity

Power Supply

Industrial Networking

Safety

Systems

Human Machine Interfaces

Machine Vision and Optical Identification

RFID

Sensors



	BF0000F BFO 18A-LAA-MZG-20-0,5	BF0000H BFO 18A-LAA-MZG-20-1	BF0000J BFO 18A-LAA-MZG-20-1,5	
Version	M5, standard	M5, standard	M5, standard	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	
Fiber type material	Glass	Glass	Glass	
Cable length L	0.50 m	1.00 m	1.50 m	
Material jacket	Stainless steel	Stainless steel	Stainless steel	
Range	200 mm	200 mm	200 mm	
Ambient temperature	-20...250 °C	-20...250 °C	-20...250 °C	
Material	Brass blackened	Brass blackened	Brass blackened	
Active surface, fibers	Bundle Ø 1.0 mm	Bundle Ø 1.0 mm	Bundle Ø 1.0 mm	
Active surface, fiber arrangement	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	
Protection degree	IP50	IP50	IP50	
Productview	Page 568	Page 568	Page 568	



	BF0000M BFO 18A-LAA-UZG-20-0,5	BF0000N BFO 18A-LAA-UZG-20-1	BF0001Z BFO 18A-LGG-MZG-10-0,5	BF00020 BFO 18A-LGG-MZG-10-1	BF00023 BFO 18A-LGG-SMG-10-0,5
	M5, standard	M5, standard	Ø 2, standard	Ø 2, standard	Ø 2, standard
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4
	Glass	Glass	Glass	Glass	Glass
	0.50 m	1.00 m	0.50 m	1.00 m	0.50 m
	PUR	PUR	Stainless steel	Stainless steel	Silicone, on stainless steel
	200 mm	200 mm	100 mm	100 mm	100 mm
	-20...85 °C	-20...85 °C	-20...250 °C	-20...250 °C	-40...150 °C
	Brass blackened	Brass blackened	Stainless steel	Stainless steel	Stainless steel
	Bundle Ø 1.0 mm	Bundle Ø 1.0 mm	Bundle Ø 1.4 mm	Bundle Ø 1.4 mm	Bundle Ø 1.4 mm
	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle
	IP67	IP67	IP50	IP50	IP67
	Page 568	Page 568	Page 569	Page 569	Page 569



	BF00024 BFO 18A-LGG-SMG-10-1	BF0000U BFO 18A-LCC-SMG-20-0,5	BF0000W BFO 18A-LCC-SMG-20-1	
Version	Ø 2, standard	Ø 6, standard	Ø 6, standard	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	
Fiber type material	Glass	Glass	Glass	
Cable length L	1.00 m	0.50 m	1.00 m	
Material jacket	Silicone, on stainless steel	Silicone, on stainless steel	Silicone, on stainless steel	
Range	100 mm	200 mm	200 mm	
Ambient temperature	-40...150 °C	-40...150 °C	-40...150 °C	
Material	Stainless steel	Brass blackened	Brass blackened	
Active surface, fibers	Bundle Ø 1.4 mm	Bundle Ø 1.0 mm	Bundle Ø 1.0 mm	
Active surface, fiber arrangement	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	
Protection degree	IP67	IP67	IP67	
Productview	Page 569	Page 570	Page 570	



	BF0000Z BFO 18A-LCC-UZG-20-1	BF0003Y BFO 18V-LCC-MZG-23-0,5	BF0003Z BFO 18V-LCC-MZG-23-0,75	BF00042 BFO 18V-LCC-SMG-23-0,5	BF0001P BFO 18A-LFF-MZG-10-0,5
	Ø 6, standard	Ø 6, standard	Ø 6, standard	Ø 6, standard	Ø 2, 90° optics
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4
	Glass	Glass	Glass	Glass	Glass
	1.00 m	0.50 m	0.75 m	0.50 m	0.50 m
	PUR	Stainless steel	Stainless steel	Silicone, on stainless steel	Stainless steel
	200 mm	200 mm	200 mm	200 mm	100 mm
	-20...85 °C	-20...250 °C	-20...250 °C	-40...150 °C	-20...250 °C
	Brass blackened	Brass blackened	Brass blackened	Brass blackened	Stainless steel
	Bundle Ø 1.0 mm	Bundle Ø 2.1 mm	Bundle Ø 2.1 mm	Bundle Ø 2.1 mm	Bundle Ø 1.4 mm
	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle
	IP67	IP50	IP50	IP67	IP50
	Page 570	Page 571	Page 571	Page 571	Page 572



	BF0001R BFO 18A-LFF-MZG-10-1	BF0001U BFO 18A-LFF-SMG-10-0,5	BF0001W BFO 18A-LFF-SMG-10-1	
Version	Ø 2, 90° optics	Ø 2, 90° optics	Ø 2, 90° optics	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	
Fiber type material	Glass	Glass	Glass	
Cable length L	1.00 m	0.50 m	1.00 m	
Material jacket	Stainless steel	Silicone, on stainless steel	Silicone, on stainless steel	
Range	100 mm	100 mm	100 mm	
Ambient temperature	-20...250 °C	-40...150 °C	-40...150 °C	
Material	Stainless steel	Stainless steel	Stainless steel	
Active surface, fibers	Bundle Ø 1.4 mm	Bundle Ø 1.4 mm	Bundle Ø 1.4 mm	
Active surface, fiber arrangement	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	
Protection degree	IP50	IP67	IP67	
Productview	Page 572	Page 572	Page 572	



	BF00013 BFO 18A-LEE-MZG-20-0,5	BF00014 BFO 18A-LEE-MZG-20-1	BF00019 BFO 18A-LEE-SMG-20-0,5	BF0001A BFO 18A-LEE-SMG-20-1	BF0001F BFO 18A-LEE-UZG-20-0,5
	Ø 6, 90° optics	Ø 6, 90° optics	Ø 6, 90° optics	Ø 6, 90° optics	Ø 6, 90° optics
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4
	Glass	Glass	Glass	Glass	Glass
	0.50 m	1.00 m	0.50 m	1.00 m	0.50 m
	Stainless steel	Stainless steel	Silicone, on stainless steel	Silicone, on stainless steel	PUR
	200 mm	200 mm	200 mm	200 mm	200 mm
	-20...250 °C	-20...250 °C	-40...150 °C	-40...150 °C	-20...85 °C
	Brass blackened	Brass blackened	Brass blackened	Brass blackened	Brass blackened
	Bundle Ø 1.0 mm	Bundle Ø 1.0 mm	Bundle Ø 1.0 mm	Bundle Ø 1.0 mm	Bundle Ø 1.0 mm
	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle
	IP50	IP50	IP67	IP67	IP67
	Page 573	Page 573	Page 573	Page 573	Page 574



	BF0001H BFO 18A-LEE-UZG-20-1	BF00047 BFO 18V-LDD-MZG-23-0,75	BF00049 BFO 18V-LDD-MZG-23-2,0	
Version	Ø 6, 90° optics	Ø 6, 90° optics	Ø 6, 90° optics	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	
Fiber type material	Glass	Glass	Glass	
Cable length L	1.00 m	0.75 m	2.00 m	
Material jacket	PUR	Stainless steel	Stainless steel	
Range	200 mm	200 mm	200 mm	
Ambient temperature	-20...85 °C	-20...250 °C	-20...250 °C	
Material	Brass blackened	Brass blackened	Brass blackened	
Active surface, fibers	Bundle Ø 1.0 mm	Bundle Ø 2.1 mm	Bundle Ø 2.1 mm	
Active surface, fiber arrangement	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	
Protection degree	IP67	IP50	IP50	
Productview	Page 574	Page 574	Page 574	



	BF0004A BFO 18V-LDD-MZG-23-3	BF0004C BFO 18V-LDD-SMG-23-0,5	BF0004F BFO 18V-LDD-SMG-23-1	BF00026 BFO 18A-XAA-MZG-30-0,5	BF00027 BFO 18A-XAA-MZG-30-1
	Ø 6, 90° optics	Ø 6, 90° optics	Ø 6, 90° optics	M5, standard	M5, standard
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4
	Glass	Glass	Glass	Glass	Glass
	3.00 m	0.50 m	1.00 m	0.50 m	1.00 m
	Stainless steel	Silicone, on stainless steel	Silicone, on stainless steel	Stainless steel	Stainless steel
	200 mm	200 mm	200 mm	20 mm	20 mm
	-20...250 °C	-40...150 °C	-40...150 °C	-20...250 °C	-20...250 °C
	Brass blackened	Brass blackened	Brass blackened	Brass blackened	Brass blackened
	Bundle Ø 2.1 mm	Bundle Ø 2.1 mm	Bundle Ø 2.1 mm	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm
	Homogeneous bundle	Homogeneous bundle	Homogeneous bundle	Segmented bundle	Segmented bundle
	IP50	IP67	IP67	IP50	IP50
	Page 574	Page 575	Page 575	Page 575	Page 575



	BF000H3 BFO 18A-XAA-MZG-30-5	BF0002F BFO 18A-XAA-SMG-30-0,5	BF0002H BFO 18A-XAA-SMG-30-1	
Version	M5, standard	M5, standard	M5, standard	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	
Fiber type material	Glass	Glass	Glass	
Cable length L	5.00 m	0.50 m	1.00 m	
Material jacket	Stainless steel	Silicone, on stainless steel	Silicone, on stainless steel	
Range	20 mm	20 mm	20 mm	
Ambient temperature	-20...250 °C	-40...150 °C	-40...150 °C	
Material	Brass blackened	Brass blackened	Brass blackened	
Active surface, fibers	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	
Active surface, fiber arrangement	Segmented bundle	Segmented bundle	Segmented bundle	
Protection degree	IP50	IP67	IP67	
Productview	Page 575	Page 576	Page 576	



	BF0002M BFO 18A-XAA-UZG-30-0,5	BF0002N BFO 18A-XAA-UZG-30-1	BF000H8 BFO NU1-XB-05K-MZG-11-01	BF0003R BFO 18A-XAG-MZG-15-0,5	BF0003T BFO 18A-XAG-MZG-15-1
	M5, standard	M5, standard	M4, standard	Ø 2, standard	Ø 2, standard
	For fiber optic base units BFB	For fiber optic base units BFB	For photoelectric color sensors BFS	For fiber optic base units BFB	For fiber optic base units BFB
	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFS 33M-GSS-..	BFB M18M-011-P-S4	BFB M18M-011-P-S4
	Glass	Glass	Glass	Glass	Glass
	0.50 m	1.00 m	1.00 m	0.50 m	1.00 m
	PUR	PUR	PE	Stainless steel	Stainless steel
	20 mm	20 mm	60 mm	10 mm	10 mm
	-20...85 °C	-20...85 °C	-20...170 °C	-20...250 °C	-20...250 °C
	Brass blackened	Brass blackened	Stainless steel (1.4305)	Stainless steel	Stainless steel
	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	Ø 1.0 mm	Bundle Ø 1.7 mm	Bundle Ø 1.7 mm
	Segmented bundle	Segmented bundle	Ring around individual fiber	Segmented bundle	Segmented bundle
	IP67	IP67	IP50	IP50	IP50
	Page 576	Page 576	Page 576	Page 576	Page 576



	BF0002U BFO 18A-XAC-SMG-30-0,5	BF0002W BFO 18A-XAC-SMG-30-1	BF0004M BFO 18V-XAC-MZG-30-0,5	
Version	Ø 6, standard	Ø 6, standard	Ø 6, standard	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	
Fiber type material	Glass	Glass	Glass	
Cable length L	0.50 m	1.00 m	0.50 m	
Material jacket	Silicone, on stainless steel	Silicone, on stainless steel	Stainless steel	
Range	20 mm	20 mm	20 mm	
Ambient temperature	-40...150 °C	-40...150 °C	-20...250 °C	
Material	Brass blackened	Brass blackened	Brass blackened	
Active surface, fibers	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	
Active surface, fiber arrangement	Segmented bundle	Segmented bundle	Segmented bundle	
Protection degree	IP67	IP67	IP50	
Productview	Page 576	Page 576	Page 576	



	BF0004P BFO 18V-XAC-SMG-30-0,5	BF0004R BFO 18V-XAC-SMG-30-1	BF0003H BFO 18A-XAF-MZG-15-0,5	BF0003J BFO 18A-XAF-MZG-15-1	BF0003M BFO 18A-XAF-SMG-15-0,5
	Ø 6, standard	Ø 6, standard	Ø 2, 90° optics	Ø 2, 90° optics	Ø 2, 90° optics
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4
	Glass	Glass	Glass	Glass	Glass
	0.50 m	1.00 m	0.50 m	1.00 m	0.50 m
	Silicone, on stainless steel	Silicone, on stainless steel	Stainless steel	Stainless steel	Silicone, on stainless steel
	20 mm	20 mm	10 mm	10 mm	10 mm
	-40...150 °C	-40...150 °C	-20...250 °C	-20...250 °C	-40...150 °C
	Brass blackened	Brass blackened	Stainless steel	Stainless steel	Stainless steel
	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	Bundle Ø 1.4 mm	Bundle Ø 1.4 mm	Bundle Ø 1.4 mm
	Segmented bundle	Segmented bundle	Segmented bundle	Segmented bundle	Segmented bundle
	IP67	IP67	IP50	IP50	IP67
	Page 576	Page 576	Page 576	Page 576	Page 577

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BF0003N BFO 18A-XAF-SMG-15-1	BF00031 BFO 18A-XAE-MZG-30-0,5	BF00032 BFO 18A-XAE-MZG-30-1	
Version	Ø 2, 90° optics	Ø 6, 90° optics	Ø 6, 90° optics	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	
Fiber type material	Glass	Glass	Glass	
Cable length L	1.00 m	0.50 m	1.00 m	
Material jacket	Silicone, on stainless steel	Stainless steel	Stainless steel	
Range	10 mm	20 mm	20 mm	
Ambient temperature	-40...150 °C	-20...250 °C	-20...250 °C	
Material	Stainless steel	Brass blackened	Brass blackened	
Active surface, fibers	Bundle Ø 1.4 mm	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	
Active surface, fiber arrangement	Segmented bundle	Segmented bundle	Segmented bundle	
Protection degree	IP67	IP50	IP50	
Productview	Page 577	Page 577	Page 577	



	BF00037 BFO 18A-XAE-SMG-30-0,5	BF00038 BFO 18A-XAE-SMG-30-1	BF0003C BFO 18A-XAE-UZG-30-0,5	BF0003E BFO 18A-XAE-UZG-30-1	BF0004U BFO 18V-XAD-MZG-30-0,5
	Ø 6, 90° optics	Ø 6, 90° optics	Ø 6, 90° optics	Ø 6, 90° optics	Ø 6, 90° optics
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB M18M-011-P-S4
	Glass	Glass	Glass	Glass	Glass
	0.50 m	1.00 m	0.50 m	1.00 m	0.50 m
	Silicone, on stainless steel	Silicone, on stainless steel	PUR	PUR	Stainless steel
	20 mm	20 mm	20 mm	20 mm	20 mm
	-40...150 °C	-40...150 °C	-20...85 °C	-20...85 °C	-20...70 °C
	Brass blackened	Brass blackened	Brass blackened	Brass blackened	Brass blackened
	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm
	Segmented bundle	Segmented bundle	Segmented bundle	Segmented bundle	Segmented bundle
	IP67	IP67	IP67	IP67	IP50
	Page 577	Page 577	Page 577	Page 577	Page 577

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BF0004Y BFO 18V-XAD-SMG-30-0,5	BF0004Z BFO 18V-XAD-SMG-30-1	BF0005Y BFO D22-LD-EAK-10-20	
Version	Ø 6, 90° optics	Ø 6, 90° optics	4.4x2.2 Duplex cable	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB M18M-011-P-S4	BFB M18M-011-P-S4	BFB 75K-001-..	
Fiber type material	Glass	Glass	PMMA	
Cable length L	0.50 m	1.00 m	20.00 m	
Material jacket	Silicone, on stainless steel	Silicone, on stainless steel	PE	
Range	20 mm	20 mm	120 mm For L = 2 m	
Ambient temperature	-40...150 °C	-40...150 °C	-40...85 °C	
Material	Brass blackened	Brass blackened	—	
Active surface, fibers	Bundle Ø 3.0 mm	Bundle Ø 3.0 mm	Ø 1.0 mm (2x)	
Active surface, fiber arrangement	Segmented bundle	Segmented bundle	Adjacent to one another	
Protection degree	IP67	IP67	IP65	
Productview	Page 577	Page 577	Page 577	



	BF0000C BFO N22-LA-FB-EAK-05-01	BF0005R BFO D22-LA-RB-EAK-10-02	BF0005M BFO D22-LA-KB-EAK-10-02	BF0005U BFO D22-LAP-KB-EAK-15-02	BF0005T BFO D22-LAH-KB-EAK-10-02
	M2, standard	M3, standard	M4, standard	M4, standard	M4, standard, flexible cable
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..
	PMMA	PMMA	PMMA	PMMA	PMMA
	1.00 m	2.00 m	2.00 m	2.00 m	2.00 m
	PE	PE	PE	PE	PE
	140 mm	500 mm	500 mm	800 mm	400 mm
	-40...60 °C	-55...70 °C	-40...70 °C	-55...70 °C	-40...70 °C
	Brass nickel plated	Stainless steel (1.4305)	Stainless steel (1.4305)	Stainless steel (1.4305)	Stainless steel (1.4305)
	Ø 0.5 mm	Ø 1.0 mm	Ø 1.0 mm	Ø 1.5 mm	Ø 1.0 mm
	Single fiber	Single fiber	Single fiber	Single fiber	Single fiber
	IP65	IP65	IP65	IP65	IP65
	Page 577	Page 578	Page 578	Page 578	Page 578

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BF0005W BFO D22-LAT-KB-EAK-10-02	BF0005N BFO D22-LA-NB-EAK-10-02	BF00002 BFO D22-LA-TB-EAK-10-02	
Version	M4, standard, high temp.	M4, bendable tip	M4, bendable tip	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	
Fiber type material	PC	PMMA	PMMA	
Cable length L	2.00 m	2.00 m	2.00 m	
Material jacket	PE, cross-linked	PE	PE	
Range	600 mm	500 mm	450 mm	
Ambient temperature	-55...115 °C	-55...70 °C	-40...60 °C	
Material	Stainless steel (1.4305)	Stainless steel (1.4301) nickel plated Brass	Stainless steel	
Active surface, fibers	Ø 1.0 mm	Ø 1.0 mm	Ø 1.0 mm	
Active surface, fiber arrangement	Single fiber	Single fiber	Single fiber	
Protection degree	IP65	IP65	IP65	
Productview	Page 578	Page 578	Page 578	



	BF00051 BFO D10-LA-CB-EAK-05-02	BF000AY BFO D22-LAT-YB-EAK-10-0,5	BF00057 BFO D13-LA-WB-EAK-05-02	BF0005P BFO D22-LA-QB-PAK-05-02	BF000H6 BFO D22-LAH-JD-EAK-10-02
	Ø 2, standard	Ø 3, 90° optics, high temperature	Ø 3, thin point, 90° optics	Ø 3, thin point, 90° optics	Ø 3, thin point, 90° optics
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..
	PMMA	PC	PMMA	PMMA	PMMA
	2.00 m	0.50 m	2.00 m	2.00 m	2.00 m
	PE	PE, cross-linked	PE	PVC	PE
	130 mm	600 mm	75 mm	120 mm	300 mm
	-55...70 °C	-55...115 °C	-40...70 °C	-40...70 °C	-40...70 °C
	Stainless steel (1.4305)	Stainless steel (1.4305)	Stainless steel	Stainless steel	Brass nickel plated
	Ø 0.5 mm	Ø 1.0 mm	Ø 1.0 mm	Ø 1.0 mm	Ø 1.0 mm
	Single fiber	Single fiber	Single fiber	Single fiber	Single fiber
	IP65	IP65	IP65	IP65	IP65
	Page 578	Page 579	Page 579	Page 579	Page 579



	BF00056 BFO D13-LA-QB-EAK-05-02	BF000AW BFO D22-LAH-BK-EAK-10-02	BF000C8 BFO D25 LA-HD-EAK-465-02	
Version	Ø 3, thin point, 90° optics	M4, 90° conn., flex. cable	0.25x46.5, 90°-light grid	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	
Fiber type material	PMMA	PMMA	PMMA	
Cable length L	2.00 m	2.00 m	2.00 m	
Material jacket	PE	PE	PE	
Range	110 mm	250 mm	550 mm	
Ambient temperature	-30...70 °C	-40...70 °C	-55...70 °C	
Material	Stainless steel	Brass nickel plated	ABS	
Active surface, fibers	Ø 0.5 mm	Ø 1.0 mm	Ø 0.25 mm (32x)	
Active surface, fiber arrangement	Single fiber	Single fiber	Row	
Protection degree	IP65	IP65	IP65	
Productview	Page 579	Page 579	Page 579	



	BF000C6 BFO D10-LAH-CK-EAK-05-02	BF000C7 BFO D10-LAH-DK-EAK-05-02	BF000AP BFO D22-LA-GD-EAK-52-02	BF00067 BFO D25-LA-CD-EAK-110-02	BF000C5 BFO D25-LA-ED-EAK-250-0,5
	0.5 mm, 90°	0.5 mm, 90°	5x10, light grid	6x19, light grid	0.25x24.8, 90°-light grid
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..
	PMMA	PMMA	PMMA	PMMA	PMMA
	2.00 m	2.00 m	2.00 m	2.00 m	0.50 m
	PE	PE	PE	PE	PE
	55 mm	50 mm	500 mm	600 mm	550 mm
	-40...70 °C	-40...70 °C	-55...70 °C	-55...70 °C	-55...70 °C
	Brass nickel plated	Brass nickel plated	Brass nickel plated	Brass nickel plated	ABS
	Ø 0.5 mm	Ø 0.5 mm	Ø 0.25 mm (16x)	Ø 0.25 mm (32x)	Ø 0.25 mm (32x)
	Single fiber	Single fiber	Row	Row	Row
	IP65	IP65	IP65	IP65	IP65
	Page 579	Page 580	Page 580	Page 580	Page 580

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BF00068 BFO D25-LA-ED-EAK-250-02	BF0005K BFO D22-LA-BD-EAK-52-02	BF00059 BFO D13-LG-10-EAK-30-02	
Version	5.5x38, 90°-light grid	5x15, 90° light grid	Fork, coaxial optics	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	
Fiber type material	PMMA	PMMA	PMMA	
Cable length L	2.00 m	2.00 m	2.00 m	
Material jacket	PE	PE	PE	
Range	550 mm	400 mm	10 mm	
Ambient temperature	-55...70 °C	-55...70 °C	-55...70 °C	
Material	ABS	Brass nickel plated	Plastic	
Active surface, fibers	Ø 0.25 mm (32x)	Ø 0.25 mm (16x)	Ø 0.25 mm (2x)	
Active surface, fiber arrangement	Row	Row	opposing	
Protection degree	IP65	IP65	IP65	
Productview	Page 580	Page 580	Page 580	



	BF00058 BFO D13-LG-05-EAK-30-02	BF0005E BFO D13-XB-RB-EAK-10-02	BF00054 BFO D10-XA-RB-EAK-10-02	BF000C3 BFO D10-XA-VB-EAK-10-02	BF00052 BFO D10-XA-GB-EAK-10-02
	Fork, coaxial optics	M3, coaxial optics	M3, standard	M3, standard	M3, bendable tip
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..
	PMMA	PMMA	PMMA	PMMA	PMMA
	2.00 m	2.00 m	2.00 m	2.00 m	2.00 m
	PE	PE	PE	PE	PE
	5 mm	60 mm	50 mm	50 mm	50 mm
	-55...70 °C	-55...70 °C	-55...70 °C	-55...70 °C	-55...70 °C
	Plastic	Stainless steel (1.4305)	Stainless steel (1.4305)	Stainless steel (1.4301) nickel plated Brass	Stainless steel (1.4301) nickel plated Brass
	Ø 0.25 mm (2x)	Ø 0.5 mm, Ø 0.25 mm (10x)	Ø 0.5 mm (2x)	Ø 0.5 mm (2x)	Ø 0.5 mm (2x)
	opposing	Ring around individual fiber	Adjacent to one another	Adjacent to one another	Adjacent to one another
	IP65	IP65	IP65	IP65	IP65
	Page 580	Page 581	Page 581	Page 581	Page 581



	BF0005C BFO D13-XB-KB-EAK-10-02	BF00006 BFO D22-XB-UB-EAK-15-02	BF000C9 BFO D22-XB-UB-EAK-15-SA1-02	
Version	M4, coaxial optics	M4, coaxial optics	M4, coaxial optics	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB 75K-001-..	BFB 75K-001-..	BFS 33M-GSS-..	
Fiber type material	PMMA	PMMA	PMMA	
Cable length L	2.00 m	2.00 m	2.00 m	
Material jacket	PE	PE	PE	
Range	60 mm	130 mm	130 mm	
Ambient temperature	-55...70 °C	-40...60 °C	-40...60 °C	
Material	Stainless steel (1.4305)	Brass nickel plated	Brass nickel plated	
Active surface, fibers	Ø 0.5 mm, Ø 0.25 mm (10x)	Ø 0.25 mm (16x), Ø 1.0 mm	Ø 0.25 mm (16x), Ø 1.0 mm	
Active surface, fiber arrangement	Ring around individual fiber	Ring around individual fiber	Ring around individual fiber	
Protection degree	IP65	IP65	IP65	
Productview	Page 581	Page 581	Page 581	



	BF00055 BFO D10-XAH-KB-EAK-10-02	BF00005 BFO D22-XA-UB-EAK-20-02	BF00053 BFO D10-XA-HB-EAK-10-02	BF00066 BFO D22-XB-LB-EAK-15-02	BF000H4 BFO D22-XB-LB-EAK-15-SA1-0,5
	M4, standard	M4, standard	M4, bendable tip	M6, coaxial optics	M6, coaxial optics
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFS 33M-GSS-..
	PMMA	PMMA	PMMA	PMMA	PMMA
	2.00 m	2.00 m	2.00 m	2.00 m	0.50 m
	PE	PE	PE	PE	PE
	50 mm	150 mm	50 mm	120 mm	80 mm
	-40...70 °C	-55...70 °C	-55...70 °C	-55...70 °C	-55...70 °C
	Stainless steel (1.4305)	Stainless steel (1.4305)	Stainless steel (1.4301) nickel plated Brass	Stainless steel (1.4305)	Stainless steel (1.4305)
	Ø 0.5 mm (2x)	Ø 1.0 mm (2x)	Ø 0.5 mm (2x)	Ø 1.0 mm, Ø 0.25 mm (16x)	Ø 1.0 mm, Ø 0.25 mm (16x)
	Adjacent to one another	Adjacent to one another	Adjacent to one another	Ring around individual fiber	Ring around individual fiber
	IP65	IP65	IP65	IP65	IP65
	Page 581	Page 582	Page 582	Page 582	Page 582



	BF000FP BFO D22-XB-LB-EAK-15-SA1-01	BF000C4 BFO D22-XB-LB-EAK-15-SA1-02	BF000FN BFO D22-XB-LB-EAK-15-SA1-05	
Version	M6, coaxial optics	M6, coaxial optics	M6, coaxial optics	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFS 33M-GSS-..	BFS 33M-GSS-..	BFS 33M-GSS-..	
Fiber type material	PMMA	PMMA	PMMA	
Cable length L	1.00 m	2.00 m	5 m	
Material jacket	PE	PE	PE	
Range	80 mm	80 mm	80 mm	
Ambient temperature	-55...70 °C	-55...70 °C	-55...70 °C	
Material	Stainless steel (1.4305)	Stainless steel (1.4305)	Stainless steel (1.4305)	
Active surface, fibers	Ø 0.25 mm (16x), Ø 1.0 mm	Ø 1.0 mm, Ø 0.25 mm (16x)	Ø 0.25 mm (16x), Ø 1.0 mm	
Active surface, fiber arrangement	Ring around individual fiber	Ring around individual fiber	Ring around individual fiber	
Protection degree	IP65	IP65	IP65	
Productview	Page 582	Page 582	Page 582	



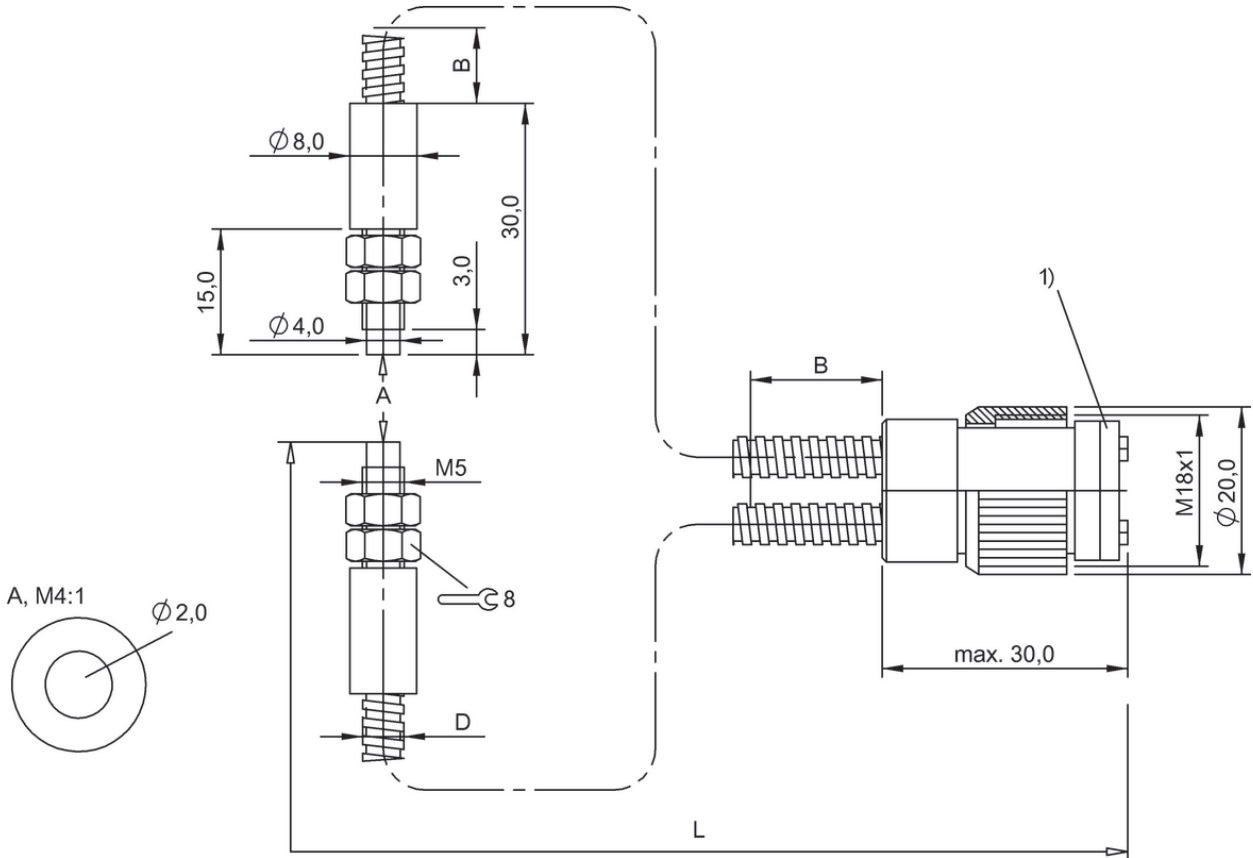
	BF00007 BFO D22-XBF-LB-EAK-15-02	BF000H5 BFO D22-XA-08B-EAK-26-02	BF00064 BFO D22-XAP-LB-EAK-30-02	BF00003 BFO D22-XA-DB-EAK-20-01	BF00063 BFO D22-XAH-LB-EAK-20-02
	M6, coax. optics, flex. cable	M6, standard	M6, standard	M6, standard	M6, standard, flexible cable
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..
	PMMA	PMMA	PMMA	PMMA	PMMA
	2.00 m	2.00 m	2.00 m	1.00 m	2.00 m
	PE	PE	PE	PE	PE
	110 mm	180 mm	180 mm	140 mm	120 mm
	-40...60 °C	-55...70 °C	-55...70 °C	-40...60 °C	-40...70 °C
	Brass nickel plated	Brass nickel plated	Stainless steel (1.4305)	Brass nickel plated	Stainless steel (1.4305)
	Ø 1.0 mm, Ø 0.25 mm (16x)	Ø 1.0 mm (2x)	Ø 1.5 mm (2x)	Ø 1.0 mm (2x)	Ø 1.0 mm (2x)
	Ring around individual fiber	Adjacent to one another	Adjacent to one another	Adjacent to one another	Adjacent to one another
	IP65	IP65	IP65	IP65	IP65
	Page 582	Page 582	Page 582	Page 582	Page 583



	BF00065 BFO D22-XAT-LB-EAK-20-02	BF00004 BFO D22-XA-SB-EAK-20-02	BF000AT BFO D13-XB-AB-EAK-10-01	
Version	M6, standard, high temp.	M6, thin tip, standard	Ø 2.5, coax optics	
Use	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	
Reference base unit	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	
Fiber type material	PC	PMMA	PMMA	
Cable length L	2.00 m	2.00 m	1.00 m	
Material jacket	PE, cross-linked	PE	PE	
Range	130 mm	150 mm	60 mm	
Ambient temperature	-55...115 °C	-55...70 °C	-55...70 °C	
Material	Stainless steel (1.4305)	Stainless steel (1.4301) nickel plated Brass	Stainless steel (1.4305)	
Active surface, fibers	Ø 1.0 mm (2x)	Ø 1.0 mm (2x)	Ø 0.5 mm, Ø 0.25 mm (9x)	
Active surface, fiber arrangement	Adjacent to one another	Adjacent to one another	Ring around individual fiber	
Protection degree	IP65	IP65	IP65	
Productview	Page 583	Page 583	Page 583	

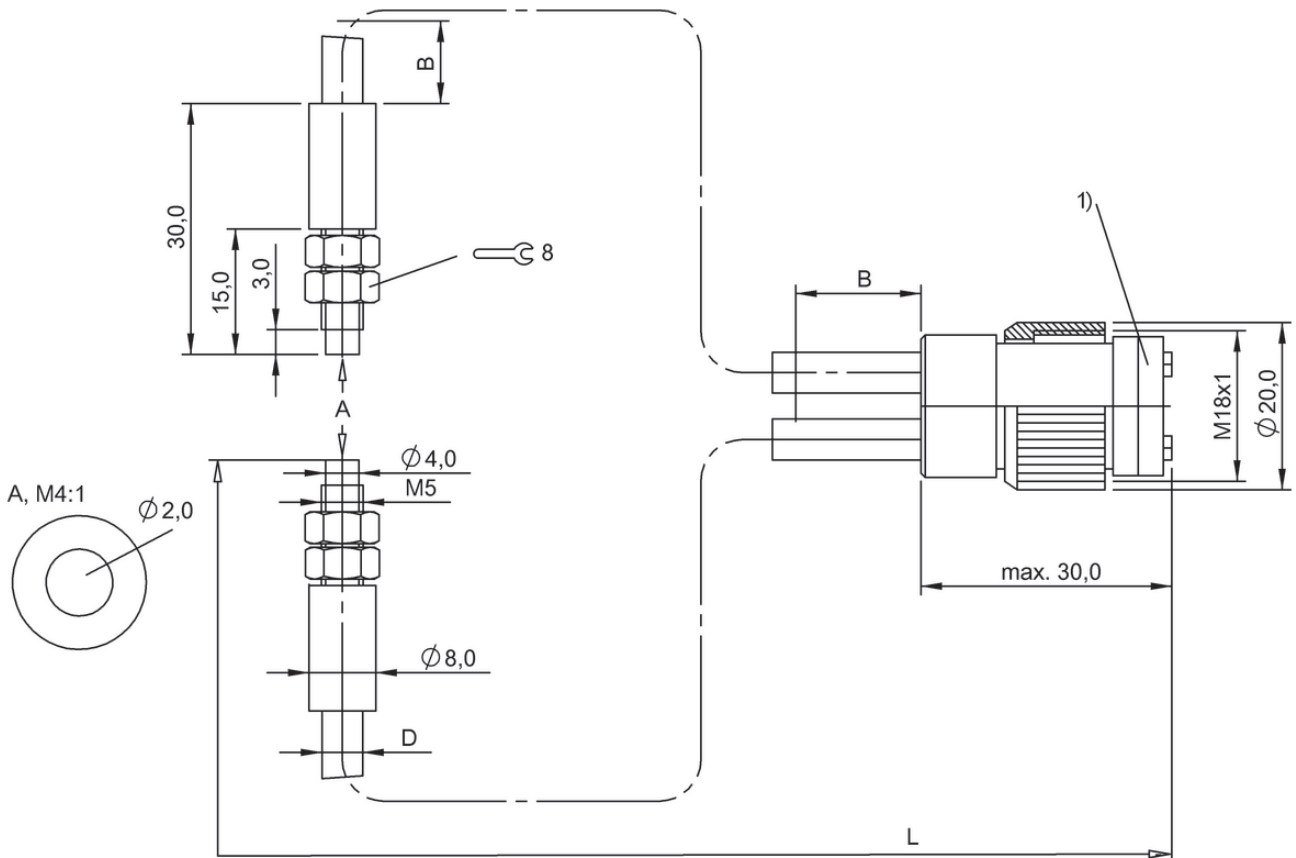


	BF0005A BFO D13-XA-JB-EAK-20-02	BF00062 BFO D22-XA-MB-PAK-10-02	BF0005Z BFO D22-XA-CD-EAK-110-02	BF000AR BFO D13-XV-AK-EAK-50-02	BF00060 BFO D22-XA-ED-EAK-250-02
	Ø 3, Standard	Ø 3, thin point, 90° optics	6x19, light grid	13x19.7, 90° optics	5.5x38, 90°-light grid
	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB	For fiber optic base units BFB
	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..	BFB 75K-001-..
	PMMA	PMMA	PMMA	PMMA	PMMA
	2.00 m	2.00 m	2.00 m	2.00 m	2.00 m
	PE	PVC	PE	PE	PE
	130 mm	35 mm	100 mm	6 mm	90 mm
	-55...70 °C	-40...70 °C	-55...70 °C	-55...70 °C	-55...70 °C
	Stainless steel (1.4305)	Stainless steel	Brass nickel plated	Plastic	ABS
	Ø 0.5 mm (2x)	Ø 0.5 mm (2x)	Ø 0.25 mm (32x)	Ø 0.5 mm (2x)	Ø 0.25 mm (32x)
	Adjacent to one another	Adjacent to one another	Row	Distance	Row
	IP65	IP65	IP65	IP65	IP65
	Page 583	Page 583	Page 583	Page 583	Page 584



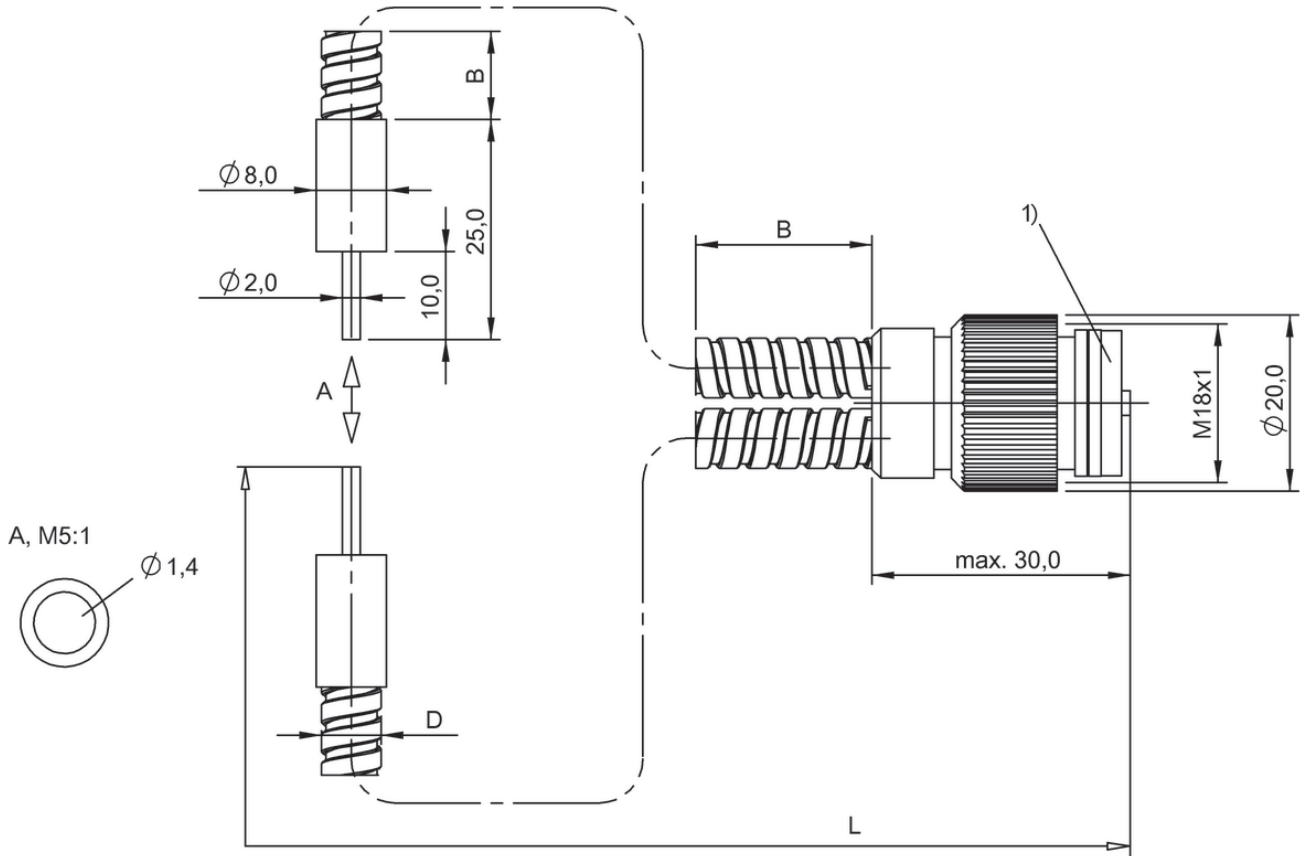
1) Disc removable

BF0000F, BF0000H, BF0000J



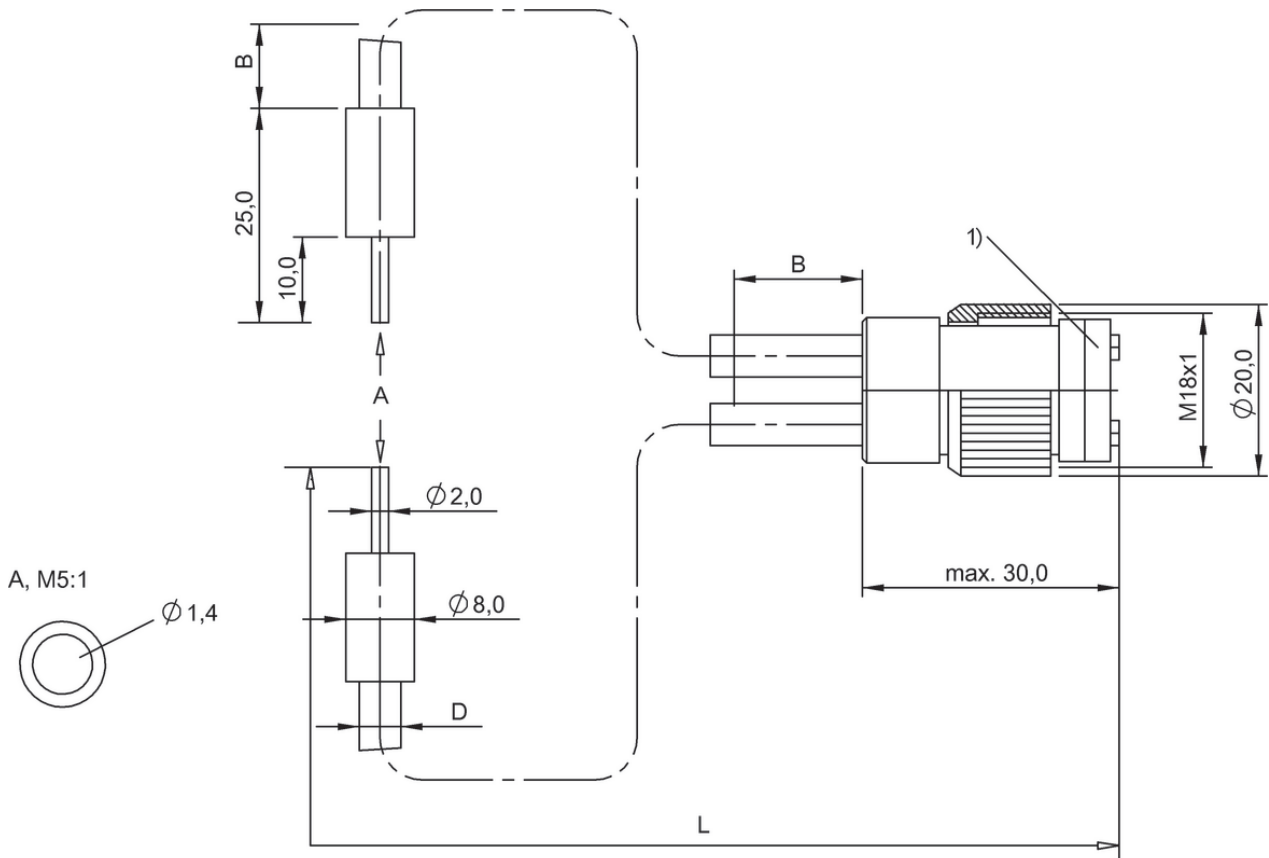
1) Disc removable

BF0000M, BF0000N



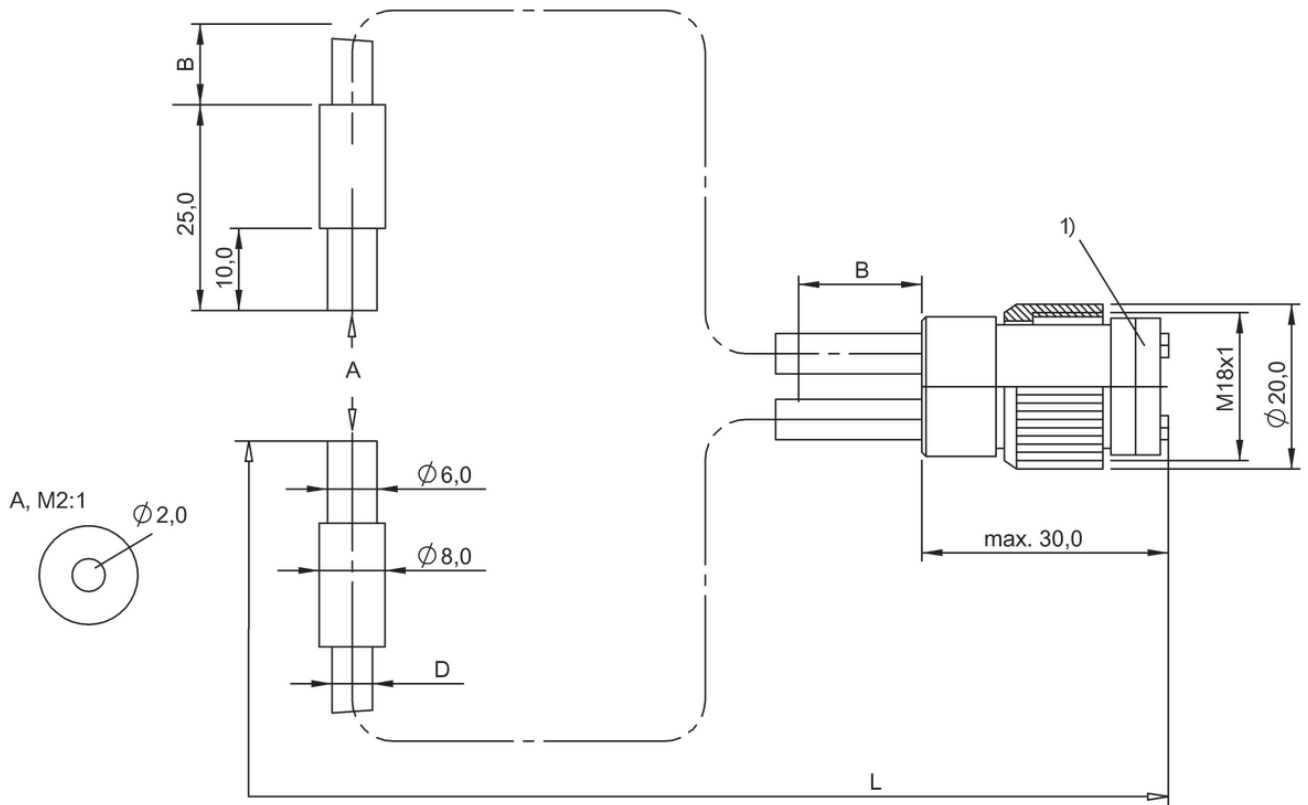
1) Disc removable

BF0001Z, BF00020



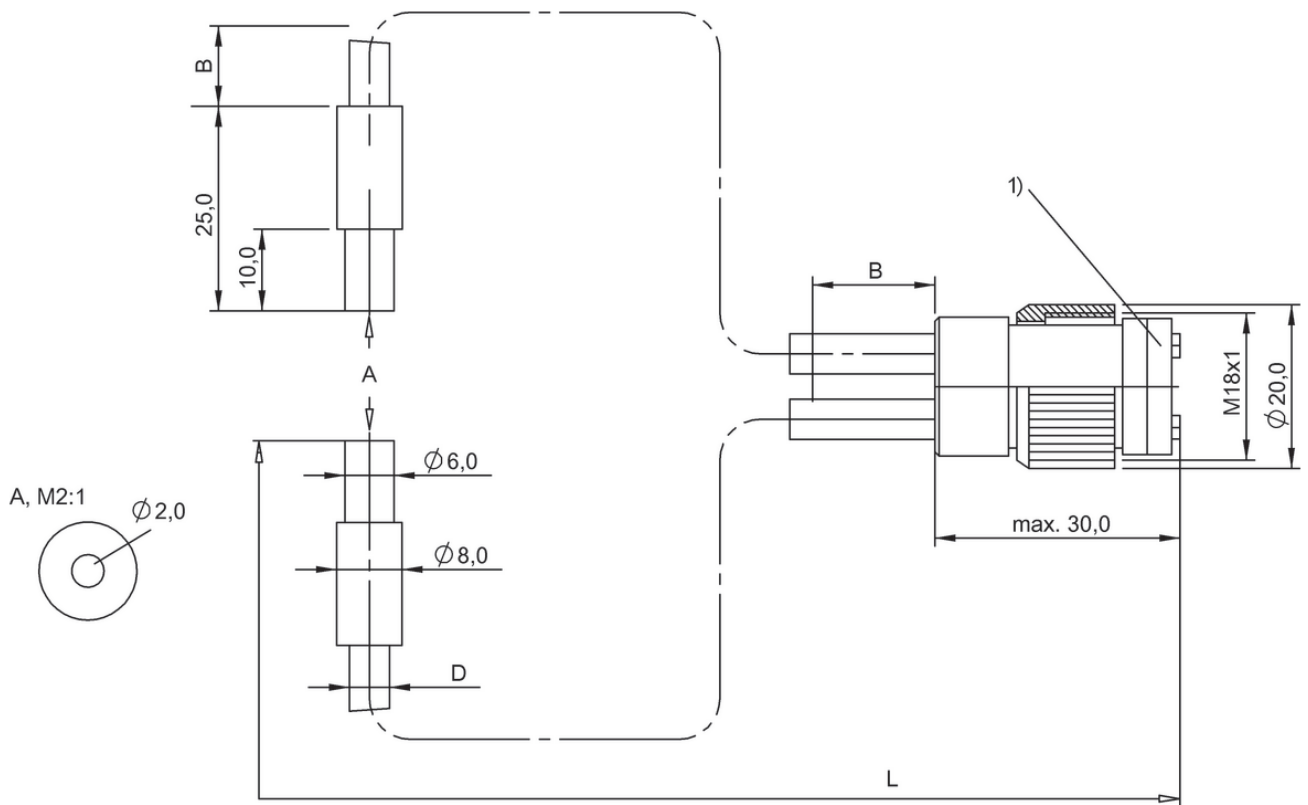
1) Disc removable

BF00023, BF00024



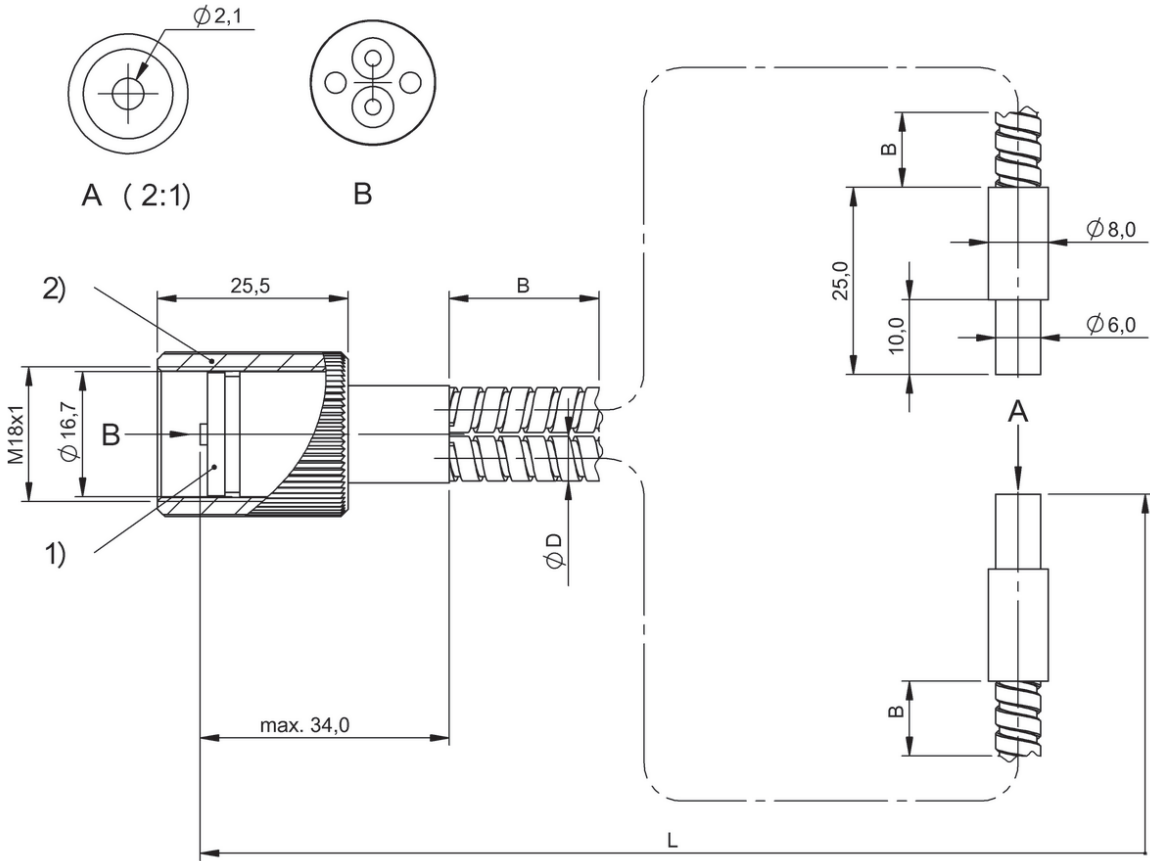
1) Disc removable

BF0000U, BF0000W



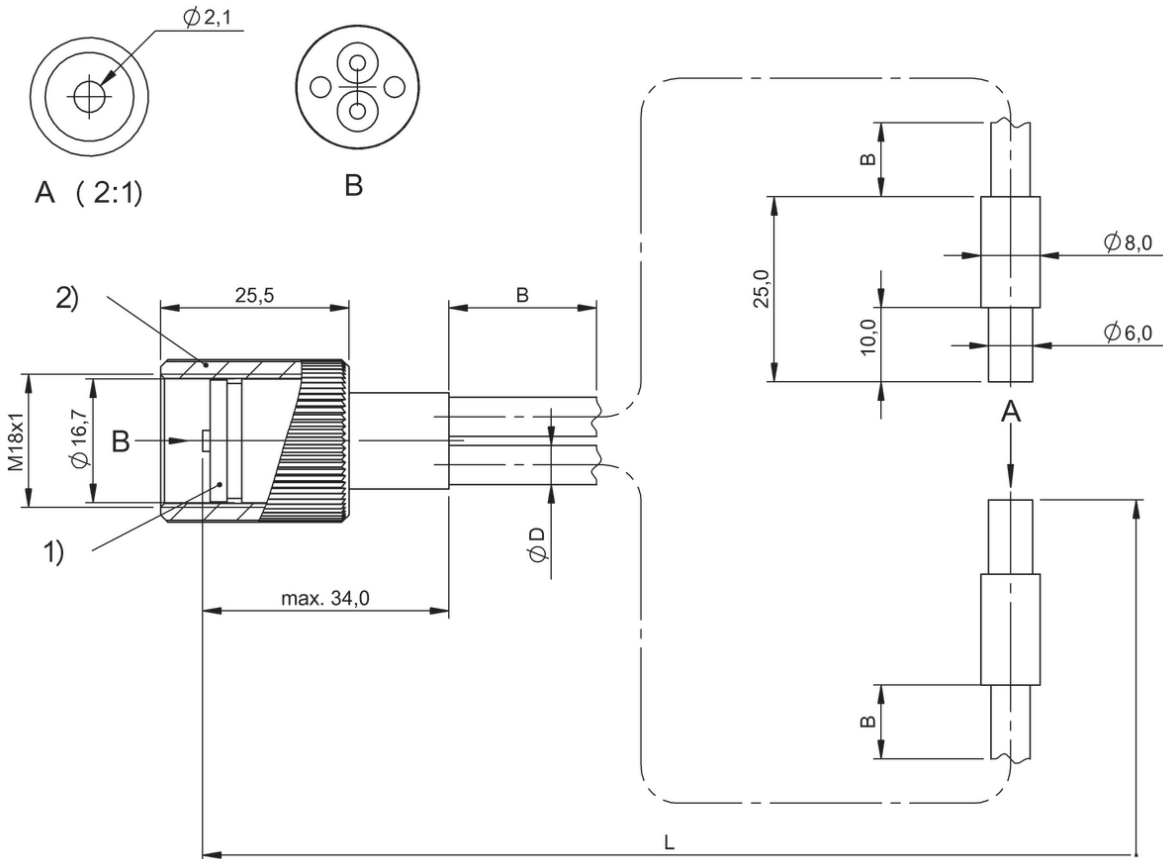
1) Disc removable

BF0000Z



1) Disc removable, 2) cap nut

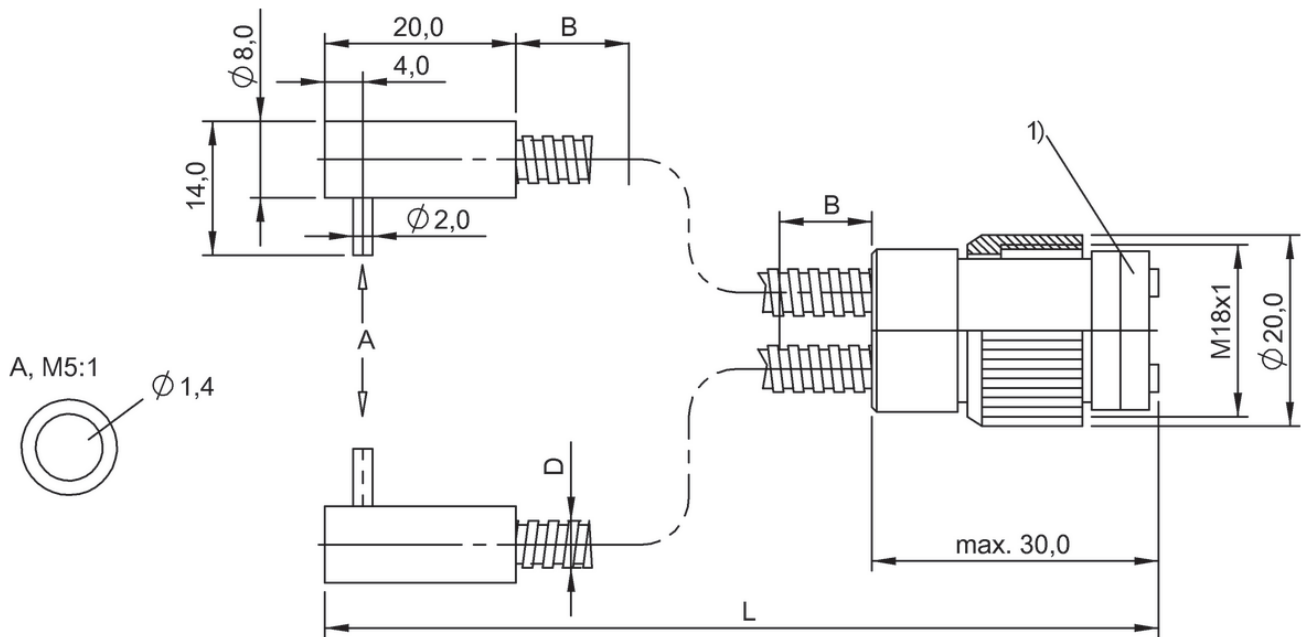
BF0003Y, BF0003Z



1) Disc removable, 2) cap nut

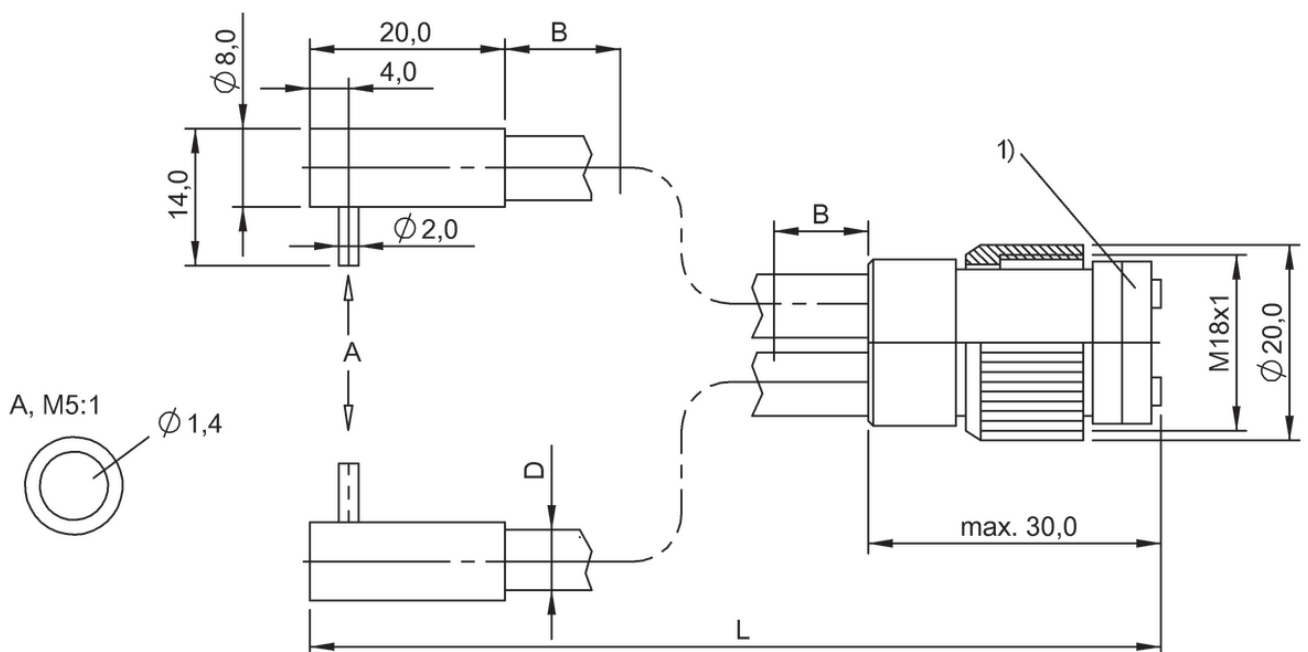
BF00042

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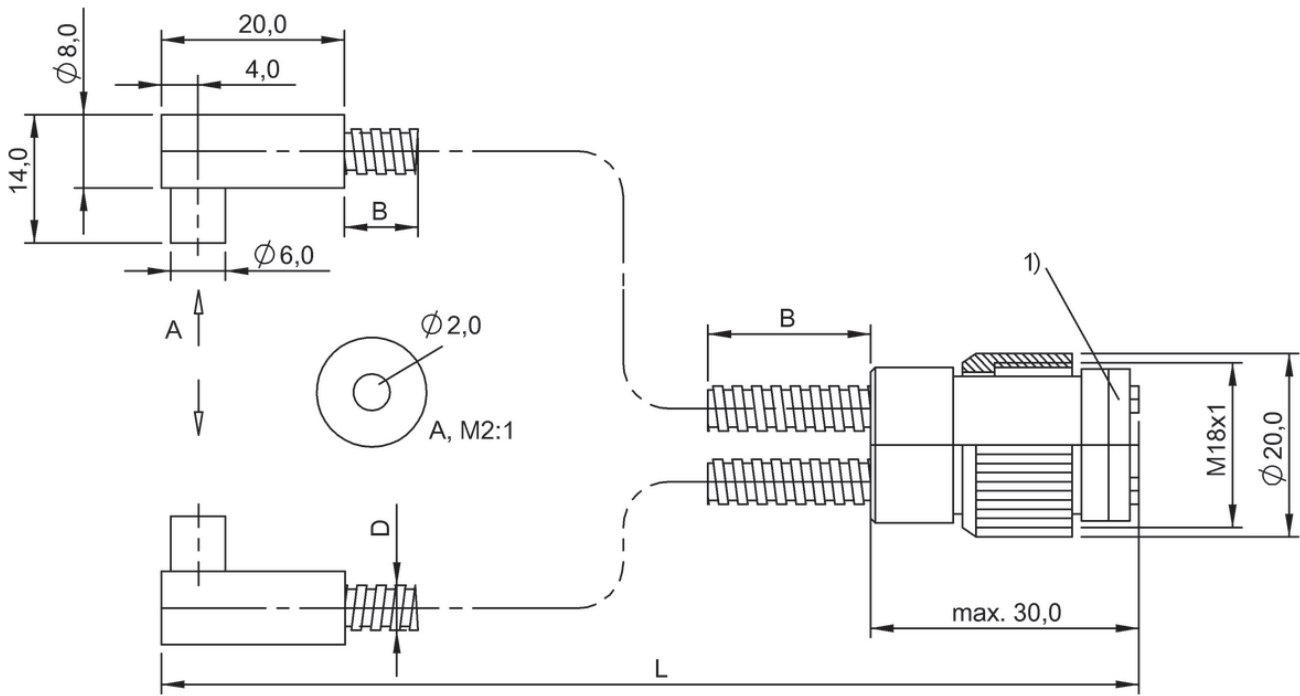
1) Disc removable

BF0001P, BF0001R



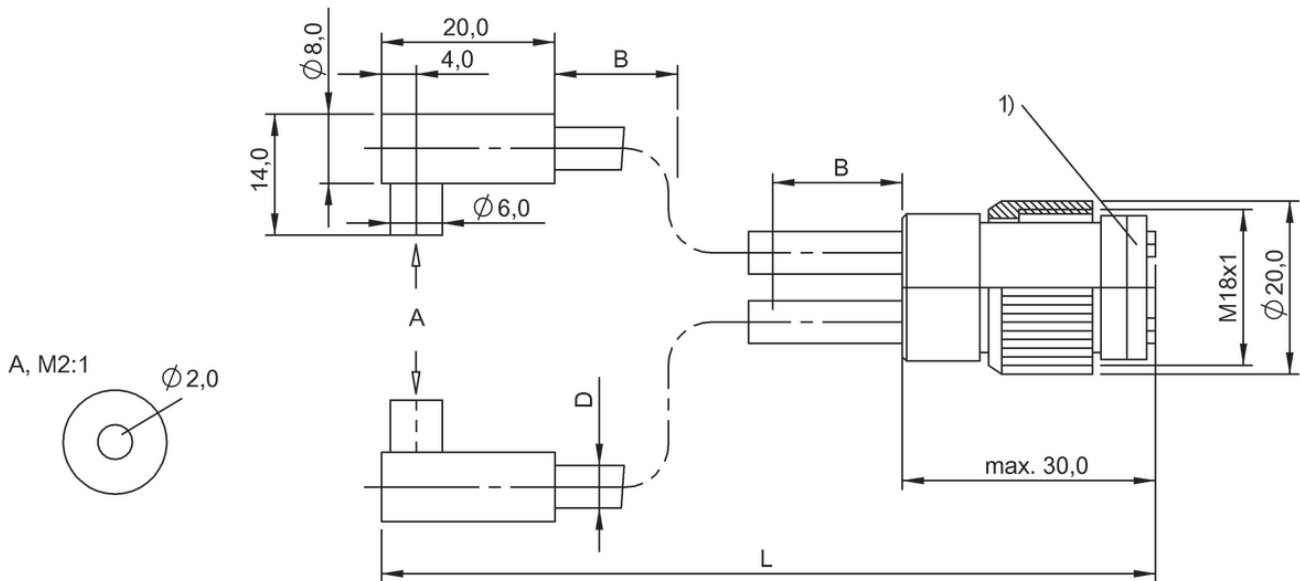
1) Disc removable

BF0001U, BF0001W



1) Disc removable

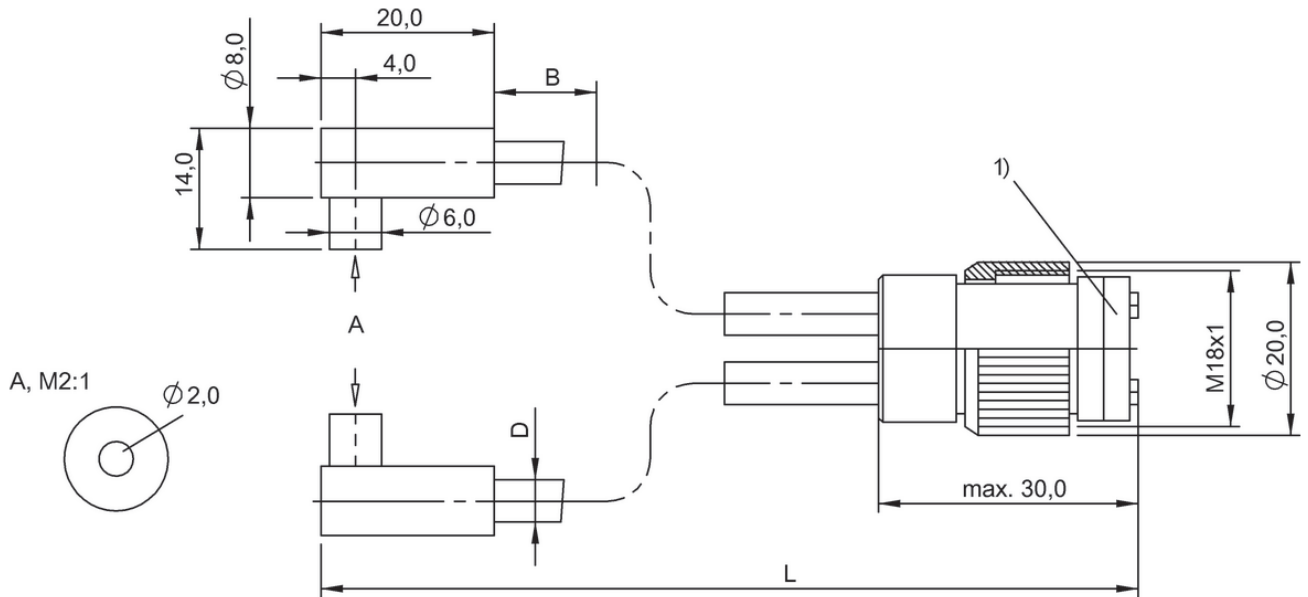
BF00013, BF00014



1) Disc removable

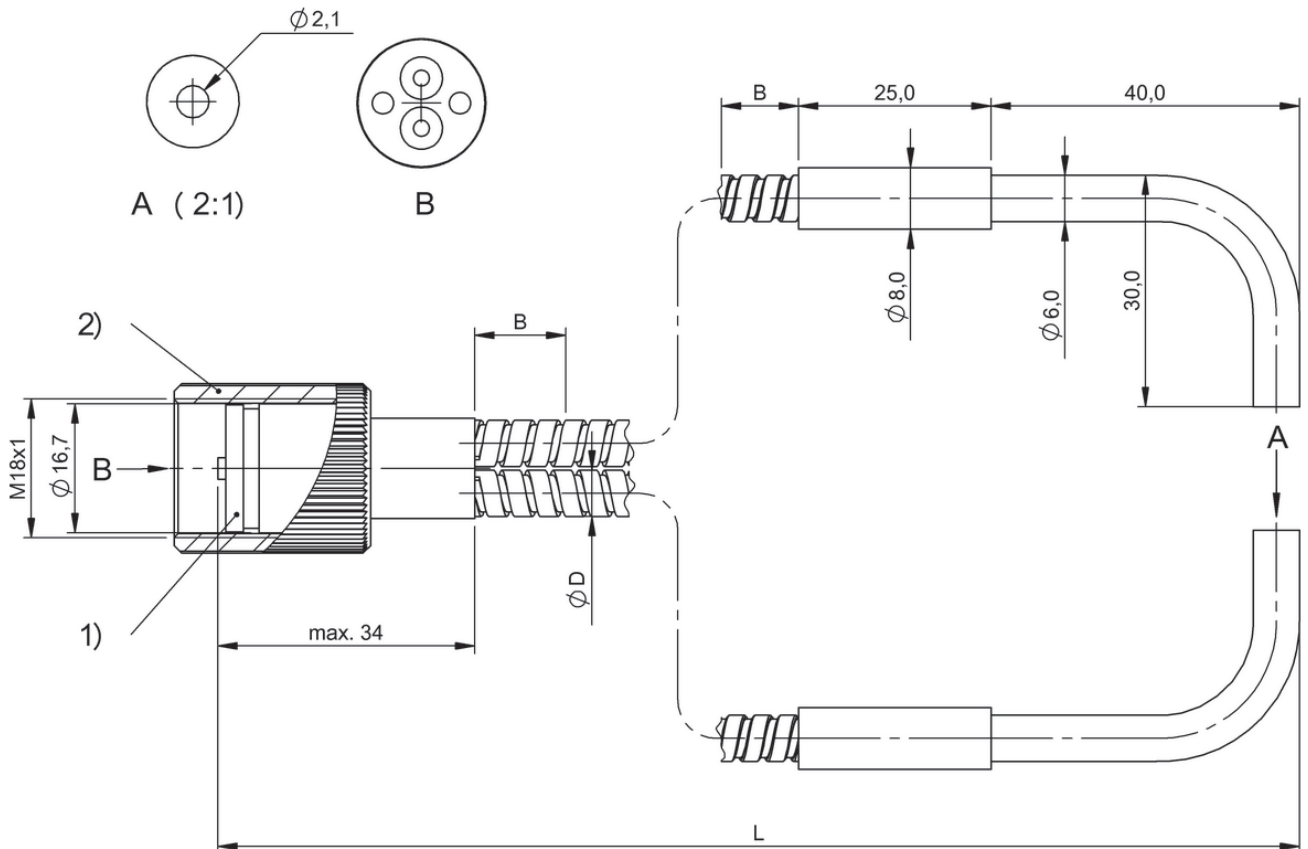
BF00019, BF0001A

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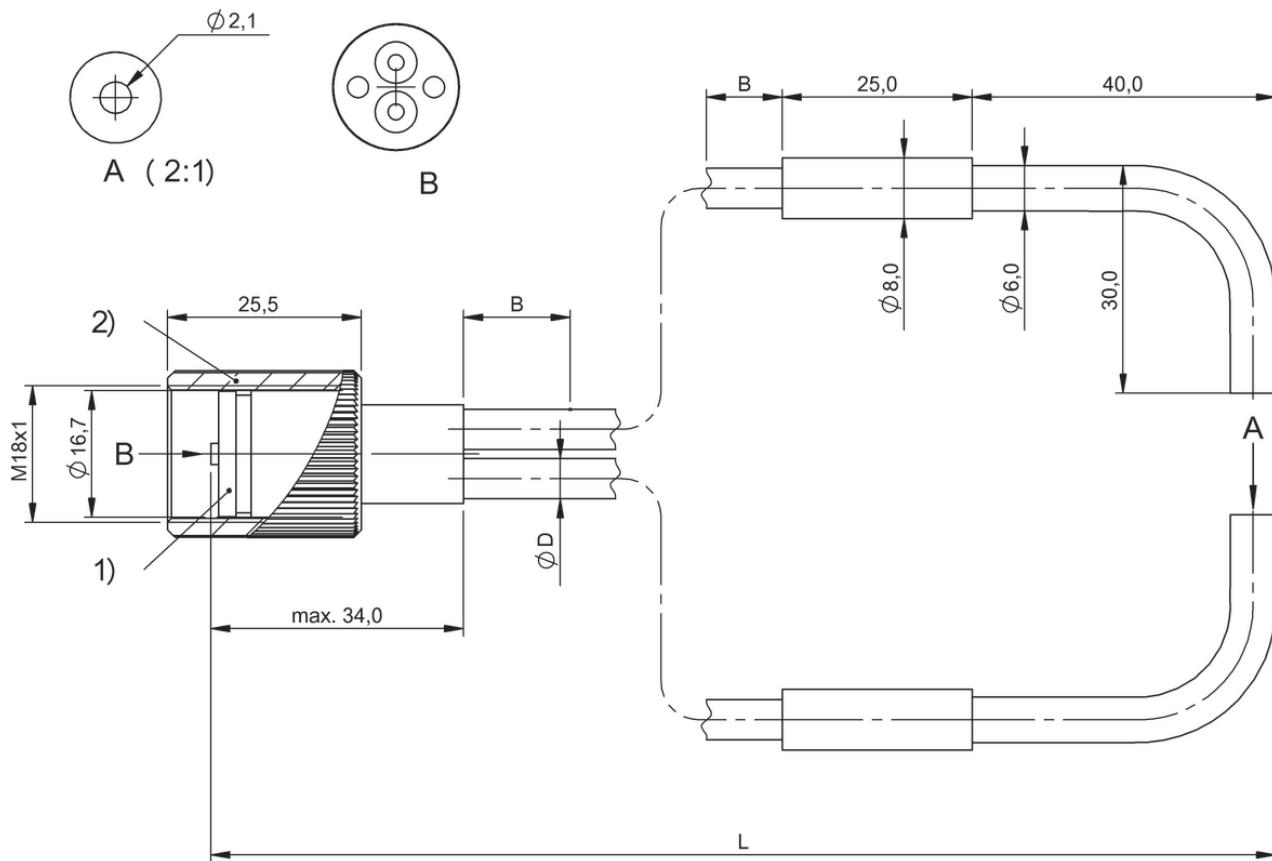
1) Disc removable

BF0001F, BF0001H



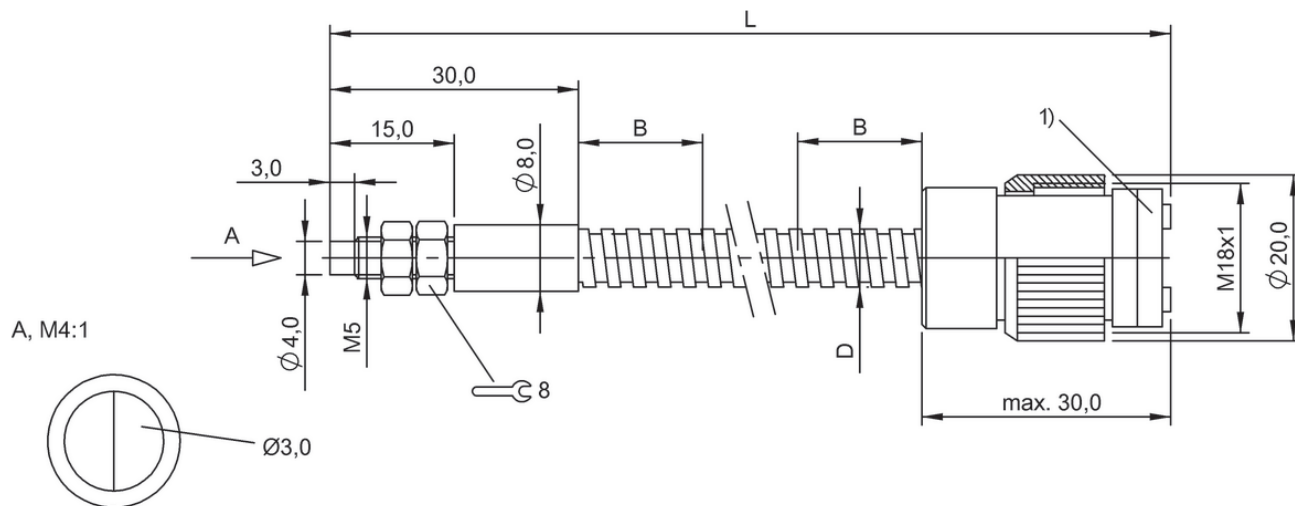
1) Disc removable, 2) cap nut

BF00047, BF00049, BF0004A



1) Disc removable, 2) cap nut

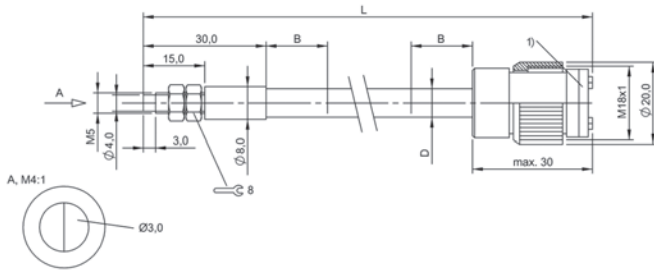
BF0004C, BF0004F



1) Disc removable

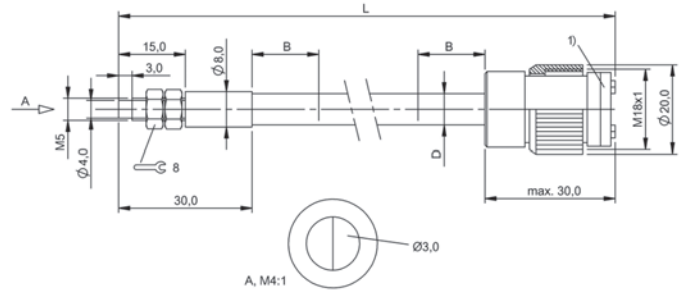
BF00026, BF00027, BF000H3

Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



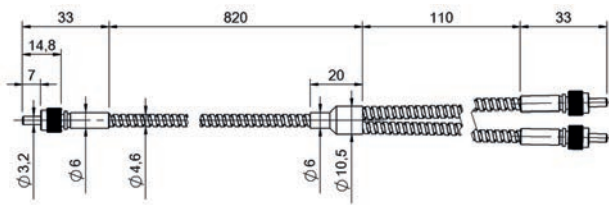
1) Disc removable

BF0002F, BF0002H

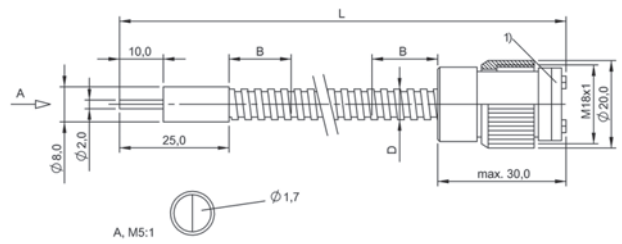


1) Disc removable

BF0002M, BF0002N

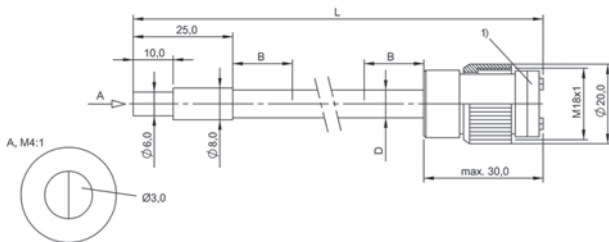


BF0000H8



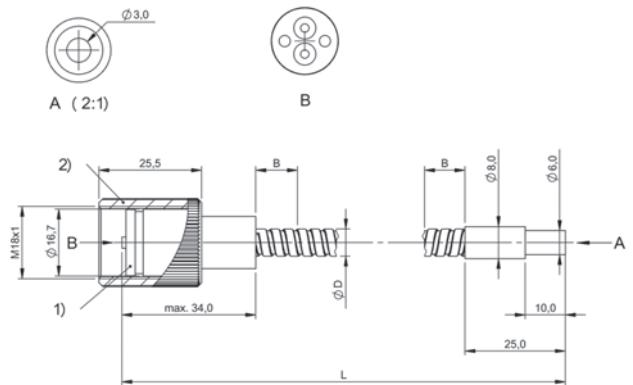
1) Disc removable

BF0003R, BF0003T



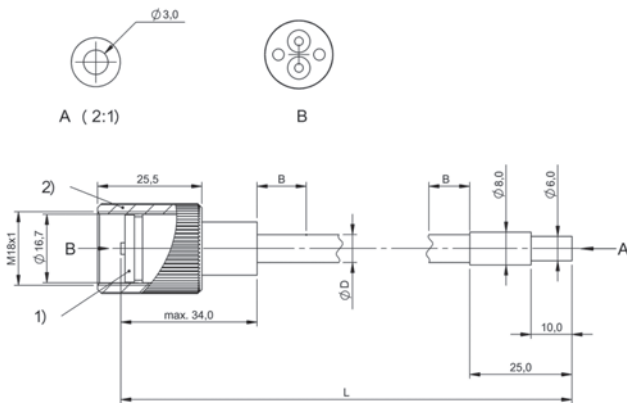
1) Disc removable

BF0002U, BF0002W



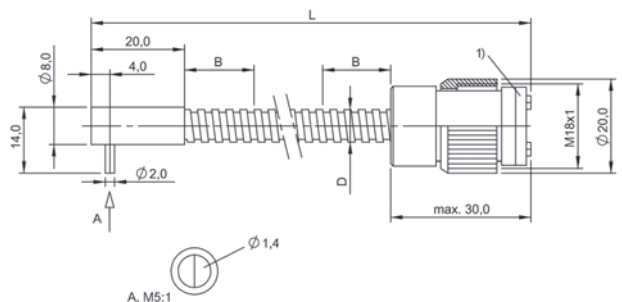
1) Disc removable, 2) cap nut

BF0004M



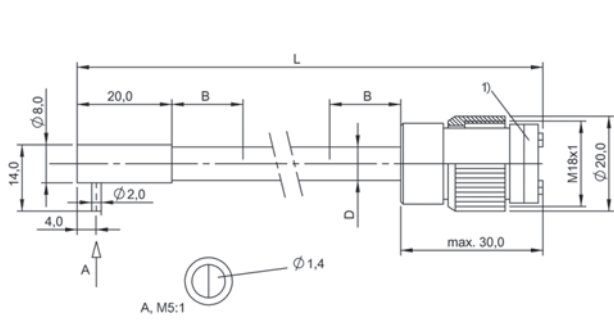
1) Disc removable, 2) cap nut

BF0004P, BF0004R



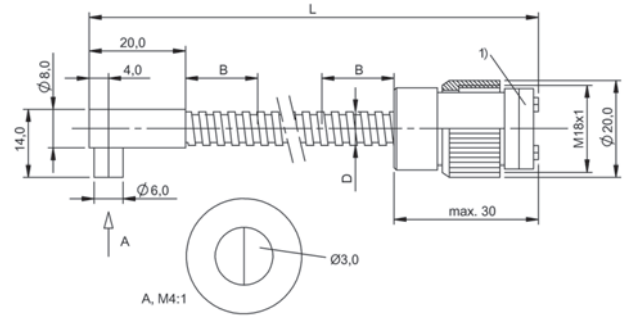
1) Disc removable

BF0003H, BF0003J



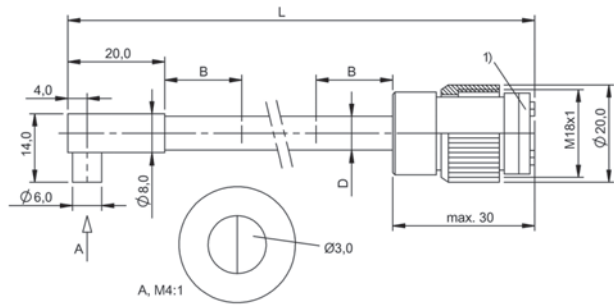
1) Disc removable

BF0003M, BF0003N



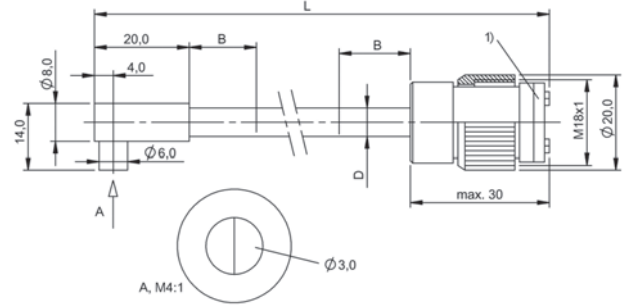
1) Disc removable

BF00031, BF00032



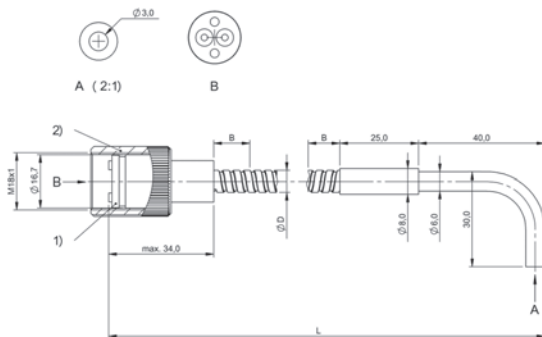
1) Disc removable

BF00037, BF00038



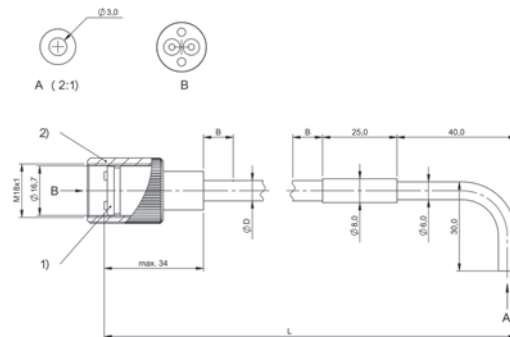
1) Disc removable

BF0003C, BF0003E



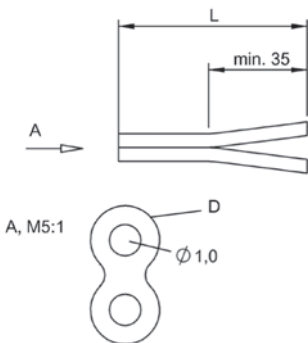
1) Disc removable, 2) cap nut

BF0004U

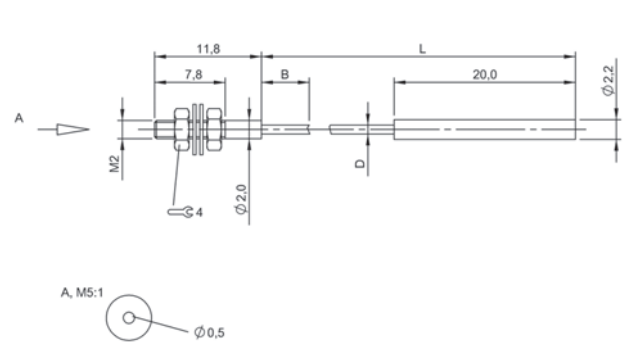


1) Disc removable, 2) cap nut

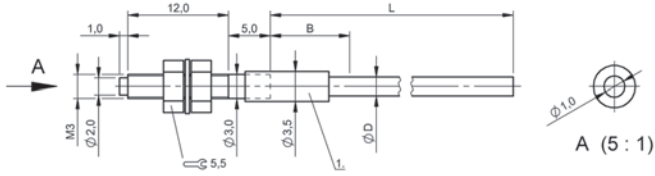
BF0004Y, BF0004Z



BF0005Y

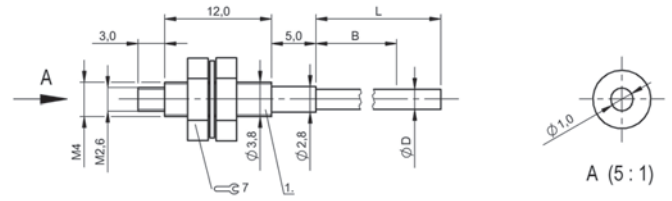


BF0000C



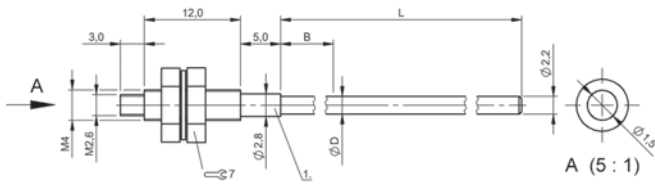
1) Protective tube

BF0005R



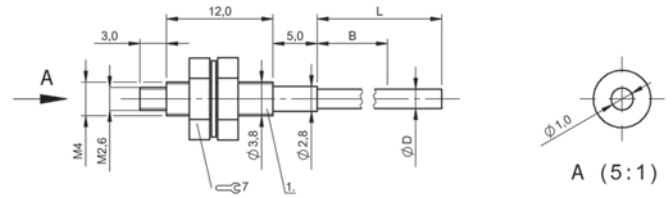
1) Protective tube

BF0005M



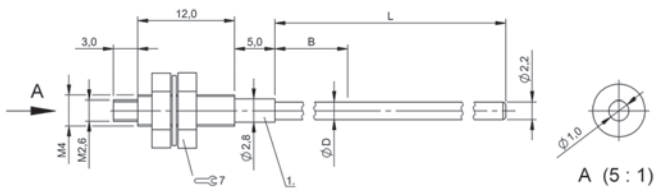
1) Protective tube

BF0005U



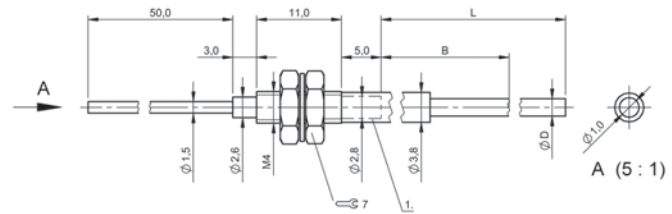
1) Protective tube

BF0005T



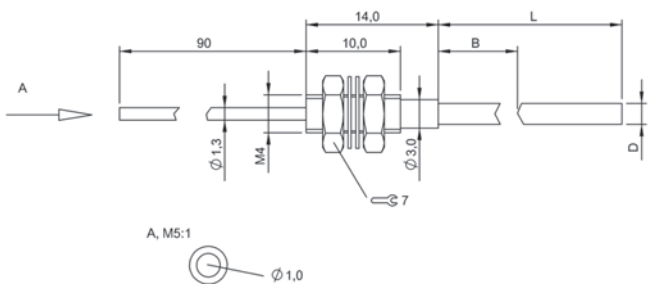
1) Protective tube

BF0005W

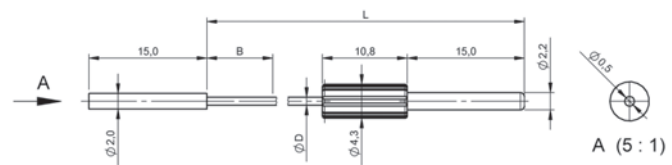


1) Protective tube

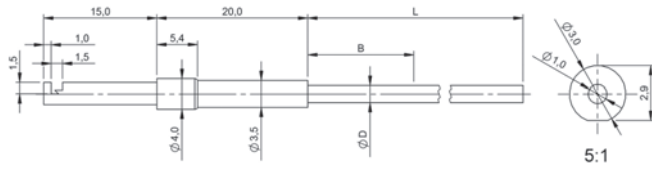
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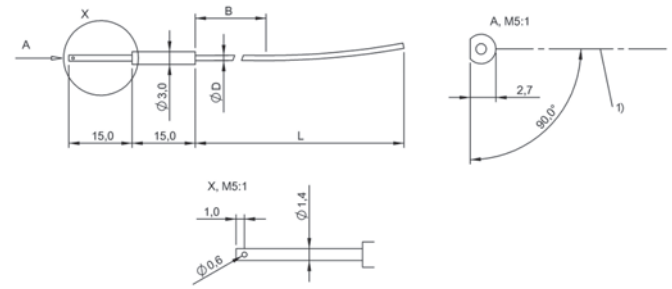
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BF00051

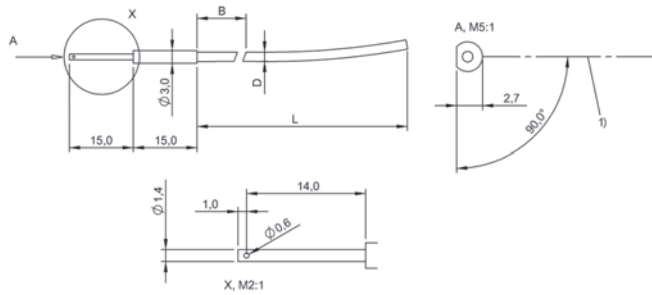


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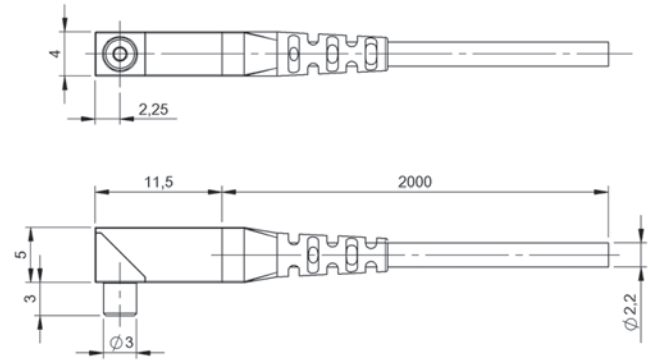
1) Optical axis

BF00057

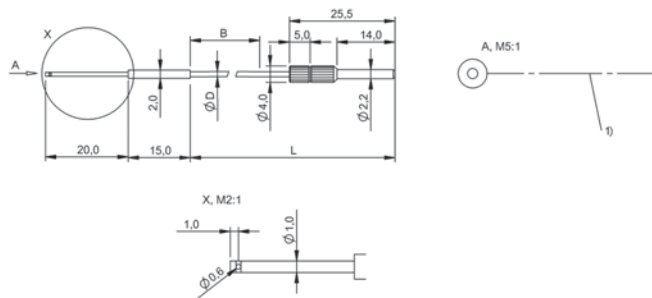


1) Optical axis

BF0005P

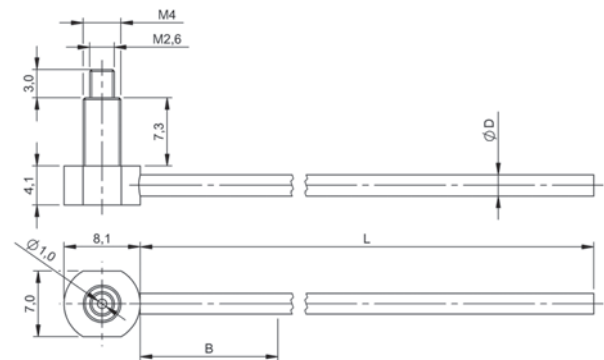


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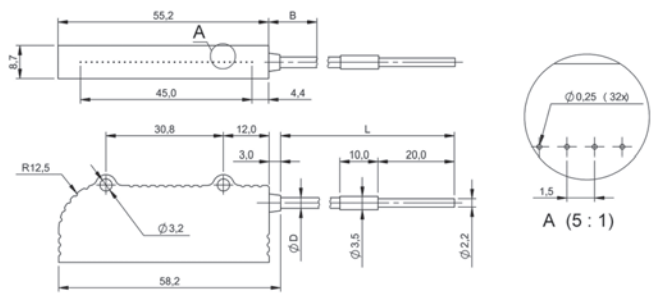


1) Optical axis

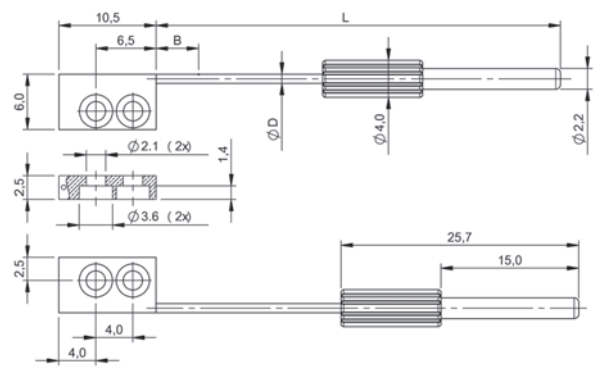
BF00056



BF000H6



BF00056



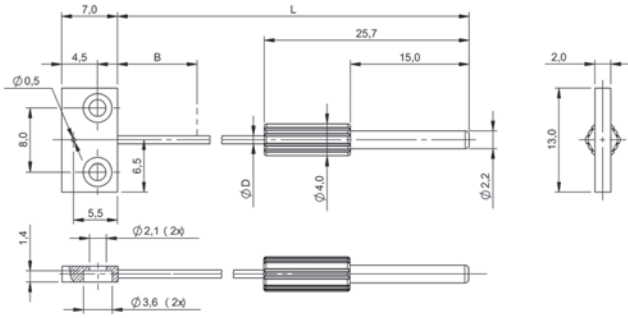
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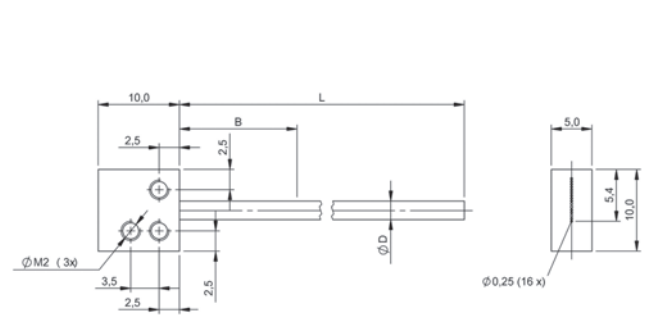
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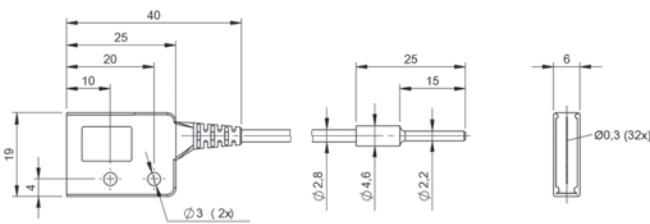
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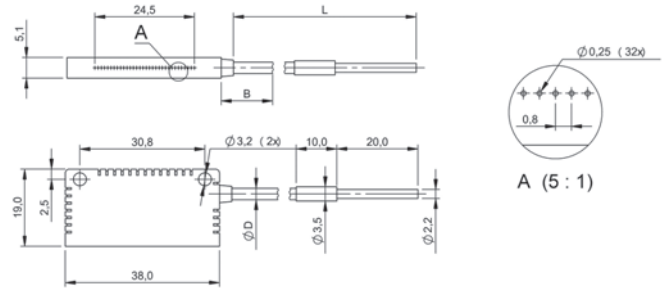
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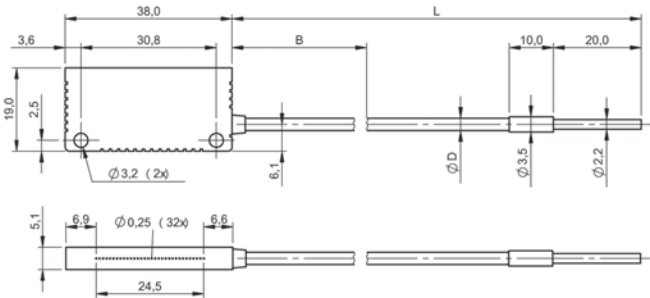
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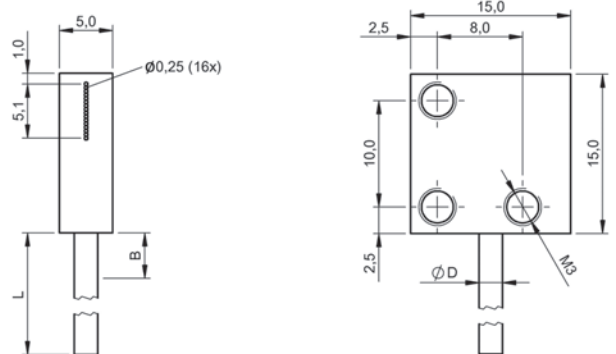
BF00067



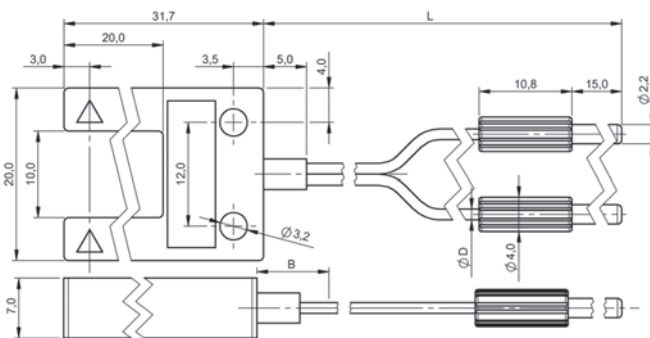
BF000C5



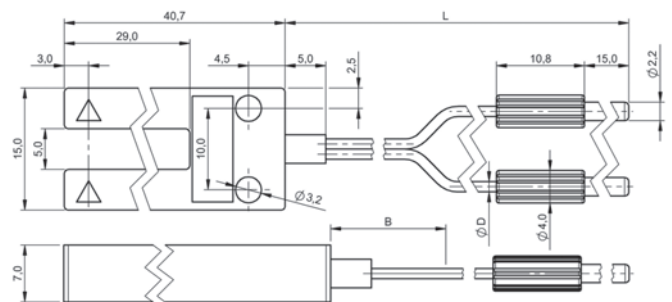
BF00068



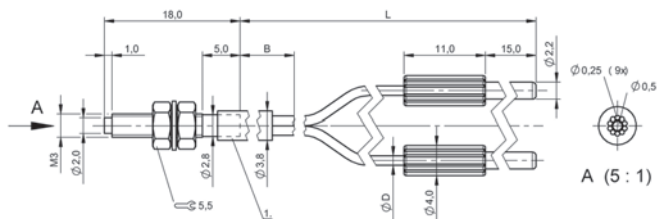
BF0005K



BF00059

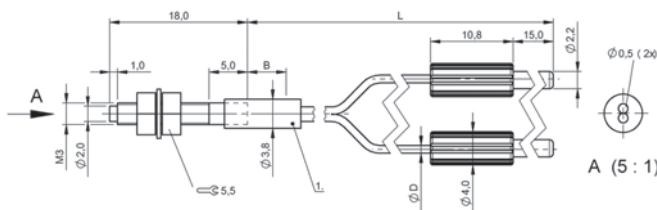


BF00058



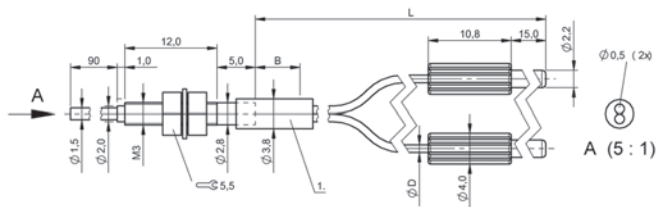
1) Protective tube

BF0005E



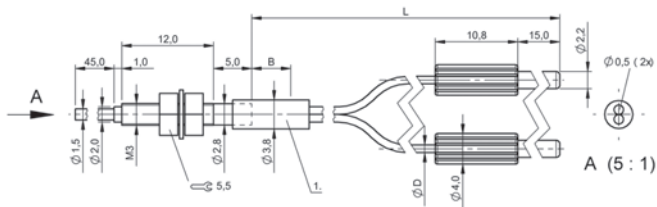
1) Protective tube

BF00054



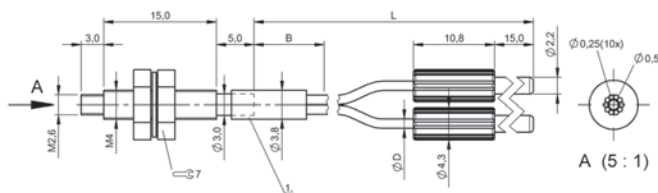
1) Protective tube

BF00003



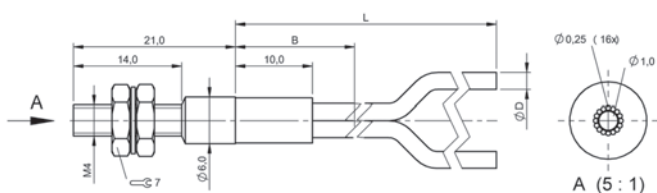
1) Protective tube

BF00052

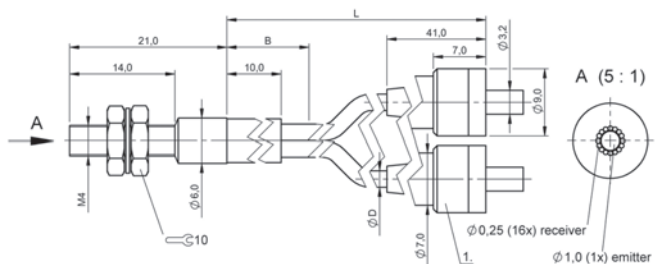


1) Protective tube

BF00005C

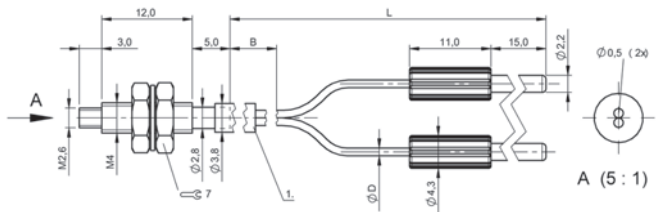


BF00006



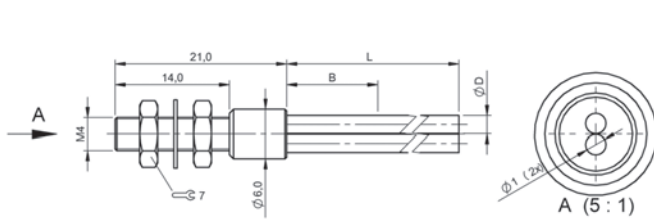
1) SMA 905

BF00009

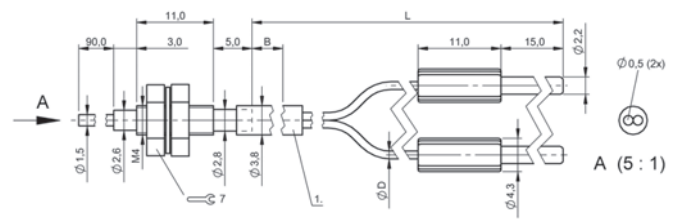


1) Protective tube

BF00055

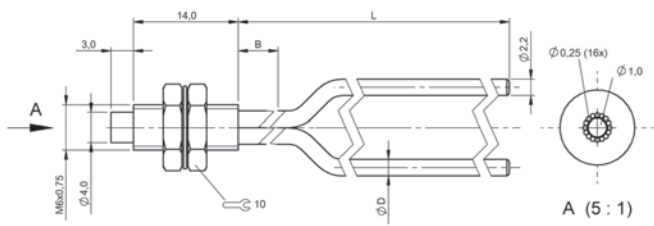


BF00005

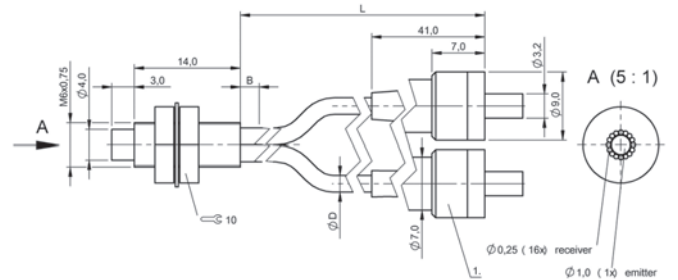


1) Protective tube

BF00053

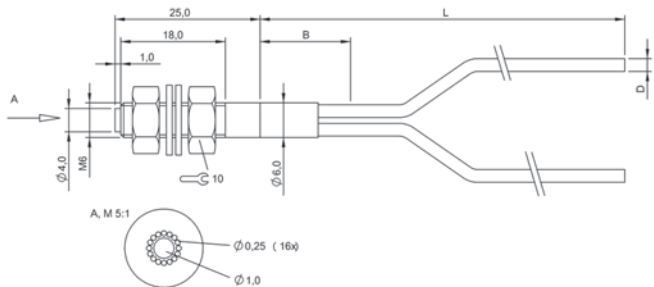


BF00066

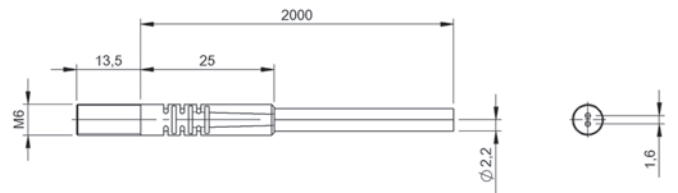


1) SMA 905

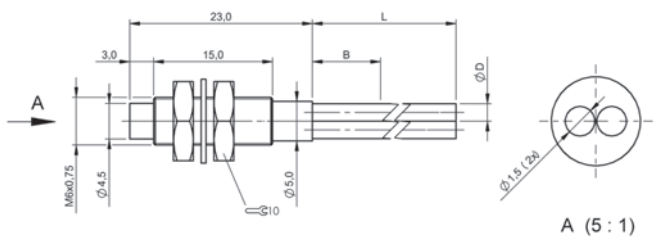
BF000H4, BF000FP, BF000C4, BF000FN



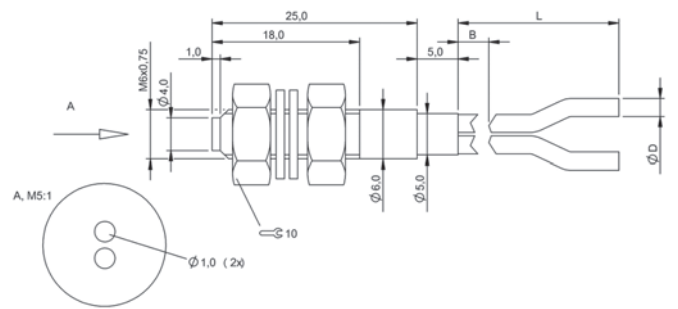
BF00007



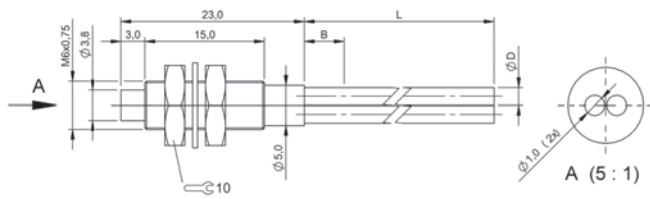
BF000H5



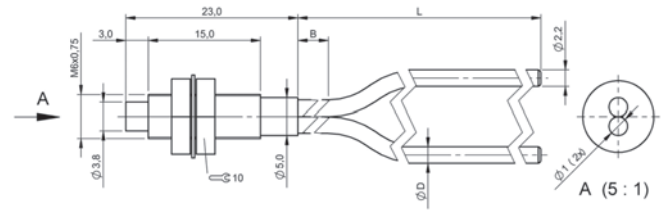
BF00064



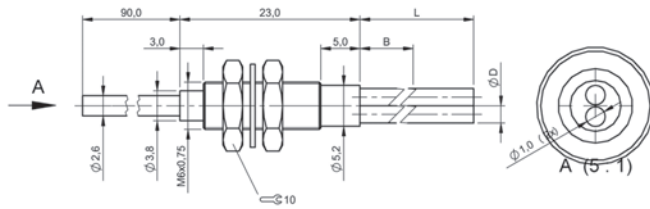
BF00003



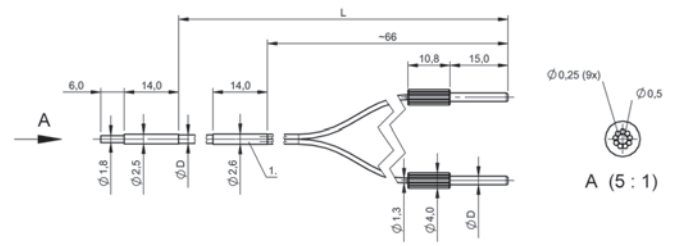
BF00063



BF00065

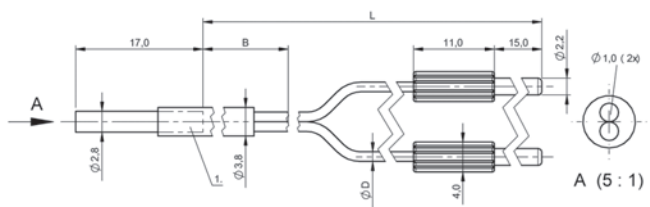


BF00004



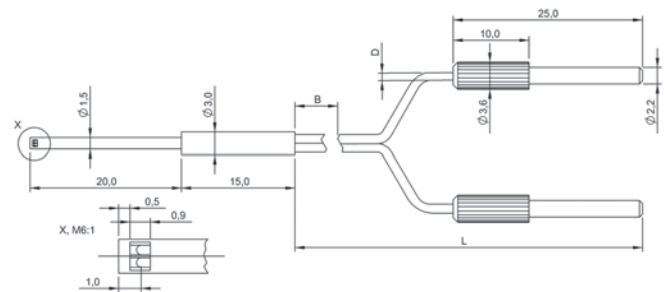
1) Protective tube

BF000AT

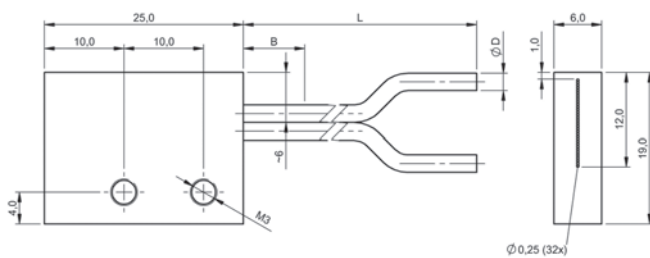


1) Protective tube

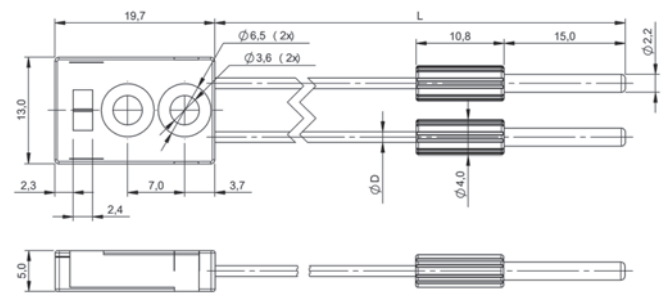
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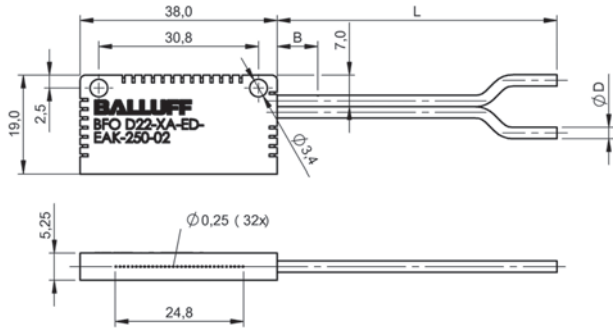
BF00062



BF0005Z



BF000AR



BF00060



	BOH005J BOH TI-G02-001-01-S49F	BOH000C BOH TK-G02-001-01-S49F	BOH000A BOH TR-G02-001-01-S49F	
Series	G02	G02	G02	
Dimension	Ø 2 x 8 mm	Ø 2 x 8.6 mm	Ø 2 x 8.6 mm	
Interface	for switching amplifier	for switching amplifier	for switching amplifier	
Principle of operation	Optical sensor head	Optical sensor head	Optical sensor head	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	—	—	—	
Beam characteristic	Divergent	divergent, max. 3.5°	Divergent	
Light type	Infrared	microSPOT-LED red light	LED, red light	
Light spot size	—	Ø 10 mm at 100 mm	—	
Range	0...300 mm	0...500 mm	0...300 mm	
Connection	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	
Housing material	Stainless steel	Stainless steel	Stainless steel	
Material sensing surface	Epoxy	Epoxy	Epoxy	
Approval/Conformity	CE	CE	CE	
Productview	Page 602	Page 602	Page 602	



	BOH000J BOH TJ-G02-001-01-S49F	BOH000E BOH TK-M03-005-01-S49F	BOH0061 BOH TI-M03-001-01-S49F	BOH000U BOH TK-M03-001-01-S49F	BOH000T BOH TR-M03-001-01-S49F
	G02	M03	M03	M03	M03
	Ø 2 x 8.6 mm	6 x 5.5 x 7.6 mm	Ø 3 x 8 mm	Ø 3 x 8.7 mm	Ø 3 x 8.7 mm
	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier
	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	Light absorption with water	—	—	—	—
	Divergent	divergent, max. 3.5°	Divergent	divergent, max. 3.5°	Divergent
	Infrared for water detection	microSPOT-LED red light	Infrared	microSPOT-LED red light	LED, red light
	—	Ø 10 mm at 100 mm	—	Ø 10 mm at 100 mm	—
	0...250 mm	0...500 mm	0...300 mm	0...500 mm	0...300 mm
	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	PMMA	Epoxy	Epoxy	Epoxy	Epoxy
	CE	CE	CE	CE	CE
	Page 602	Page 602	Page 602	Page 602	Page 602



	BOH00E6 BOH TK-M04-020-01-S49F	BOH00E5 BOH TR-M04-020-01-S49F	BOH0010 BOH TR-G05-005-02-S49F	
Series	M04	M04	G05	
Dimension	Ø 4 x 12 mm	Ø 4 x 12 mm	Ø 5 x 13 mm	
Interface	for switching amplifier	for switching amplifier	for switching amplifier	
Principle of operation	Optical sensor head	Optical sensor head	Optical sensor head	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	—	—	—	
Beam characteristic	divergent, max. 2.5°	Divergent	Divergent	
Light type	microSPOT-LED red light	LED, red light	LED, red light	
Light spot size	Ø 8.00 mm at 100 mm	27 x 27 mm at 100 mm	—	
Range	0...2000 mm	0...2000 mm	0...4 m	
Connection	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 2.00 m, PUR	
Housing material	Nickel-plated brass	Nickel-plated brass	Stainless steel	
Material sensing surface	PMMA	PMMA	PMMA	
Approval/Conformity	CE	—	CE	
Productview	Page 602	Page 602	Page 602	



	BOH000F BOH TK-M05-006-01-S49F	BOH0065 BOH TI-M05-003-01-S49F	BOH0013 BOH TK-M05-003-01-S49F	BOH000Y BOH TR-M05-003-01-S49F	BOH006H BOH TI-M06-002-01-S49F
	M5	M5	M5	M5	M6
	8.8 x 8 x 8 mm	Ø 5 x 10 mm	Ø 5 x 12.5 mm	Ø 5 x 12.5 mm	Ø 6 x 12 mm
	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier
	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	—	—	—	—	—
	divergent, max. 2.5°	Divergent	divergent, max. 2.5°	Divergent	Divergent
	microSPOT-LED red light	Infrared	microSPOT-LED red light	LED, red light	Infrared
	Ø 8 mm at 100 mm	—	Ø 8 mm at 100 mm	—	—
	0...2 m	0...1 m	0...2 m	0...1 m	0...4 m
	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR
	Brass	Brass	Brass	Brass	Brass
	Glass	PMMA	PMMA	PMMA	PMMA
	CE	CE	CE	CE	CE
	Page 602	Page 602	Page 602	Page 602	Page 602

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BOH000K BOH TR-M06-002-02-S49F	BOH000H BOH TL-M06-007-02-S49F	BOH0012 BOH TK-M08-004-02-S49F	
Series	M6	M6	M8	
Dimension	Ø 6 x 13 mm	Ø 6 x 17 mm	Ø 8 x 20 mm	
Interface	for switching amplifier	for switching amplifier	for switching amplifier	
Principle of operation	Optical sensor head	Optical sensor head	Optical sensor head	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	—	—	—	
Beam characteristic	Divergent	Collimated	divergent, max. 1°	
Light type	LED, red light	Laser red light	microSPOT-LED red light	
Light spot size	—	Ø 4.5 mm at 2 m	Ø 18 mm at 1 m	
Range	0...4 m	0...4 m	0...4 m	
Connection	Cable with connector, M8x1 connector, 2.00 m, PUR	Cable with connector, M8x1 connector, 2.00 m, PUR	Cable with connector, M8x1 connector, 2.00 m, PUR	
Housing material	Brass	Brass	Brass	
Material sensing surface	PMMA	Glass	Glass	
Approval/Conformity	CE	CE	CE	
Productview	Page 602	Page 603	Page 603	



	BOH006P BOH TI-Q06-001-01-S49F	BOH000P BOH TK-Q06-001-01-S49F	BOH000N BOH TR-Q06-001-01-S49F	BOH000R BOH TJ-Q06-001-01-S49F	BOH00EL BOH AI-R034-025-01-S49F
	Q06	Q06	Q06	Q06	—
	12 x 6 x 6 mm	12 x 6 x 6 mm	12 x 6 x 6 mm	12 x 6 x 6 mm	8 x 28 x 12 mm
	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier
	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	—	—	—	Light absorption with water	Light array
	Divergent	divergent, max. 2.5°	Divergent	Divergent	Divergent
	Infrared	microSPOT-LED red light	LED, red light	Infrared for water detection	Infrared
	—	Ø 8 mm at 100 mm	—	—	—
	0...1 m	0...2 m	0...1 m	0 m...500 mm	100 mm
	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1 m, PUR
	Brass	Brass	Brass	Brass	PA 6
	PMMA	PMMA	PMMA	PMMA	PMMA
	CE	CE	CE	CE	CE
	Page 603	Page 603	Page 603	Page 603	Page 603

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BOH001Z BOH TK-R003-007-01-S49F	BOH0020 BOH TR-R010-008-02-S49F	BOH007A BOH TJ-R010-008-01-S49F	
Series	R003	R010	R010	
Dimension	5.5 x 3 x 5.2 mm	12 x 6 x 8 mm	12 x 6 x 8 mm	
Interface	for switching amplifier	for switching amplifier	for switching amplifier	
Principle of operation	Optical sensor head	Optical sensor head	Optical sensor head	
Principle of optical operation	Through-beam sensor	Through-beam sensor	Through-beam sensor	
Special optical feature	—	—	Light absorption with water	
Beam characteristic	divergent, max. 3.5°	Divergent	Divergent	
Light type	microSPOT-LED red light	LED, red light	Infrared	
Light spot size	Ø 10 mm at 100 mm	—	—	
Range	0 m...500 mm	0...4 m	0 m...900 mm	
Connection	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 2.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	
Housing material	Brass	Brass	Brass	
Material sensing surface	Epoxy	PMMA	PMMA	
Approval/Conformity	CE	CE	CE	
Productview	Page 603	Page 603	Page 603	



	BOH002E BOH TK-R018-002-01-S49F	BOH002C BOH TK-R018-001-01-S49F	BOH002H BOH TK-R027-004-01-S49F	BOH002F BOH TK-R027-003-01-S49F	BOH0024 BOH AR-R113-010-01-S49F
	R018	R018	R027	R027	R113
	13.5 x 3 x 13 mm	13 x 3 x 13.5 mm	18 x 4.8 x 15 mm	15 x 4.8 x 18 mm	75 x 10 x 15 mm
	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier	for analog amplifier
	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head
	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor	Through-beam sensor
	—	—	—	—	Light array
	divergent, max. 3.5°	divergent, max. 3.5°	divergent, max. 2.5°	divergent, max. 2.5°	—
	microSPOT-LED red light	microSPOT-LED red light	microSPOT-LED red light	microSPOT-LED red light	LED, red light
	Ø 10 mm at 100 mm	Ø 10 mm at 100 mm	Ø 8 mm at 100 mm	Ø 8 mm at 100 mm	—
	0 m...500 mm	0 m...500 mm	0...2 m	0...2 m	0...200 mm
	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR
	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
	Glass	Glass	Glass	Glass	PMMA
	CE	CE	CE	CE	CE
	Page 603	Page 603	Page 604	Page 604	Page 604

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BOH002M BOH AI-R165-011-01-S49F	BOH0002 BOH DI-G02-001-01-S49F	BOH0003 BOH DR-G02-001-01-S49F	
Series	R165	G02	G02	
Dimension	110 x 10 x 15 mm	Ø 2 x 8 mm	Ø 2 x 8 mm	
Interface	for analog amplifier	for switching amplifier	for switching amplifier	
Principle of operation	Optical sensor head	Optical sensor head	Optical sensor head	
Principle of optical operation	Through-beam sensor	Diffuse sensor, energetic	Diffuse sensor, energetic	
Special optical feature	Light array	—	—	
Beam characteristic	—	Divergent	Divergent	
Light type	Infrared	Infrared	LED, red light	
Light spot size	—	—	—	
Range	0...500 mm	0...12 mm	0...12 mm	
Connection	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	
Housing material	Aluminum	Stainless steel	Stainless steel	
Material sensing surface	PMMA	Epoxy	Epoxy	
Approval/Conformity	CE	CE	CE	
Productview	Page 604	Page 604	Page 604	



	BOH0004 BOH DI-M03-001-01-S49F	BOH0009 BOH DR-M03-001-01-S49F	BOH003C BOH DI-G05-002-01-S49F	BOH0006 BOH DK-G05-002-01-S49F	BOH0005 BOH DR-G05-002-01-S49F
	M03	M03	G05	G05	G05
	Ø 3 x 8 mm	Ø 3 x 8 mm	Ø 5 x 12 mm	Ø 5 x 12 mm	Ø 5 x 12 mm
	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier
	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head
	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic
	—	—	—	—	—
	Divergent	Divergent	Divergent	divergent, max. 3.5°	Divergent
	Infrared	LED, red light	Infrared	microSPOT-LED red light	LED, red light
	—	—	—	Ø 5 mm at 50 mm	Ø 14 mm at 50 mm
	0...12 mm	0...12 mm	0...60 mm	0...60 mm	0...60 mm
	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	Epoxy	Epoxy	PMMA	PMMA	PMMA
	CE	CE	CE	CE	CE
	Page 604	Page 604	Page 604	Page 604	Page 604

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BOH003M BOH DI-M06-002-01-S49F	BOH0008 BOH DK-M06-002-01-S49F	BOH0007 BOH DR-M06-002-01-S49F	
Series	M6	M6	M6	
Dimension	Ø 6 x 12 mm	Ø 6 x 12 mm	Ø 6 x 12 mm	
Interface	for switching amplifier	for switching amplifier	for switching amplifier	
Principle of operation	Optical sensor head	Optical sensor head	Optical sensor head	
Principle of optical operation	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	
Special optical feature	—	—	—	
Beam characteristic	Divergent	divergent, max. 3.5°	Divergent	
Light type	Infrared	microSPOT-LED red light	LED, red light	
Light spot size	—	Ø 5 mm at 50 mm	Ø 14 mm at 50 mm	
Range	0...60 mm	0...60 mm	0...60 mm	
Connection	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	
Housing material	Brass	Brass	Brass	
Material sensing surface	PMMA	PMMA	PMMA	
Approval/Conformity	CE	CE	CE	
Productview	Page 604	Page 604	Page 604	



	BOH003W BOH DI-Q06-001-01-S49F	BOH000M BOH DK-Q06-001-01-S49F	BOH000L BOH DR-Q06-001-01-S49F	BOH002K BOH DK-R002-006-01-S49F	BOH0028 BOH DK-R018-002-01-S49F
	Q06	Q06	Q06	R002	R018
	12 x 6 x 6 mm	12 x 6 x 6 mm	12 x 6 x 6 mm	8 x 3 x 5.9 mm	13.5 x 3 x 13 mm
	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier	for switching amplifier
	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head
	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic
	—	—	—	—	—
	Divergent	divergent, max. 3.5°	Divergent	divergent, max. 3.5°	divergent, max. 3.5°
	Infrared	microSPOT-LED red light	LED, red light	microSPOT-LED red light	microSPOT-LED red light
	—	Ø 4 mm at 50 mm	Ø 11 mm at 50 mm	Ø 5 mm at 50 mm	Ø 5 mm at 50 mm
	0...60 mm	0...60 mm	0...60 mm	0...70 mm	3.5...60 mm
	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR
	Brass	Brass	Brass	Brass	Aluminum
	PMMA	PMMA	PMMA	Epoxy	Glass
	CE	CE	CE	CE	CE
	Page 605	Page 605	Page 605	Page 605	Page 605

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BOH0027 BOH DK-R018-001-01-S49F	BOH002A BOH DK-R027-004-01-S49F	BOH0029 BOH DK-R027-003-01-S49F	
Series	R018	R027	R027	
Dimension	13 x 3 x 13.5 mm	18 x 4.8 x 15 mm	15 x 4.8 x 18 mm	
Interface	for switching amplifier	for switching amplifier	for switching amplifier	
Principle of operation	Optical sensor head	Optical sensor head	Optical sensor head	
Principle of optical operation	Diffuse sensor, energetic	Diffuse sensor, energetic	Diffuse sensor, energetic	
Special optical feature	—	—	—	
Beam characteristic	divergent, max. 3.5°	divergent, max. 2.5°	divergent, max. 2.5°	
Light type	microSPOT-LED red light	microSPOT-LED red light	microSPOT-LED red light	
Light spot size	Ø 5 mm at 50 mm	Ø 8 mm at 100 mm	Ø 8 mm at 100 mm	
Range	3.5...60 mm	3.5...100 mm	3.5...100 mm	
Connection	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	
Housing material	Aluminum	Aluminum	Aluminum	
Material sensing surface	Glass	Glass	Glass	
Approval/Conformity	CE	CE	CE	
Productview	Page 605	Page 605	Page 605	



	BOH002L BOH FK-Z001-001-01-S49F	BOH001M BOH AR-F40-001-01-S49F	BOH001N BOH AR-F40-002-01-S49F	BOH001P BOH AR-F80-003-01-S49F	BOH001R BOH TR-T16-001-01-S49F
	Z001	F40	F40	F80	T16
	16 x 4 x 8.5 mm	60 x 10 x 60 mm	67 x 10 x 75 mm	107 x 10 x 75 mm	34 x 10 x 10 mm
	for switching amplifier	for analog amplifier	for analog amplifier	for analog amplifier	for switching amplifier
	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head	Optical sensor head
	Diffuse sensor, energetic	Fork sensor	Fork sensor	Fork sensor	Fork sensor
	Fixed background suppression	Light array	Light array	Light array	Diffraction caused by liquid
	divergent, max. 3.5°	—	—	—	—
	microSPOT-LED red light	LED, red light	LED, red light	LED, red light	LED, red light
	Ø 1.8 mm at 7.5 mm	—	—	—	—
	3...15 mm	—	—	—	—
	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR
	Brass	Aluminum	Aluminum	Aluminum	Aluminum
	Epoxy	Epoxy	PMMA	PMMA	Epoxy
	CE	CE	CE	CE	CE
	Page 605	Page 605	Page 606	Page 606	Page 606

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BOH001Y BOH TR-T32-001-01-S49F	BOH001U BOH TJ-T32-001-01-S49F	BOH0019 BOH TR-T48-001-01-S49F	
Series	T32	T32	T48	
Dimension	34 x 10 x 10 mm	34 x 10 x 10 mm	34 x 10 x 10 mm	
Interface	for switching amplifier	for switching amplifier	for switching amplifier	
Principle of operation	Optical sensor head	Optical sensor head	Optical sensor head	
Principle of optical operation	Fork sensor	Fork sensor	Fork sensor	
Special optical feature	Diffraction caused by liquid	Light absorption with water	Diffraction caused by liquid	
Beam characteristic	—	—	—	
Light type	LED, red light	Infrared for water detection	LED, red light	
Light spot size	—	—	—	
Range	—	—	—	
Connection	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 1.0 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	
Housing material	Aluminum	Aluminum	Aluminum	
Material sensing surface	Epoxy	Epoxy	Epoxy	
Approval/Conformity	CE	CE	CE	
Productview	Page 606	Page 606	Page 606	



	BOH0015 BOH TJ-T48-001-01-S49F	BOH001A BOH TR-T64-001-01-S49F	BOH0016 BOH TJ-T64-001-01-S49F		
	T48	T64	T64		
	34 x 10 x 10 mm	34 x 10 x 10 mm	34 x 10 x 10 mm		
	for switching amplifier	for switching amplifier	for switching amplifier		
	Optical sensor head	Optical sensor head	Optical sensor head		
	Fork sensor	Fork sensor	Fork sensor		
	Light absorption with water	Diffraction caused by liquid	Light absorption with water		
	—	—	—		
	Infrared for water detection	LED, red light	Infrared for water detection		
	—	—	—		
	—	—	—		
	Cable with connector, M8x1 connector, 0.20 m, PUR	Cable with connector, M8x1 connector, 1.00 m, PUR	Cable with connector, M8x1 connector, 0.20 m, PUR		
	Aluminum	Aluminum	Aluminum		
	Epoxy	Epoxy	Epoxy		
	CE	CE	CE		
	Page 606	Page 606	Page 606		

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

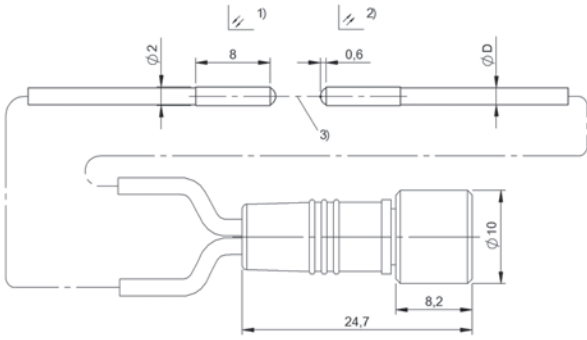
Safety

Industrial Networking

Power Supply

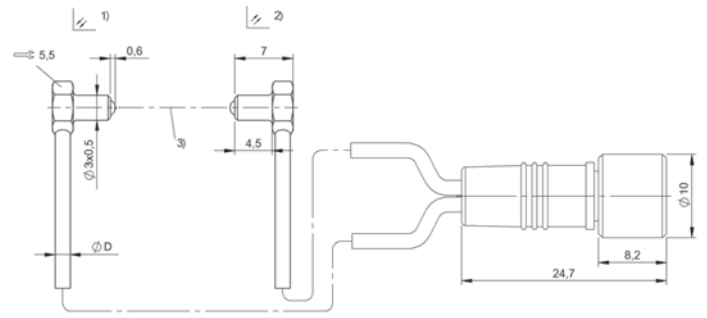
Connectivity

Accessories



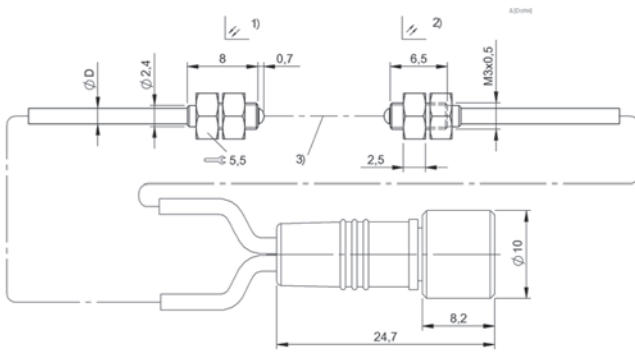
1) Emitter, 2) Receiver, 3) Optical axis

BOH005J, BOH000C, BOH000A, BOH000J



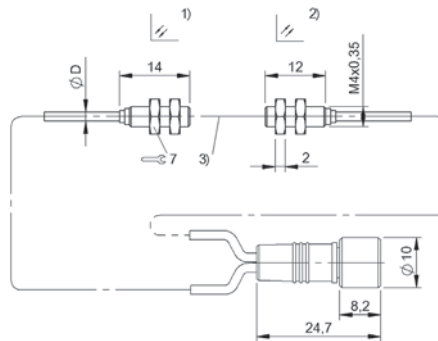
1) Emitter, 2) Receiver, 3) Optical axis

BOH000E



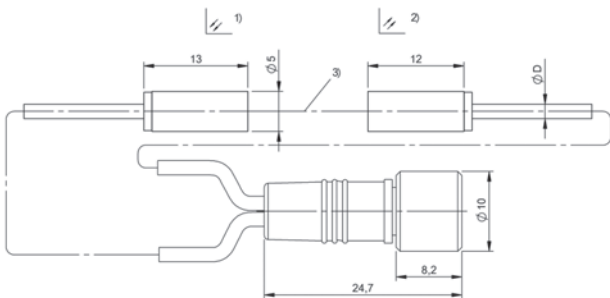
1) Emitter, 2) Receiver, 3) Optical axis

BOH0061, BOH000U, BOH000T



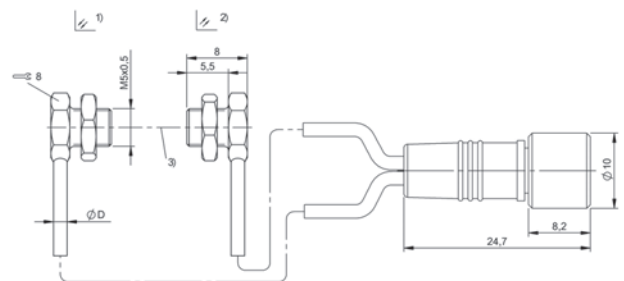
1) Emitter, 2) Receiver, 3) Optical axis

BOH0006, BOH0005



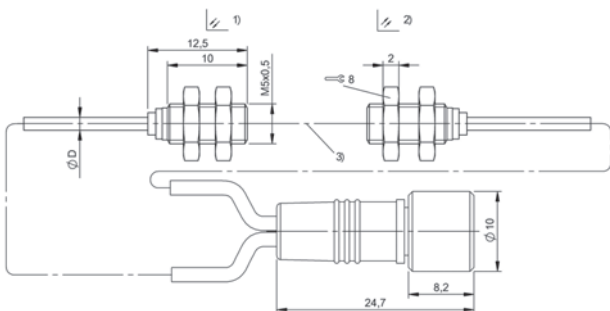
1) Emitter, 2) Receiver, 3) Optical axis

BOH0010



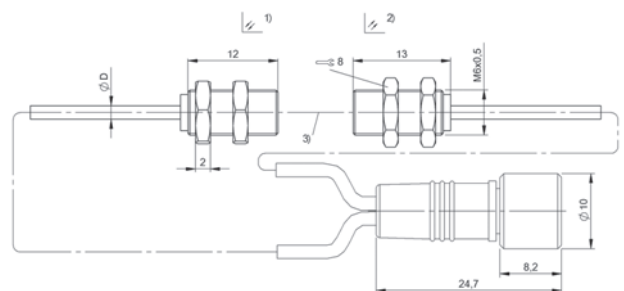
1) Emitter, 2) Receiver, 3) Optical axis

BOH000F



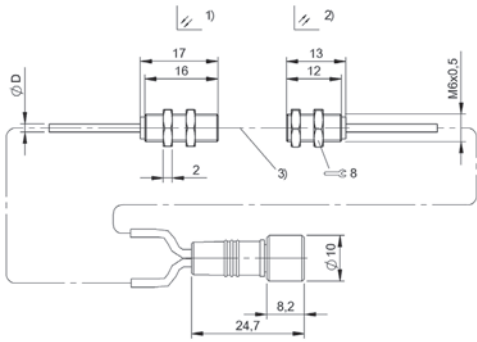
1) Emitter, 2) Receiver, 3) Optical axis

BOH0065, BOH0013, BOH000Y



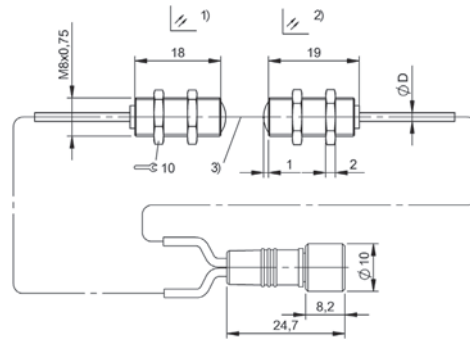
1) Emitter, 2) Receiver, 3) Optical axis

BOH006H, BOH000K



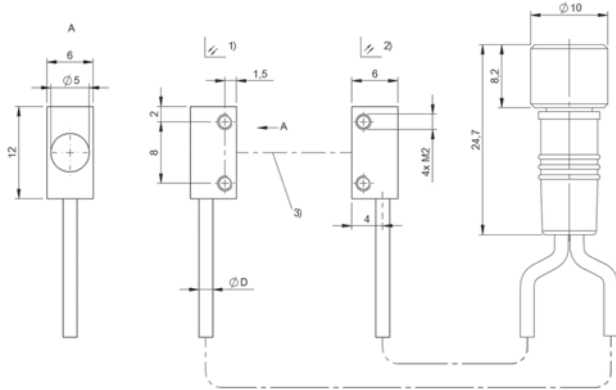
1) Emitter, 2) Receiver, 3) Optical axis

BOH000H



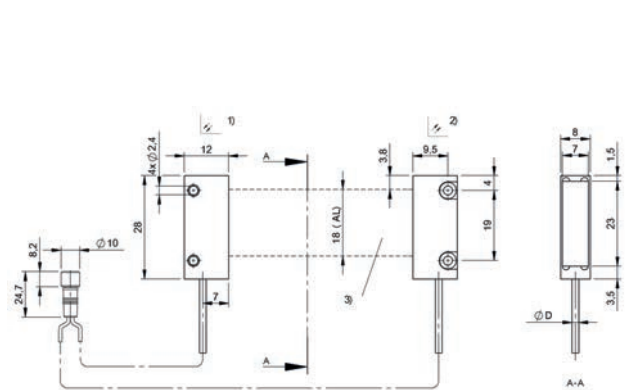
1) Emitter, 2) Receiver, 3) Optical axis

BOH0012



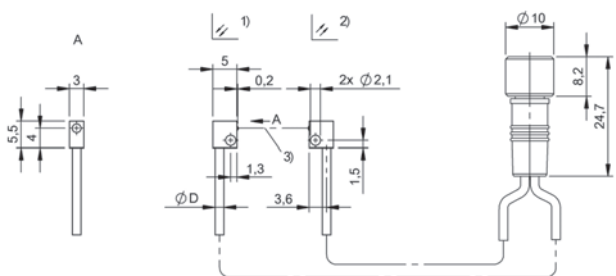
1) Emitter, 2) Receiver, 3) Optical axis

BOH006P, BOH000P, BOH000N, BOH000R



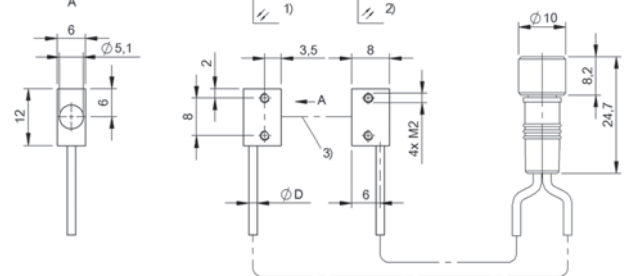
1) Emitter, 2) Receiver, 3) Light array

BOH00EL



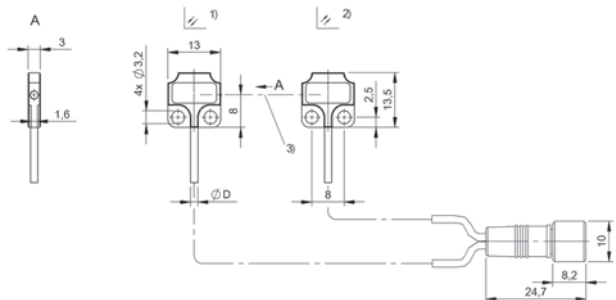
1) Emitter, 2) Receiver, 3) Optical axis

BOH001Z



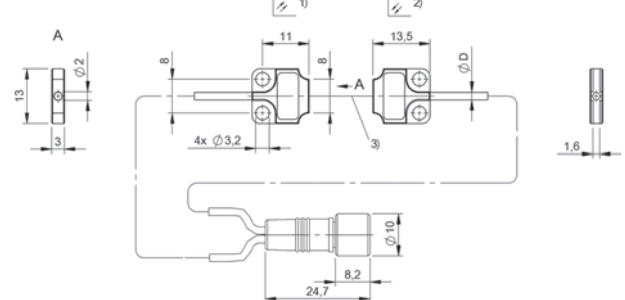
1) Emitter, 2) Receiver, 3) Optical axis

BOH0020, BOH007A



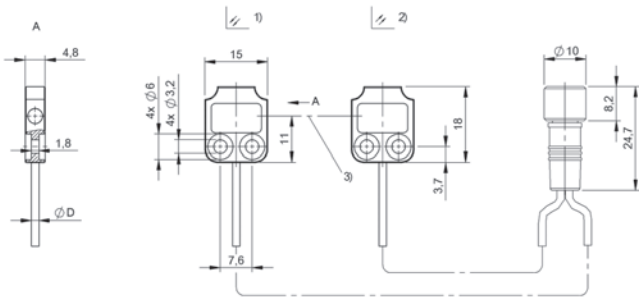
1) Emitter, 2) Receiver, 3) Optical axis

BOH002E



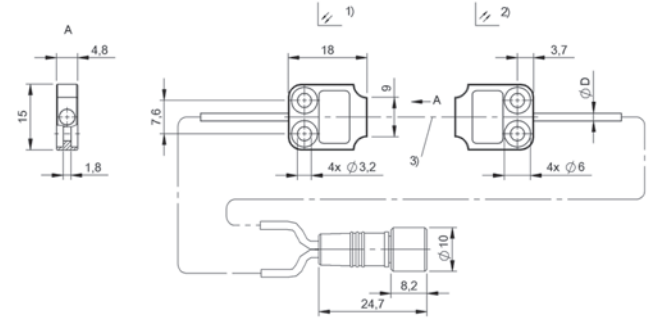
1) Emitter, 2) Receiver, 3) Optical axis

BOH002C



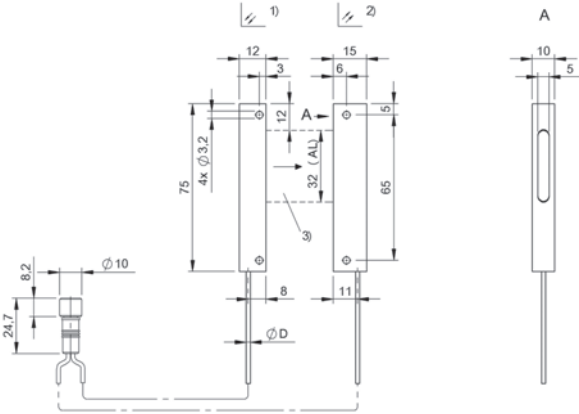
1) Emitter, 2) Receiver, 3) Optical axis

BOH002H



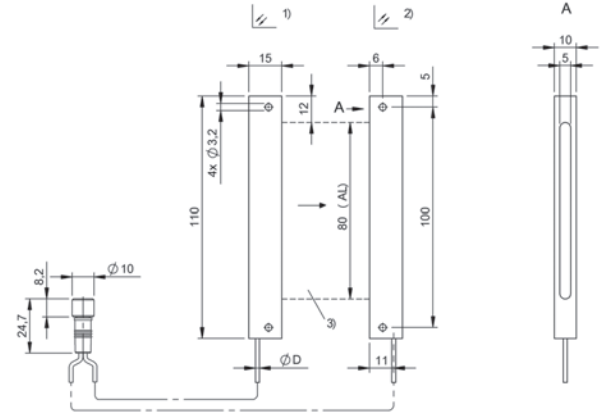
1) Emitter, 2) Receiver, 3) Optical axis

BOH002F



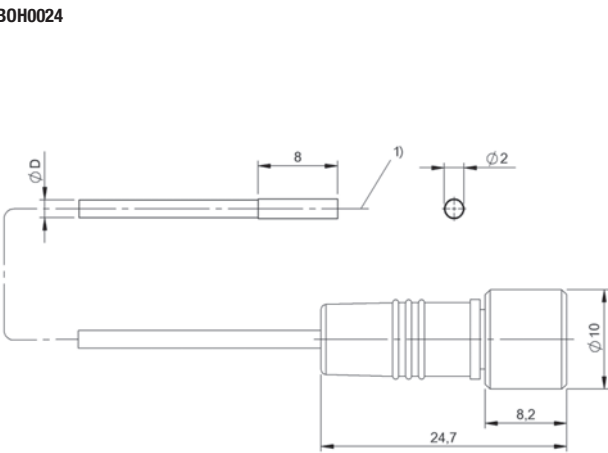
1) Emitter, 2) Receiver, 3) Light array

BOH002H



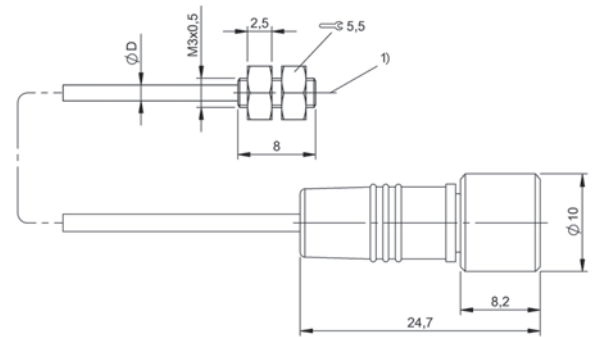
1) Emitter, 2) Receiver, 3) Light array

BOH002F



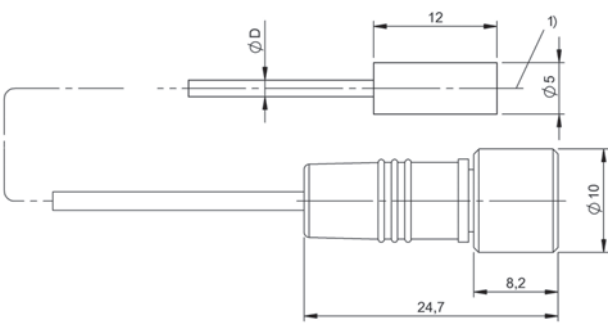
1) Optical axis

BOH0024



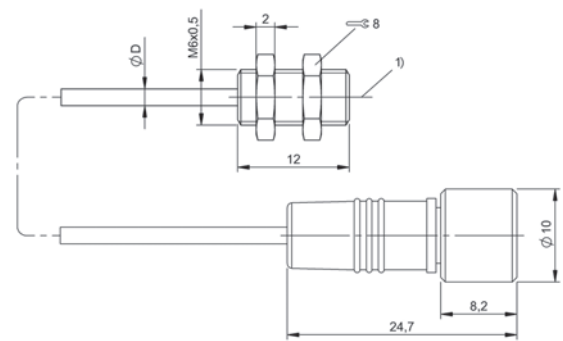
1) Optical axis

BOH002M



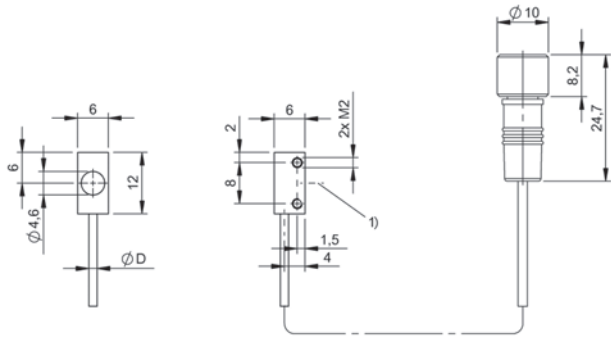
1) Optical axis

BOH0002, BOH0003



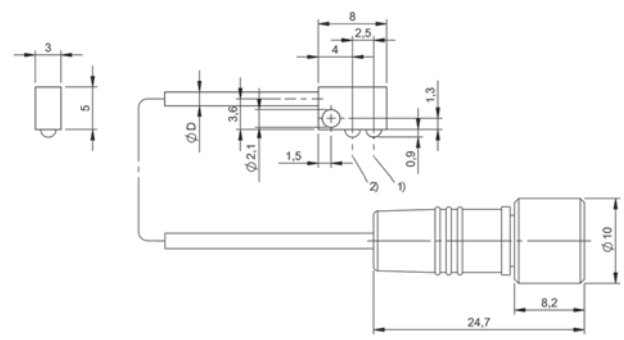
1) Optical axis

BOH0004, BOH0009



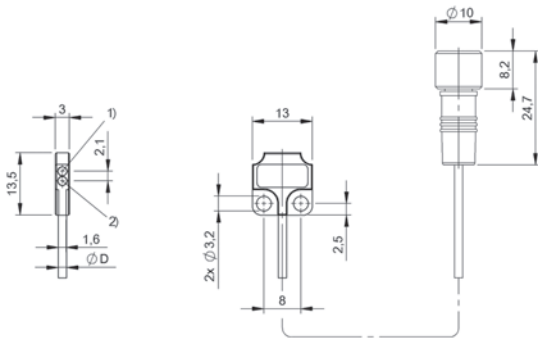
1) Optical axis

BOH003W, BOH000M, BOH000L



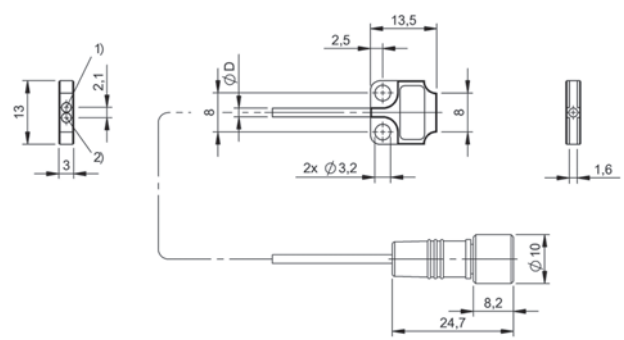
1) Optical axis emitter, 2) Optical axis receiver

BOH002K



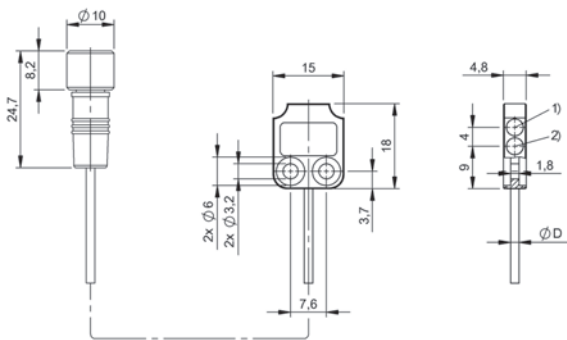
1) Optical axis emitter, 2) Optical axis receiver

BOH0028



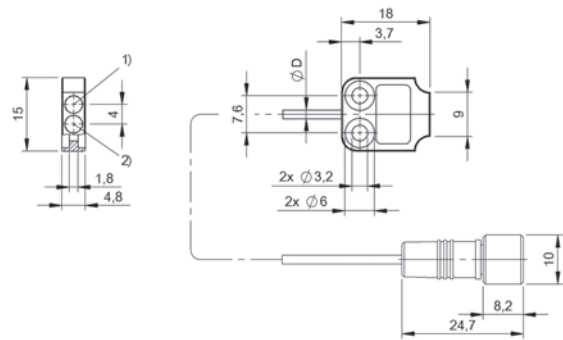
1) Optical axis emitter, 2) Optical axis receiver

BOH0027



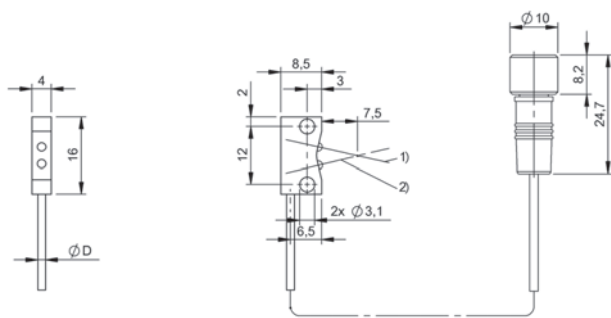
1) Optical axis emitter, 2) Optical axis receiver

BOH002A



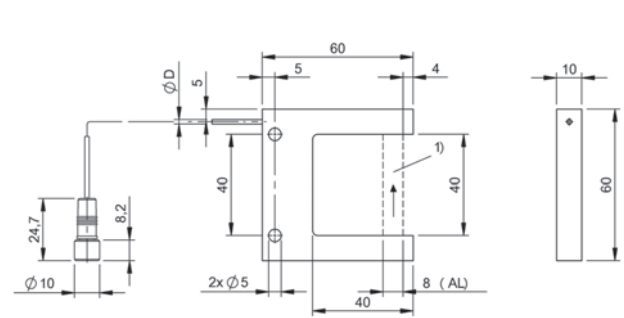
1) Optical axis emitter, 2) Optical axis receiver

BOH0029



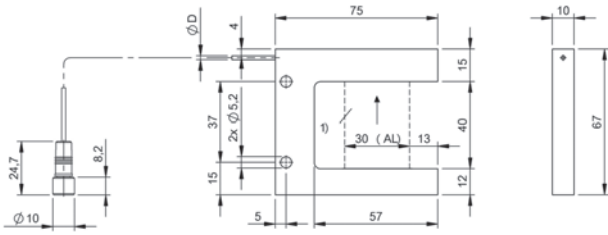
1) Optical axis emitter, 2) Optical axis receiver

BOH002L



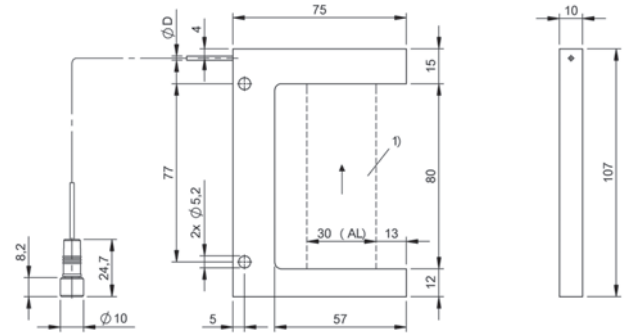
1) Light array

BOH001M



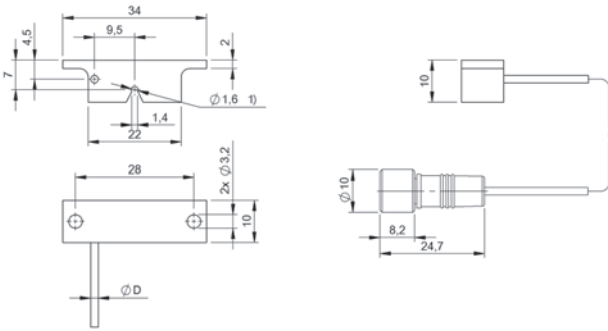
1) Light array

BOH001N



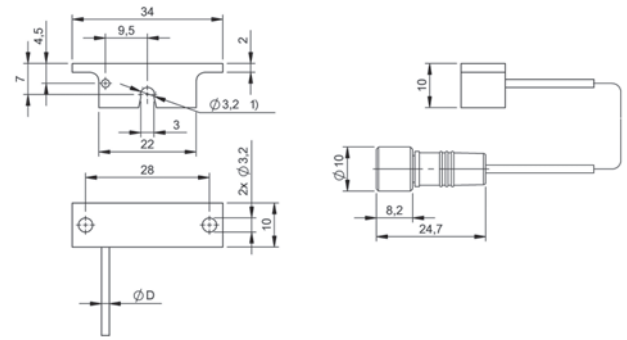
1) Light array

BOH001P



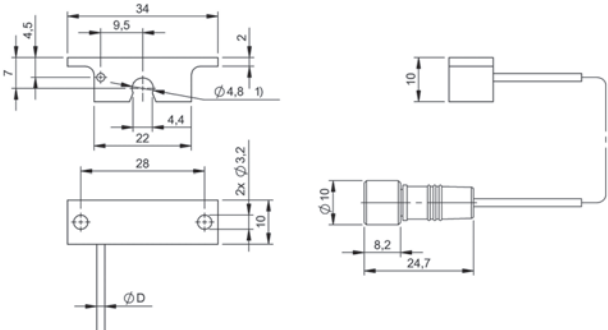
1) Hose fitting

BOH001R



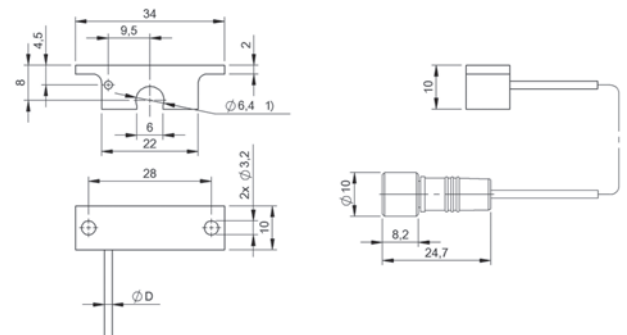
1) Hose fitting

BOH001Y, BOH001U



1) Hose fitting

BOH0019, BOH0015



1) Hose fitting

BOH001A, BOH0016



PNP normally open/normally closed			BAE00NE BAE SA-0H-035-PP-DV02	
NPN normally open/normally closed	BAE00PR BAE SA-0H-035-NP-DV02	BAE00PT BAE SA-0H-035-NP-S75G		
Analog, voltage 0...10 V				
Analog, current 4...20 mA				
Series	SA-OH	SA-OH	SA-OH	
Dimension	15 x 36 x 61 mm	15 x 36 x 61 mm	15 x 36 x 61 mm	
Display	LED green: Power, Digital display, Switching state - LED yellow	LED green: Power, Digital display, Switching state - LED yellow	Output function- LED yellow, LED green: Power, Error - LED green, flashing, Signal strength - segment display	
Setting	Light-on/dark-on, Time function on/off, Delay time, Teach mode Aut/Hys/Int/Pot	Light-on/dark-on, Time function on/off, Delay time, Teach mode Aut/Hys/Int/Pot	Sensitivity (Sn), Light-on/dark-on, Teach Sn, Read direction for segment display, Segment display on/off, Key disable on/off, Factory setting (Reset), Alarm threshold, Teach mode Aut/Fine/1-Pt/2-Pt, Hysteresis (4 levels), Integration time 4...128 ms, Upper and lower threshold, Delay time	
Adjuster	Slide switch 4 positions	Slide switch 4 positions	Slide switch 4 positions	
Connection	Cable, 2.00 m, PVC	M8x1 connector, 4-pin	Cable, 2.00 m, PVC	
Housing material	ABS PC	ABS PC	ABS PC	
Operating voltage Ub	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, EAC	CE, EAC	CE, EAC	
Productview	Page 612	Page 612	Page 612	



	BAE00NF BAE SA-OH-035-PP-S75G				
				BAE00NH BAE SA-OH-038-UA-DV02	BAE00NG BAE SA-OH-038-UA-S75G
		BAE00N4 BAE SA-OH-038-IC-DV02	BAE00N5 BAE SA-OH-038-IC-S75G		
	SA-OH	SA-OH	SA-OH	SA-OH	SA-OH
	15 x 36 x 61 mm	15 x 36 x 61 mm	15 x 36 x 61 mm	15 x 36 x 61 mm	15 x 36 x 61 mm
	Output function- LED yellow, LED green: Power, Error - LED green, flashing, Signal strength - segment display	LED green: Power, Signal strength - segment display	LED green: Power, Signal strength - segment display	LED green: Power, Signal strength - segment display	LED green: Power, Signal strength - segment display
	Sensitivity (Sn), Light-on/dark-on, Teach Sn, Read direction for segment display, Segment display on/off, Key disable on/off, Factory setting (Reset), Alarm threshold, Teach mode Aut/Fine/1-Pt/2-Pt, Hysteresis (4 levels), Integration time 4...128 ms, Upper and lower threshold, Delay time	Sensitivity (Sn), Teach Sn, Teach mode Aut/Pot, Read direction for segment display, Segment display on/off, Key disable on/off, Factory setting (Reset)	Sensitivity (Sn), Teach Sn, Teach mode Aut/Pot, Read direction for segment display, Segment display on/off, Key disable on/off, Factory setting (Reset)	Sensitivity (Sn), Teach Sn, Teach mode Aut/Pot, Read direction for segment display, Segment display on/off, Key disable on/off, Factory setting (Reset)	Sensitivity (Sn), Teach Sn, Teach mode Aut/Pot, Read direction for segment display, Segment display on/off, Key disable on/off, Factory setting (Reset)
	Slide switch 4 positions	Slide switch 4 positions	Slide switch 4 positions	Slide switch 4 positions	Slide switch 4 positions
	Connector, M8x1 connector, 4-pin	Cable, 2.00 m, PVC	Connector, M8x1 connector, 4-pin	Cable, 2.00 m, PVC	Connector, M8x1 connector, 4-pin
	ABS PC	ABS PC	ABS PC	ABS PC	ABS PC
	10...30 VDC	15...30 VDC	15...30 VDC	15...30 VDC	15...30 VDC
	CE, EAC	CE, EAC	CE, EAC	CE, EAC	CE, EAC
	Page 612	Page 612	Page 612	Page 612	Page 612



PNP normally open/normally closed			BAE00YC BAE SA-0H-050-PP-DV02	
PNP dynamic normally open/normally closed	BAE00NJ BAE SA-0H-040-PP-DV02	BAE00N7 BAE SA-0H-040-PP-S75G		
Series	SA-OH	SA-OH	SA-OH	
Dimension	15 x 36 x 61 mm	15 x 36 x 61 mm	15 x 36 x 61 mm	
Display	Output function- LED yellow, LED green: Power, Error - LED green, flashing, Signal strength - segment display	Output function- LED yellow, LED green: Power, Error - LED green, flashing, Signal strength - segment display	Output function- LED yellow, LED green: Power, Error - LED green, flashing, Signal strength - segment display	
Setting	Sensitivity (Sn), Light-on/dark-on, Teach Sn, Read direction for segment display, Segment display on/off, Key disable on/off, Factory setting (Reset), Hysteresis (4 levels), Integration time 4...128 ms, Delay time, Teach mode Aut/Hys/Int/Pot	Sensitivity (Sn), Light-on/dark-on, Teach Sn, Read direction for segment display, Segment display on/off, Key disable on/off, Factory setting (Reset), Hysteresis (4 levels), Integration time 4...128 ms, Delay time, Teach mode Aut/Hys/Int/Pot	Sensitivity (Sn), Light-on/dark-on, Read direction for segment display, Segment display on/off, Key disable on/off, Factory setting (Reset), Alarm threshold, Teach mode Aut/Fine/1-Pt/2-Pt, Hysteresis (4 levels), Upper and lower threshold, Delay time, Window function/standard switching function	
Adjuster	Slide switch 4 positions	Slide switch 4 positions	Slide switch 4 positions	
Connection	Cable, 2.00 m, PVC	Connector, M8x1 connector, 4-pin	Cable, 2.00 m, PVC	
Housing material	ABS PC	ABS PC	ABS PC	
Operating voltage Ub	10...30 VDC	10...30 VDC	10...30 VDC	
Approval/Conformity	CE, EAC	CE, EAC	CE, EAC	
Productview	Page 612	Page 612	Page 612	



BAE00Y7 BAE SA-OH-050-PP-S75G				
SA-OH				
15 x 36 x 61 mm				
Output function- LED yellow, LED green: Power, Error - LED green, flashing, Signal strength - segment display				
Sensitivity (Sn), Light-on/dark-on, Read direction for segment display, Segment display on/off, Key disable on/off, Factory setting (Reset), Alarm threshold, Teach mode Aut/Fine/1-Pt/2-Pt, Hysteresis (4 levels), Upper and lower threshold, Delay time, Window function/standard switching function				
Slide switch 4 positions				
Connector, M8x1 connector, 4-pin				
ABS PC				
10...30 VDC				
CE, EAC				
Page 612				

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

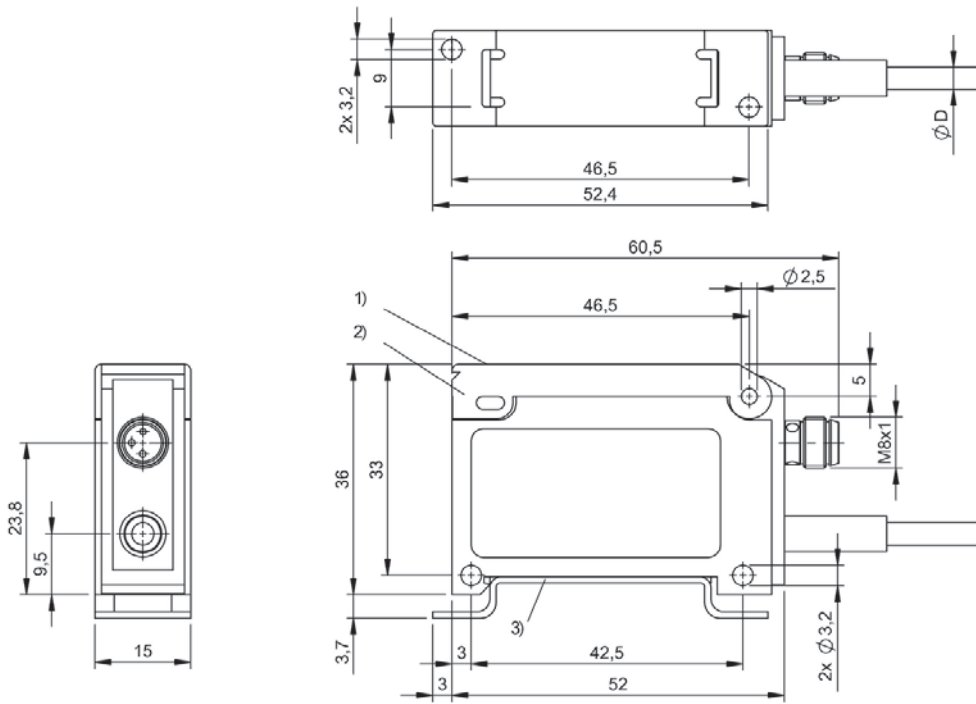
Safety

Industrial Networking

Power Supply

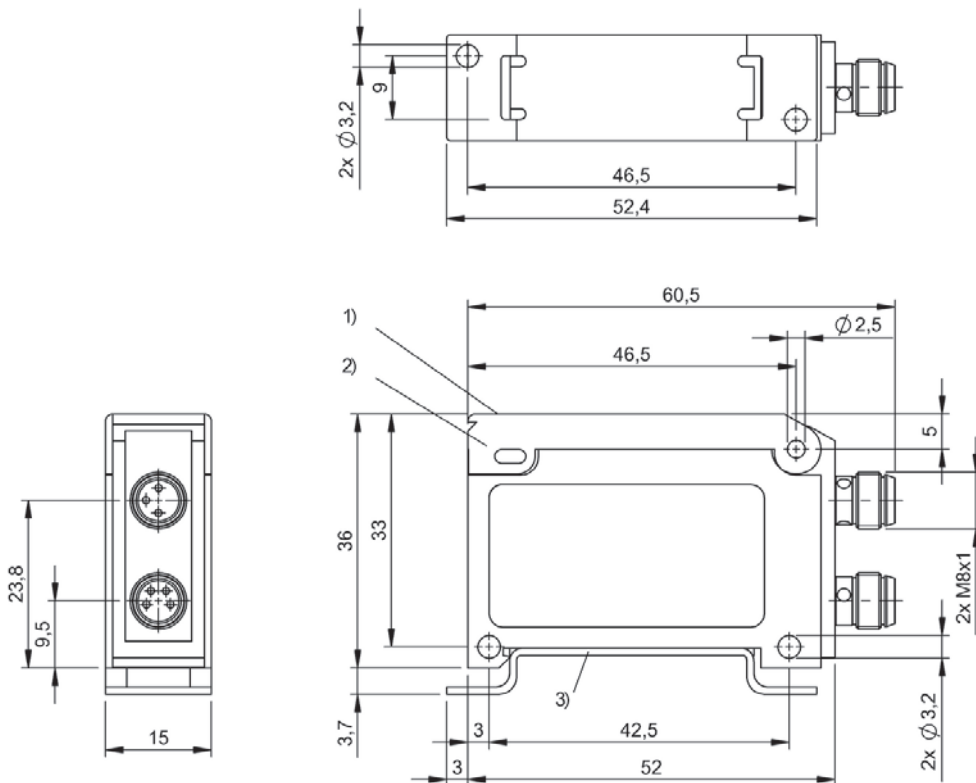
Connectivity

Accessories



1) Display and control panel

BAE00PR, BAE00NE, BAE00N4, BAE00NH, BAE00NJ, BAE00YC



1) Display and control panel, 2) Cover, 3) DIN rail

BAE00PT, BAE00NF, BAE00N5, BAE00N6, BAE00N7, BAE00Y7



	BOD001L BOD 6K-RA02-S75	BOD001R BOD 6K-RA03-S75	BOD001Z BOD 6K-RA04-S75	
Series	6K	6K	6K	
Dimension	12 x 41.5 x 21.6 mm	12 x 41.5 x 21.6 mm	12 x 41.5 x 21.6 mm	
Interface	Analog, voltage 1...10 V linear rising/falling PNP NO/NC	Analog, voltage 1...10 V linear rising/falling PNP NO/NC	Analog, voltage 1...10 V linear rising/falling PNP NO/NC	
Principle of operation	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	
Principle of optical operation	Triangulation	Triangulation	Triangulation	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	LED, red light	LED, red light	LED, red light	
Light spot size	Ø 5 mm at 50 mm	Ø 9.5 mm at 100 mm	Ø 5 mm at 50 mm	
Range	20...80 mm	30...200 mm	10...85 mm	
Repeat accuracy	0.5 %FS	0.5 %FS	0.59 %FS	
Resolution	≤ 120 µm	≤ 0.68 mm	≤ 0.15 mm	
Connection	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	Connector, M8x1 connector, 4-pin	
Housing material	ABS	ABS	ABS	
Operating voltage U_b	13...30 VDC	13...30 VDC	13...30 VDC	
Approval/Conformity	CE, cULus, EAC, Ecolab	CE, cULus, EAC, Ecolab	CE, cULus, EAC, Ecolab	
Trademark	—	—	—	
Productview	Page 624	Page 624	Page 624	



	BOD000L BOD 21M-LA01-S92	BOD000M BOD 21M-LA02-S92	BOD000N BOD 21M-LA04-S92	BOD000P BOD 21M-LB01-S92	BOD000R BOD 21M-LB02-S92
	21M	21M	21M	21M	21M
	15 x 42.5 x 50 mm	15 x 42.5 x 50 mm	15 x 42.5 x 50 mm	15 x 42.5 x 50 mm	15 x 42.5 x 50 mm
	Analog, voltage 1...10 V linear increasing 2x PNP/NPN NO/NC	Analog, voltage 1...10 V linear increasing 2x PNP/NPN NO/NC	Analog, voltage 1...10 V linear increasing 2x PNP/NPN NO/NC	Analog, current 4...20 mA linear increasing 2x PNP/NPN NO/NC	Analog, current 4...20 mA linear increasing 2x PNP/NPN NO/NC
	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor
	Triangulation	Triangulation	Triangulation	Triangulation	Triangulation
	Collimated	Collimated	Collimated	Collimated	Collimated
	Laser red light	Laser red light	Laser red light	Laser red light	Laser red light
	Ø 1 mm at 45 mm	Ø 1 mm at 200 mm	1 x 6 mm at 500 mm	Ø 1 mm at 45 mm	Ø 1 mm at 200 mm
	25...45 mm, adjustable	20...200 mm, adjustable	20...500 mm, adjustable	25...45 mm, adjustable	20...200 mm, adjustable
	0.1 %FS	1 %FS	1 %FS	0.1 %FS	1 %FS
	≤ 30 µm	100...200 µm	100...500 µm	≤ 30 µm	100...200 µm
	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin
	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum	Zinc, die-cast Aluminum
	18...30 VDC	18...30 VDC	18...30 VDC	18...30 VDC	18...30 VDC
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
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	Page 625	Page 625	Page 625	Page 625	Page 625



	BOD000T BOD 21M-LB04-S92	BOD0020 BOD 23K-LI01-S4	BOD001N BOD 23K-LA01-S92	
Series	21M	23K	23K	
Dimension	15 x 42.5 x 50 mm	51 x 23 x 52.4 mm	51 x 23 x 52.4 mm	
Interface	Analog, current 4...20 mA linear increasing 2x PNP/NPN NO/NC	IO-Link 1.1 PNP/NPN/Auto-Detect NO/NC	Analog, voltage 0...10 V linear rising/falling PNP/NPN/Auto-Detect NO/NC	
Principle of operation	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	
Principle of optical operation	Triangulation	Light time-of-flight	Light time-of-flight	
Beam characteristic	Collimated	Collimated	Collimated	
Light type	Laser red light	Laser red light	Laser red light	
Light spot size	1 x 6 mm at 500 mm	5.5 x 7 mm at 5 m	5.5 x 7 mm at 5 m	
Range	20...500 mm, adjustable	100...5000 mm	100...5000 mm	
Repeat accuracy	1 %FS	0.024 %FS	0.024 %FS	
Resolution	100...500 µm	≤ 5 mm	≤ 5.0 mm	
Connection	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 5-pin	
Housing material	Zinc, die-cast Aluminum	ABS	ABS	
Operating voltage U_b	18...30 VDC	18...30 VDC	18...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC, Ecolab	CE, cULus, EAC, Ecolab	
Trademark	—	—	—	
Productview	Page 625	Page 625	Page 626	



	BOD001P BOD 23K-LB01-S92	BOD0023 BOD 24K-LI04-S92	BOD0026 BOD 24K-LI05-S92	BOD0021 BOD 24K-LA02-S92	BOD0024 BOD 24K-LA03-S92
	23K	24K	24K	24K	24K
	51 x 23 x 52.4 mm	50 x 21 x 50 mm	50 x 21 x 50 mm	50 x 21 x 50 mm	50 x 21 x 50 mm
	Analog, current 4...20 mA linear rising/falling PNP/NPN/Auto-Detect NO/NC	IO-Link 1.0	IO-Link 1.0	2x PNP/NPN normally open/normally closed (NO/NC) Analog, voltage 0...10 V/1...10 V/0...5 V/1...5 V	2x PNP/NPN normally open/normally closed (NO/NC) Analog, voltage 0...10 V/1...10 V/0...5 V/1...5 V
	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor
	Light time-of-flight	Triangulation	Triangulation	Triangulation	Triangulation
	Collimated	Divergent	Divergent	Divergent	Divergent
	Laser red light	Laser red light	Laser red light	Laser red light	Laser red light
	5.5 x 7 mm at 5 m	1 x 1 mm at 100 mm	1 x 1 mm at 450 mm	1 x 1 mm at 100 mm	1 x 1 mm at 450 mm
	100...5000 mm	50...100 mm	50...650 mm	50...100 mm	50...650 mm
	0.024 %FS	± 0.25 %	± 0.5 %	± 0.25 %	± 0.5 %
	≤ 5.0 mm	≤ 10 µm	≤ 100 µm	≤ 10 µm	≤ 100 µm
	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin
	ABS	Plastic	Plastic	Plastic	Plastic
	18...30 VDC	18...30 VDC	18...30 VDC	18...30 VDC	18...30 VDC
	CE, cULus, EAC, Ecolab	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
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	Page 626	Page 626	Page 626	Page 626	Page 626

Sensors

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Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BOD0022 BOD 24K-LB02-S92	BOD0025 BOD 24K-LB03-S92	BOD0002 BOD 26K-LA01-S4-C	
Series	24K	24K	26K	
Dimension	50 x 21 x 50 mm	50 x 21 x 50 mm	17 x 50 x 50 mm	
Interface	2x PNP/NPN normally open/normally closed (NO/NC) Analog, current 4...20 mA	2x PNP/NPN normally open/normally closed (NO/NC) Analog, current 4...20 mA	Analog, voltage 0...10 V linear increasing	
Principle of operation	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	
Principle of optical operation	Triangulation	Triangulation	Triangulation	
Beam characteristic	Divergent	Divergent	Divergent	
Light type	Laser red light	Laser red light	Laser red light	
Light spot size	1 x 1 mm at 100 mm	1 x 1 mm at 450 mm	Ø 0.8 mm at 65 mm	
Range	50...100 mm	50...650 mm	45...85 mm	
Repeat accuracy	± 0.25 %	± 0.5 %	—	
Resolution	≤ 10 µm	≤ 100 µm	≤ 80 µm	
Connection	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 4-pin	
Housing material	Plastic	Plastic	ABS	
Operating voltage U_b	18...30 VDC	18...30 VDC	18...28 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 626	Page 626	Page 627	



	BOD0004 BOD 26K-LA02-S4-C	BOD0005 BOD 26K-LB04-S115-C	BOD0006 BOD 26K-LB05-S115-C	BOD0007 BOD 26K-LB06-S92-C	BOD0008 BOD 26K-LB07-S92-C
	26K	26K	26K	26K	26K
	17 x 50 x 50 mm	17 x 50 x 50 mm	17 x 50 x 50 mm	17 x 50 x 50 mm	17 x 50 x 50 mm
	Analog, voltage 0...10 V linear increasing	Analog, current 4...20 mA linear rising/falling 2x PNP NO/NC	Analog, current 4...20 mA linear rising/falling 2x PNP NO/NC	Analog, current 4...20 mA linear rising/falling PNP NO/NC	Analog, current 4...20 mA linear rising/falling PNP NO/NC
	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor
	Triangulation	Triangulation	Triangulation	Triangulation	Triangulation
	Divergent	Divergent	Divergent	Divergent	Divergent
	Laser red light	Laser red light	Laser red light	Laser red light	Laser red light
	Ø 0.8 mm at 65 mm	1.5 x 3.25 mm at 100 mm	2 x 4.5 mm at 300 mm	1.5 x 3.25 mm at 100 mm	2 x 4.5 mm at 300 mm
	45...85 mm	30...100 mm, adjustable	80...300 mm, adjustable	30...100 mm, adjustable	80...300 mm, adjustable
	—	0.25 %FS	0.25 %FS	—	—
	≤ 20 µm	0.1 %FS	0.1 %FS	0.1 %FS	0.1 %FS
	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 8-pin	Connector, M12x1 connector, 8-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin
	ABS	ABS	ABS	ABS	ABS
	18...28 VDC	18...30 VDC	18...30 VDC	18...30 VDC	18...30 VDC
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	—	—	—	—	—
	Page 627	Page 627	Page 628	Page 627	Page 628

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



	BOD000C BOD 26K-LBR04-S115-C	BOD000E BOD 26K-LBR05-S115-C	BOD001Y BOD 37M-LPR02-S115	
Series	26K	26K	37M	
Dimension	17 x 50 x 50 mm	17 x 50 x 50 mm	60 x 37 x 72.3 mm	
Interface	RS485 Analog, current 4...20 mA linear rising/falling 3x PNP NO/NC	RS485 Analog, current 4...20 mA linear rising/falling 3x PNP NO/NC	RS485 Analog, voltage/analog, current 0.2...10 V/4...20 mA linear rising/falling 2x PNP/NPN/push-pull NO/NC	
Principle of operation	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	
Principle of optical operation	Triangulation	Triangulation	Light time-of-flight	
Beam characteristic	Divergent	Divergent	Collimated	
Light type	Laser red light	Laser red light	Laser red light	
Light spot size	1.5 x 3.25 mm at 100 mm	2 x 4.5 mm at 300 mm	Ø 15 mm at 10 m	
Range	30...100 mm, adjustable	80...300 mm, adjustable	200...20000 mm	
Repeat accuracy	0.25 %FS	0.25 %FS	0.01 %FS	
Resolution	0.1 %FS	0.1 %FS	≤ 1.0 mm	
Connection	Connector, M12x1 connector, 8-pin	Connector, M12x1 connector, 8-pin	Connector, M12x1 connector, 8-pin	
Housing material	ABS	ABS	Zinc, die-cast	
Operating voltage U_b	18...30 VDC	18...30 VDC	19.2...28.8 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	
Trademark	—	—	—	
Productview	Page 627	Page 628	Page 628	



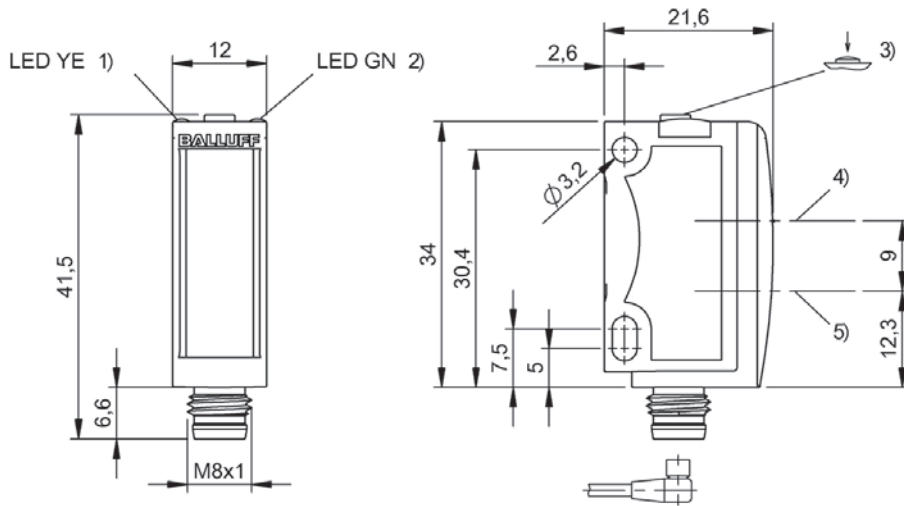
	BOD001U BOD 37M-LA01-S92	BOD001W BOD 37M-LB01-S92	BOD0012 BOD 63M-LI06-S4	BOD000U BOD 63M-LA02-S115	BOD000W BOD 63M-LA04-S115
	37M	37M	63M	63M	63M
	60 x 37 x 72.3 mm	60 x 37 x 72.3 mm	35 x 70 x 90 mm	35 x 70 x 90 mm	35 x 70 x 90 mm
	Analog, voltage 0.2...10 V linear rising/falling 2x PNP/NPN/push-pull NO/NC	Analog, current 4...20 mA linear rising/falling 2x PNP/NPN/push-pull NO/NC	IO-Link 1.0 linear increasing 2x PNP Normally open (NO)	Analog, voltage 0...10 V linear increasing 2x PNP Normally open (NO)	Analog, voltage 0...10 V linear increasing 2x PNP Normally open (NO)
	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor
	Light time-of-flight	Light time-of-flight	Light time-of-flight	Light time-of-flight	Light time-of-flight
	Collimated	Collimated	Collimated	Collimated	Collimated
	Laser red light	Laser red light	Laser red light	Laser red light	Laser red light
	Ø 15 mm at 8 m	Ø 15 mm at 8 m	Ø 10 mm at 6 m	Ø 9 mm at 2 m	Ø 10 mm at 6 m
	200...10000 mm	200...10000 mm	200...6000 mm	200...2000 mm	200...6000 mm
	0.01 %FS	0.01 %FS	0.067 %FS	0.075 %FS	0.033 %FS
	≤ 1.0 mm	≤ 1.0 mm	≤ 1.0 mm	≤ 1.0 mm	≤ 1.0 mm
	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 8-pin	Connector, M12x1 connector, 8-pin
	Zinc, die-cast	Zinc, die-cast	Aluminum, die-cast	Aluminum, die-cast	Aluminum, die-cast
	19.2...28.8 VDC	19.2...28.8 VDC	18...30 VDC	15...30 VDC	15...30 VDC
	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC
	—	—	—	—	—
	Page 629	Page 629	Page 629	Page 629	Page 629



	BOD0010 BOD 63M-LB02-S115	BOD0011 BOD 63M-LB04-S115	BOD001J BOD 66M-LA12-S92	
Series	63M	63M	66M	
Dimension	35 x 70 x 90 mm	35 x 70 x 90 mm	30 x 100.5 x 73.2 mm	
Interface	Analog, current 4...20 mA linear increasing 2x PNP Normally open (NO)	Analog, current 4...20 mA linear increasing 2x PNP Normally open (NO)	Analog, voltage 1...10 V linear rising/falling PNP/NPN NO/NC	
Principle of operation	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	
Principle of optical operation	Light time-of-flight	Light time-of-flight	Triangulation	
Beam characteristic	Collimated	Collimated	Divergent	
Light type	Laser red light	Laser red light	Laser red light	
Light spot size	Ø 9 mm at 2 m	Ø 10 mm at 6 m	Ø 1 mm at 800 mm	
Range	200...2000 mm	200...6000 mm	150...800 mm	
Repeat accuracy	0.075 %FS	0.033 %FS	0.5 %FS	
Resolution	≤ 1.0 mm	≤ 1.0 mm	100...800 µm	
Connection	Connector, M12x1 connector, 8-pin	Connector, M12x1 connector, 8-pin	Connector, M12x1 connector, 5-pin	
Housing material	Aluminum, die-cast	Aluminum, die-cast	Zinc, die-cast	
Operating voltage U_b	15...30 VDC	15...30 VDC	18...30 VDC	
Approval/Conformity	CE, cULus, EAC	CE, cULus, EAC	CE, EAC	
Trademark	—	—	—	
Productview	Page 629	Page 629	Page 630	

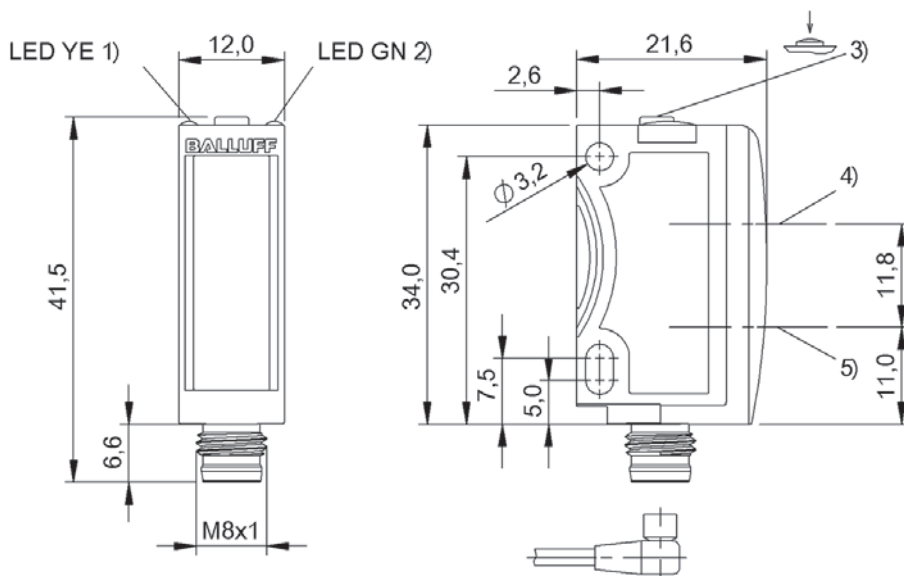


	BOD001E BOD 66M-LA14-S92	BOD001H BOD 66M-RA11-S92	BOD001K BOD 66M-LB12-S92	BOD001F BOD 66M-LB14-S92	BOD001C BOD 66M-RB11-S92
	66M	66M	66M	66M	66M
	30 x 100.5 x 73.2 mm	30 x 100.5 x 73.2 mm	30 x 100.5 x 73.2 mm	30 x 100.5 x 73.2 mm	30 x 100.5 x 73.2 mm
	Analog, voltage 1...10 V linear rising/falling PNP/NPN NO/NC	Analog, voltage 1...10 V linear rising/falling PNP/NPN NO/NC	Analog, current 4...20 mA linear rising/falling PNP/NPN NO/NC	Analog, current 4...20 mA linear rising/falling PNP/NPN NO/NC	Analog, current 4...20 mA linear rising/falling PNP/NPN NO/NC
	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor	Photoelectric distance sensor
	Triangulation	Triangulation	Triangulation	Triangulation	Triangulation
	Divergent	Divergent	Divergent	Divergent	Divergent
	Laser red light	LED, red light	Laser red light	Laser red light	LED, red light
	2 x 6 mm at 2 m	Ø 15 mm at 600 mm	Ø 1 mm at 800 mm	2 x 6 mm at 2 m	Ø 15 mm at 600 mm
	150...2000 mm	100...600 mm	150...800 mm	150...2000 mm	100...600 mm
	0.5 %FS	0.5 %FS	0.5 %FS	0.5 %FS	0.5 %FS
	1...3 mm	100...500 µm	100...800 µm	1...3 mm	100...500 µm
	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin	Connector, M12x1 connector, 5-pin
	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast	Zinc, die-cast
	18...30 VDC	18...30 VDC	18...30 VDC	18...30 VDC	18...30 VDC
	CE, EAC	CE, EAC	CE, EAC	CE, EAC	CE, EAC
	—	—	—	—	—
	Page 630	Page 630	Page 630	Page 630	Page 630



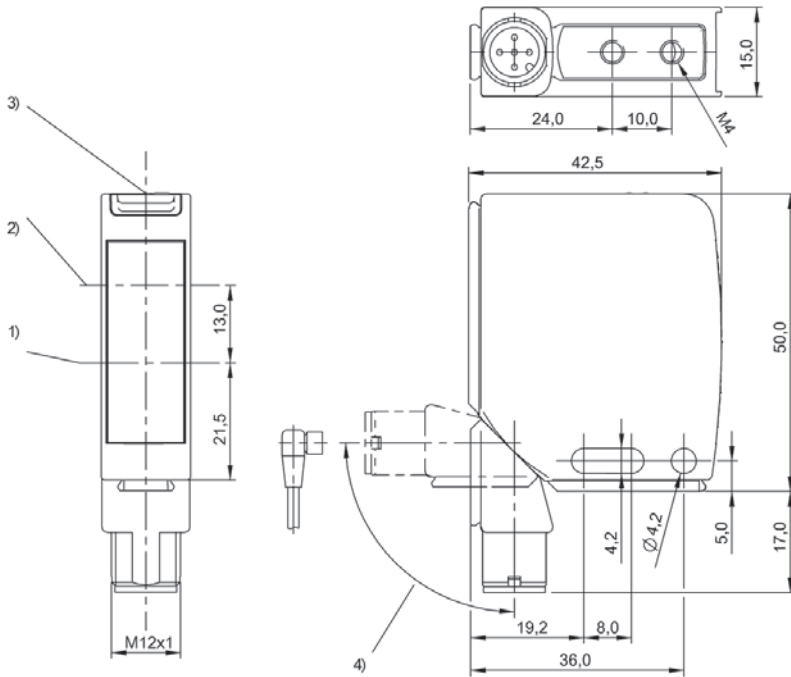
1) Output function, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter

BOD001L, BOD001Z



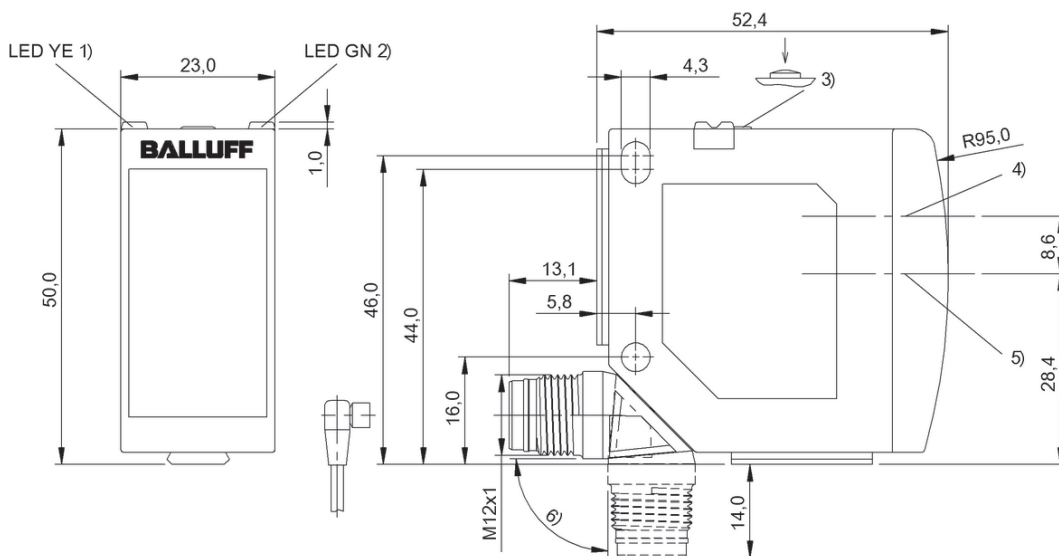
1) Output function, 2) Operating voltage, 3) Sn, light/dark, 4) Optical axis receiver, 5) Optical axis emitter

BOD001R



1) Optical axis receiver, 2) Optical axis emitter, 3) Display and control panel, 4) rotatable 270°

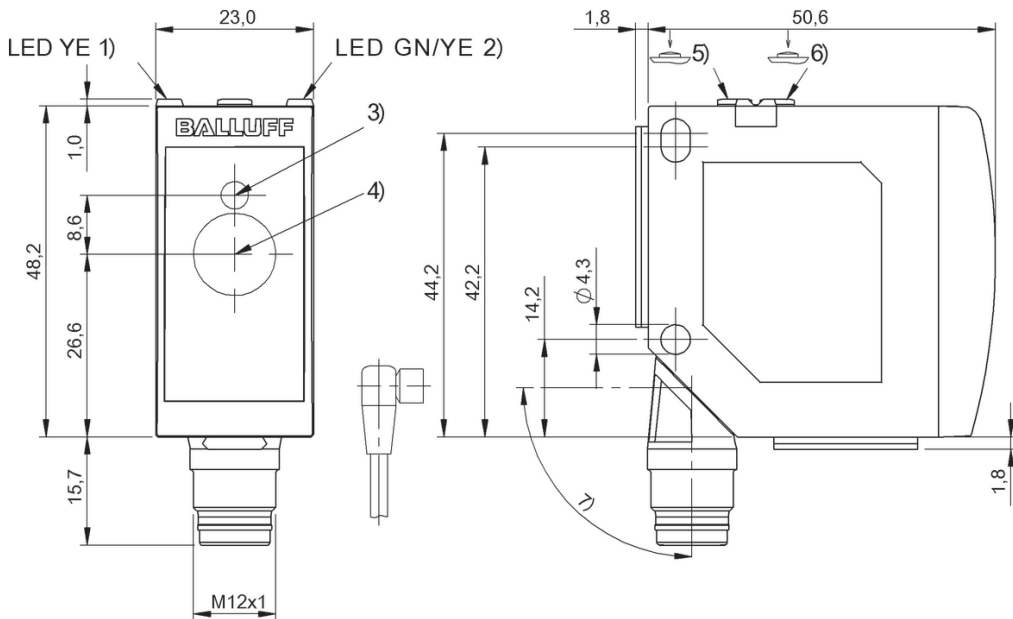
BOD000L, BOD000M, BOD000N, BOD000P, BOD000R, BOD000T



1) Output function, 2) Operating voltage, 3) Teach-In button, 4) Optical axis emitter, 5) Optical axis receiver, 6) rotatable 270°

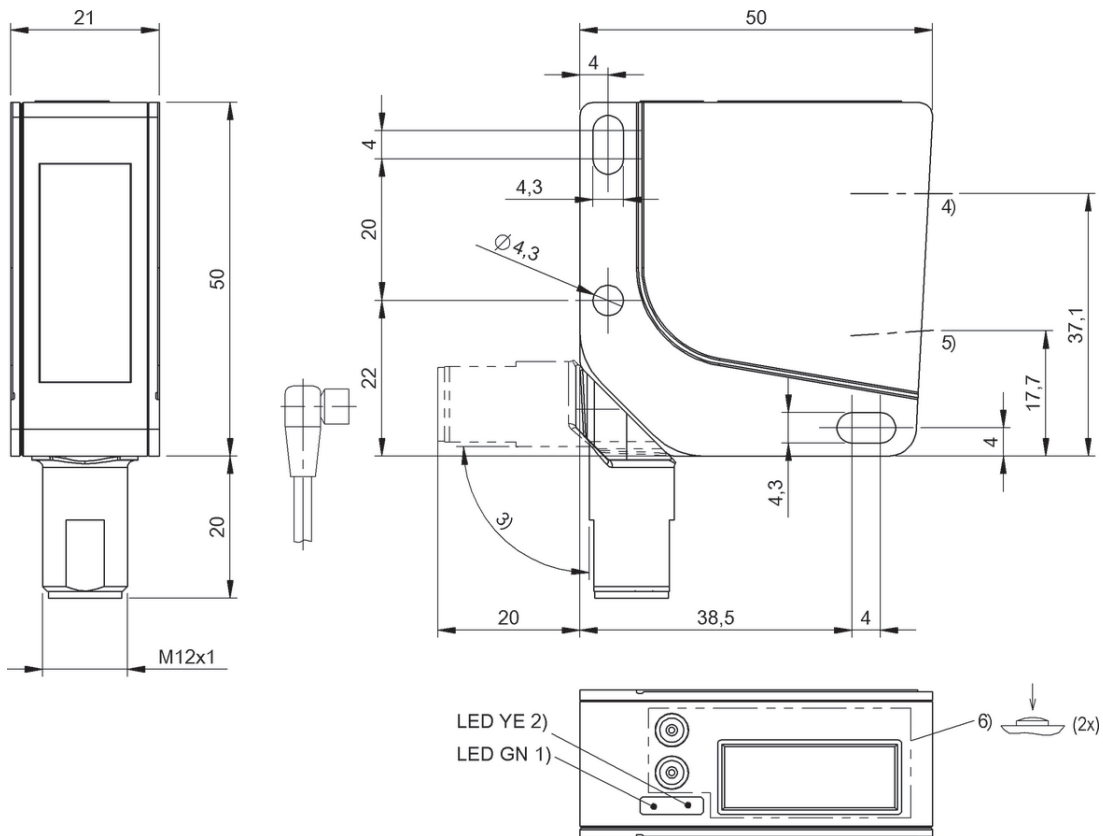
BOD0020

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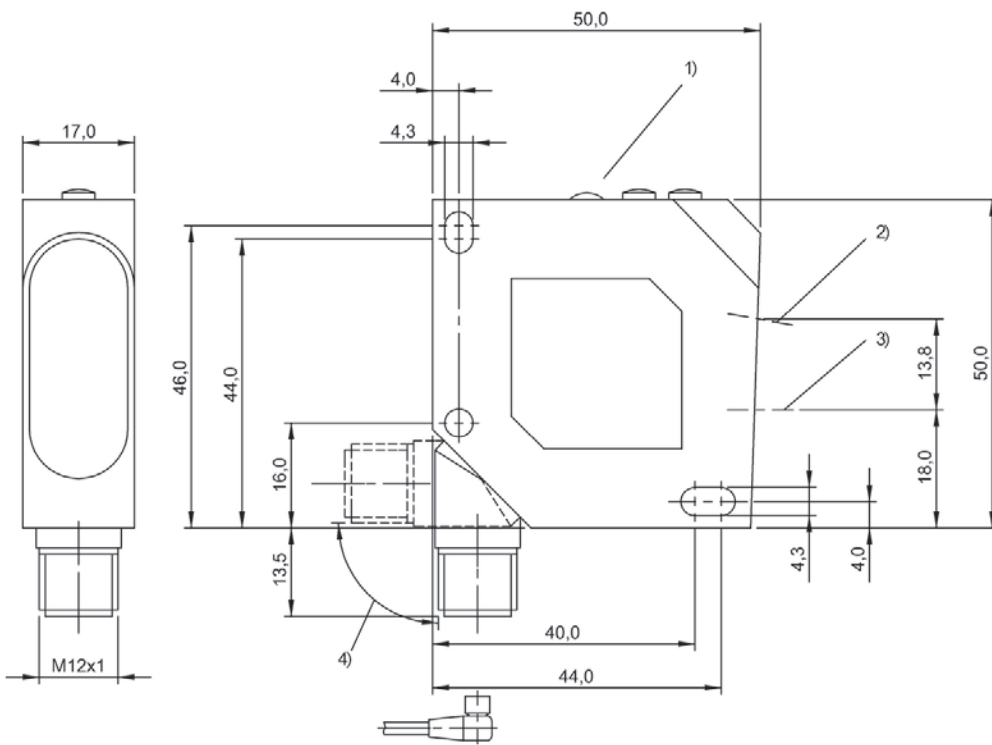
1) Output function, 2) Power/Analog output, 3) Optical axis emitter, 4) Optical axis receiver, 5) Teach-In switching output, 6) Teach-in Analog output, 7) rotatable 270°

BOD001N, BOD001P



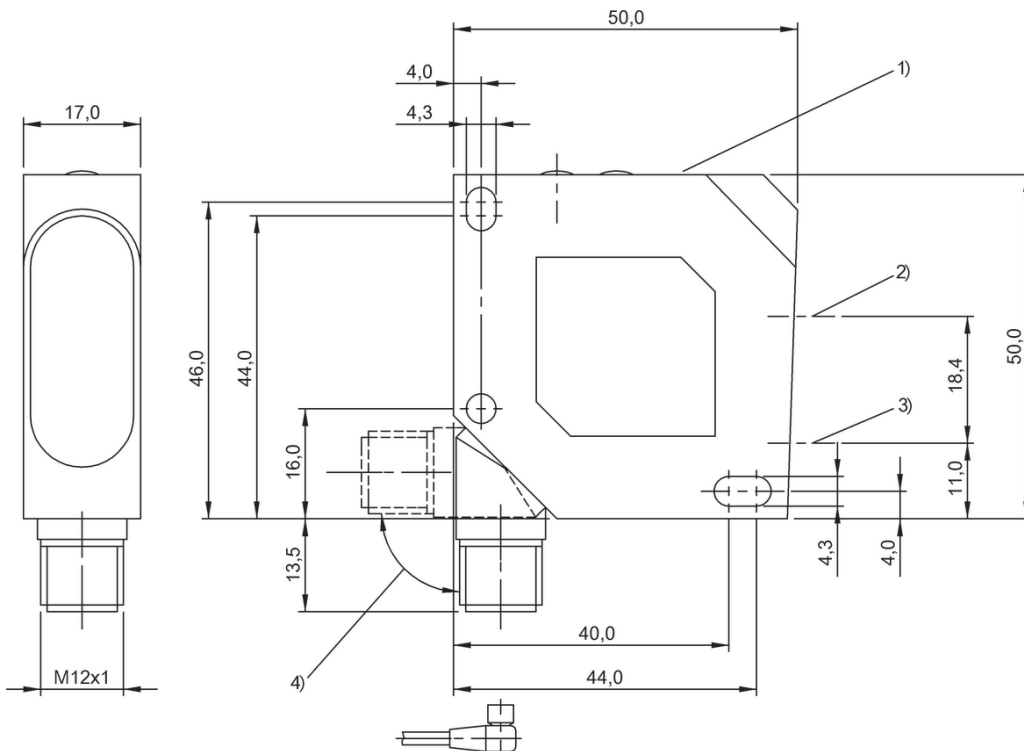
1) Operating voltage, 2) Output function, 3) rotatable 180°, 4) Optical axis emitter, 5) Optical axis receiver, 6) Display and keypad

BOD0023, BOD0026, BOD0021, BOD0024, BOD0022, BOD0025



1) Display and control panel, 2) Optical axis receiver, 3) Optical axis emitter, 4) rotatable 270°

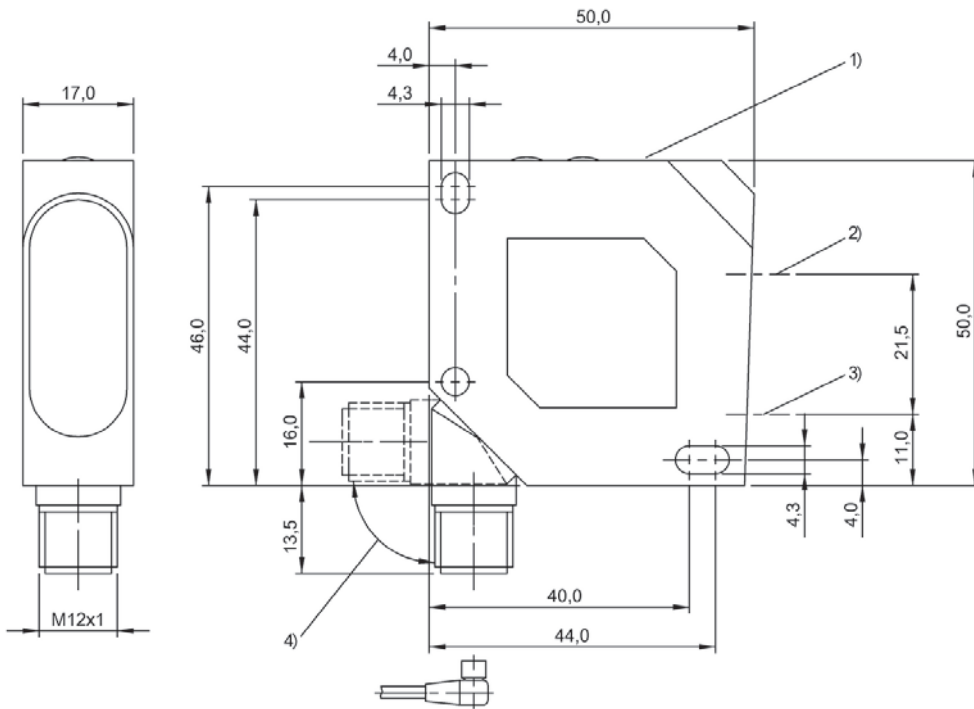
BOD0002, BOD0004



1) Display and control panel, 2) Optical axis emitter, 3) Optical axis receiver, 4) rotatable 270°

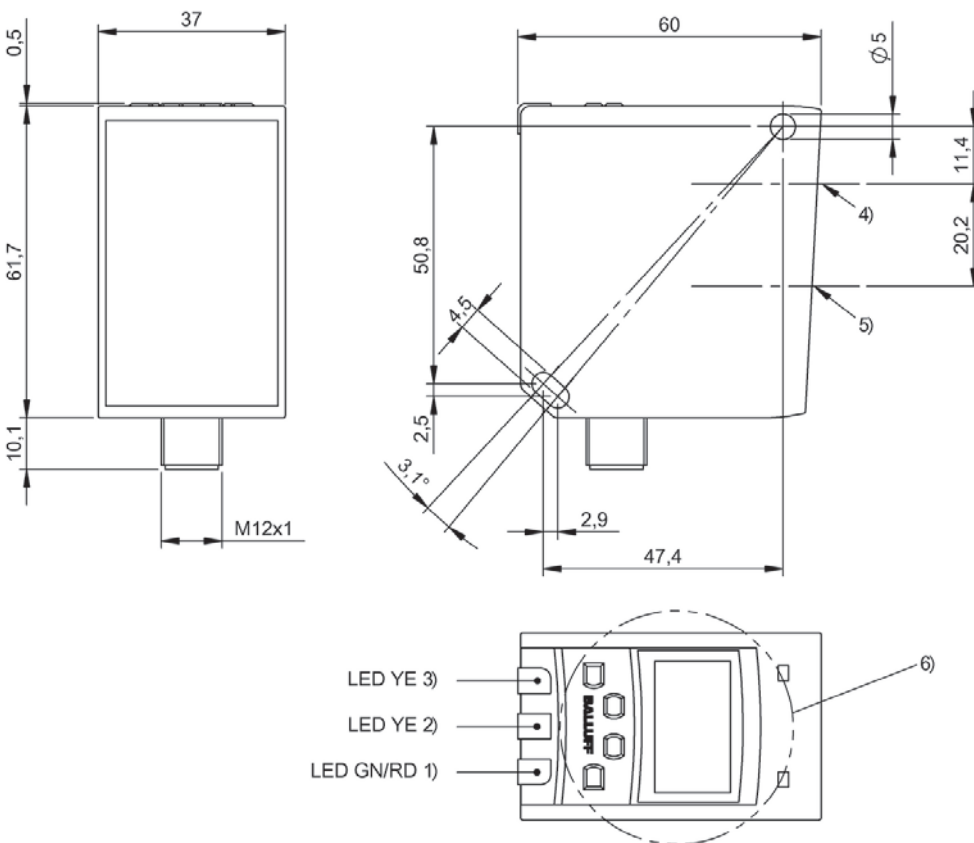
BOD0005, BOD0007, BOD000C

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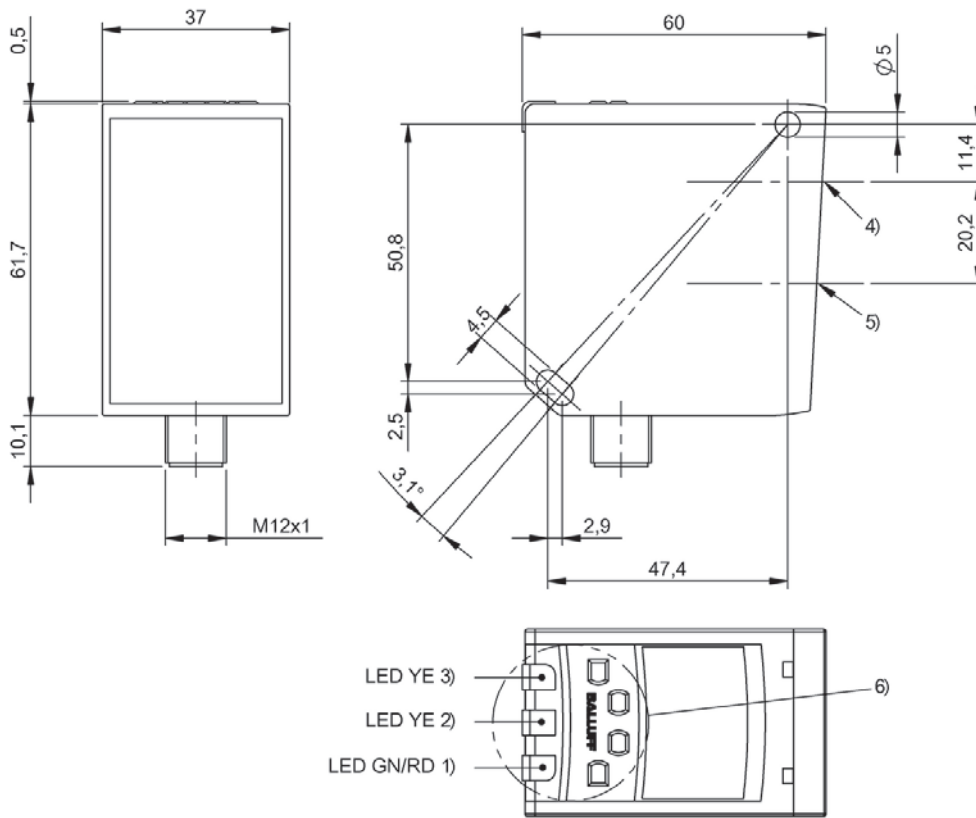
1) Display and control panel, 2) Optical axis emitter, 3) Optical axis receiver, 4) rotatable 270°

BOD0006, BOD0008, BOD000E



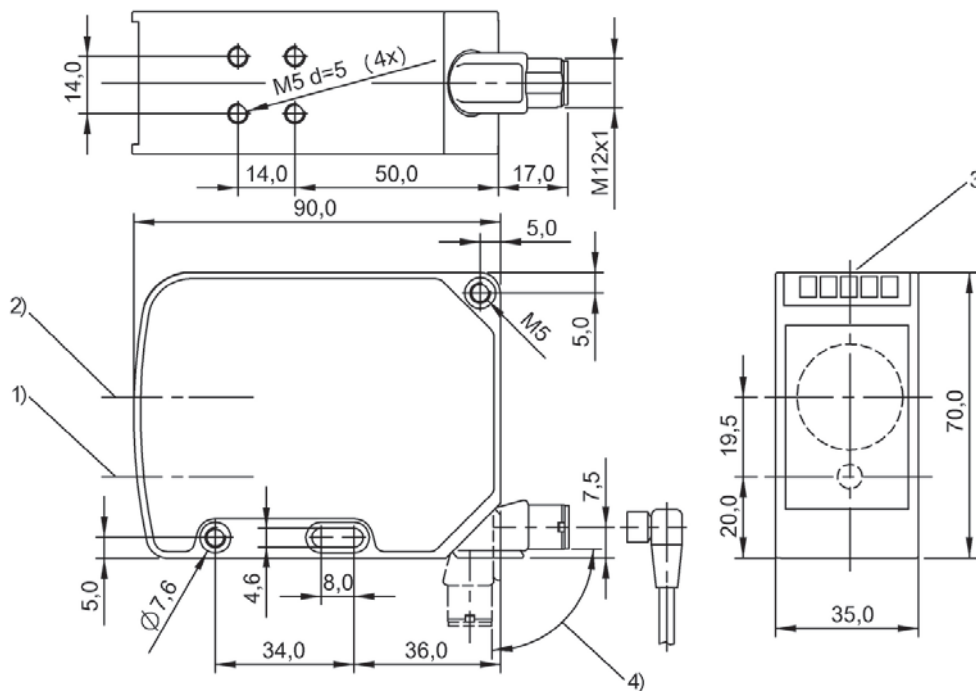
1) Operating voltage/Error, 2) Switchpoint Q2, 3) Switchpoint Q1, 4) Optical axis emitter, 5) Optical axis receiver, 6) Display and keypad

BOD0001Y



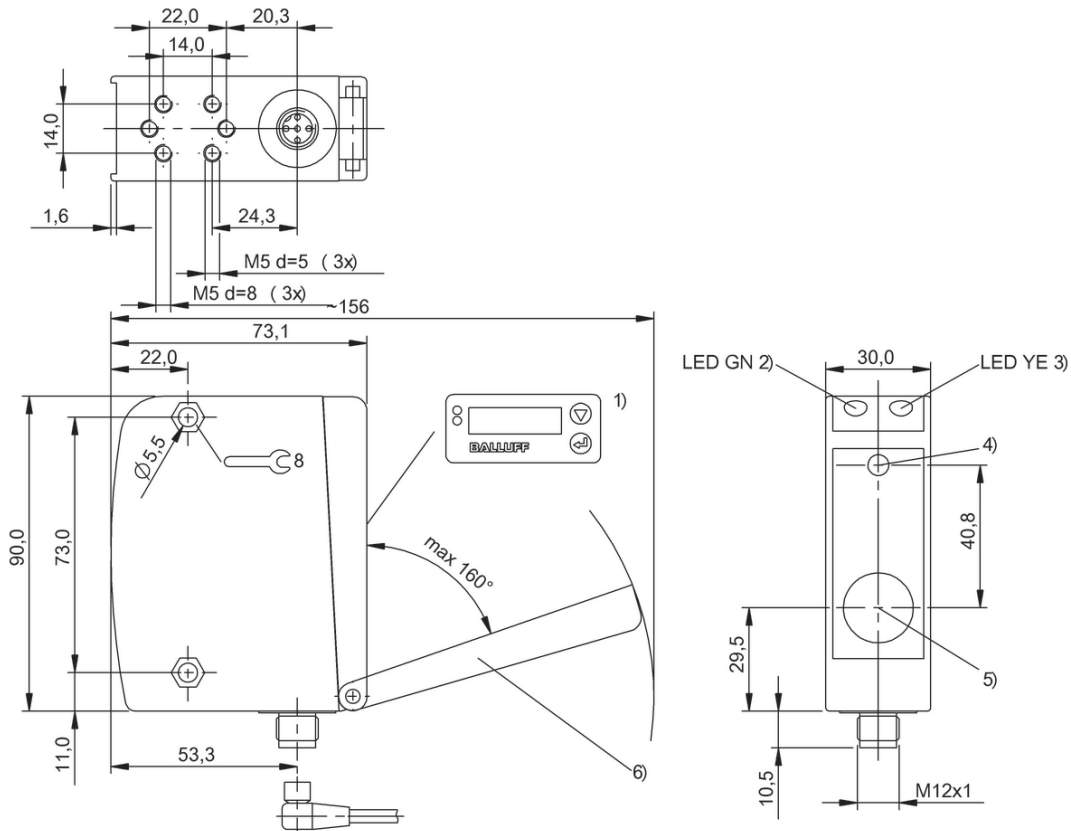
1) Operating voltage/Error, 2) Switchpoint Q2, 3) Switchpoint Q1, 4) Optical axis emitter, 5) Optical axis receiver, 6) Display and control panel

BOD001U, BOD001W



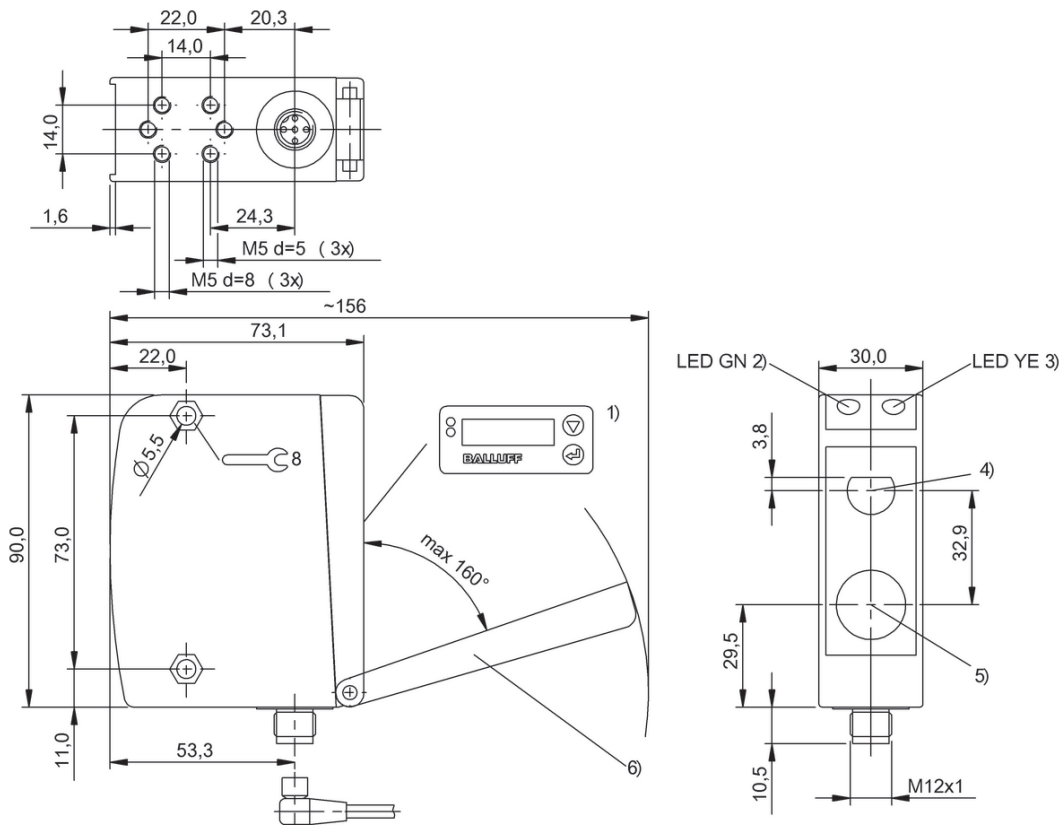
1) Optical axis emitter, 2) Optical axis receiver, 3) Display and control panel, 4) rotatable 270°

BOD0012, BOD000U, BOD000W, BOD0010, BOD0011



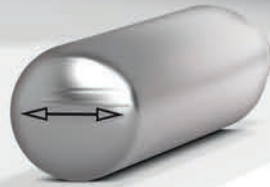
1) Display and keypad, 2) Operating voltage, 3) Output function, 4) Optical axis emitter, 5) Optical axis receiver, 6) Removable cover

BOD001J, BOD001E, BOD001K, BOD001F



1) Display and keypad, 2) Operating voltage, 3) Output function, 4) Optical axis emitter, 5) Optical axis receiver, 6) Removable cover

BOD001H, BOD001C



Sure position detection even at high speeds

MAGNETIC FIELD SENSORS



Our magnetic field sensors are used chiefly on cylinders and grippers for monitoring the piston position. The sensor thus recognizes the field of the magnet integrated into the piston through the actuator wall even at high travel speeds.

With their non-contact position detection the magnetic field sensors from Balluff work absolutely reliably and wear-free: no contact burn, no bouncing, just clean switching points.

The most important benefits

- Contact-free and therefore wear-free
- No double switching points
- Reliable even at high travel speeds



PNP normally open	BMF00LC BMF 235K-H-PI-C-A8-S4-00,3	BMF00L6 BMF 235K-H-PS-C-A2-S75-00,3	
PNP normally closed			
NPN normally open			
Dimension	23.5 x 6.2 x 5 mm	23.5 x 6.2 x 5 mm	
Connection	M12x1-Male, 4-pole, A-coded	M8x1 connector, 4-pin	
Cable	PUR, 0.30 m	PUR, 0.30 m	
Application	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	
Mounting	can be installed in T-slot from above	can be installed in T-slot from above	
Housing material	PA 12	PA 12	
Interface	IO-Link 1.1	—	
Switching frequency	—	—	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...80 °C	-25...80 °C	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, IO-Link, cULus, DC, Code 81U2, EAC	cULus, DC, Code 81U2, EAC, CE	
Ex category	—	—	
Productview	Page 642	Page 642	



	BMF00C4 BMF 235K-PS-C-2A-SA2-S49-00,3	BMF00C5 BMF 235K-PS-C-2A-SA2-S4-00,3	BMF00FY BMF 235K-PS-C-2A-SA4-S4-00,3	BMF00H5 BMF 235K-PS-C-2A-SA93-S4-00,3
	BMF00C6 BMF 235K-PO-C-2A-SA2-S49-00,3			
	BMF00C2 BMF 235K-NS-C-2A-SA2-S49-00,3			
	23.5 x 5 x 5.5 mm	23.5 x 5 x 5.5 mm	23.5 x 5 x 5.5 mm	23.5 x 5 x 5.5 mm
	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded	M12x1-Male, 4-pole, A-coded	M12x1-Male, 4-pole, A-coded
	PUR, 0.30 m	PUR, 0.30 m	PUR with cable labeling grommet, 0.30 m	PUR with silicone tube, 0.30 m
	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.
	can be installed in T-slot from above	can be installed in T-slot from above	can be installed in T-slot from above	can be installed in T-slot from above
	PA 12	PA 12	PA 12	PA 12
	—	—	—	—
	3000 Hz	3000 Hz	3000 Hz	3000 Hz
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C
	—	—	—	—
	IP67	IP67	IP67	IP67
	cULus, CE	CE, cULus	CE, cULus	cULus, CE
	—	—	—	—
	Page 642	Page 642	Page 642	Page 642



PNP normally open	BMF00H3 BMF 235K-PS-C-2A-SA93-S49-00,3	BMF00CF BMF 235K-PS-C-2A-SA2-S49-00,5	
NPN normally open			
Dimension	23.5 x 5 x 5.5 mm	23.5 x 5 x 5.5 mm	
Connection	M8x1 connector, 3-pin	M8x1 connector, 3-pin	
Cable	PUR with silicone tube, 0.30 m	PUR, 0.50 m	
Application	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	
Mounting	can be installed in T-slot from above	can be installed in T-slot from above	
Housing material	PA 12	PA 12	
Interface	—	—	
Switching frequency	3000 Hz	3000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	cULus, CE	cULus, CE	
Ex category	—	—	
Productview	Page 642	Page 642	



	BMF00F5 BMF 235K-PS-C-2A-SA2-S49-01	BMF00KH BMF 235K-H-PS-C-A2-PU-02		BMF00AR BMF 235K-PS-C-2A-PU-02
			BMF00AU BMF 235K-NS-C-2A-PU-02	
	23.5 x 5 x 5.5 mm	23.5 x 6.2 x 5 mm	23.5 x 5 x 5.5 mm	23.5 x 5 x 5.5 mm
	M8x1 connector, 3-pin	—	—	—
	PUR, 1.00 m	PUR, 2.00 m	PUR, 2.00 m	PUR, 2.00 m
	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.
	can be installed in T-slot from above	can be installed in T-slot from above	can be installed in T-slot from above	can be installed in T-slot from above
	PA 12	PA 12	PA 12	PA 12
	—	—	—	—
	3000 Hz	—	3000 Hz	3000 Hz
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...85 °C	-25...80 °C	-25...85 °C	-25...85 °C
	—	—	—	—
	IP67	IP67	IP67	IP67
	cULus, CE	cULus, DC, Code 81U2, EAC, CE	CE, cULus	cULus, CE
	—	—	—	—
	Page 642	Page 642	Page 642	Page 642



PNP normally open	BMF00J6 BMF 235K-PS-C-2A-SA5-02	BMF00CH BMF 235K-PS-C-2A-PU-05	
Dimension	23.5 x 5 x 5.5 mm	23.5 x 5 x 5.5 mm	
Connection	—	—	
Cable	TPE welding spark resistant, 2.00 m	PUR, 5.00 m	
Application	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	
Mounting	can be installed in T-slot from above	can be installed in T-slot from above	
Housing material	PA 12	PA 12	
Interface	—	—	
Switching frequency	3000 Hz	3000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus	cULus, CE	
Ex category	—	—	
Productview	Page 642	Page 642	



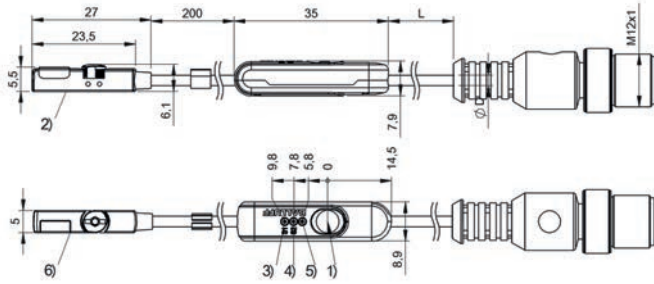
	BMF007Y BMF 315M-PS-D-2-SA3-S49-00,3	BMF0081 BMF 315M-PS-W-2-S4-00,3	BMF0082 BMF 315M-PS-W-2-S49-00,3	BMF00C1 BMF 315M-PS-W-2-SA4-S4-00,3
	33 x 5.1 x 7.2 mm	33 x 5.1 x 7.2 mm	33 x 5.1 x 7.2 mm	33 x 5.1 x 7.2 mm
	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded
	PUR, 0.30 m	PUR, 0.30 m	PUR, 0.30 m	PUR, 0.30 m
	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.
	can be installed in T-slot from above	can be installed in T-slot from above	can be installed in T-slot from above	can be installed in T-slot from above
	Aluminum	Aluminum	Aluminum	Aluminum
	—	—	—	—
	10000 Hz	10 Hz	10 Hz	10 Hz
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...105 °C, high temperature rated	-25...70 °C	-25...70 °C	-25...70 °C
	—	weld-immune (AC)	weld-immune (AC)	weld-immune (AC)
	IP67	IP67	IP67	IP67
	CE, cULus	cULus, CE	cULus, CE	cULus, CE
	—	—	—	—
	Page 643	Page 643	Page 643	Page 643



	BMF007U BMF 315M-PS-D-2-SA3-PU-02	BMF007W BMF 315M-PS-D-2-SA3-PU-05	
PNP normally open			
NAMUR			
Dimension	33 x 5.1 x 7.2 mm	33 x 5.1 x 7.2 mm	
Connection	—	—	
Cable	PUR, 2.00 m	PUR, 5.00 m	
Application	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	
Mounting	can be installed in T-slot from above	can be installed in T-slot from above	
Housing material	Aluminum	Aluminum	
Interface	—	—	
Switching frequency	10000 Hz	10000 Hz	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...105 °C, high temperature rated	-25...105 °C, high temperature rated	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus	CE, cULus	
Ex category	—	—	
Productview	Page 643	Page 643	

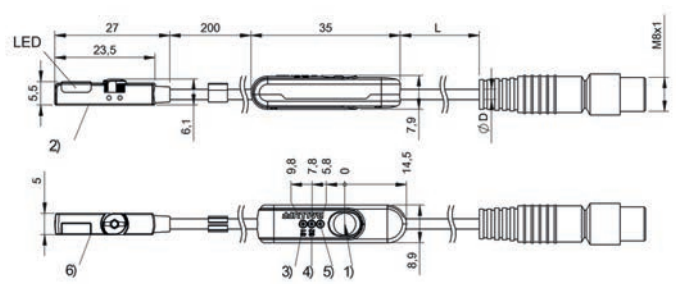


	BMF00E4 BMF 255K-N-06-EEEX			
	25 x 5 x 5.1 mm			
	—			
	PVC, 6.00 m			
	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.			
	can be installed in T-slot from above			
	PA			
	NAMUR			
	2000 Hz			
	—			
	-25...70 °C			
	—			
	IP67			
	CE, EAC			
	ATEX: 1G (EPL Ga) ATEX: 1D (EPL Da)			
	Page 643			



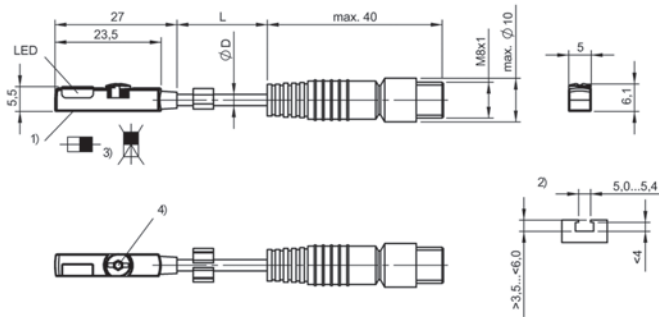
1) Teach-In button, 2) Sensing surface, 3) Output 1 active, 4) Output 2 active, 5) LED Power, 6) Null point

BMF00LC



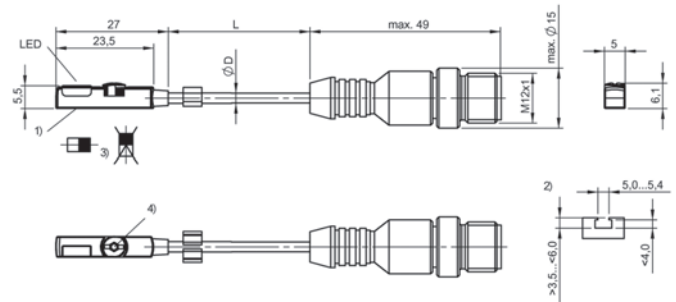
1) Teach-In button, 2) Sensing surface, 3) Output 1 active, 4) Output 2 active, 5) LED Power, 6) Null point

BMF00L6



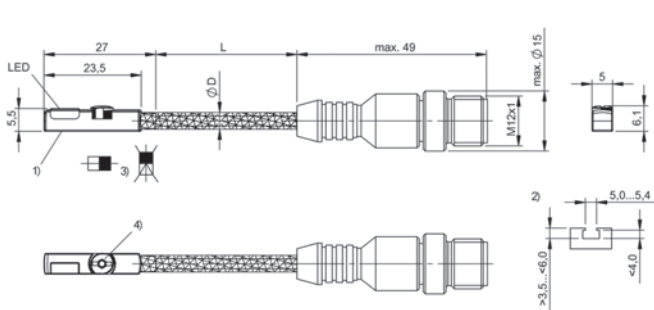
1) Sensing surface, 2) see remarks, 3) see remarks, 4) see remarks

BMF00C2, BMF00C6, BMF00C4, BMF00CF, BMF00F5



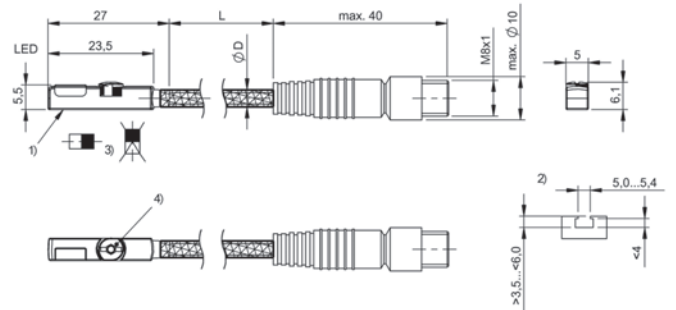
1) Sensing surface, 2) see remarks, 3) see remarks, 4) see remarks

BMF00C5, BMF00FY



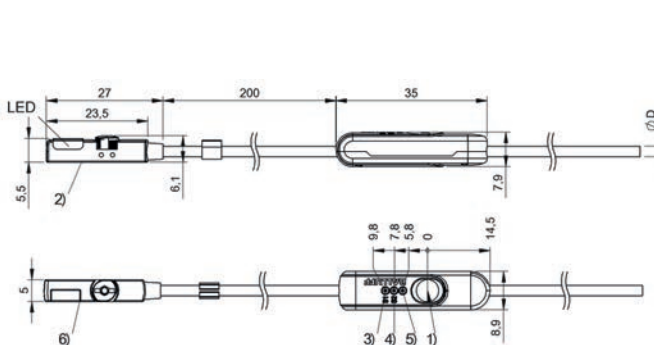
1) Sensing surface, 2) see remarks, 3) see remarks, 4) see remarks

BMF00H5



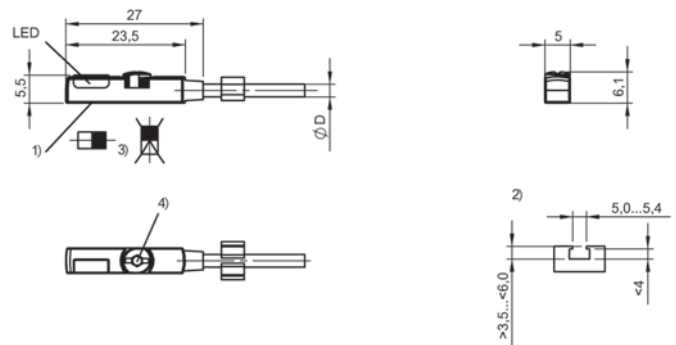
1) Sensing surface, 2) see remarks, 3) see remarks, 4) see remarks

BMF00H3



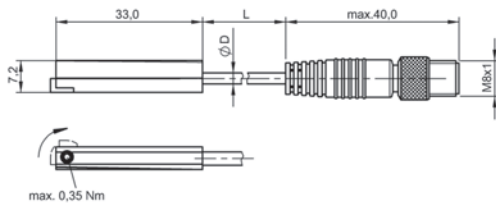
1) Teach-In button, 2) Sensing surface, 3) Output 1 active, 3) Output 2 active, 5) LED Power, 6) Null point

BMF00KH



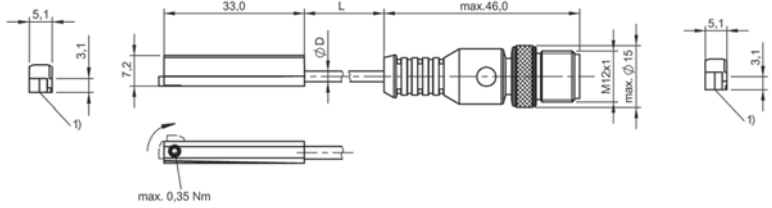
1) Sensing surface, 2) see remarks, 3) see remarks, 4) see remarks

BMF00AU, BMF00AR, BMF00J6, BMF00CH



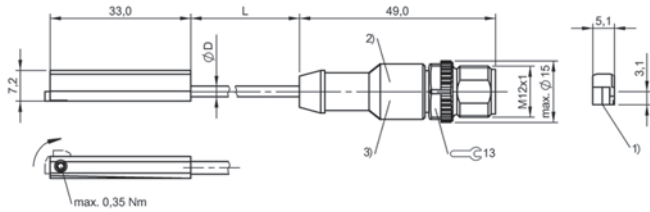
1) Sensing surface

BMF007Y, BMF0082



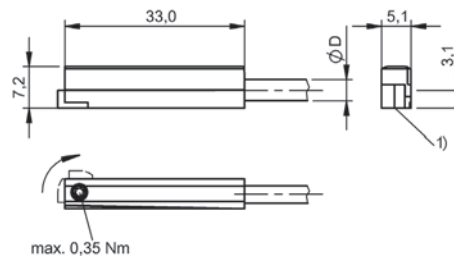
1) Sensing surface

BMF0081



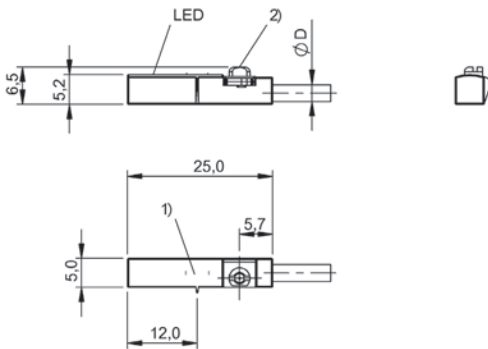
1) Sensing surface, 2) Power indicator green, 3) Function indicator yellow

BMF00C1



1) Sensing surface

BMF007U, BMF007W



1) Sensing surface, 2) Mounting clamp

BMF00E4



PNP normally open	BMF00K9 BMF 203K-H-PI-C-A8-S75-00,3	BMF00JH BMF 203K-H-PS-C-A2-S75-00,3	
Dimension	20 x 2.9 x 3.6 mm	20 x 2.9 x 3.6 mm	
Connection	M8x1 connector, 4-pin	M8x1 connector, 4-pin	
Cable	PUR, 0.30 m	PUR, 0.30 m	
Application	Pneumatic cylinder with C-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with C-slot. For dimensions, see sketch in product view.	
Mounting	can be installed in C-slot from above	can be installed in C-slot from above	
Housing material	PA 12	PA 12	
Interface	IO-Link 1.1	—	
Switching frequency	15 Hz	15 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...80 °C	-25...80 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, IO-Link, cULus, DC, Code 81U2	CE, cULus, DC, Code 81U2	
Productview	Page 652	Page 652	



	BMF00JF BMF 203K-H-PS-C-A2-PU-02	BMF00A6 BMF 204K-PS-C-2A-SA2-S4-00,3	BMF0002 BMF 204K-PS-C-2A-SA2-S49-00,3	BMF0003 BMF 204K-PS-C-2A-SA2-S49-00,5
	20 x 2.9 x 3.6 mm	16.8 x 2.9 x 4.5 mm	16.8 x 2.9 x 4.5 mm	16.8 x 2.9 x 4.5 mm
	—	M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin	M8x1 connector, 3-pin
	PUR, 2.00 m	PUR, 0.30 m	PUR, 0.30 m	PUR, 0.50 m
	Pneumatic cylinder with C-slot. For dimensions, see sketch in product view.	Optimized response path especially suited for short-stroke cylinders.	Optimized response path especially suited for short-stroke cylinders.	Optimized response path especially suited for short-stroke cylinders.
	can be installed in C-slot from above	C-slot, Sommer, Festo slot 10	C-slot, Sommer, Festo slot 10	C-slot, Sommer, Festo slot 10
	PA 12	PA 12	PA 12	PA 12
	—	—	—	—
	15 Hz	7000 Hz	7000 Hz	7000 Hz
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...80 °C	-25...85 °C	-25...85 °C	-25...85 °C
	IP67	IP67	IP67	IP67
	CE, cULus, DC, Code 81U2	cULus, CE	CE, cULus	CE, cULus
	Page 652	Page 652	Page 652	Page 652



PNP normally open	BMF0001 BMF 204K-PS-C-2A-PU-02	BMF00FC BMF 214K-PS-C-2A-SA2-S4-00,3	
Dimension	16.8 x 2.9 x 4.5 mm	16.8 x 2.9 x 4.5 mm	
Connection	—	M12x1-Male, 4-pole, A-coded	
Cable	PUR, 2.00 m	PUR, 0.30 m	
Application	Optimized response path especially suited for short-stroke cylinders.	Optimized response path especially suited for short-stroke cylinders.	
Mounting	C-slot, Sommer, Festo slot 10	C-slot, SMC, Bimba, Schunk	
Housing material	PA 12	PA 12	
Interface	—	—	
Switching frequency	7000 Hz	7000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	
Protection degree	IP67	IP67	
Approval/Conformity	cULus, CE	cULus, CE	
Productview	Page 652	Page 652	



	BMF00A2 BMF 214K-PS-C-2A-SA2-S49-00,3	BMF00A3 BMF 214K-PS-C-2A-SA2-S49-00,5	BMF00A1 BMF 214K-PS-C-2A-PU-02	BMF00E5 BMF 214K-PS-C-2A-S4-03
	16.8 x 2.9 x 4.5 mm	16.8 x 2.9 x 4.5 mm	16.8 x 2.9 x 4.5 mm	16.8 x 2.9 x 4.5 mm
	M8x1 connector, 3-pin	M8x1 connector, 3-pin	—	M12x1-Male, 4-pole, A-coded
	PUR, 0.30 m	PUR, 0.50 m	PUR, 2.00 m	PUR, 3.00 m
	Optimized response path especially suited for short-stroke cylinders.	Optimized response path especially suited for short-stroke cylinders.	Optimized response path especially suited for short-stroke cylinders.	Optimized response path especially suited for short-stroke cylinders.
	C-slot, SMC, Bimba, Schunk	C-slot, SMC, Bimba, Schunk	C-slot, SMC, Bimba, Schunk	C-slot, SMC, Bimba, Schunk
	PA 12	PA 12	PA 12	PA 12
	—	—	—	—
	7000 Hz	7000 Hz	7000 Hz	7000 Hz
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C
	IP67	IP67	IP67	IP67
	CE, cULus	CE, cULus	CE, cULus	cULus, CE
	Page 652	Page 652	Page 652	Page 653



PNP normally open	BMF00E3 BMF 214K-PS-C-2A-PU-05	BMF00HF BMF 233K-PS-C-2A-SA2-S49-00,3	
NPN normally open			
Dimension	16.8 x 2.9 x 4.5 mm	24 x 2.9 x 3.6 mm	
Connection	—	M8x1 connector, 3-pin	
Cable	PUR, 5.00 m	PUR, 0.30 m	
Application	Optimized response path especially suited for short-stroke cylinders.	Pneumatic cylinder with C-slot, e.g. Festo, Sommer, etc.	
Mounting	C-slot, SMC, Bimba, Schunk	can be installed in C-slot from above	
Housing material	PA 12	PA 12	
Interface	—	—	
Switching frequency	7000 Hz	3000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus	cULus, CE	
Productview	Page 652	Page 653	



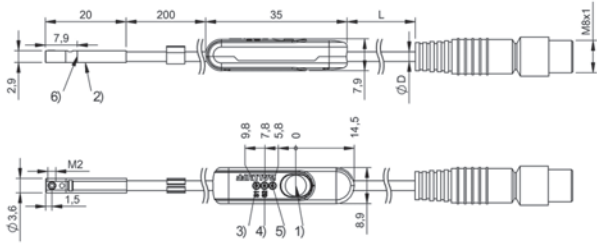
BMF00HA BMF 233K-PS-C-2A-PU-02		BMF00ER BMF 243K-PS-C-2A-SA2-S4-00,3	BMF00EL BMF 243K-PS-C-2A-SA2-S49-00,3
	BMF00EN BMF 243K-NS-C-2A-SA2-S49-00,3		
24 x 2.9 x 3.6 mm	24 x 3 x 3.75 mm	24 x 3 x 3.75 mm	24 x 3 x 3.75 mm
—	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin
PUR, 2.00 m	PUR, 0.30 m	PUR, 0.30 m	PUR, 0.30 m
Pneumatic cylinder with C-slot, e.g. Festo, Sommer, etc.	Pneumatic cylinder with C-slot, e.g. SMC, Festo*, Schunk, Sommer, Gimatic (*not suitable for Festo Series ADVC and AEVC)	Pneumatic cylinder with C-slot, e.g. SMC, Festo*, Schunk, Sommer, Gimatic (*not suitable for Festo Series ADVC and AEVC)	Pneumatic cylinder with C-slot, e.g. SMC, Festo*, Schunk, Sommer, Gimatic (*not suitable for Festo Series ADVC and AEVC)
can be installed in C-slot from above	can be installed in C-slot from above	can be installed in C-slot from above	can be installed in C-slot from above
PA 12	PA 12	PA 12	PA 12
—	—	—	—
3000 Hz	3000 Hz	3000 Hz	3000 Hz
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C
IP67	IP67	IP67	IP67
cULus, CE	cULus, CE	cULus, CE	cULus, CE
Page 653	Page 653	Page 653	Page 653



PNP normally open	BMF00H6 BMF 243K-PS-C-2A-SA93-S4-00,3	BMF00H7 BMF 243K-PS-C-2A-SA93-S49-00,3	
Dimension	24 x 3 x 3.75 mm	24 x 3 x 3.75 mm	
Connection	M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin	
Cable	PUR with silicone tube, 0.30 m	PUR with silicone tube, 0.30 m	
Application	Pneumatic cylinder with C-slot, e.g. SMC, Festo*, Schunk, Sommer, Gimatic (*not suitable for Festo Series ADVC and AEVC)	Pneumatic cylinder with C-slot, e.g. SMC, Festo*, Schunk, Sommer, Gimatic (*not suitable for Festo Series ADVC and AEVC)	
Mounting	can be installed in C-slot from above	can be installed in C-slot from above	
Housing material	PA 12	PA 12	
Interface	—	—	
Switching frequency	3000 Hz	3000 Hz	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	
Protection degree	IP67	IP67	
Approval/Conformity	cULus, CE	CE, cULus	
Productview	Page 653	Page 653	

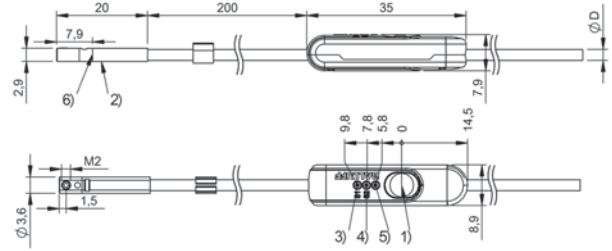


BMF00EF BMF 243K-PS-C-2A-PU-02			
24 x 3 x 3.75 mm			
—			
PUR, 2.00 m			
Pneumatic cylinder with C-slot, e.g. SMC, Festo*, Schunk, Som- mer, Gimatic (*not suitable for Festo Series ADVC and AEVC)			
can be installed in C-slot from above			
PA 12			
—			
3000 Hz			
10...30 VDC			
-25...85 °C			
IP67			
cULus, CE			
Page 653			



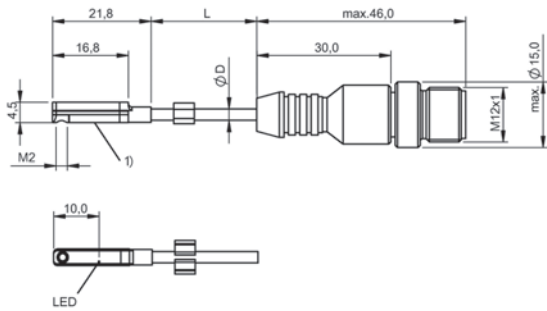
1) Teach-In button, 2) Sensing surface, 3) Output 1 active, 4) Output 2 active, 5) LED Power, 6) Null point

BMF00K9, BMF00JH



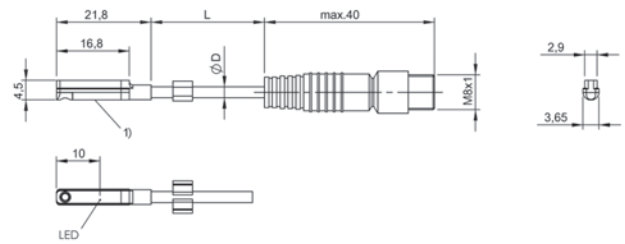
1) Teach-In button, 2) Sensing surface, 3) Output 1 active, 4) Output 2 active, 5) LED Power, 6) Null point

BMF00JF



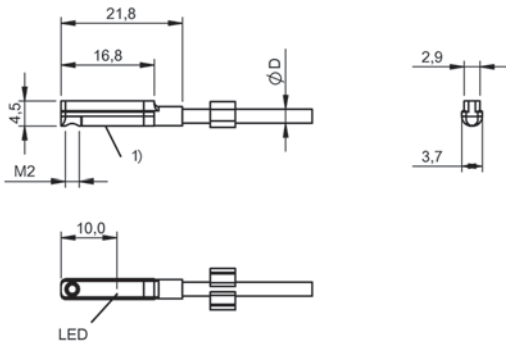
1) Sensing surface

BMF00A6



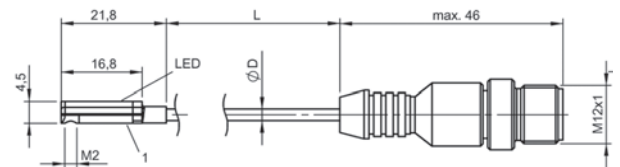
1) Sensing surface

BMF0002, BMF0003

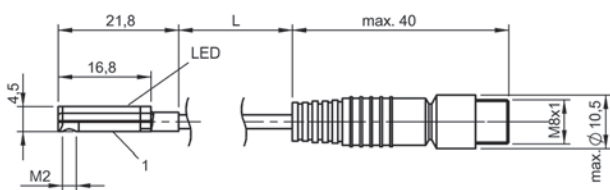


1) Sensing surface

BMF0001

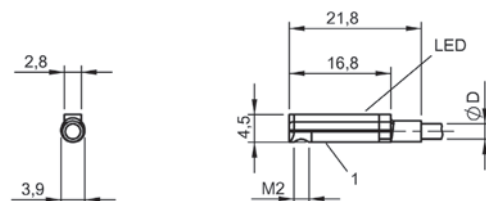


BMF00FC



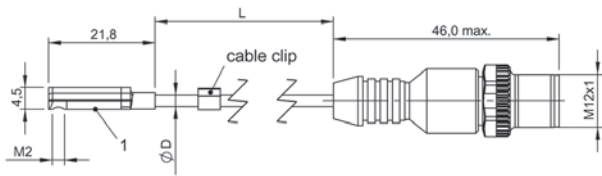
1) Sensing surface

BMF00A2, BMF00A3



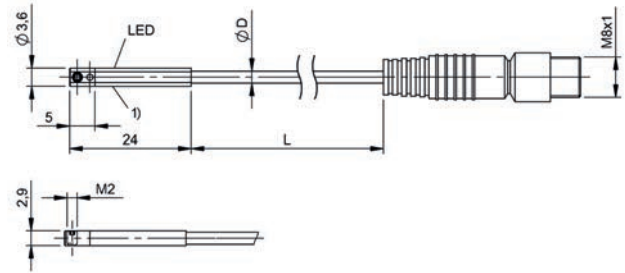
1) Sensing surface

BMF00A1, BMF00E3



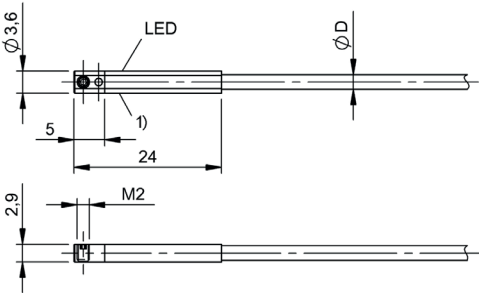
1) Sensing surface

BMF00E5



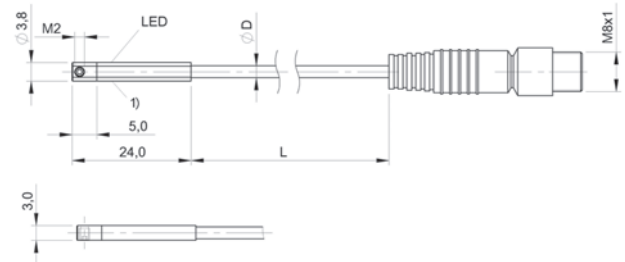
1) Sensing surface

BMF00HF



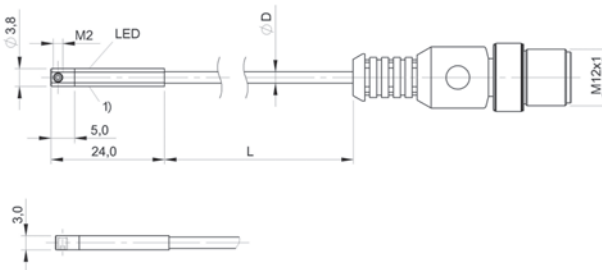
1) Sensing surface

BMF00HA



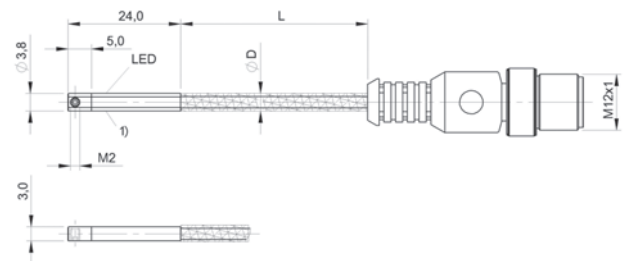
1) Sensing surface

BMF00EN, BMF00EL



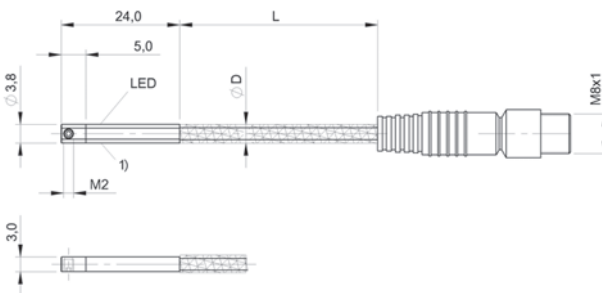
1) Sensing surface

BMF00ER



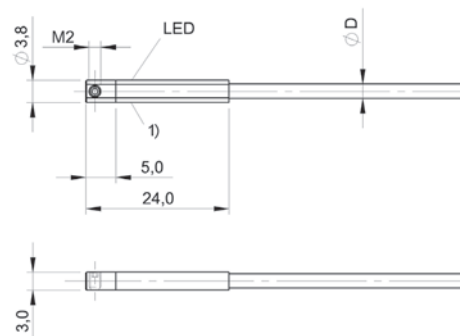
1) Sensing surface

BMF00H6



1) Sensing surface

BMF00H7



1) Sensing surface

BMF00EF



PNP normally open	BMF001L BMF 103K-PS-C-2A-SA2-S49-00,3	BMF001P BMF 103K-PS-C-2A-SA7-S49-00,3	BMF001K BMF 103K-PS-C-2A-S4-00,5	
Dimension	9 x 4.8 x 16 mm	9 x 4.8 x 16 mm	9 x 4.8 x 16 mm	
Connection	M8x1 connector, 3-pin	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded	
Cable	PUR, 0.30 m	PUR, 0.30 m	PUR, 0.50 m	
Application	Optimized response path especially suited for short-stroke cylinders.	radially magnetized magnets (Schunk)	Optimized response path especially suited for short-stroke cylinders.	
Mounting	Mounting bracket BMF 103-HW*	Mounting bracket BMF 103-HW*	Mounting bracket BMF 103-HW*	
Housing material	PBT	LCP	PBT	
Interface	—	—	—	
Switching frequency	30000 Hz	7000 Hz	30000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	-25...85 °C	
Magnetic field immune	—	—	—	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	cULus, CE	CE, cULus	CE, cULus	
Productview	Page 668	Page 668	Page 668	



	BMF001M BMF 103K-PS-C-2A-SA2-S49-00,5	BMF001E BMF 103K-PS-C-2A-PU-02	BMF001F BMF 103K-PS-C-2A-PU-03	BMF0041 BMF 303K-PS-C-2A-S49-00,2	
	9 x 4.8 x 16 mm	9 x 4.8 x 16 mm	9 x 4.8 x 16 mm	25.5 x 3 x 4.5 mm	
	M8x1 connector, 3-pin	—	—	M8x1 connector, 3-pin	
	PUR, 0.50 m	PUR, 2.00 m	PUR, 3.00 m	PUR, 0.20 m	
	Optimized response path especially suited for short-stroke cylinders.	Optimized response path especially suited for short-stroke cylinders.	Optimized response path especially suited for short-stroke cylinders.	miniaturized actuators	
	Mounting bracket BMF 103-HW*	Mounting bracket BMF 103-HW*	Mounting bracket BMF 103-HW*	Mounting bracket BMF 303-HW*	
	PBT	PBT	PBT	LCP	
	—	—	—	—	
	30000 Hz	30000 Hz	30000 Hz	30000 Hz	
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
	-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C	
	—	—	—	—	
	IP67	IP67	IP67	IP67	
	cULus, CE	cULus, CE	cULus, CE	cULus, CE	
	Page 668	Page 668	Page 668	Page 668	



PNP normally open	BMF0042 BMF 303K-PS-C-2A-SA2-S49-00,2	BMF0043 BMF 303K-PS-C-2A-SA2-S49-00,3	BMF0049 BMF 303K-PS-C-2A-SA6-S49-00,3	
PNP normally closed		BMF0039 BMF 303K-PO-C-2A-SA2-S49-00,3		
Dimension	25.5 x 3 x 4.5 mm	25.5 x 3 x 4.5 mm	25.5 x 3 x 4.5 mm	
Connection	M8x1 connector, 3-pin	M8x1 connector, 3-pin	M8x1 connector, 3-pin	
Cable	PUR, 0.20 m	PUR, 0.30 m	PUR, 0.30 m	
Application	miniaturized actuators	miniaturized actuators	Optimized response path especially suited for short-stroke cylinders.	
Mounting	Mounting bracket BMF 303-HW*	Mounting bracket BMF 303-HW*	Mounting bracket BMF 303-HW*	
Housing material	LCP	LCP	LCP	
Interface	—	—	—	
Switching frequency	30000 Hz	30000 Hz	30000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	-25...85 °C	
Magnetic field immune	—	—	—	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	cULus, CE	cULus, CE	cULus, CE	
Productview	Page 668	Page 668	Page 668	



	BMF004C BMF 303K-PS-C-2A-SA7-S49-00,3	BMF0040 BMF 303K-PS-C-2A-S4-00,5	BMF0044 BMF 303K-PS-C-2A-SA2-S49-00,5	BMF004A BMF 303K-PS-C-2A-SA6-S49-00,5	
	25.5 x 3 x 4.5 mm	25.5 x 3 x 4.5 mm	25.5 x 3 x 4.5 mm	25.5 x 3 x 4.5 mm	
	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin	M8x1 connector, 3-pin	
	PUR, 0.30 m	PUR, 0.50 m	PUR, 0.50 m	PUR, 0.50 m	
	radially magnetized magnets (Schunk)	miniaturized actuators	miniaturized actuators	Optimized response path especially suited for short-stroke cylinders.	
	Mounting bracket BMF 303-HW*	Mounting bracket BMF 303-HW*	Mounting bracket BMF 303-HW*	Mounting bracket BMF 303-HW*	
	LCP	LCP	LCP	LCP	
	—	—	—	—	
	7000 Hz	30000 Hz	30000 Hz	30000 Hz	
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
	-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C	
	—	—	—	—	
	IP67	IP67	IP67	IP67	
	CE, cULus	cULus, CE	cULus, CE	cULus, CE	
	Page 668	Page 668	Page 668	Page 668	

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open	BMF0045 BMF 303K-PS-C-2A-SA2-S49-00,7	BMF0046 BMF 303K-PS-C-2A-SA2-S49-01	BMF0047 BMF 303K-PS-C-2A-SA2-S49-01,5	
Dimension	25.5 x 3 x 4.5 mm	25.5 x 3 x 4.5 mm	25.5 x 3 x 4.5 mm	
Connection	M8x1 connector, 3-pin	M8x1 connector, 3-pin	M8x1 connector, 3-pin	
Cable	PUR, 0.70 m	PUR, 1.00 m	PUR, 1.50 m	
Application	miniaturized actuators	miniaturized actuators	miniaturized actuators	
Mounting	Mounting bracket BMF 303-HW*	Mounting bracket BMF 303-HW*	Mounting bracket BMF 303-HW*	
Housing material	LCP	LCP	LCP	
Interface	—	—	—	
Switching frequency	30000 Hz	30000 Hz	30000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	-25...85 °C	
Magnetic field immune	—	—	—	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	cULus, CE	cULus, CE	cULus, CE	
Productview	Page 668	Page 668	Page 668	



	BMF003U BMF 303K-PS-C-2A-PU-02	BMF003W BMF 303K-PS-C-2A-PU-03	BMF0048 BMF 303K-PS-C-2A-SA6-PU-03	BMF003Y BMF 303K-PS-C-2A-PU-05	
	25.5 x 3 x 4.5 mm	25.5 x 3 x 4.5 mm	25.5 x 3 x 6 mm	25.5 x 3 x 4.5 mm	
	—	—	—	—	
	PUR, 2.00 m	PUR, 3.00 m	PUR, 3.00 m	PUR, 5.00 m	
	miniaturized actuators	miniaturized actuators	Optimized response path especially suited for short-stroke cylinders.	miniaturized actuators	
	Mounting bracket BMF 303-HW*	Mounting bracket BMF 303-HW*	Mounting bracket BMF 303-HW*	Mounting bracket BMF 303-HW*	
	LCP	LCP	LCP	LCP	
	—	—	—	—	
	30000 Hz	30000 Hz	30000 Hz	30000 Hz	
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
	-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C	
	—	—	—	—	
	IP67	IP67	IP67	IP67	
	cULus, CE	cULus, CE	CE, cULus	cULus, CE	
	Page 668	Page 668	Page 669	Page 668	



PNP normally open	BMF008E BMF 305M-PS-C-2-S4	BMF008F BMF 305M-PS-C-2-S49	BMF0066 BMF 305M-PS-C-2-SA4-S49	
Dimension	33.5 x 12.8 x 33.5 mm	33.5 x 9 x 26.2 mm	33.5 x 9 x 26.2 mm	
Connection	M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin	M8x1 connector, 3-pin	
Cable	—	—	—	
Application	larger actuators	larger actuators	larger actuators	
Mounting	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	
Housing material	Aluminum	Aluminum	Aluminum	
Interface	—	—	—	
Switching frequency	10000 Hz	10000 Hz	10000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	-25...105 °C, high temperature rated	
Magnetic field immune	—	—	—	
Protection degree	IP67	IP67	IP65	
Approval/Conformity	CE, cULus	CE, cULus	CE	
Productview	Page 669	Page 669	Page 669	



	BMF0067 BMF 305M-PS-W-2-S4	BMF005F BMF 305K-PS-C-2-S49-00,1	BMF0058 BMF 305K-PS-C-2-S4-00,2	BMF005H BMF 305K-PS-C-2-S49-00,2	
	33.5 x 5 x 33.5 mm	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	
	M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin	
	—	PUR, 0.10 m	PUR, 0.20 m	PUR, 0.20 m	
	larger actuators, Welding area	larger actuators	larger actuators	larger actuators	
	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	
	Aluminum	LCP	LCP	LCP	
	—	—	—	—	
	10 Hz	10000 Hz	10000 Hz	10000 Hz	
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
	-25...70 °C	-25...85 °C	-25...85 °C	-25...85 °C	
	weld-immune (AC)	—	—	—	
	IP67	IP67	IP67	IP67	
	cULus, CE	CE, cULus	CE, cULus	CE, cULus	
	Page 669	Page 669	Page 669	Page 669	



PNP normally open	BMF005K BMF 305K-PS-C-2-SA2-S49-00,2	BMF005W BMF 305K-PS-C-2-SA5-S49-00,2		
PNP normally closed				
Polarized normally open			BMF0063 BMF 305K-R-PS-F-3-S49-00,2	
Dimension	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	
Connection	M8x1 connector, 3-pin	M8x1 connector, 3-pin	M8x1 connector, 3-pin	
Cable	PUR, 0.20 m	0.20 m	PUR, 0.20 m	
Application	larger actuators	—	larger actuators	
Mounting	Mounting bracket BMF 305-HW*	—	Mounting bracket BMF 305-HW*	
Housing material	LCP	LCP	LCP	
Interface	—	—	—	
Switching frequency	10000 Hz	10000 Hz	1000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	-20...70 °C	
Magnetic field immune	—	—	—	
Protection degree	IP67	IP67	IP65	
Approval/Conformity	CE, cULus	cULus, CE	CE	
Productview	Page 669	Page 669	Page 669	



	BMF005L BMF 305K-PS-C-2-SA2-S49-00,3	BMF005M BMF 305K-PS-C-2-SA2-S49-00,4	BMF0059 BMF 305K-PS-C-2-S4-00,5	BMF005J BMF 305K-PS-C-2-S49-00,5	
	BMF0055 BMF 305K-PO-C-2-SA2-S49-00,3				
	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	
	M8x1 connector, 3-pin	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin	
	PUR, 0.30 m	PUR, 0.40 m	PUR, 0.50 m	PUR, 0.50 m	
	larger actuators	larger actuators	larger actuators	larger actuators	
	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	
	LCP	LCP	LCP	LCP	
	—	—	—	—	
	10000 Hz	10000 Hz	10000 Hz	10000 Hz	
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	
	-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C	
	—	—	—	—	
	IP67	IP67	IP67	IP67	
	CE, cULus	CE, cULus	CE, cULus	CE, cULus	
	Page 669	Page 669	Page 669	Page 669	

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supply

Connectivity

Accessories



PNP normally open	BMF005N BMF 305K-PS-C-2-SA2-S49-00,5	BMF005P BMF 305K-PS-C-2-SA2-S49-00,6	BMF005A BMF 305K-PS-C-2-S4-00,8	
Dimension	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	
Connection	M8x1 connector, 3-pin	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded	
Cable	PUR, 0.50 m	PUR, 0.60 m	PUR, 0.80 m	
Application	larger actuators	larger actuators	larger actuators	
Mounting	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	
Housing material	LCP	LCP	LCP	
Interface	—	—	—	
Switching frequency	10000 Hz	10000 Hz	10000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	-25...85 °C	
Magnetic field immune	—	—	—	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	CE, cULus	CE, cULus	CE, cULus	
Productview	Page 669	Page 669	Page 669	



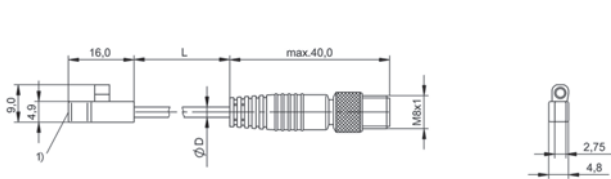
BMF0061 BMF 305K-PS-W-2-SA3-S4-00,8	BMF005R BMF 305K-PS-C-2-SA2-S49-01	BMF005C BMF 305K-PS-C-2-S4-01,5		
33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm		
M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded		
PUR, 0.80 m	PUR, 1.00 m	PUR, 1.50 m		
larger actuators, Welding area	larger actuators	larger actuators		
Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*		
LCP	LCP	LCP		
—	—	—		
10 Hz	10000 Hz	10000 Hz		
10...30 VDC	10...30 VDC	10...30 VDC		
-25...70 °C	-25...85 °C	-25...85 °C		
weld-immune (AC)	—	—		
IP67	IP67	IP67		
cULus, CE	CE, cULus	CE, cULus		
Page 669	Page 669	Page 669		



PNP normally open	BMF0056 BMF 305K-PS-C-2-PU-02			
Polarized normally open		BMF0062 BMF 305K-R-PS-F-3-03	BMF0064 BMF 305K-R-US-L-3-03	
Dimension	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	33.5 x 5 x 10.5 mm	
Connection	—	—	—	
Cable	PUR, 2.00 m	PVC, 3.00 m	PVC, 3.00 m	
Application	larger actuators	larger actuators	larger actuators	
Mounting	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	Mounting bracket BMF 305-HW*	
Housing material	LCP	LCP	LCP	
Interface	—	—	—	
Switching frequency	10000 Hz	1000 Hz	1000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	6...240 VDC/6...240 VAC	
Ambient temperature	-25...85 °C	-20...70 °C	-20...70 °C	
Magnetic field immune	—	—	—	
Protection degree	IP67	IP65	IP65	
Approval/Conformity	cULus, CE	CE	CE	
Productview	Page 670	Page 670	Page 670	

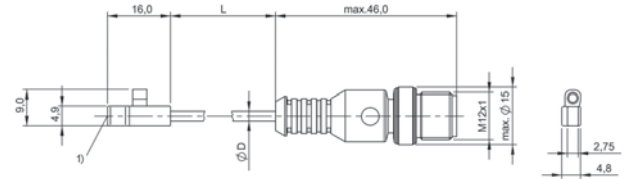


	BMF0057 BMF 305K-PS-C-2-PU-05	BMF0087 BMF 32M-PS-C-2-S4	BMF0088 BMF 32M-PS-C-2-S49	BMF0089 BMF 32M-PS-C-2-SA1-S49	BMF008A BMF 32M-PS-W-2-S4
	33.5 x 5 x 10.5 mm	25 x 11.9 x 26 mm	25 x 11.9 x 26 mm	25 x 11.9 x 26 mm	25 x 11.9 x 26 mm
	—	M12x1-Male, 4-pole, A-coded	M8x1 connector, 3-pin	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded
	PUR, 5.00 m	—	—	—	—
	larger actuators	Round cylinder, Pneumatic cylinder with trapezoidal slot	Round cylinder, Pneumatic cylinder with trapezoidal slot	Round cylinder, Pneumatic cylinder with trapezoidal slot	Round cylinder, Pneumatic cylinder with trapezoidal slot
	—	with tube cuff	with tube cuff	with tube cuff	with tube cuff
	LCP	Aluminum	Aluminum	Aluminum	Aluminum
	—	—	—	—	—
	10000 Hz	10000 Hz	10000 Hz	10000 Hz	10 Hz
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C	-25...70 °C
	—	—	—	—	weld-immune (AC)
	IP67	IP67	IP67	IP67	IP67
	cULus, CE	CE, cULus	CE, cULus	cULus, CE	cULus, CE
	Page 670	Page 670	Page 670	Page 670	Page 670



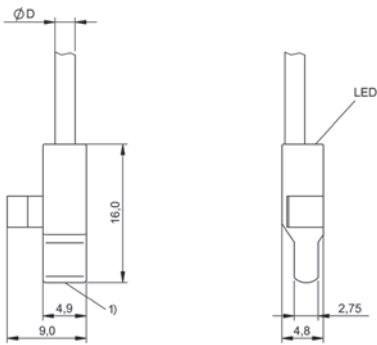
1) Sensing surface

BMF001L, BMF001P, BMF001M



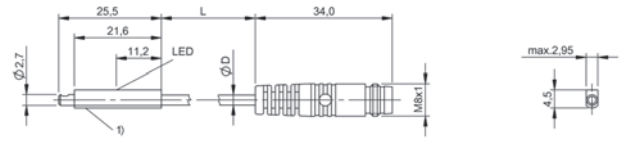
1) Sensing surface

BMF001K



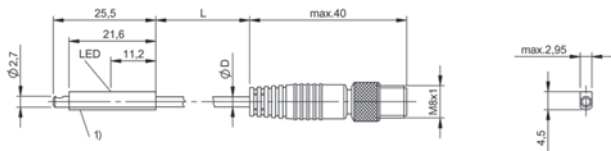
1) Sensing surface

BMF001E, BMF001F



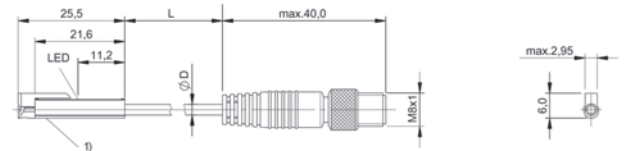
1) Sensing surface

BMF0041



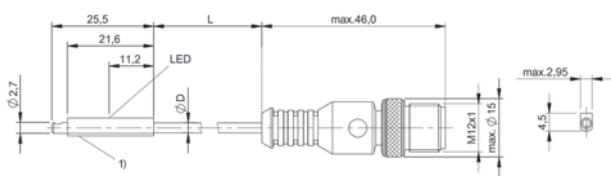
1) Sensing surface

BMF0042, BMF0039, BMF0043, BMF004C, BMF0044, BMF0045, BMF0046, BMF0047



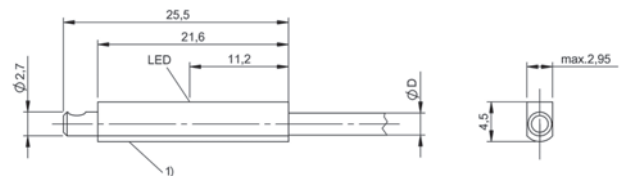
1) Sensing surface

BMF0049, BMF004A



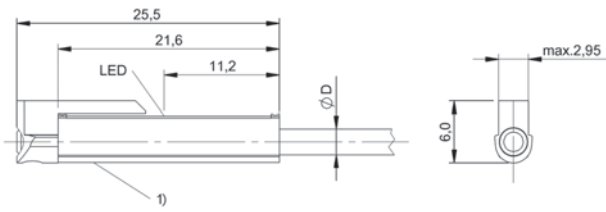
1) Sensing surface

BMF0040



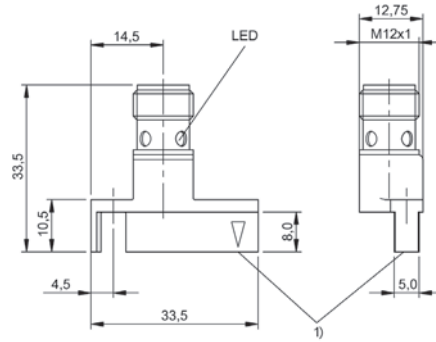
1) Sensing surface

BMF003U, BMF003W, BMF003Y



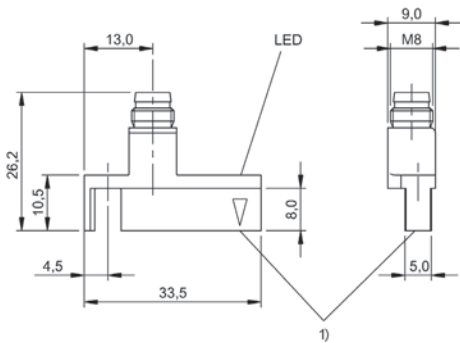
1) Sensing surface

BMF0048



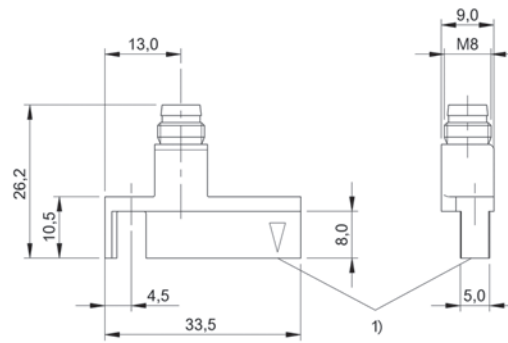
1) Sensing surface

BMF008E, BMF0067



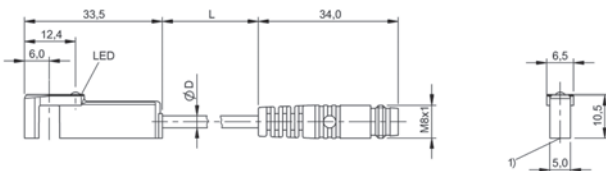
1) Sensing surface

BMF008F



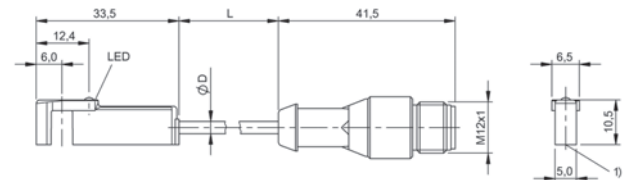
1) Sensing surface

BMF0066



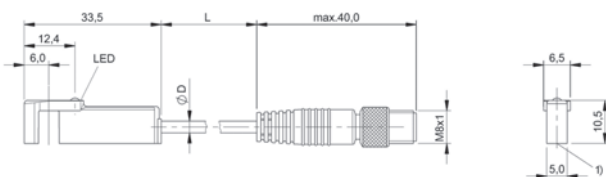
1) Sensing surface

BMF005F, BMF005H, BMF005W, BMF0063, BMF005J



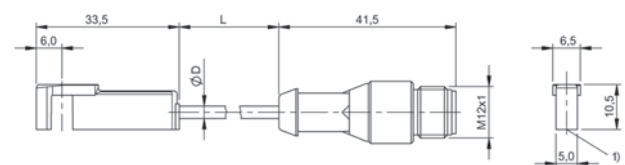
1) Sensing surface

BMF0058, BMF0059, BMF005A, BMF005C



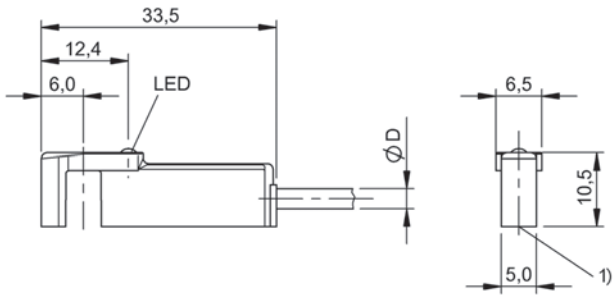
1) Sensing surface

BMF005K, BMF0055, BMF005L, BMF005M, BMF005N, BMF005P, BMF005R



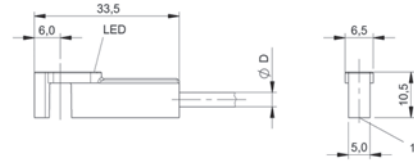
1) Sensing surface

BMF0061



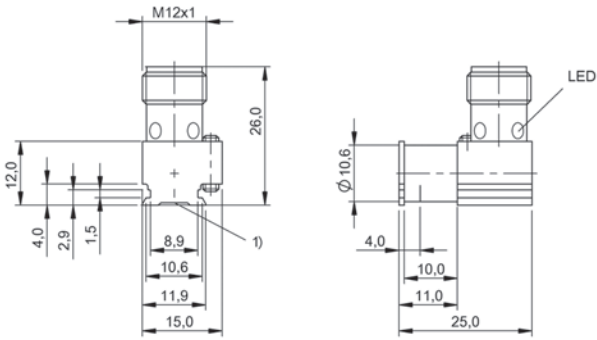
1) Sensing surface

BMF0056, BMF0062, BMF0057



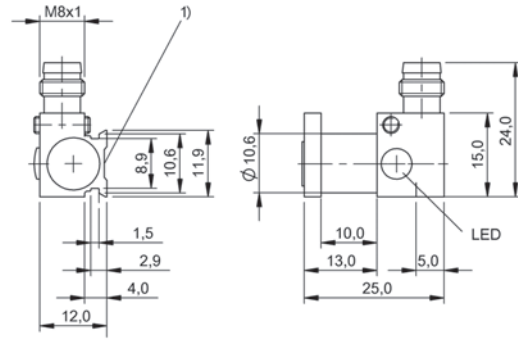
1) Sensing surface

BMF0064



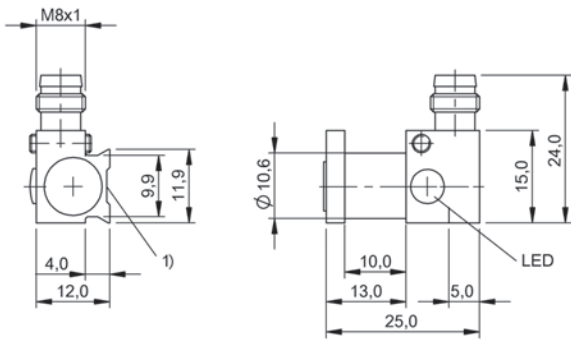
1) Sensing surface

BMF0087



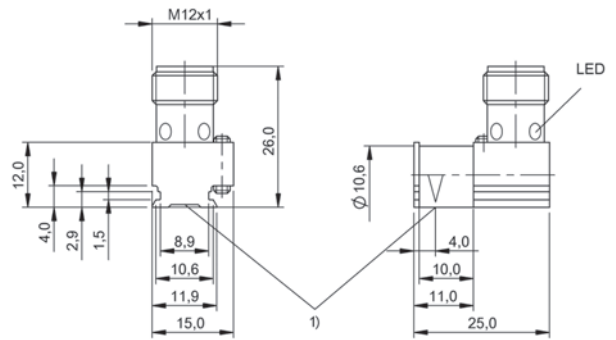
1) Sensing surface

BMF0088



1) Sensing surface

BMF0089



1) Sensing surface

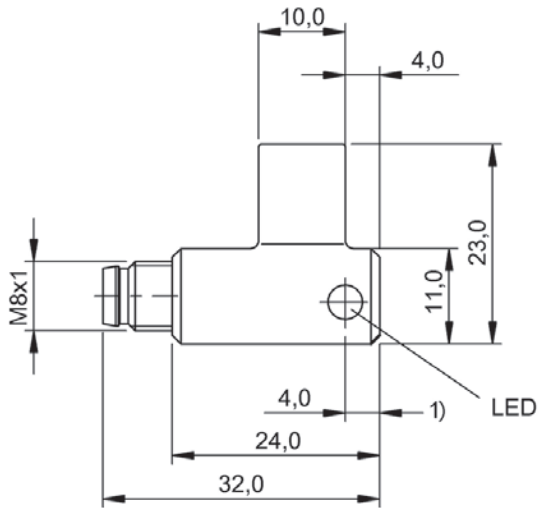
BMF008A



PNP normally open		
NPN normally open	BMF0025 BMF 21K-NS-C-2-S49	
Dimension	11 x 11 x 32 mm	
Connection	M8x1 connector, 3-pin	
Cable	—	
Application	Pneumatic cylinder with tie rods, Pneumatic cylinder with DUO rail, Round cylinder, Profile cylinder	
Housing material	PBT	
Switching frequency	10000 Hz	
Operating voltage U_b	10...30 VDC	
Ambient temperature	-25...85 °C	
Magnetic field immune	—	
Protection degree	IP67	
Approval/Conformity	CE, cULus	
Ex category	—	
Productview	Page 674	

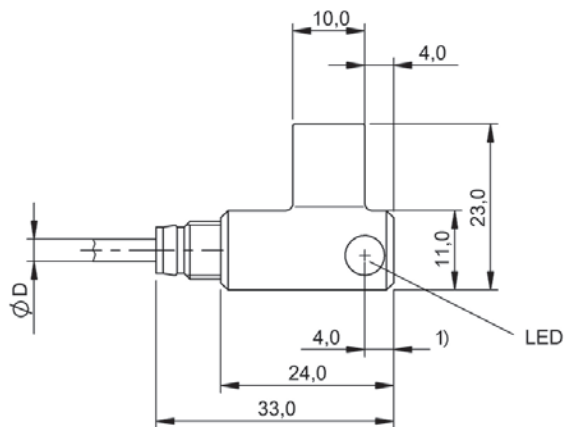


	BMF0029 BMF 21K-PS-C-2-S49	BMF0027 BMF 21K-PS-C-2-PU-03	BMF0028 BMF 21K-PS-C-2-PU-05
	11 x 11 x 32 mm	33 x 23 x 11 mm	33 x 23 x 11 mm
	M8x1 connector, 3-pin	—	—
	—	PUR, 3.00 m	PUR, 5.00 m
	Pneumatic cylinder with tie rods, Pneumatic cylinder with DUO rail, Round cylinder, Profile cylinder	Pneumatic cylinder with tie rods, Pneumatic cylinder with DUO rail, Round cylinder, Profile cylinder	Pneumatic cylinder with tie rods, Pneumatic cylinder with DUO rail, Round cylinder, Profile cylinder
	PBT	PBT	PBT
	10000 Hz	10000 Hz	10000 Hz
	10...30 VDC	10...30 VDC	10...30 VDC
	-25...85 °C	-25...85 °C	-25...85 °C
	—	—	—
	IP67	IP67	IP67
	cULus, CE	CE, cULus	CE, cULus
	—	—	—
	Page 674	Page 674	Page 674



1) Measuring point, 2) Sensing surface

BMF0025, BMF0029



1) Measuring point, 2) Sensing surface

BMF0027, BMF0028



PNP normally open	BMF001R BMF 103K-PS-C-2A-SA95-S75-00,3	BMF004E BMF 303K-PS-C-2A-SA95-S4-00,3	
Dimension	9 x 4.8 x 16 mm	25.5 x 3 x 4.5 mm	
Connection	M8x1 connector, 4-pin	M12x1-Male, 4-pole, A-coded	
Cable	PUR, 0.30 m	PUR, 0.30 m	
Application	Optimized response path especially suited for short-stroke cylinders.	miniaturized actuators	
Mounting	Mounting bracket BMF 103-HW*	Mounting bracket BMF 303-HW*	
Housing material	PBT	LCP	
Switching frequency	30000 Hz	30000 Hz	
Operating voltage U _b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus	CE, cULus	
Productview	Page 680	Page 680	



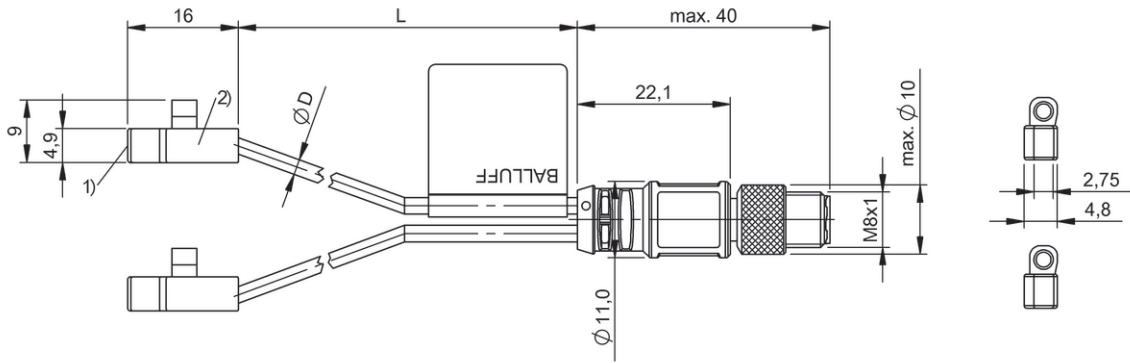
	BMF004F BMF 303K-PS-C-2A-SA95-S75-00,3	BMF0005 BMF 204K-PS-C-2A-SA95-S4-00,3	BMF0006 BMF 204K-PS-C-2A-SA95-S75-00,3	BMF00A4 BMF 214K-PS-C-2A-SA95-S4-00,3
	25.5 x 3 x 4.5 mm	16.8 x 2.9 x 4.5 mm	16.8 x 2.9 x 4.5 mm	33 x 5.1 x 7.2 mm
	M8x1 connector, 4-pin	M12x1-Male, 4-pole, A-coded	M8x1 connector, 4-pin	M12x1-Male, 4-pole, A-coded
	PUR, 0.30 m	PUR, 0.30 m	PUR, 0.30 m	PUR, 0.30 m
	miniaturized actuators	Optimized response path especially suited for short-stroke cylinders.	Optimized response path especially suited for short-stroke cylinders.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.
	Mounting bracket BMF 303-HW*	C-slot, Sommer, Festo slot 10	C-slot, Sommer, Festo slot 10	can be installed in T-slot from above
	LCP	PA 12	PA 12	Aluminum
	30000 Hz	7000 Hz	7000 Hz	10 Hz
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...85 °C	-25...85 °C	-25...85 °C	-25...70 °C
	—	—	—	weld-immune (AC)
	IP67	IP67	IP67	IP67
	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	Page 681	Page 681	Page 682	Page 685Page 682



PNP normally open	BMF00A5 BMF 214K-PS-C-2A-SA95-S75-00,3	BMF00F9 BMF 243K-PS-C-2A-SA95-S4-00,3	
Dimension	16.8 x 2.9 x 4.5 mm	24 x 3 x 3.75 mm	
Connection	M8x1 connector, 4-pin	M12x1-Male, 4-pole, A-coded	
Cable	PUR, 0.30 m	PUR, 0.30 m	
Application	Optimized response path especially suited for short-stroke cylinders.	Pneumatic cylinder with C-slot, e.g. SMC, Festo*, Schunk, Sommer, Gimatic (*not suitable for Festo Series ADVC and AEVC)	
Mounting	C-slot, SMC, Bimba, Schunk	can be installed in C-slot from above	
Housing material	PA 12	PA 12	
Switching frequency	7000 Hz	3000 Hz	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	
Magnetic field immune	—	—	
Protection degree	IP67	IP67	
Approval/Conformity	CE, cULus	CE, cULus	
Productview	Page 683	Page 683	

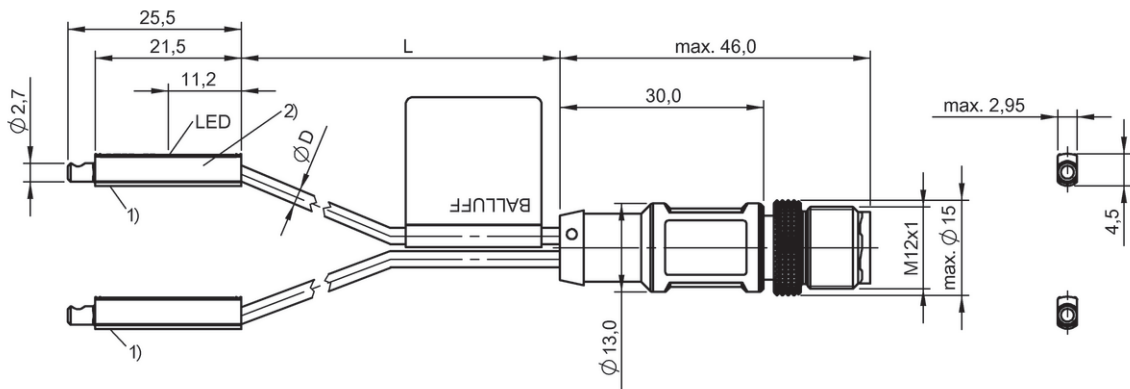


	BMF00ET BMF 243K-PS-C-2A-SA95-S75-00,3	BMF00C9 BMF 235K-PS-C-2A-SA95-S4-00,3	BMF00CA BMF 235K-PS-C-2A-SA95-S75-00,3	BMF0084 BMF 315M-PS-W-2-SA95-S4-00,3
	24 x 3 x 3.75 mm	23.5 x 5 x 5.5 mm	23.5 x 5 x 5.5 mm	33 x 5.1 x 7.2 mm
	M8x1 connector, 4-pin	M12x1-Male, 4-pole, A-coded	M8x1 connector, 4-pin	M12x1-Male, 4-pole, A-coded
	PUR, 0.30 m	PUR, 0.30 m	PUR, 0.30 m	PUR, 0.30 m
	Pneumatic cylinder with C-slot, e.g. SMC, Festo*, Schunk, Sommer, Gimatic (*not suitable for Festo Series ADVC and AEVC)	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.	Pneumatic cylinder with T-slot. For dimensions, see sketch in product view.
	can be installed in C-slot from above	can be installed in T-slot from above	can be installed in T-slot from above	can be installed in T-slot from above
	PA 12	PA 12	PA 12	Aluminum
	3000 Hz	3000 Hz	3000 Hz	10 Hz
	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
	-25...85 °C	-25...85 °C	-25...85 °C	-25...70 °C
	—	—	—	weld-immune (AC)
	IP67	IP67	IP67	IP67
	CE, cULus	CE, cULus	CE, cULus	CE, cULus
	Page 684	Page 684	Page 685	Page 685



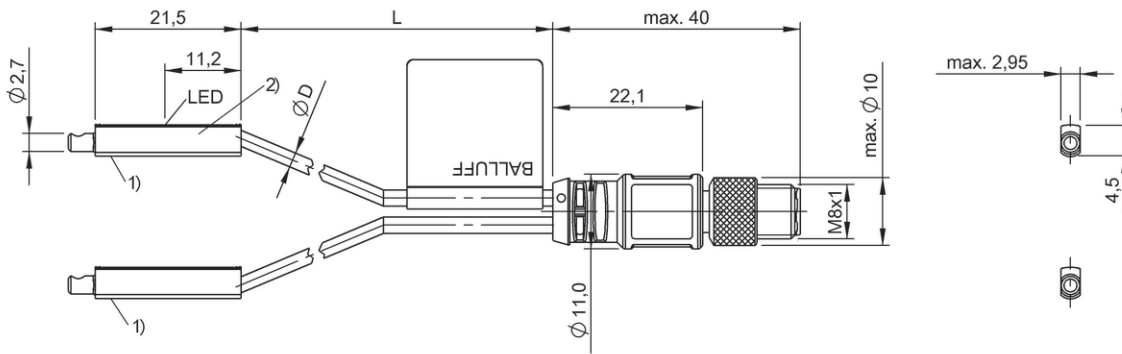
1) Sensing surface, 2) Sensor 1

BMF001R



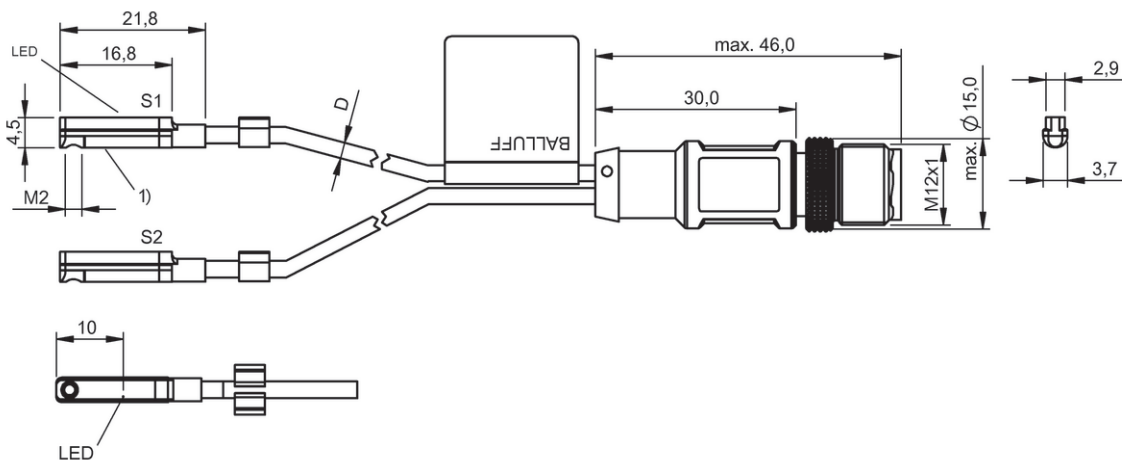
1) Sensing surface, 2) Sensor 1

BMF004E



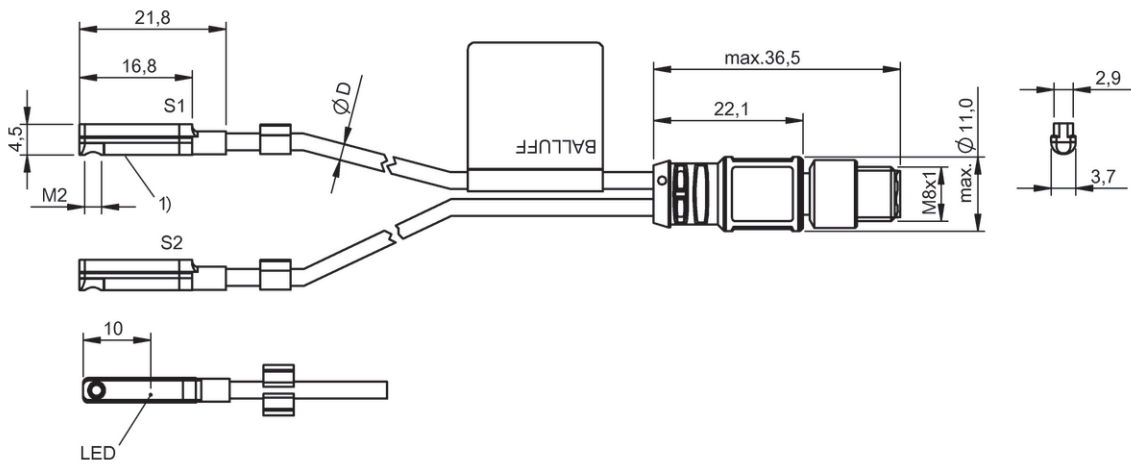
1) Sensing surface, 2) Sensor 1

BMF004F



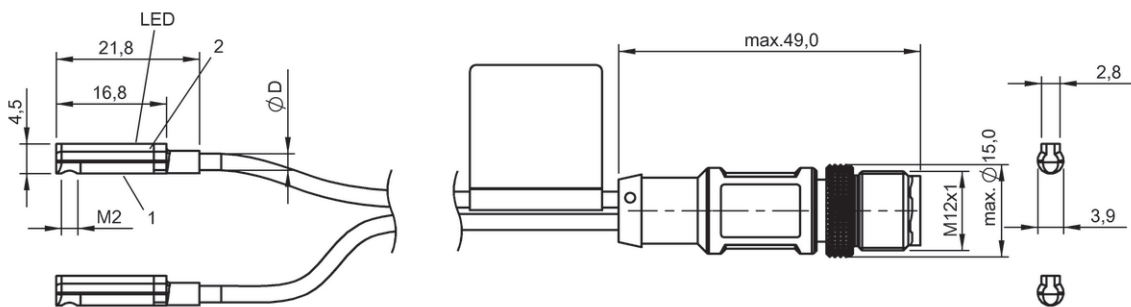
1) Sensing surface

BMF0005



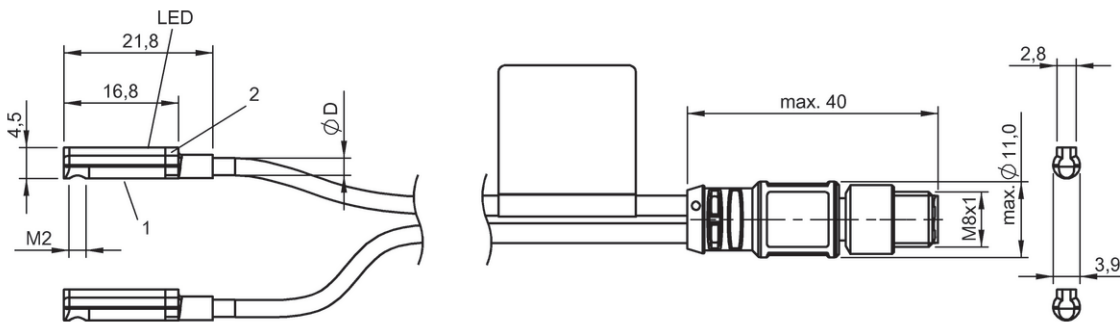
1) Sensing surface

BMF0006



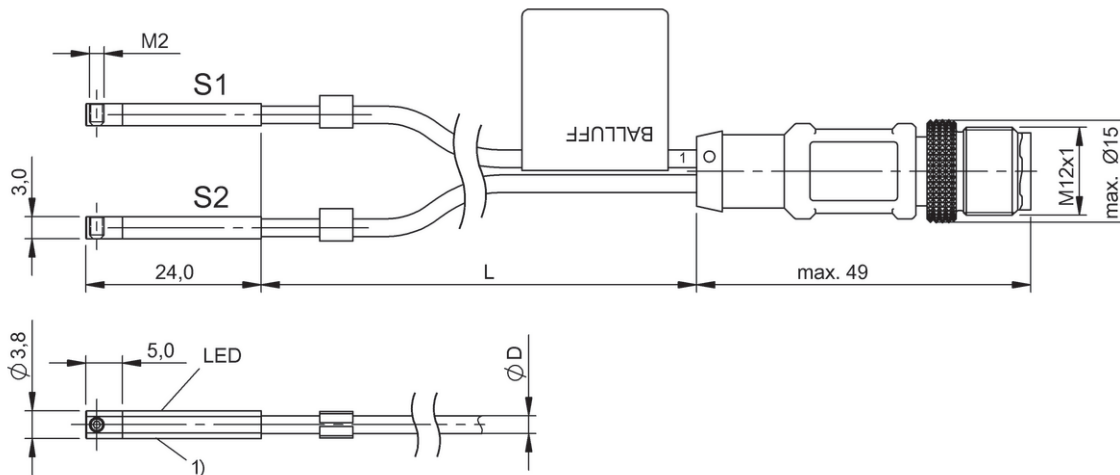
1) Sensing surface, 2) Sensor 1

BMF00A4



1) Sensing surface, 2) Sensor 1

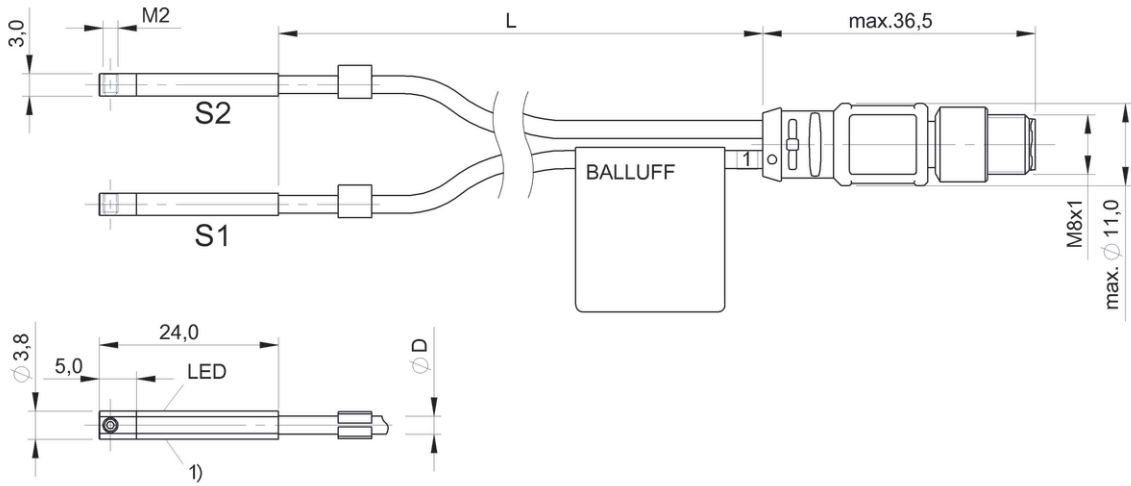
BMF00A5



1) Sensing surface

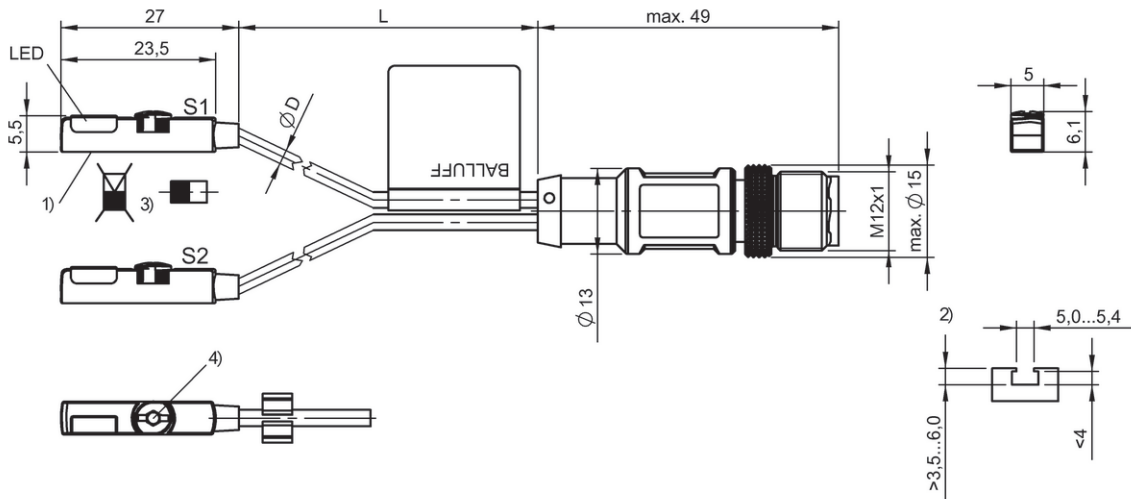
BMF00F9

Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



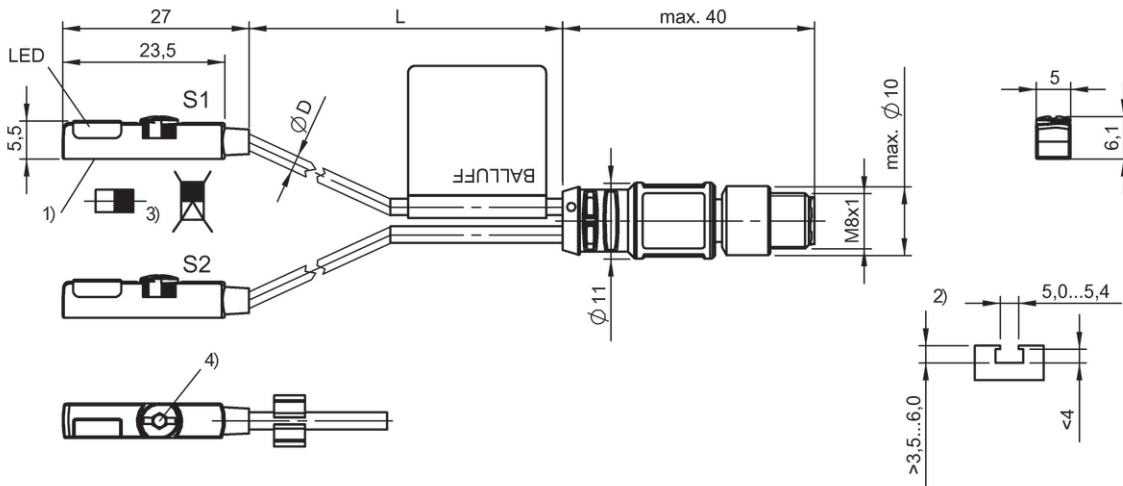
1) Sensing surface

BMF00ET



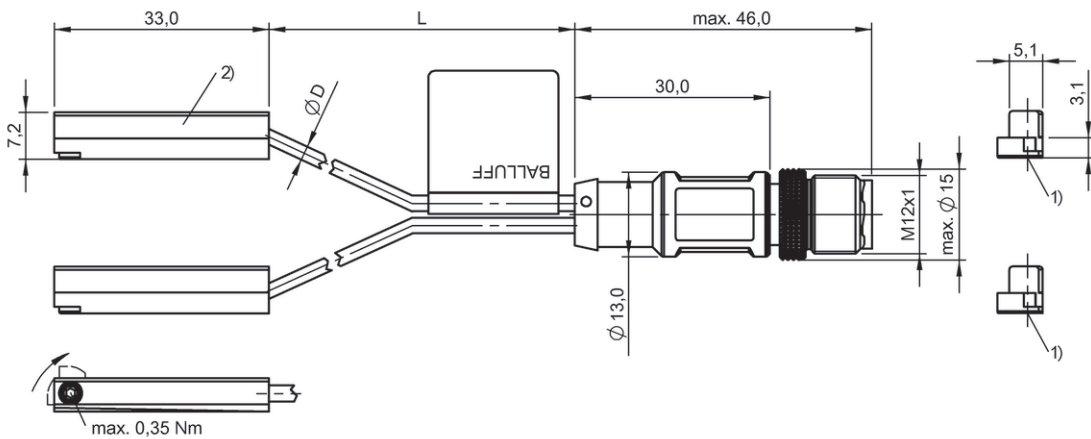
1) Sensing surface, 2) see remarks, 3) see remarks, 4) see remarks

BMF00C9



1) Sensing surface, 2) see remarks, 3) see remarks, 4) see remarks

BMF00CA



1) Sensing surface, 2) Sensor 1

BMF0084

Do you need more details? Our Product Finder at www.balluff.com provides you with product-specific information, including technical drawings, data sheets, user guides and more for each individual product. All items are available for download.



PNP normally open	BMF000K BMF 07M-PS-D-2-S49-00,3	BMF000L BMF 07M-PS-D-2-SA2-S49-00,3	BMF000J BMF 07M-PS-D-2-S4-00,6	
NPN normally open				
Dimension	Ø 6.5 x 30 mm	Ø 6.5 x 30 mm	Ø 6.5 x 30 mm	
Connection	M8x1 connector, 3-pin	M8x1 connector, 3-pin	M12x1-Male, 4-pole, A-coded	
Cable	PUR, 0.30 m	PUR, 0.30 m	PUR, 0.60 m	
Application	Flexible mounting, Switching distances > 20 mm possible	Flexible mounting, Switching distances > 20 mm possible	Flexible mounting, Switching distances > 20 mm possible	
Mounting	Clamps	Clamps	Clamps	
Housing material	Brass	Brass	Brass	
Switching frequency	10000 Hz	10000 Hz	10000 Hz	
Operating voltage U _b	10...30 VDC	10...30 VDC	10...30 VDC	
Ambient temperature	-25...85 °C	-25...85 °C	-25...85 °C	
Protection degree	IP67	IP67	IP67	
Approval/Conformity	cULus, CE	cULus, CE	CE, cULus	
Productview	Page 688	Page 688	Page 688	



BMF000F BMF 07M-PS-C-2-KPU-03	BMF000P BMF 08M-PS-C-2-KPU-02	BMF000N BMF 08M-NS-C-2-KPU-03	BMF000R BMF 08M-PS-C-2-KPU-03	BMF000T BMF 08M-PS-C-2-KPU-05
Ø 6.5 x 30.5 mm	Ø 8 x 30.5 mm	Ø 8 x 30.5 mm	Ø 8 x 30.5 mm	Ø 8 x 30.5 mm
—	—	—	—	—
PUR, 3.00 m	PUR, 2.00 m	PUR, 3.00 m	PUR, 3.00 m	PUR, 5.00 m
Flexible mounting, Switching distances > 20 mm possible	Flexible mounting, Switching distances > 20 mm possible	Flexible mounting, Switching distances > 20 mm possible	Flexible mounting, Switching distances > 20 mm possible	Flexible mounting, Switching distances > 20 mm possible
Clamps	Clamps	Clamps	Clamps	Clamps
Brass	Brass	Brass	Brass	Brass
10000 Hz	10000 Hz	10000 Hz	10000 Hz	10000 Hz
10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C	-25...85 °C
IP67	IP67	IP67	IP67	IP67
cULus, CE	cULus, CE	cULus, CE	cULus, CE	CE, cULus
Page 688	Page 688	Page 688	Page 688	Page 688

Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

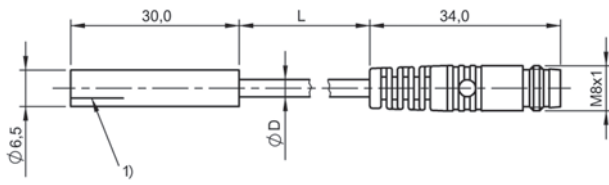
Safety

Industrial Networking

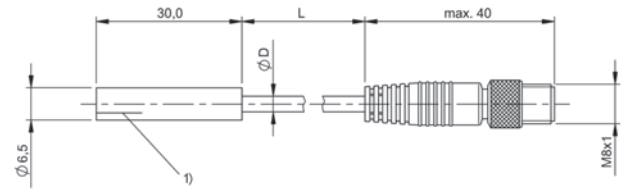
Power Supply

Connectivity

Accessories

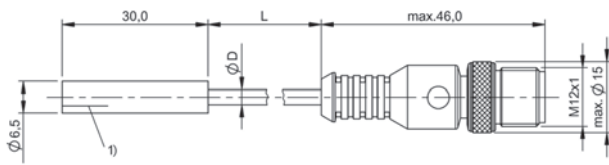


BMF000K



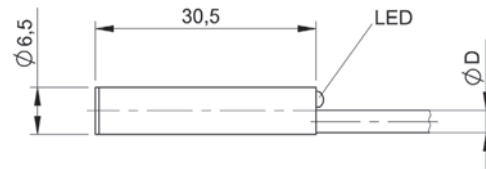
1) see remarks

BMF000L

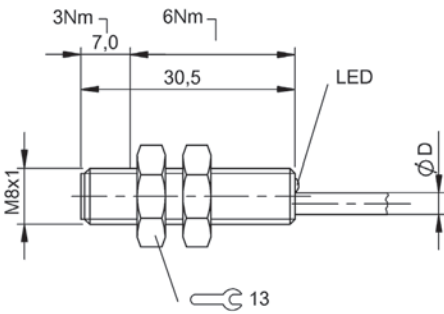


1) see remarks

BMF000J



BMF000F



BMF000P, BMF000N, BMF000R, BMF000T



Many series and form factors for the greatest flexibility.
The classics for metalworking and automotive

MECHANICAL CAM SWITCHES

The cam switches from Balluff are used on machine tools, presses, in flexible manufacturing centers, robots, assembly and conveying devices, and in machine and equipment construction. They serve as command transmitters for automatic controls, for positioning and for end-of-travel switching.

The design principle of the devices, their variety of possible switching actions, as well as consistent quality inspection, guarantee consistently high quality and reliability.

At Balluff you can choose from nine different series and five plunger types each: Chisel, ball, roller, roller bearing and chisel with wiper plate. A large number of connection varieties is also available.

The most important benefits

- Reliable and rugged, even in harsh environments
- Flawless functionality in the event of vibrations, shock loads, temperature swings, aggressive cooling lubricants and heavy chip accumulation
- Maintenance-free, self-lubricating ram guide with plain bearing bush
- High-quality Viton seals
- Protection class IP67
- Also available with inductive switching points



Single position switch	SERIES F 60 COMPLIANT WITH DIN 43693
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 724

Ordering example:

BNS 819-F **-60-101-** **-** **-** **-**

Plunger style

- D Chisel
- K Ball
- R Roller
- L Roller bearing
- E Chisel with wiper plate

Optional Function indicator

- FD 6...60 V AC/DC
- FE 90...250 V AC/DC

Optional Male

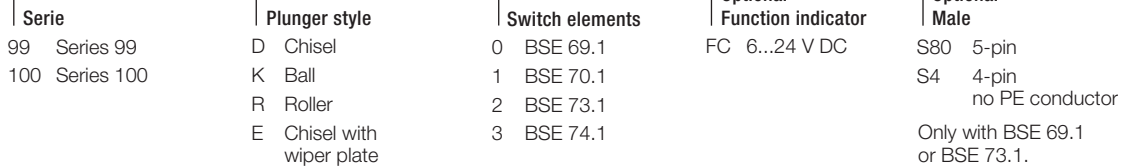
- S80R 5-pin, right
- S80L 5-pin, left



Single position switch	SERIES 99 AND 100
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	Cable gland (M12 x 1.5 Series 99, M16 x 1.5 Series 100) or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP 67
Approval/Conformity	CE
Productview and installation	Page 724

Ordering example:

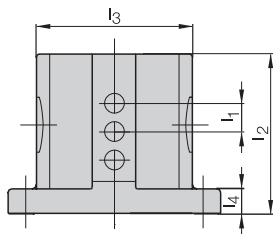
BNS 819- [] - [] - **1** - [] - []





Multiple position switches	SERIES 100 COMPLIANT WITH DIN 43697
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 725

Available sizes

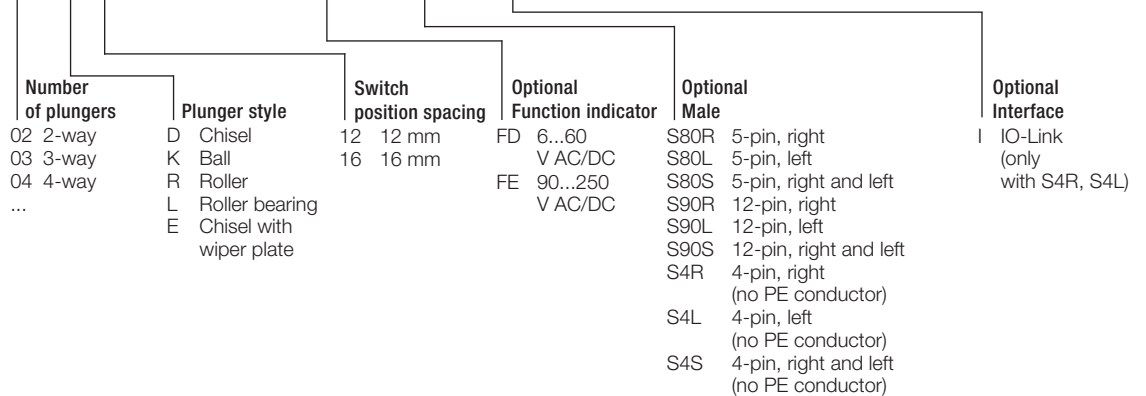


Number of plungers		2	3	4	5	6	8	10	12
Dimension l ₂ with	Dimension l ₁ = 12 mm	70	80	90	105	120	140	170	200
	Dimension l ₃	88	88	88	88	88	80	80	80
	Dimension l ₄	14	14	14	14	14	20	20	20
	Dimension l ₁ = 16 mm	70	90	105	120	140	170	200	240
Number of connectors required for standard wiring	Dimension l ₃	88	88	88	88	80	80	80	80
	Dimension l ₄	14	14	14	14	20	20	20	20
	S80 or S4 without FD/FE	1	1	2	2	2			
	S80 or S4 with FD/FE	1	2	2	3	3			
S90 without FD/FE	1	1	1	1	1	1	1	2	
	S90 with FD/FE	1	1	1	1	1	1	2	2

Dimensions in mm

Ordering example:

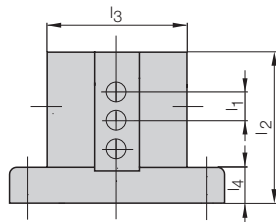
BNS 819-D [] - [] - 100 - 10 - [] - [] - []





Multiple position switches	SERIES 62
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 725

Available sizes

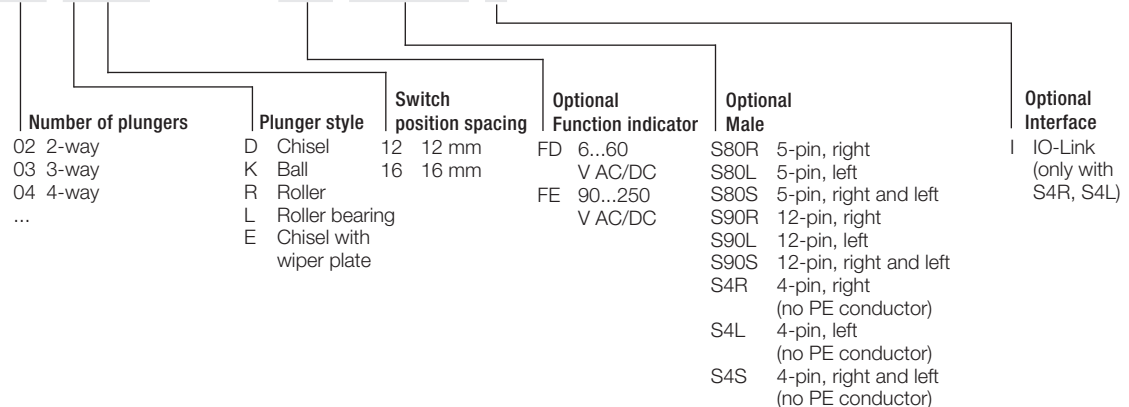


Number of plungers		2	3	4	5	6	8	10
Dimension l ₂ with	Dimension l ₁ = 12 mm	64	72	84	96	112	130	160
	Dimension l ₃	88	88	88	88	88	80	80
	Dimension l ₄	14	14	14	14	14	20	20
	Dimension l ₁ = 16 mm	64	84	96	112	130	160	192
	Dimension l ₃	88	88	88	88	80	80	80
	Dimension l ₄	14	14	14	14	20	20	20
Number of connectors	S80 or S4 without FD/FE	1	1	2	2	2		
	S80 or S4 with FD/FE	1	2	2	3	3		
	S90 without FD/FE	1	1	1	1	1	1	1
	S90 with FD/FE	1	1	1	1	1	1	2

Dimensions in mm

Ordering example:

BNS 819-D - - - - **-62-10-** - - - -

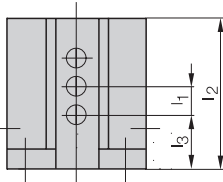




Multiple position switches	SERIES 61
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 726

Available sizes

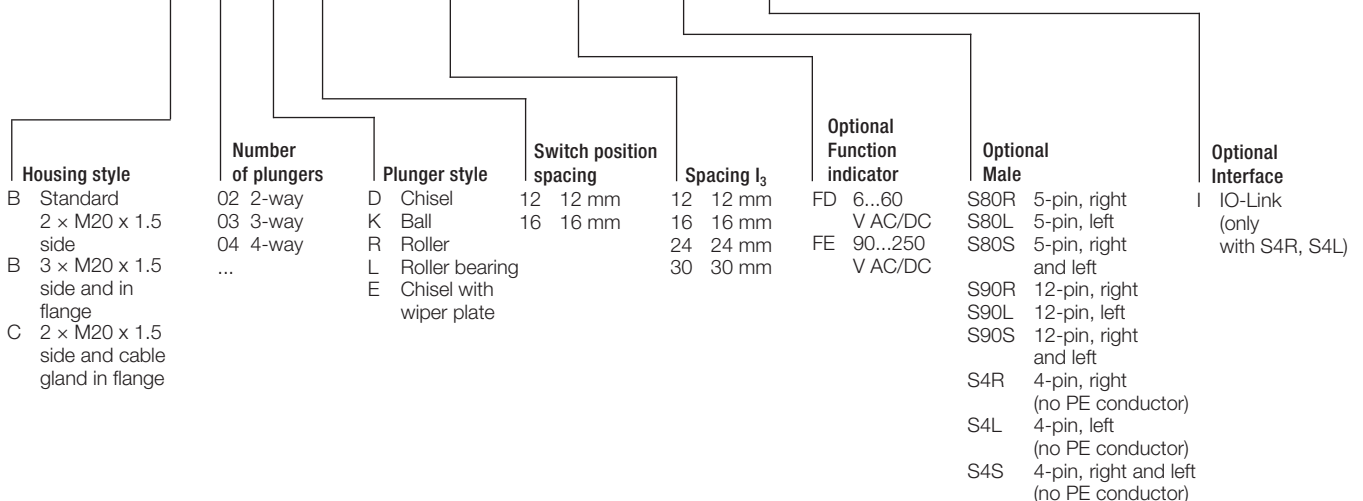
Number of plungers	Plunger-spacing Dimension	Housing B Standard		Housing B		Housing C		Number of connectors S80 or S4 without FD/FE	No. of connectors S80 or S4 with FD/FE	No. of connectors S90 without FD/FE	Number of connectors S90 with FD/FE
		Dimension	Dimension	Dimension	Dimension	Dimension	Dimension				
2	12	36	12	60	30	48	24	1	1	1	1
3	12	48	12	60	24	60	24	1	2	1	1
4	12	60	12					2	2	1	1
5	12	72	12					2	3	1	1
6	12	84	12					2	3	1	1
2	16	48	16	60	30	60	30	1	1	1	1
3	16	72	16					1	2	1	1
4	16	84	16					2	2	1	1



Dimensions in mm

Ordering example:

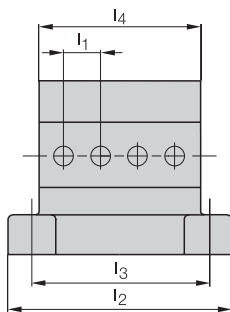
BNS 819 - [] - [] - 61 - [] - 10 - [] - [] - [] Optional





Multiple position switches	SERIES 72
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 726

Available sizes

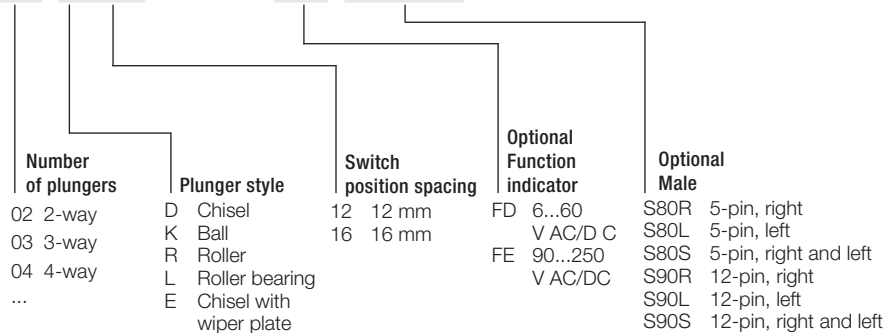


Number of plungers		2	3	4	5	6	8	10
Dimension I ₂ with Dimension I ₁ = 12 mm		84	84	100	116	132	164	180
Dimension I ₃ with Dimension I ₁ = 12 mm		66	66	82	98	114	146	162
Dimension I ₄ with Dimension I ₁ = 12 mm		54	54	68	84	100	132	148
Dimension I ₂ with Dimension I ₁ = 16 mm		84	100	116	132	148	180	212
Dimension I ₃ with Dimension I ₁ = 16 mm		66	82	98	114	130	162	194
Dimension I ₄ with Dimension I ₁ = 16 mm		54	68	84	100	116	148	180
Number of connectors	S80 without FD/FE	1	1	2	2	2		
	S80 with FD/FE	1	2	2	3	3		
	S90 without FD/FE	1	1	1	1	1	1	2
	S90 with FD/FE	1	1	1	1	1	2	2

Dimensions in mm

Ordering example:

BNS 819-B - - - - **-72-10-** - - - -

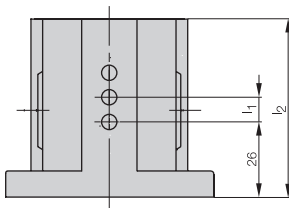




Multiple position switches	SERIES 46
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 727

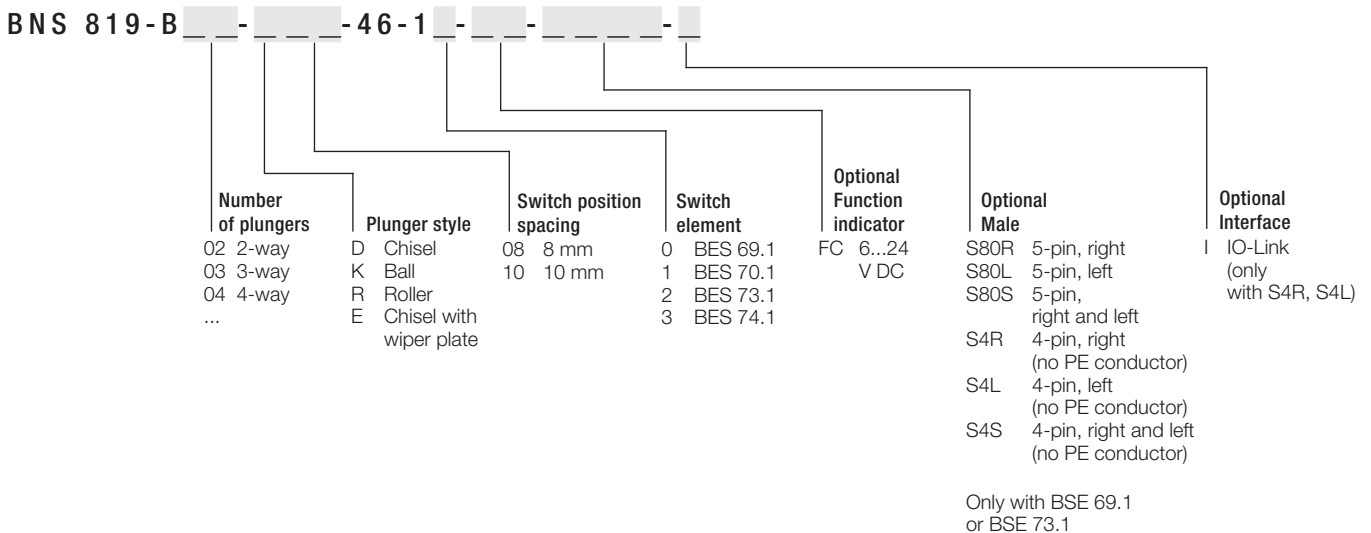
Available sizes

Number of plungers		2	3	4	5	6	8	10
Dimension I ₂ with	Dimension I ₁ = 8 mm	49	59	64	72	80	96	112
	Dimension I ₃	54	54	54	54	54	50	50
	Dimension I ₁ = 10 mm	49	59	72	80	89	112	129
	Dimension I ₃	54	54	54	54	50	50	50
Number of connectors	S80 without FC or S4	1	1	2	2	2		
	S80 with FC or S4	1	2	2	3	3		
	S4 without FC (IO-Link)	1	1	1	1	1	1	1
	S4 with FC (IO-Link)	1	1	1	1	1	1	1



Dimensions in mm

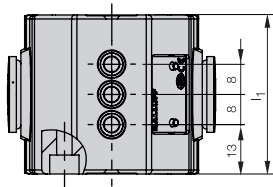
Ordering example:





Multiple position switches	SERIES 40
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 727

Available sizes

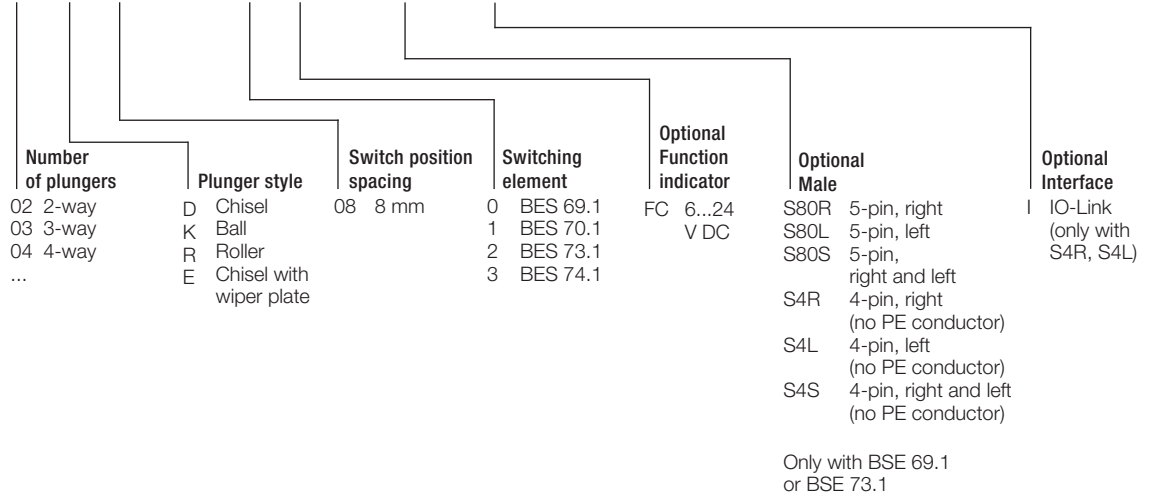


Number of plungers		2	3	4	5	6
Dimension L ₁		34	42	50	58	66
Number of connectors	S80 without FC or S4	1	1	2	2	2
	S80 with FC or S4	1	2	2		
	S4 without FC (IO-Link)	1	1	1	1	1
	S4 with FC (IO-Link)	1	1	1	1	1

Dimensions in mm

Ordering example:

BNS 819-B [] - [] - **40-1** - [] - [] - []



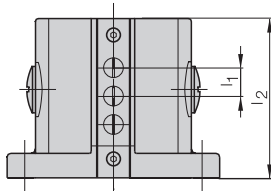


Multiple position switches with quick-change plunger block	SERIES 100 COMPLIANT WITH DIN 43697
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 728

Available sizes

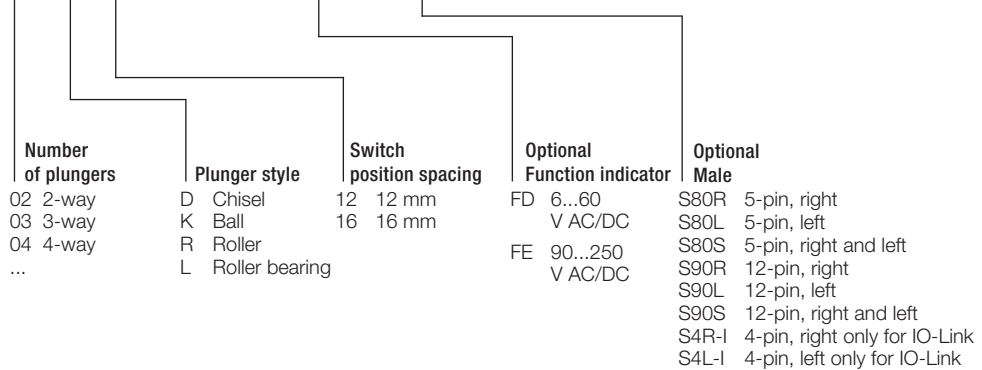
Number of plungers		2	3	4	5	6
Dimension l_2 with	$l_1 = 12 \text{ mm}$	70	80	90	105	120
	$l_1 = 16 \text{ mm}$	70	90	105	120	
Number of connectors	S80 without FD/FE	1	1	2	2	2
	S80 with FD/FE	1	2	2	3	3
	S90 without FD/FE	1	1	1	1	1
	S90 with FD/FE	1	1	1	1	1
	S4 without FD (IO-Link)	1	1	1	1	1
	S4 with FD (IO-Link)	1	1	1	1	1

Dimensions in mm



Ordering example:

BNS 829-D [] - [] - **100-10** - [] - []

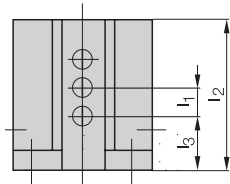




Multiple position switches with quick-change plunger block	SERIES 61
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 728

Available sizes

Number of Plunger	Plunger-spacing Dimension		Housing B Standard Dimension		Housing B Dimension		Housing C Dimension		Number of connectors S80 without FD/FE	No. of connectors S80 with FD/FE	No. of connectors S90 with or without FD/FE	No. of connectors S4 with or without FD (IO-Link)
	l ₁	l ₂	l ₃	l ₂	l ₃	l ₂	l ₃					
2	12	36	12	60	30	48	24	60	30	1	1	1
3	12	48	12	60	24	60	24			1	2	1
4	12	60	12							2	2	1
5	12	72	12							2	3	1
6	12	84	12							2	3	1
2	16	48	16	60	30	60	30			1	1	1
3	16	72	16							1	2	1
4	16	84	16							2	2	1



Dimensions in mm

Ordering example:

BNS 829- - - - -61- - - -10- - - - -

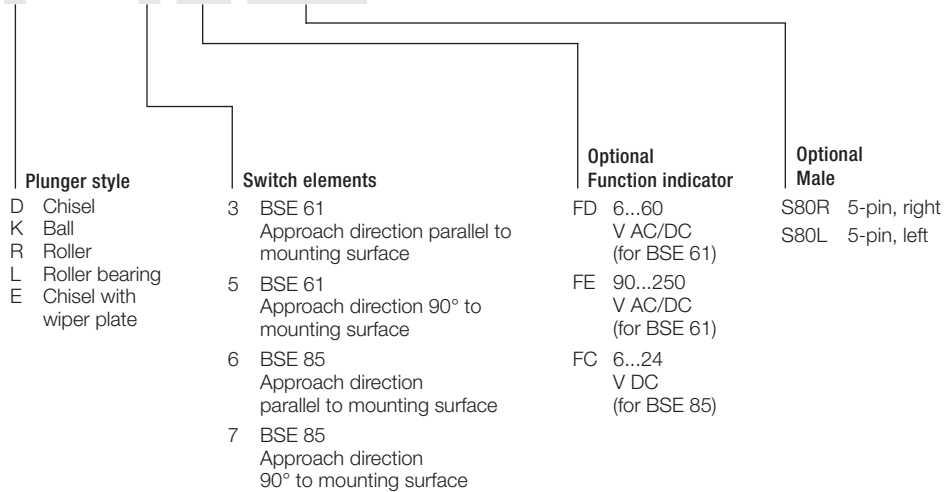
Housing style	Number of plungers	Plunger style	Switch position spacing	Spacing l ₃	Optional Function indicator	Optional Male
B Standard 2 × M20 x 1.5 side	02 2-way	D Chisel	12 12 mm	12 12 mm	FD 6...60 V AC/DC	S80R 5-pin, right
B 3 × M20 x 1.5 side and in flange	03 3-way	K Ball	16 16 mm	16 16 mm	FE 90...250 V AC/DC	S80L 5-pin, left
C 2 × M20 x 1.5 side and cable gland in flange	04 4-way	R Roller		24 24 mm		S80S 5-pin, right and left
	...	L Roller bearing		30 30 mm		S90R 12-pin, right
						S90L 12-pin, left
						S90S 12-pin, right and left
						S4R-I 4-pin, right only for IO-Link
						S4L-I 4-pin, left only for IO-Link



Position switches with safety switch positions	SERIES F 60 COMPLIANT WITH DIN 43693
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 732

Ordering example:

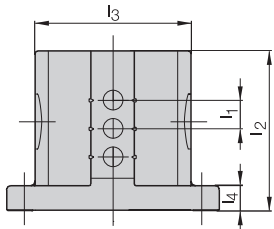
BNS 813-F **-60-18**





Multiple position limit switches with safety switch positions		SERIES 100 COMPLIANT WITH DIN 43697
Plunger material	Stainless steel, contact surfaces induction-hardened	
Housing material	Cast aluminum, corrosion-resistant, anodized finish	
Connection type	M25 x 1.5 for cable gland or connector	
Ambient temperature	-5...+85 °C	
Degree of protection as per IEC 60529	IP67	
Approval/Conformity	CE	
Productview and installation	Page 729	

Available sizes



Number of plungers		2	3	4	5	6	8	10	12
Dimension l ₂ with	Dimension l ₁ = 12 mm	70	80	90	105	120	140	170	200
	Dimension l ₃	88	88	88	88	88	80	80	80
	Dimension l ₄	14	14	14	14	14	20	20	20
	Dimension l ₁ = 16 mm	70	90	105	120	140	170	200	240
	Dimension l ₃	88	88	88	88	80	80	80	80
No. of connectors *	Dimension l ₄	14	14	14	14	20	20	20	20
	S80 without FD/FE	1	1	2	2	2			
	S80 with FD/FE	1	2	2	3	3			
	S90 without FD/FE	1	1	1	1	1	1	1	2
	S90 with FD/FE	1	1	1	1	1	1	2	2

Dimensions in mm

* No. of connectors with BSE 85 on request.

Ordering example:

BNS 813-D - **100** -

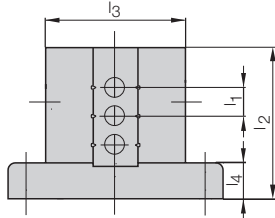
Number of plungers	Plunger style	Switch position spacing	Switch elements	Optional Function indicator	Optional Male
02 2-way	D Chisel	12 12 mm	10 remaining	FD 6...60 V AC/DC (for BSE 30.0 and BSE 61)	S80R 5-pin, right
03 3-way	K Ball	16 16 mm	12 only BSE 61	FE 90...250 V AC/DC (for BSE 30.0 and BSE 61)	S80L 5-pin, left
04 4x ...	R Roller		20 BSE 85 remaining	FC 6...24 V DC (only for BSE 85)	S80S 5-pin, right and left
	L Roller bearing		22 only BSE 85		S90R 12-pin, right
	E Chisel with wiper plate				S90L 12-pin, left
					S90S 12-pin, right and left

Safety switching element
Number starting from flange



Multiple position limit switches with safety switch positions	SERIES 62
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 730

Available sizes



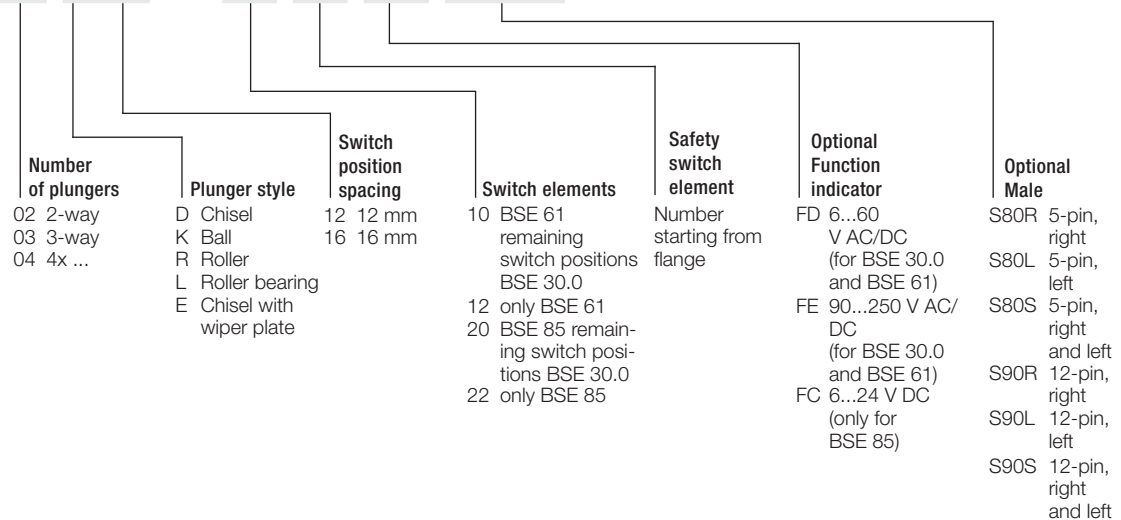
Number of plungers		2	3	4	5	6	8	10
Dimension l ₂ with	Dimension l ₁ = 12 mm	64	72	84	96	112	130	160
	Dimension l ₃	88	88	88	88	88	80	80
	Dimension l ₄	14	14	14	14	14	20	20
	Dimension l ₁ = 16 mm	64	84	96	112	130	160	192
	Dimension l ₃	88	88	88	88	80	80	80
No. of connectors *	Dimension l ₄	14	14	14	14	20	20	20
	S80 without FD/FE	1	1	2	2	2		
	S80 with FD/FE	1	2	2	3	3		
	S90 without FD/FE	1	1	1	1	1	1	2
	S90 with FD/FE	1	1	1	1	1	2	2

Dimensions in mm

* No. of connectors with BSE 85 on request.

Ordering example:

BNS 813-D - - - - 62 - - - - -

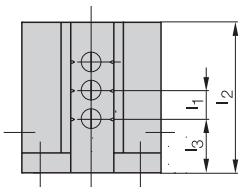




Multiple position limit switches with safety switch positions	SERIES 61
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 730

Available sizes

Number of Plunger	Plunger-spacing Dimension	Housing B Standard Dimension		Housing B Dimension		Housing C Dimension		No. of connectors * S80 without FD/FE	No. of connectors * S80 with FD/FE	No. of connectors * S90 without FD/FE	No. of connectors * S90 with FD/FE
		l ₂	l ₃	l ₂	l ₃	l ₂	l ₃				
2	12	36	12	60	30	48	24	1	1	1	1
3	12	48	12	60	24	60	24	1	2	1	1
4	12	60	12					2	2	1	1
5	12	72	12					2	3	1	1
6	12	84	12					2	3	1	1
2	16	48	16	60	30	60	30	1	1	1	1
3	16	72	16					1	2	1	1
4	16	84	16					2	2	1	1

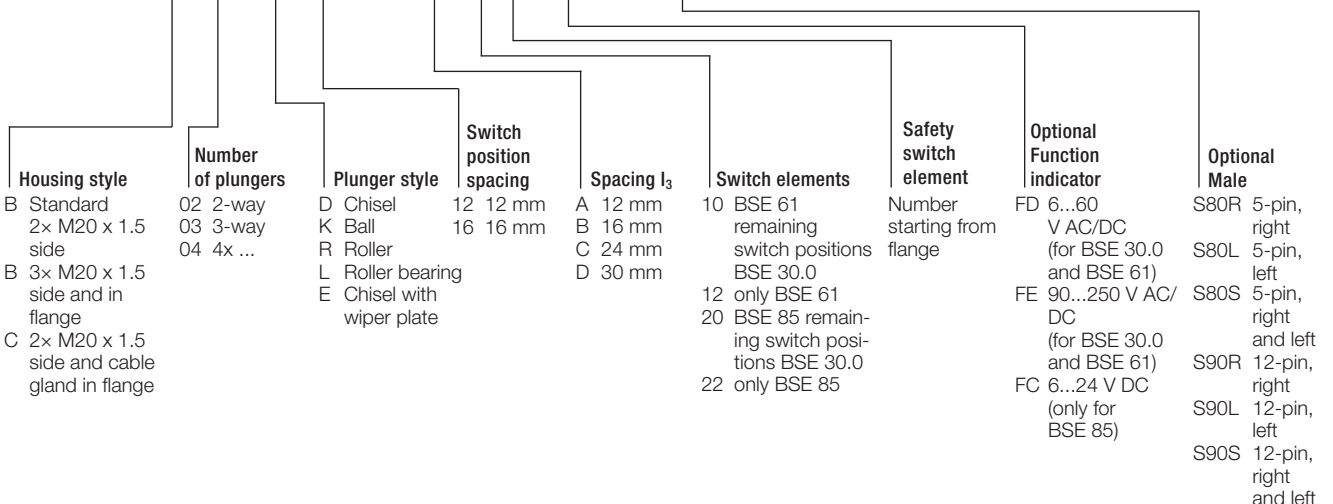


Dimensions in mm

* No. of connectors with BSE 85 on request.

Ordering example:

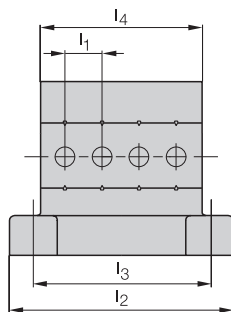
BNS 813- [] - [] - **61** - [] - [] - [] - []





Multiple position limit switches with safety switch positions	SERIES 72
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 731

Available sizes

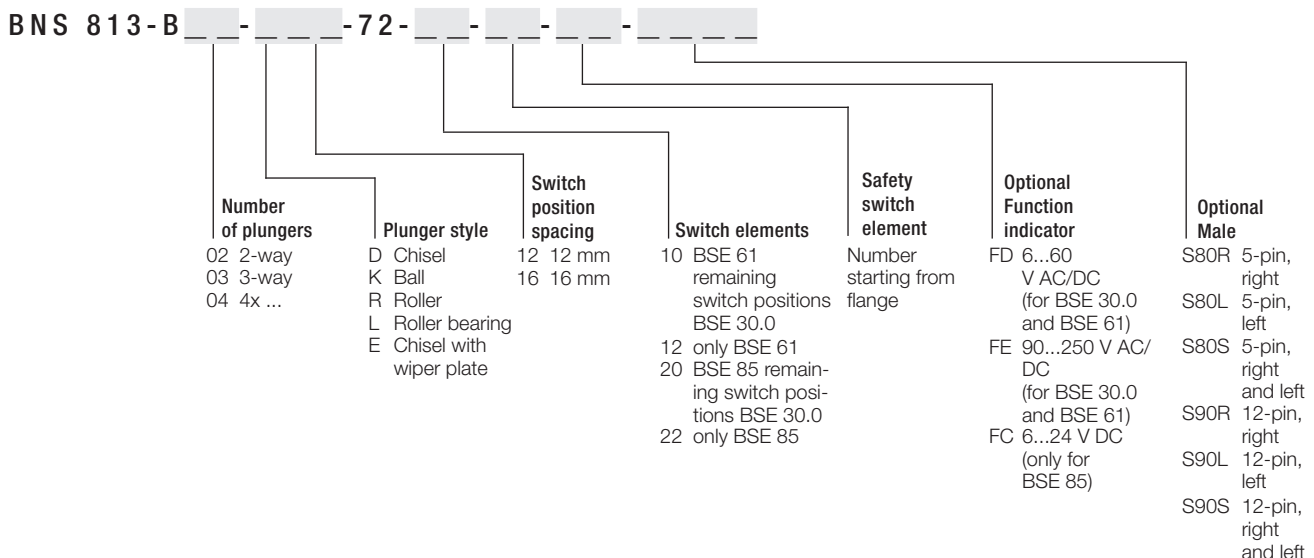


Number of plungers		2	3	4	5	6	8	10
Dimension I ₂ with I ₁ = 12 mm		84	84	100	116	132	164	180
Dimension I ₃ with I ₁ = 12 mm		66	66	82	98	114	146	162
Dimension I ₄ with I ₁ = 12 mm		54	54	68	84	100	132	148
Dimension I ₂ with I ₁ = 16 mm		84	100	116	132	148	180	212
Dimension I ₃ with I ₁ = 16 mm		66	82	98	114	130	162	194
Dimension I ₄ with I ₁ = 16 mm		54	68	84	100	116	148	180
No. of connectors *	S80 without FD/FE	1	1	2	2	2		
	S80 with FD/FE	1	2	2	3	3		
	S90 without FD/FE	1	1	1	1	1	1	1
	S90 with FD/FE	1	1	1	1	1	1	2

Dimensions in mm

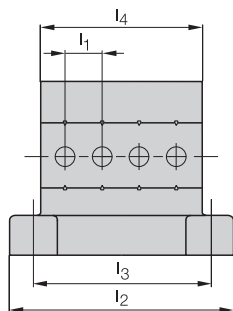
* No. of connectors with BSE 85 on request.

Ordering example:





Multiple position limit switches with safety switch positions and quick-change plunger block	SERIES 100 COMPLIANT WITH DIN 43697
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 731



Available sizes

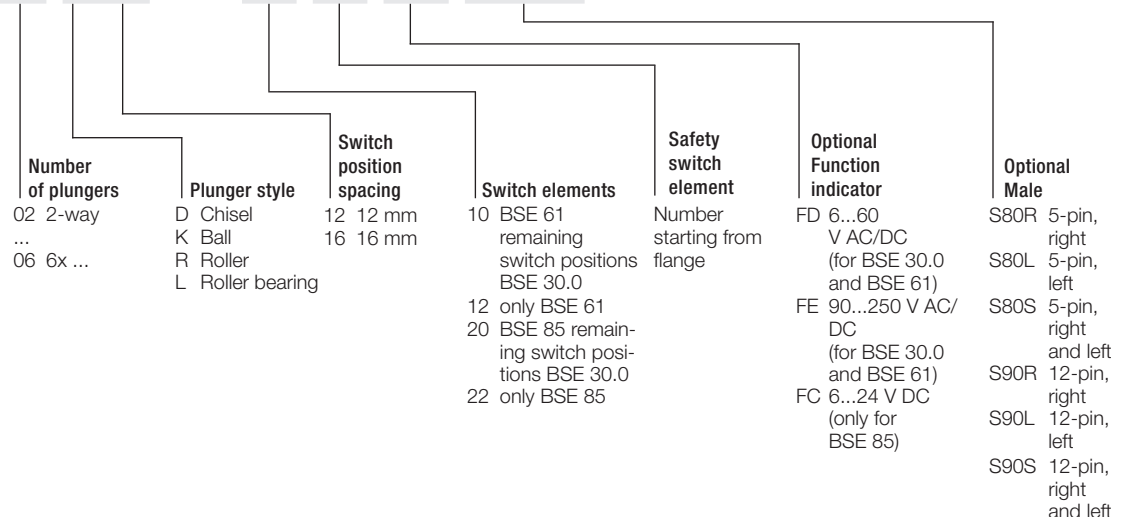
Number of plungers		2	3	4	5	6
Dimension l_2 with	$l_1 = 12$ mm	70	80	90	105	120
	$l_1 = 16$ mm	70	90	105	120	
No. of connectors *	S80 without FD/FE	1	1	2	2	2
	S80 with FD/FE	1	2	2	3	3
	S90 without FD/FE	1	1	1	1	1
	S90 with FD/FE	1	1	1	1	1

Dimensions in mm

* No. of connectors with BSE 85 on request.

Ordering example:

BNS 823-D [] - [] - 100 - [] - [] - [] - []

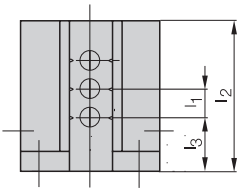




Multiple position limit switches with safety switch positions	SERIES 61
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 732

Available sizes

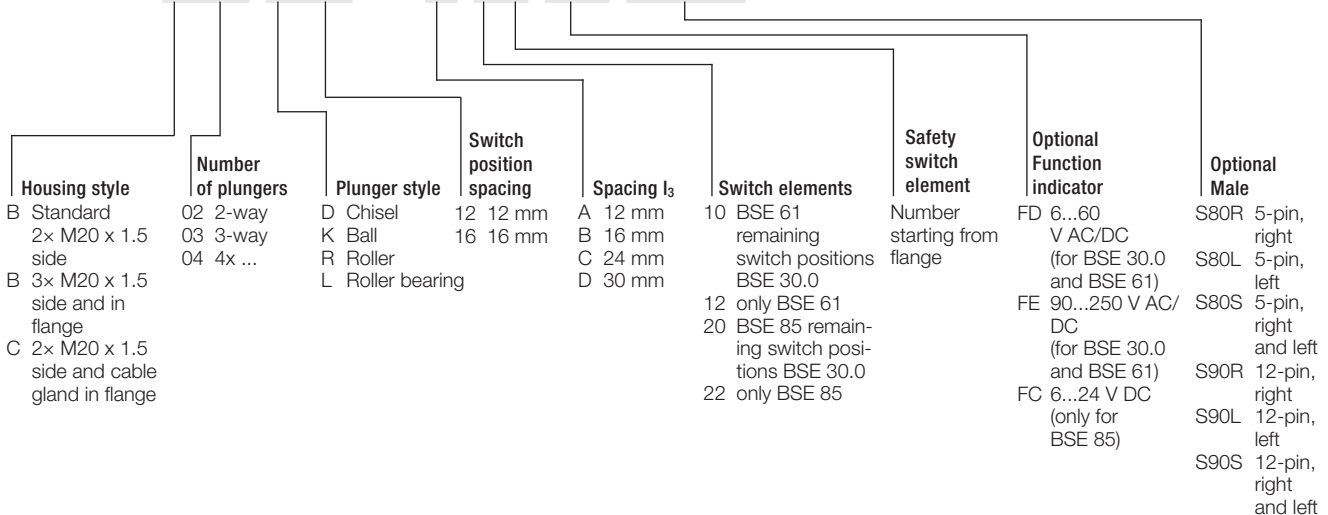
Number of Plunger	Plunger-spacing Dimension	Housing B Standard		Housing B		Housing C		No. of connectors * S80 without FD/FE	No. of connectors * S80 with FD/FE	No. of connectors * S90 without FD/FE	No. of connectors * S90 with FD/FE
		l ₂	l ₃	l ₂	l ₃	l ₂	l ₃				
2	12	36	12	60	30	48	24	1	1	1	1
3	12	48	12	60	24	60	24	1	2	1	1
4	12	60	12					2	2	1	1
5	12	72	12					2	3	1	1
6	12	84	12					2	3	1	1
2	16	48	16	60	30	60	30	1	1	1	1
3	16	72	16					1	2	1	1
4	16	84	16					2	2	1	1



Dimensions in mm
* No. of connectors with BSE 85 on request.

Ordering example:

BNS 823 - [] - [] - 61 - [] - [] - []

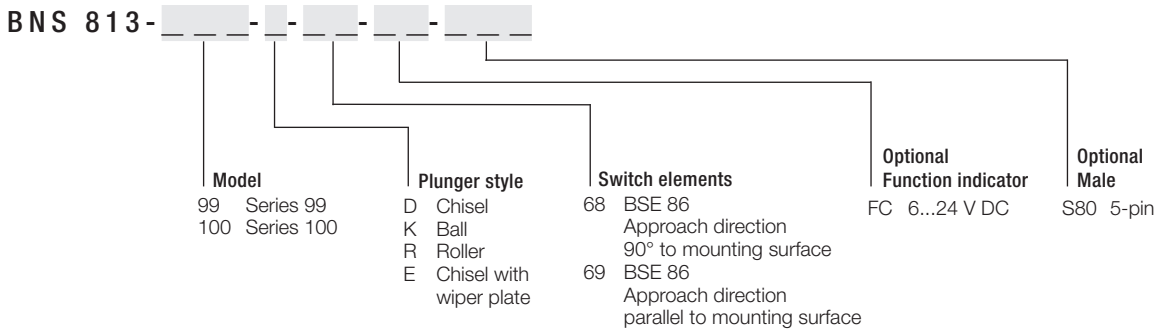


Sensors
RFID
Machine Vision and Optical Identification
Human Machine Interfaces
Systems
Safety
Industrial Networking
Power Supplies
Connectivity
Accessories



Position switches with positive opening	SERIES 99 AND 100
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	Cable gland (M12 x 1.5 Series 99, M16 x 1.5 Series 100) or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 732

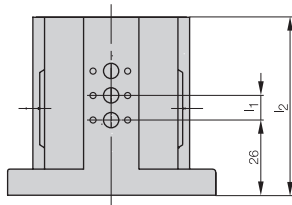
Ordering example:





Multiple position limit switches with positive opening	SERIES 46
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 733

Available sizes

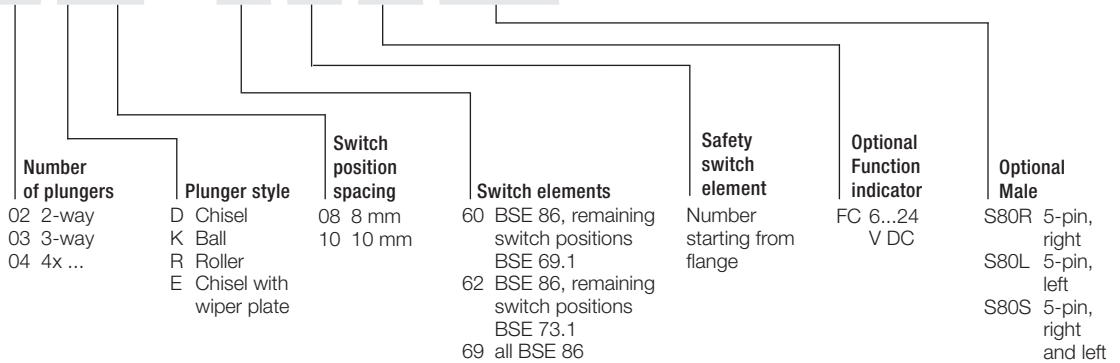


Number of plungers		2	3	4	5	6	8	10
Dimension I ₂ with	Dimension I ₁ = 8 mm	49	59	64	72	80	96	112
	Dimension I ₃	54	54	54	54	54	50	50
	Dimension I ₁ = 10 mm	49	59	72	80	89	112	129
	Dimension I ₃	54	54	54	54	50	50	50
Number of connectors	S80 without FC	1	1	2	2	2	3	3
	S80 with FC	1	2	2	3	3		

Dimensions in mm
Size 12-x with 8 mm spacing on request.

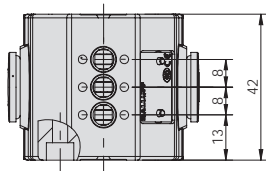
Ordering example:

BNS 813-B [] - [] - **46** - [] - [] - [] - []





Position switch with positive opening	SERIES 40
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16 x 1.5 for cable gland or connector
Ambient temperature	-5...+85 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 733



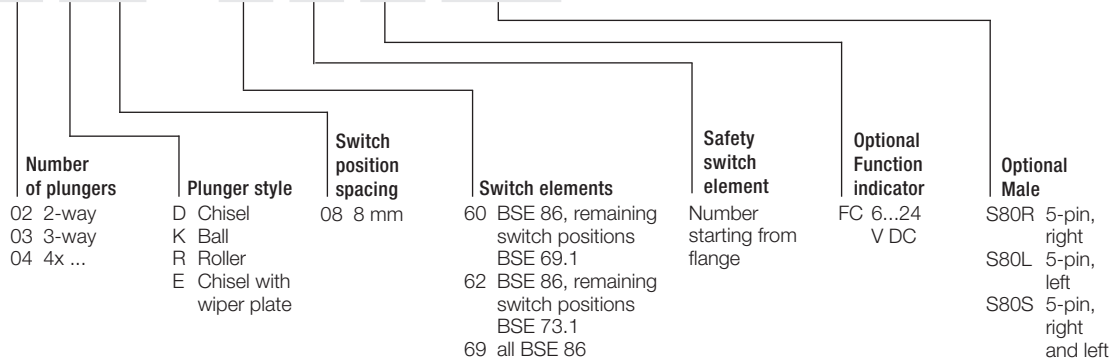
Available sizes

Number of plungers	2	3	4	5	6
Dimension I ₁	34	42	50	58	66
S80 without FC	1	1	2	2	2
S80 with FC	1	2	2		

Dimensions in mm

Ordering example:

BNS 813-B - - - - **40** - - - - -





High-temperature position switches	SERIES 99 AND 100
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M12 x 1.5 or M16 x 1.5 for cable gland
Ambient temperature	-5...+150 °C (-5...+180 °C 10 h/day)
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 734

Ordering example:

BNS 819- - -15

Model

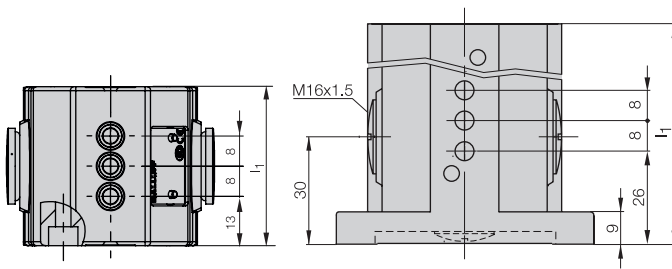
99 Series 99
100 Series 100

Plunger style

D Chisel
K Ball
R Roller



High-temperature position switches	SERIES 46 AND 40
Plunger material	Stainless steel, contact surfaces induction-hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M12 x 1.5 or M16 x 1.5 for cable gland
Ambient temperature	-5...+150 °C (-5...+180 °C 10 h/day)
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 734



Available sizes

Number of plungers	2	3
Dimension I ₁	49	59

Dimensions in mm

Ordering example:

BNS 819-B - **08** - **15**

Number of plungers	Plunger style	Model
02 2-way	D Chisel	40
03 3-way	K Ball	46
	R Roller	

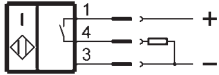


PNP NO	BES01FE BES 516-346-H2-Y-S4	BES01FF BES 516-346-H2-Y-S49	
PNP NC	BES01EW BES 516-341-H2-Y-S4		
PNP changeover			
NPN NO			
NPN NC			
Dimension	54 x 22 x 48 mm	54 x 22 x 48 mm	
Design	block style	block style	
Installation	Flush	Flush	
Range	5 mm	5 mm	
Switching frequency	500 Hz	500 Hz	
Housing material	Aluminum	Aluminum	
Sensing surface, material	PA 12	PA 12	
Connection	Connector, M12x1 connector, 4-pin	Connector, M12x1 connector, 4-pin	
Operating voltage U_b	10...30 VDC	10...30 VDC	
Ambient temperature	-25...+70 °C	-25...+70 °C	
Degree of protection	IP67	IP67	
Approval/Conformity	CE, EAC	CE, EAC	
Productview and installation	Page 735	Page 735	

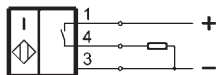
Wiring diagrams

PNP

NO

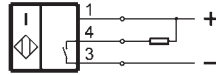


NO

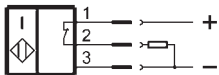


NPN

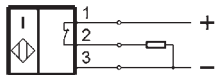
NO



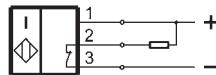
NC



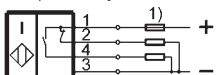
NC



NC



Complementary





BES01FC BES 516-346-H2-Y		
BES01EU BES 516-341-H2-Y		
	BES017M BES 516-161-H3-L	
BES01ZK BES 516-344-H2-Y		
BES01ET BES 516-340-H2-Y		
54 x 22 x 48 mm	74 x 28 x 60.5 mm	
block style	block style	
Flush	Flush	
5 mm	7 mm	
500 Hz	300 Hz	
Aluminum	Aluminum	
PA 12	PA 12	
Screw terminal	Screw terminal	
10...30 VDC	10...30 VDC	
-25...+70 °C	-25...+70 °C	
IP67	IP67	
CE, EAC	CE, EAC	
Page 735	Page 735	

Sensors

RFID

Machine Vision and
Optical Identification

Human Machine
Interfaces

Systems

Safety

Industrial Networking

Power Supplies

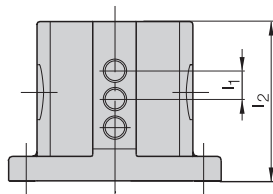
Connectivity

Accessories



Inductive multiple position switches	SERIES 602-11 COMPLIANT WITH DIN 43697
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25 x 1.5 for cable gland or connector
Ambient temperature	-25...+70 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 735

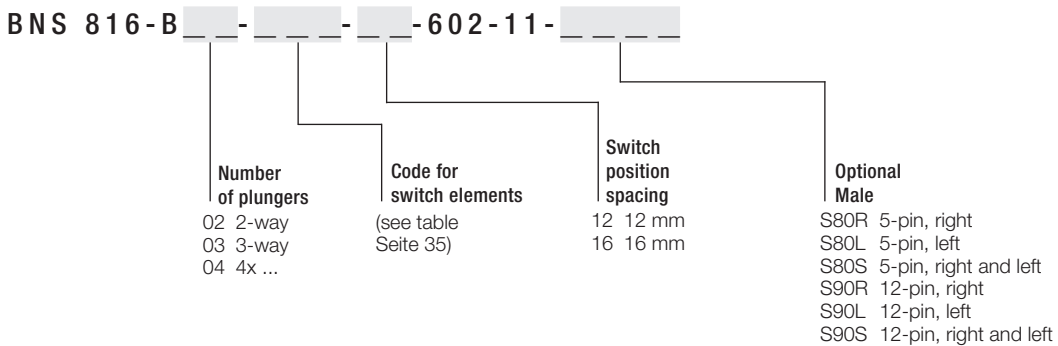
Available sizes



Number of plungers		2	3	4	5	6	8	10	12
Dimension $l_{2,with}$	Dimension $l_1 = 12$ mm	70	80	90	105	120	140	170	200
	Dimension l_4	88	88	88	88	88	80	80	80
	Dimension l_5	14	14	14	14	14	20	20	20
	Dimension $l_1 = 16$ mm	70	90	105	120	140	170	200	240
	Dimension l_4	88	88	88	88	80	80	80	80
	Dimension l_5	14	14	14	14	20	20	20	20
Number of connectors	S80	on request							
	S90	on request							
Dimension l_3	4 mm for inductive switch elements with sensing head 10 mm								
	2 mm for inductive switch elements with sensing head 15.5 mm								

Dimensions in mm

Ordering example:





Inductive multiple position switches	BNS 816-B - - - -610/611/612/613-11- - - -
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20 x 1.5 for cable gland or connector
Ambient temperature	-25...+70 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 736

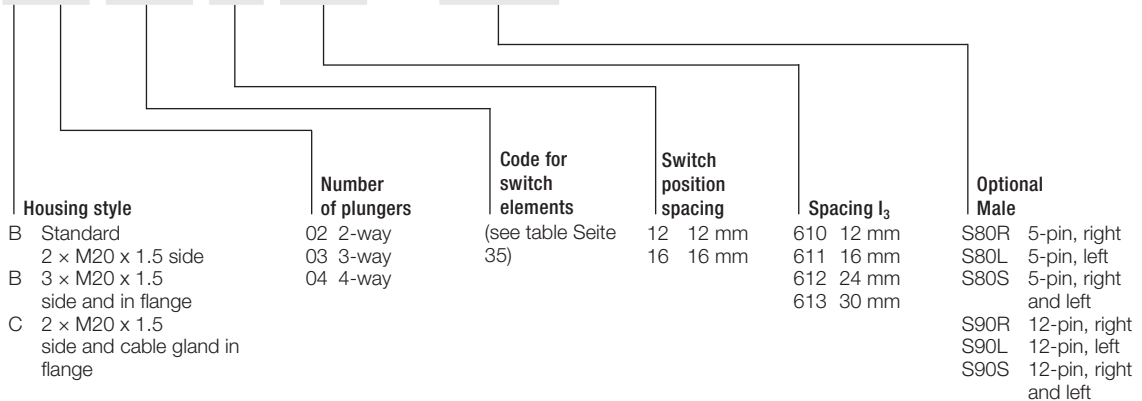
Available sizes

Number of switch-positions	Number of Male S80/S90	Switch-position-spacing Dimension	Series 610 Housing B Standard Dimension		Series 611 Housing B Standard Dimension		Series 612 Housing B Dimension		Series 612 Housing C Dimension		Series 613 Housing B Dimension		Series 613 Housing C Dimension	
			l_2	l_3	l_2	l_3	l_2	l_3	l_2	l_3	l_2	l_3	l_2	l_3
2	on request	l_1	36	12					48	24	60	30		
3		12	48	12			60	24	60	24				
4		12	60	12										
5		12	72	12										
6		12	84	12										
2			16			48	16					60	30	
3		16			72	16								
4		16			84	16								

Dimensions in mm
 Dimension $l_4 = 4$ mm for inductive switch elements with sensing head $\varnothing 10$ mm
 Dimension $l_4 = 2$ mm for inductive switch elements with sensing head $\varnothing 15.5$ mm

Ordering example:

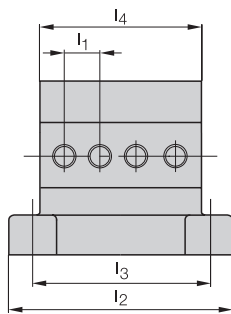
BNS 816- - - - -11- - - -





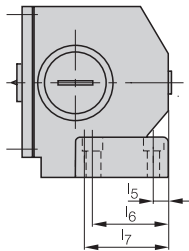
Inductive multiple position switches	SERIES 605-11
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25 x 1.5 for cable gland or connector
Ambient temperature	-25...+70 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 736

Available sizes



Number of switching positions		2	3	4	5	6	7	8	10	12
Dimension l ₂ with	Dimension l ₁ = 12 mm	84	84	100	116	132	148	164	180	
Dimension l ₃ with	Dimension l ₁ = 12 mm	66	66	82	98	114	130	146	162	
Dimension l ₄ with	Dimension l ₁ = 12 mm	54	54	68	84	100	164	132	148	
Dimension l ₂ with	Dimension l ₁ = 16 mm	84	100	116	132	148	146	180	212	224
Dimension l ₃ with	Dimension l ₁ = 16 mm	66	82	98	114	130	132	162	194	226
Dimension l ₄ with	Dimension l ₁ = 16 mm	54	68	84	100	116		148	180	212
Number of connectors	S80	on request								
	S90	on request								

Dimensions in mm



Dimensions when using inductive switch elements with sensing head Ø 10 mm		Dimensions when using inductive switch elements with sensing head Ø 15.5 mm	
Dimension l ₂	10 mm	Dimension l ₂	8 mm
Dimension l ₃	40 mm	Dimension l ₃	38 mm
Dimension l ₄	43.5 mm	Dimension l ₄	41.5 mm

Dimensions in mm

Ordering example:

BNS 816-B - - - - **- 605-11-** - - - -

Number of plungers
 02 2-way
 03 3-way
 04 4x ...

Code for switch elements
 (see table 7315)

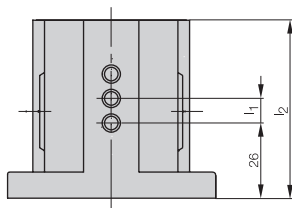
Switch position spacing
 12 12 mm
 16 16 mm

Optional Male
 S80R 5-pin, right
 S80L 5-pin, left
 S80S 5-pin, right and left
 S90R 12-pin, right
 S90L 12-pin, left
 S90S 12-pin, right and left



Inductive multiple position switches	SERIES 603-11
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16 x 1.5 for cable gland or connector
Ambient temperature	-25...+70 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 737

Available sizes

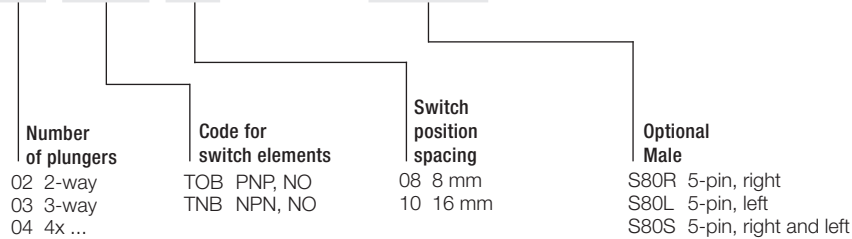


Number of switching positions		2	3	4	5	6	8	10
Dimension l_2 with	Dimension $l_1 = 8$ mm	49	59	64	72	80	96	112
	Dimension $l_3 =$	54	54	54	54	54	50	50
	Dimension $l_1 = 10$ mm	49	59	72	80	89	112	129
	Dimension $l_3 =$	54	54	54	54	50	50	50
Number of connectors	S80 on request							

Dimensions in mm
Size 12-x with 8 mm spacing on request.

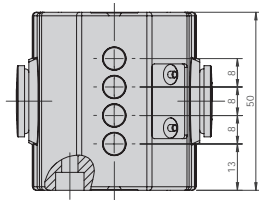
Ordering example:

BNS 816-B - - - - **-603-11-** - - - -





Inductive multiple position switches	SERIES 650-11
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16 x 1.5 for cable gland or connector
Ambient temperature	-25...+70 °C
Degree of protection as per IEC 60529	IP67
Approval/Conformity	CE
Productview and installation	Page 737



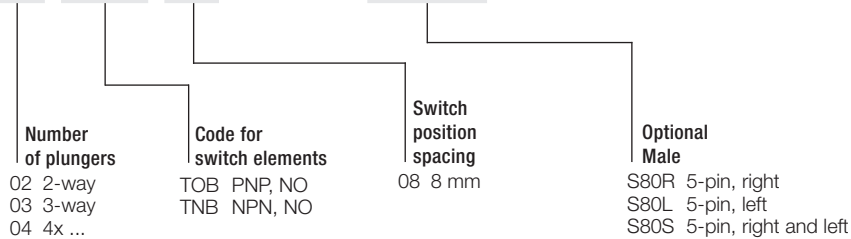
Available sizes

Number of switching positions	2	3	4	5	6
Dimension I ₁	34	42	50	58	66
No. of connectors S80 on request					

Dimensions in mm

Ordering example:

BNS 816-B - - - - **- 650-11-** - - - -



Inductive switch elements with sensing head Ø 10 mm, for use with switch position spacing 12 and 16 mm

Code	Order code for spare switch elements	Electrical version	Rated-switching distance s_n	Assured switching distance s_a
PA	BES 517-110	PNP, changeover, 10...60 V DC, short-circuit protected	2 mm	0...1.6 mm
NA	BES 517-108	NPN, changeover, 10...60 V DC, short-circuit protected	2 mm	0...1.6 mm
WS	BES 517-410	NO, up to 250 V AC	2 mm	0...1.6 mm
WO	BES 517-421	NC, up to 250 V AC	2 mm	0...1.6 mm
KHG	BES 517-560-H	2-wire, NO, 10...55 V DC, short-circuit protected	2 mm	0...1.6 mm
KHH	BES 517-561-H	2-wire, NC, 10...55 V DC, short-circuit protected	2 mm	0...1.6 mm
NG	BES 516-314-N	2-wire, NAMUR, 7.7...9 V DC	2 mm	0...1.6 mm

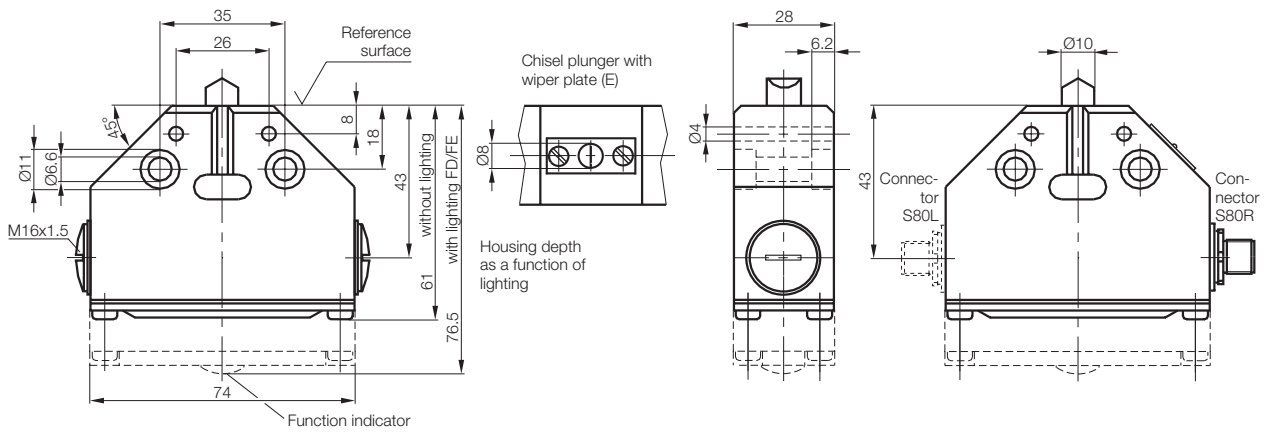
Inductive switch elements with sensing head Ø 15.5 mm, for use with switch position spacing 16 mm

Code	Order code for spare switch elements	Electrical version	Rated-switching distance s_n	Assured switching distance s_a
THA	BES 517-142-Y	PNP, changeover, 10...30 V DC, short-circuit protected	5 mm	0...4 mm
EJA	BES 517-463	NO, up to 250 V AC	5 mm	0...4 mm
AAA	BES 517-464	NC, up to 250 V AC	5 mm	0...4 mm

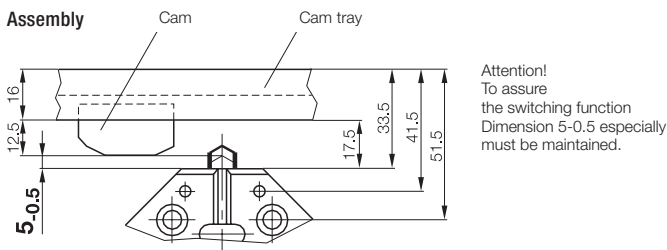
Hybrid switch element with mechanical plunger and inductive processing

Code	Order code for spare switch elements	Electrical version	Rated-switching distance s_n	Assured switching distance s_a
DH	BES 516-110-D	PNP, changeover, 10...30 V DC	More information on request!	

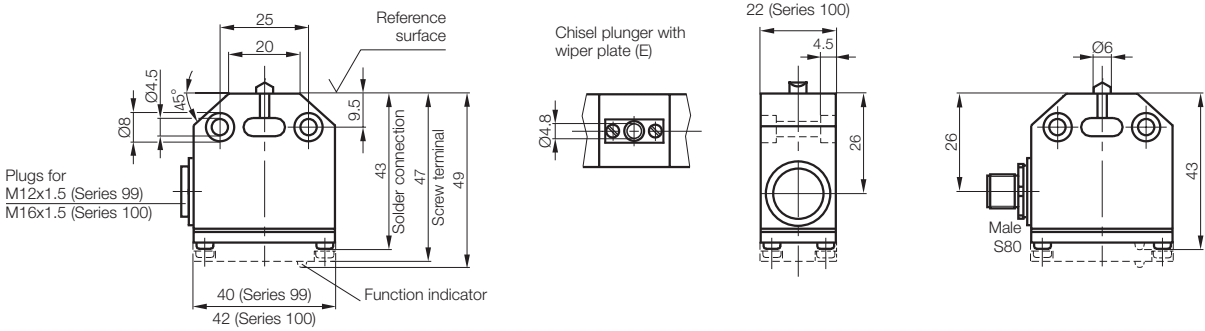
Position switch Series F60 compliant with DIN 43693



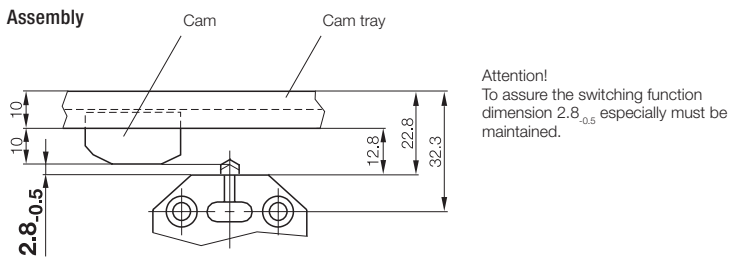
Assembly



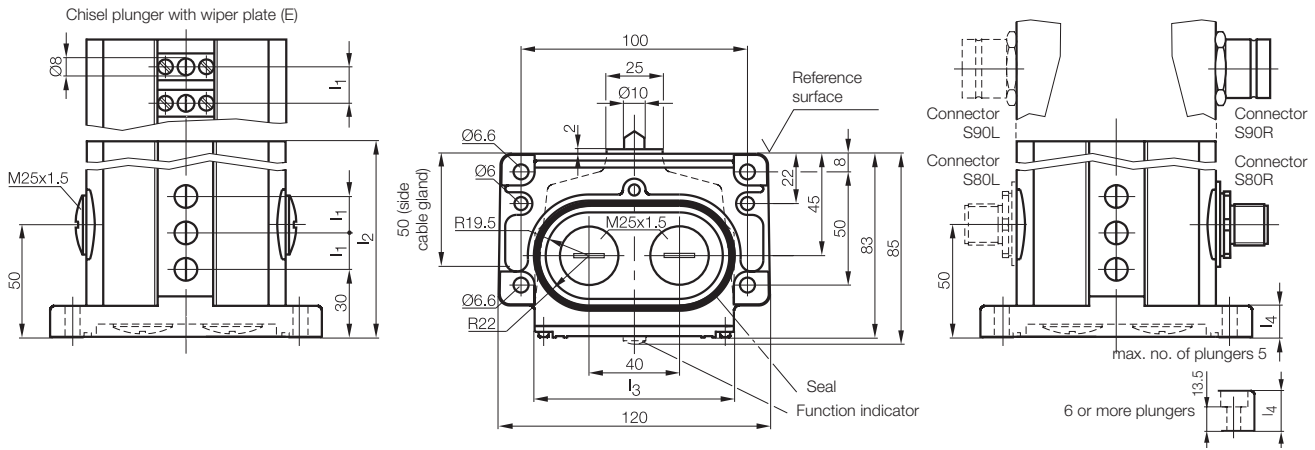
Position switch Series 99 and 100



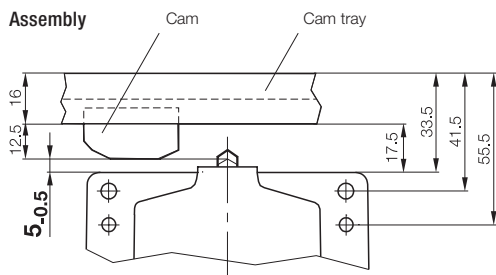
Assembly



Multiple position switches 100 compliant with DIN 43697

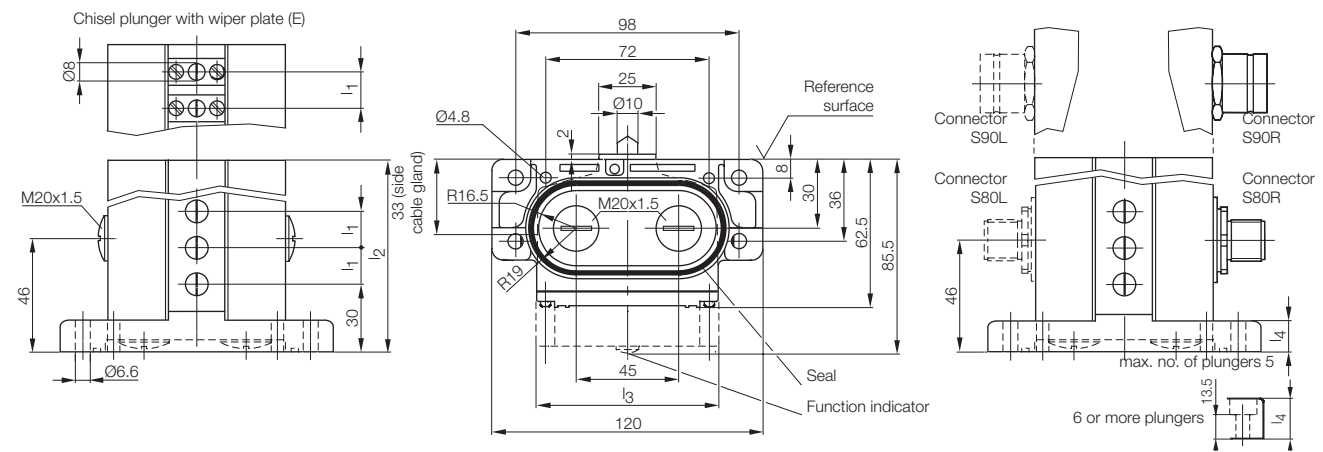


Assembly

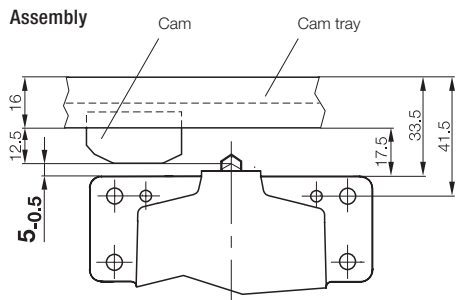


Attention!
To assure the switching function dimension 5-0.5 especially must be maintained.

Series 62 multiple position switch

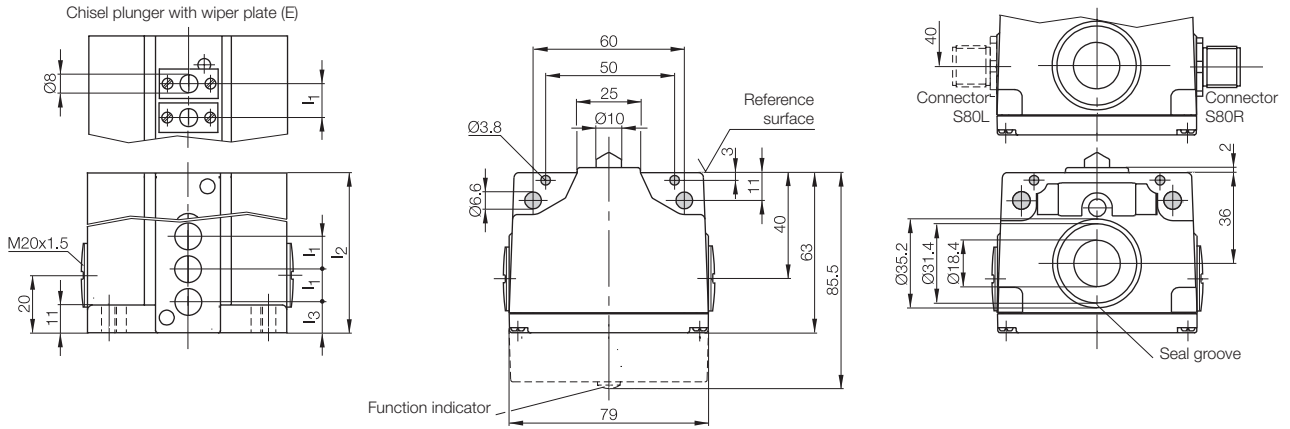


Assembly

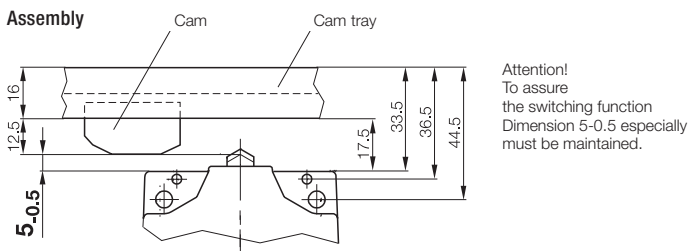


Attention!
To assure the switching function Dimension 5-0.5 especially must be maintained.

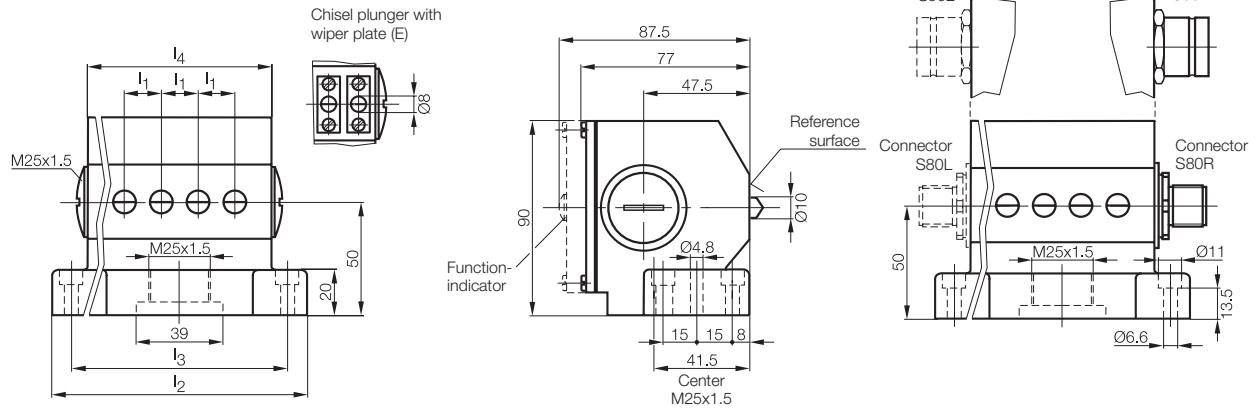
Series 61 multiple position switch



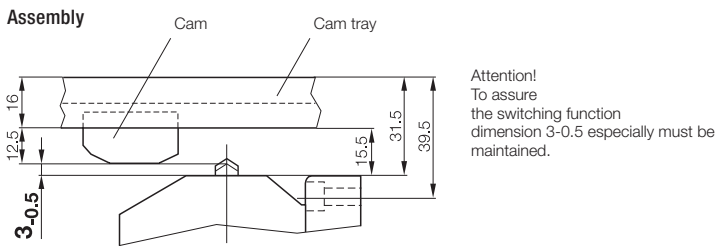
Assembly



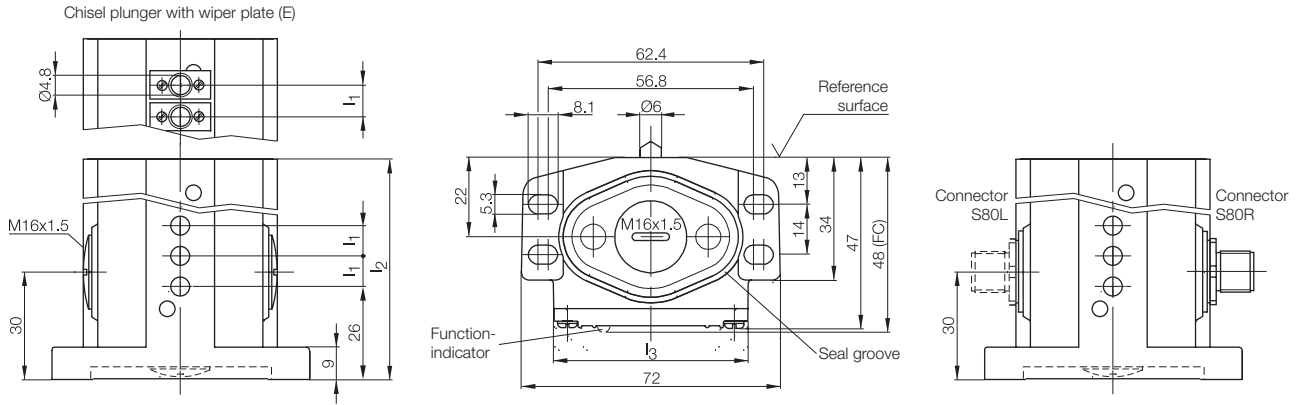
Series 72 multiple position switch



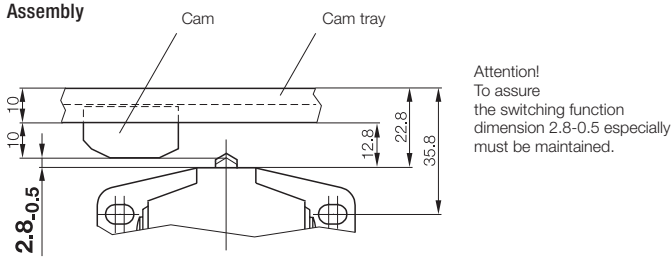
Assembly



Series 46 multiple position switch

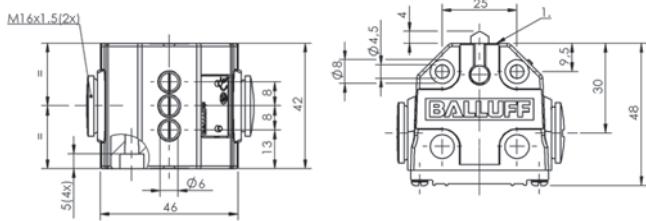


Assembly



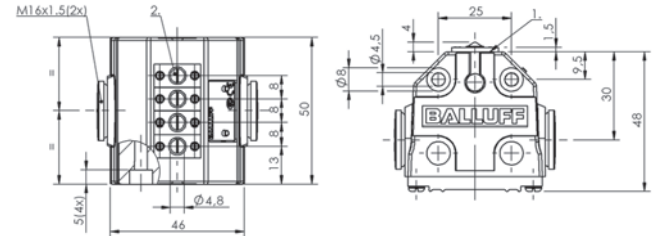
Series 40 multiple position switch

Standard:



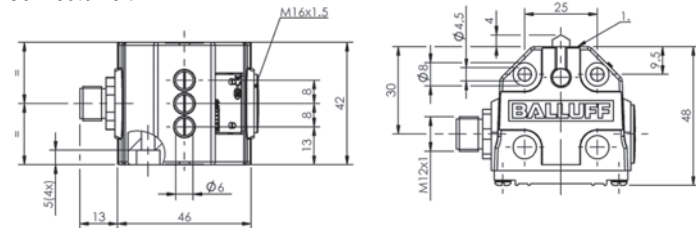
1) Reference edge

Chisel plunger with wiper plate:



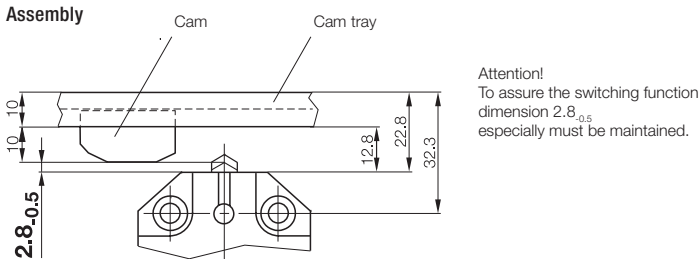
1) Reference edge
2) Anti-crystallization plunger

Connector left:

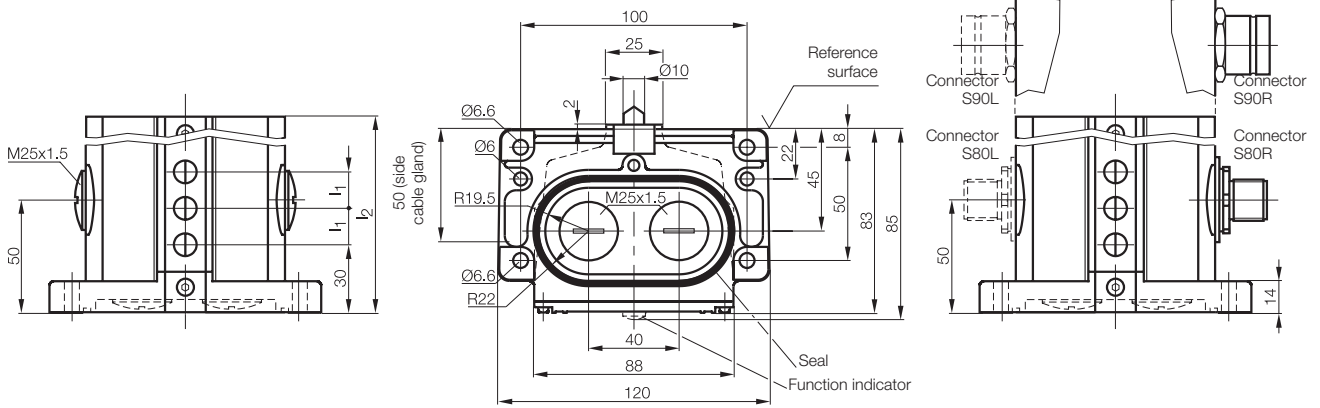


1) Reference edge

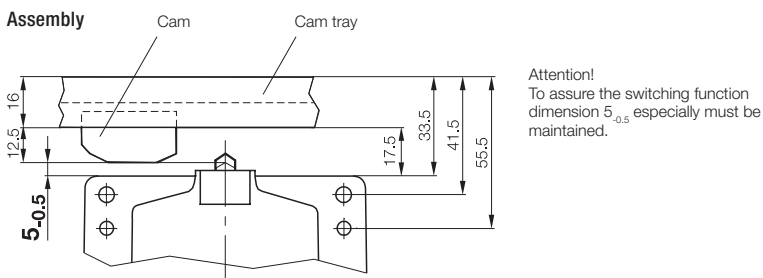
Assembly



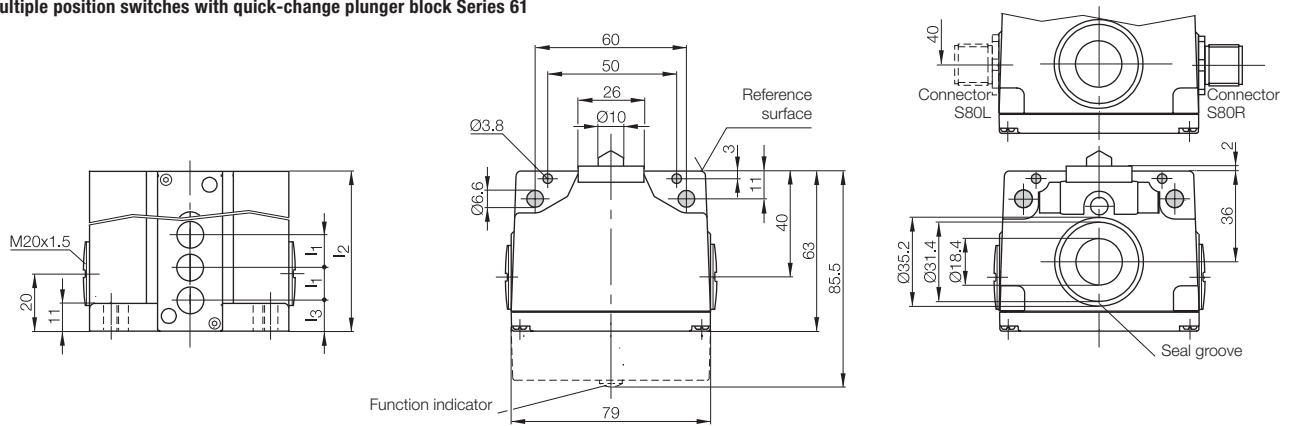
Multiple position switches with quick-change plunger block Series 100 compliant with DIN 43697



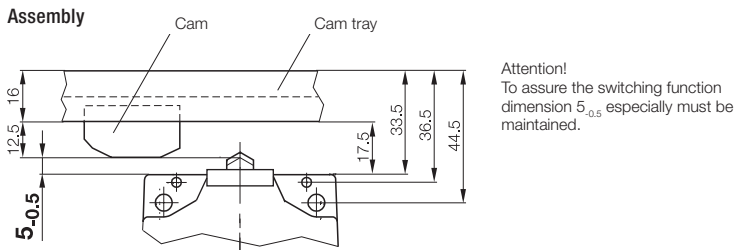
Assembly



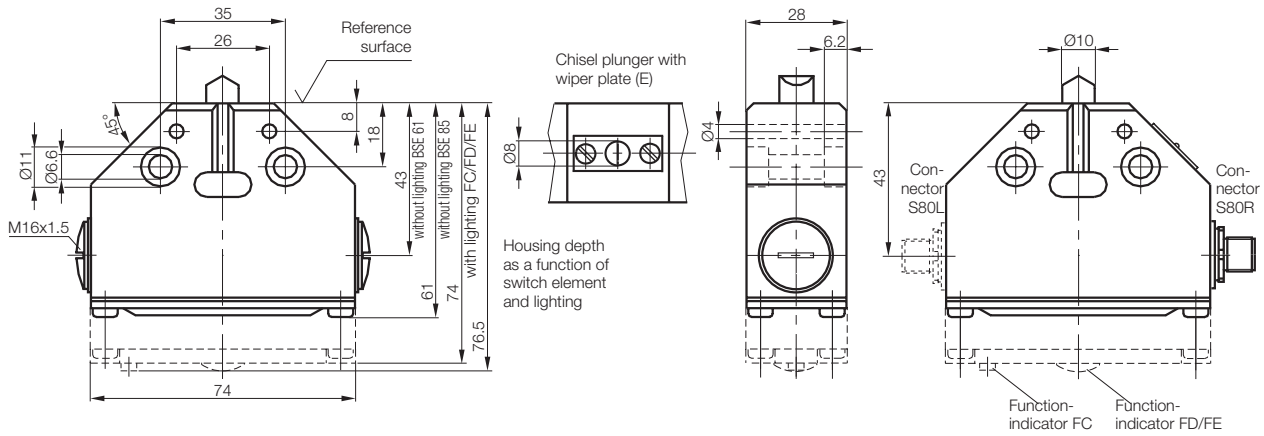
Multiple position switches with quick-change plunger block Series 61



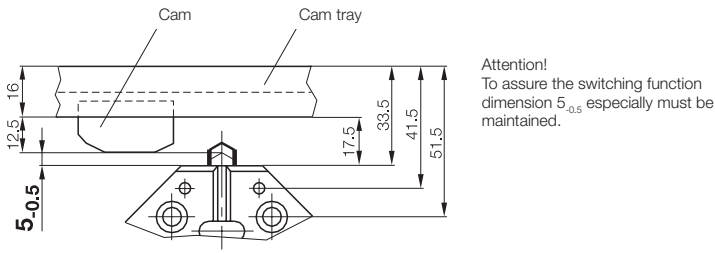
Assembly



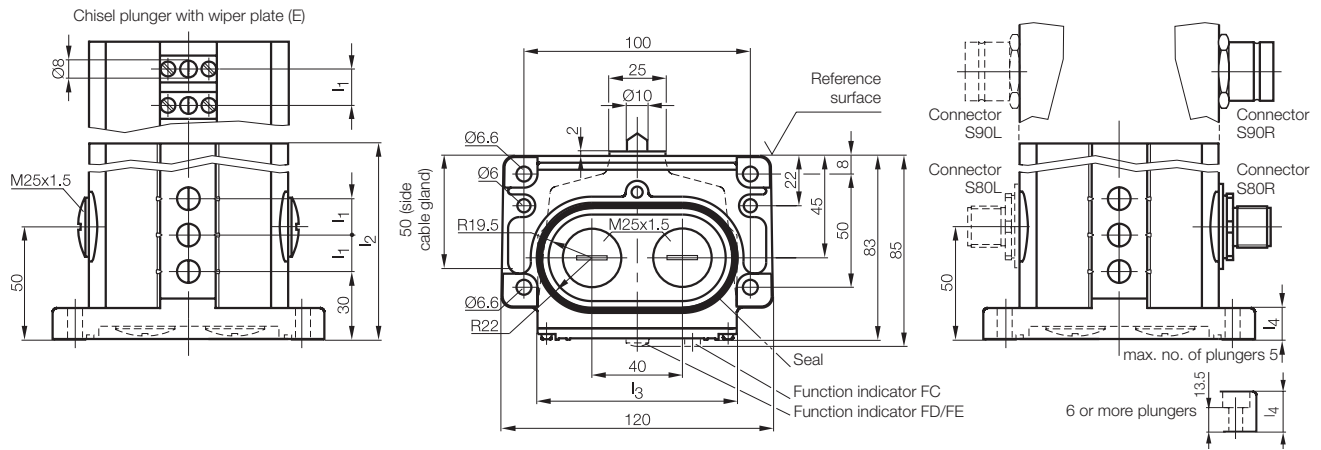
Position switch with safety switch positions Series F60 DIN 43693



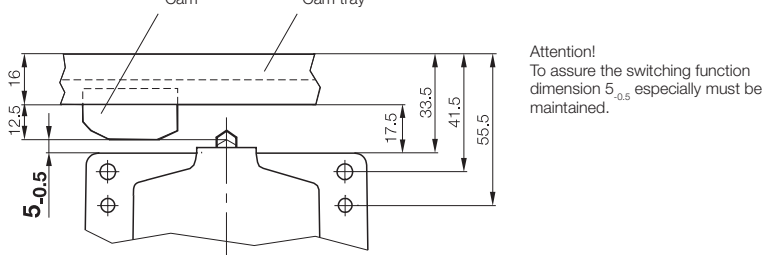
Assembly



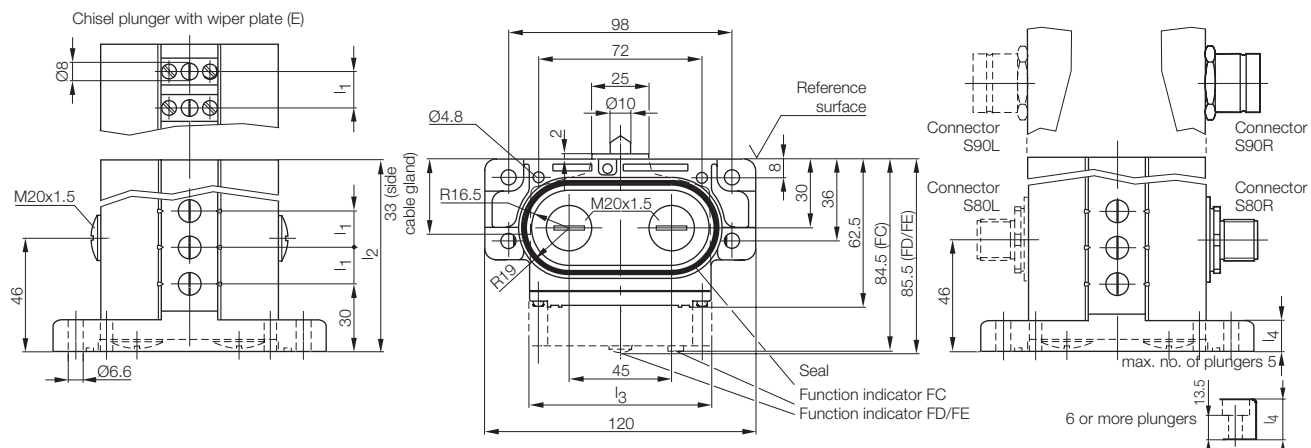
Multiple position limit switches with safety switch positions Series 100 DIN 43697



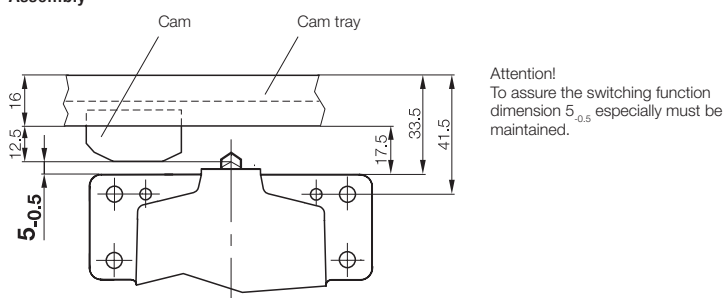
Assembly



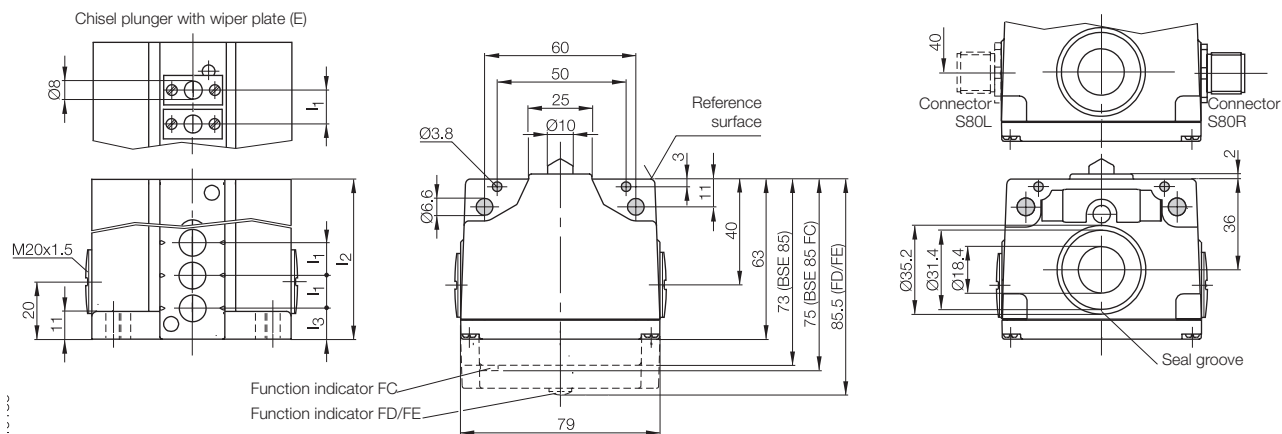
Multiple position limit switches with safety switch positions Series 62



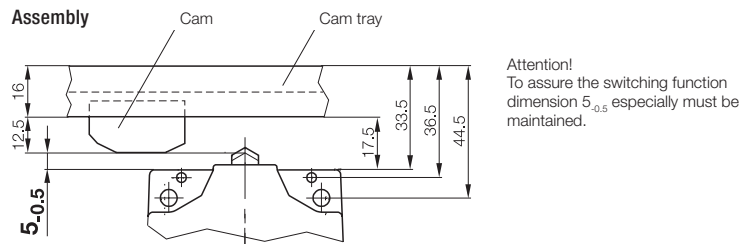
Assembly



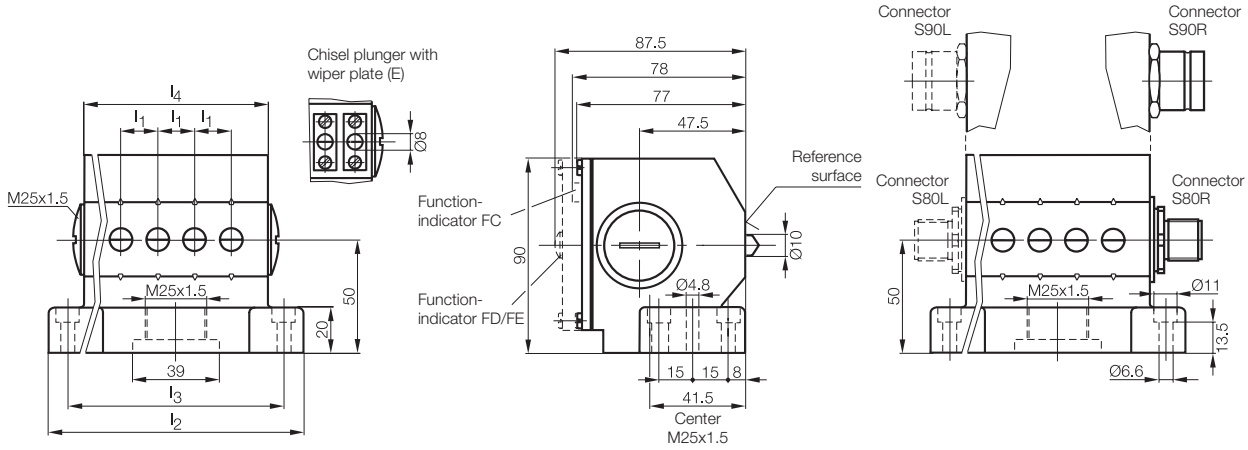
Multiple position limit switches with safety switch positions Series 61



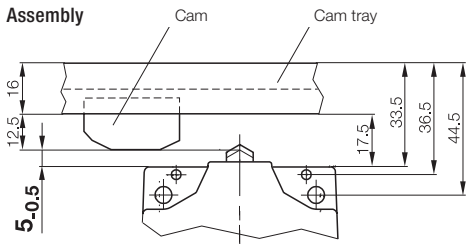
Assembly



Multiple position limit switches with safety switch positions Series 72

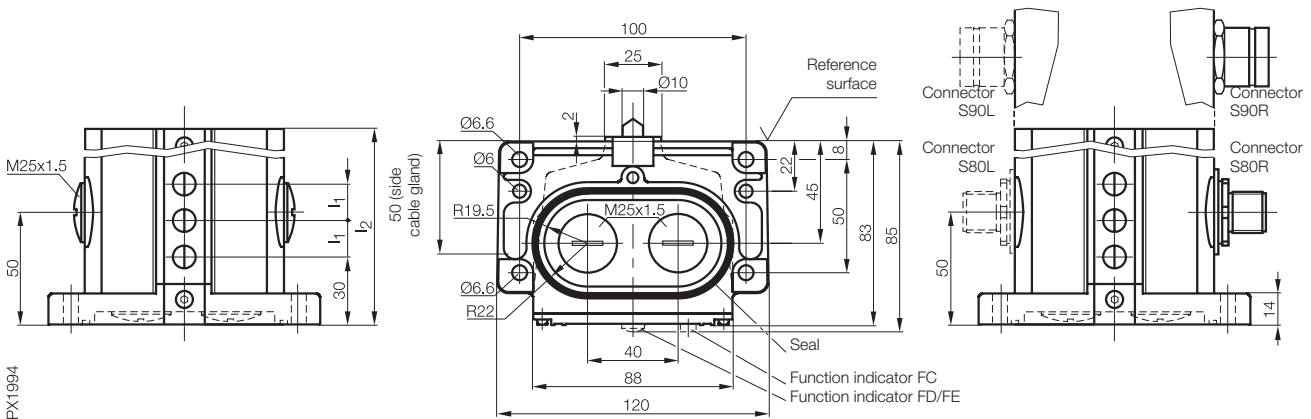


Assembly



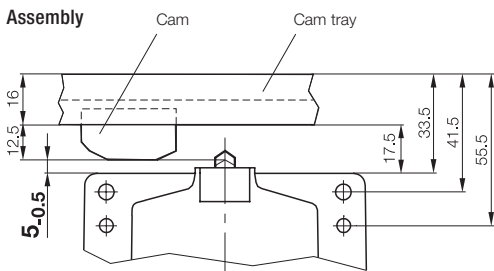
Attention!
To assure the switching function dimension 5_{0.5} especially must be maintained.

Multiple position limit switches with safety switch positions and quick-change plunger block Series 100



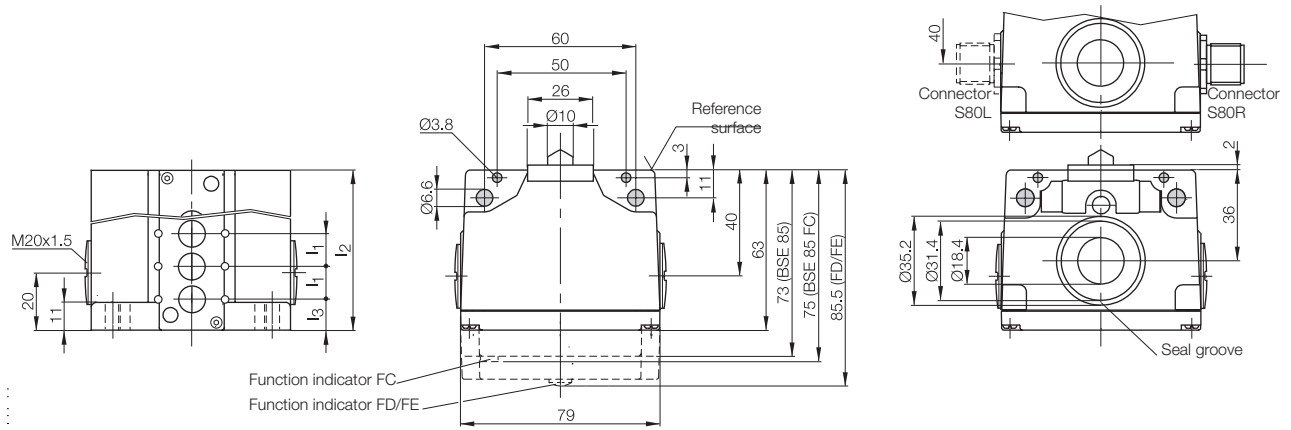
PX1994

Assembly

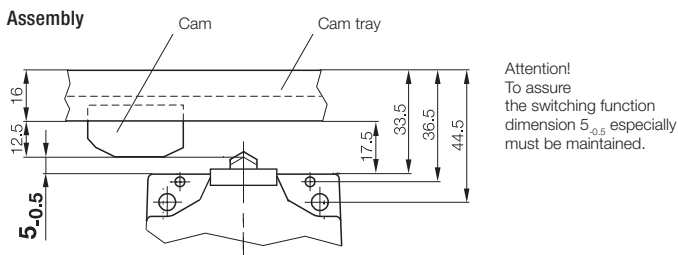


Attention!
To assure the switching function dimension 5_{0.5} especially must be maintained.

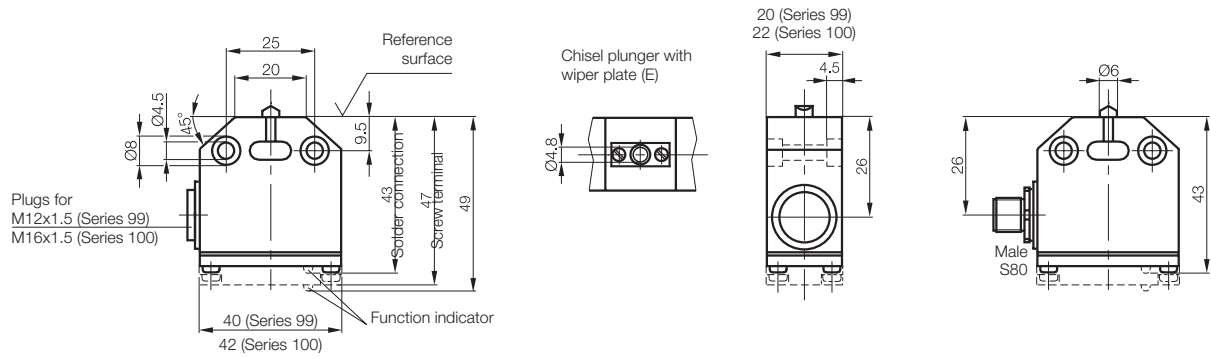
Multiple position limit switches with safety switch positions and quick-change plunger block Series 61



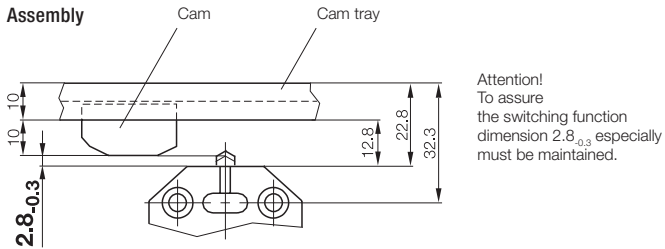
Assembly



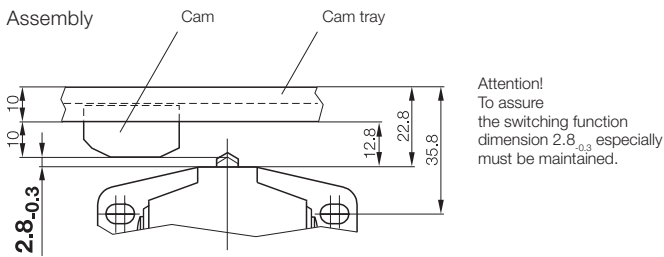
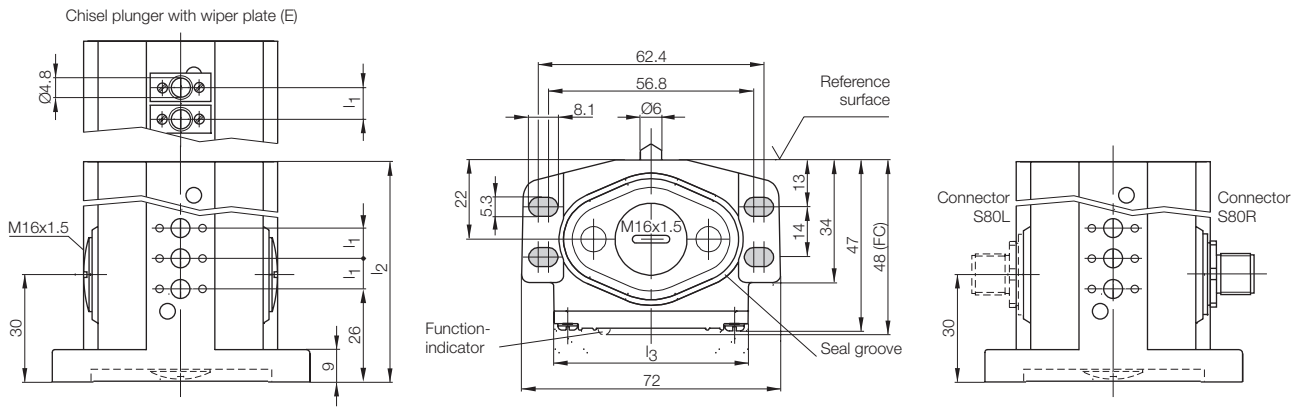
Position switch with positive opening Series 99 and 100



Assembly



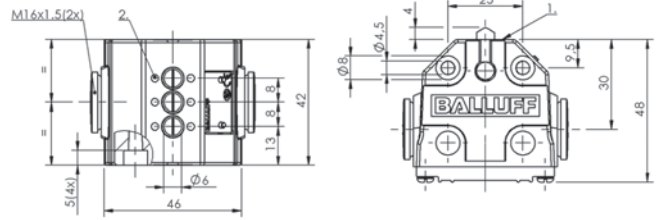
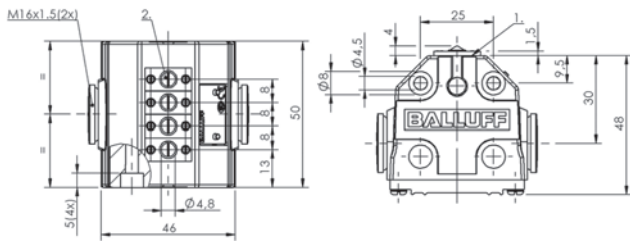
Multiple position limit switches with positive opening Series 46



Multiple position limit switches with positive opening Series 40

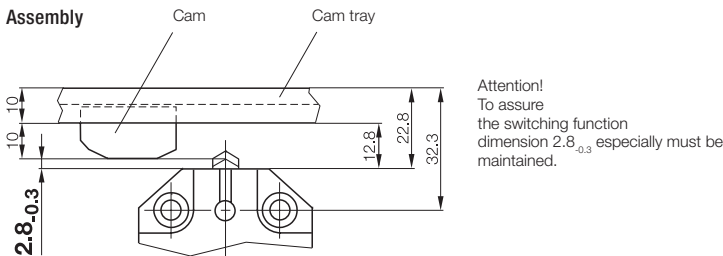
Chisel plunger with wiper plate:

Standard:

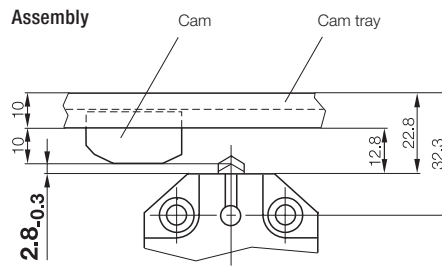
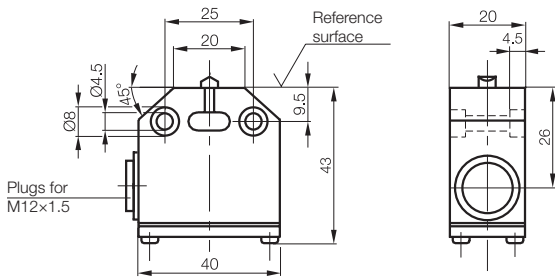


- 1) Reference edge
- 2) Anti-crystallization plunger

- 1) Reference edge
- 2) Mark. Safety switch position

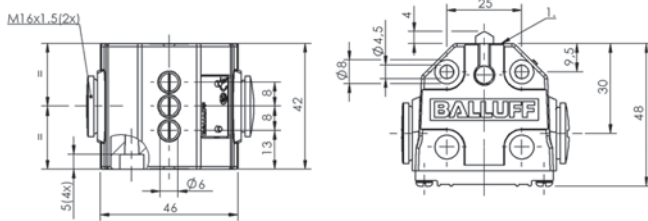


High-temperature position switch Series 99 and 100

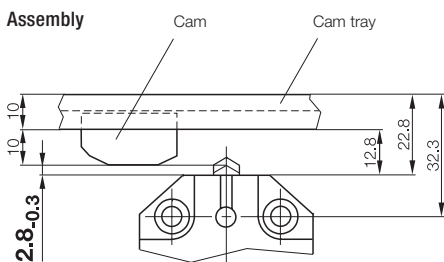
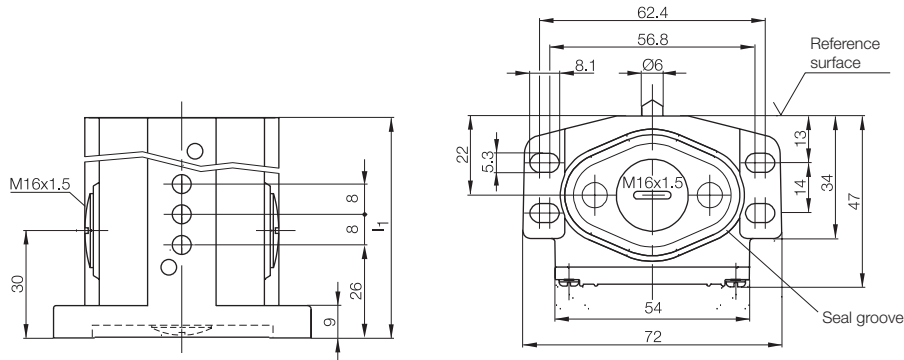


Attention!
To assure the switching function dimension $2.8_{-0.3}$ especially must be maintained.

High-temperature multiple position switches Series 46 and 40

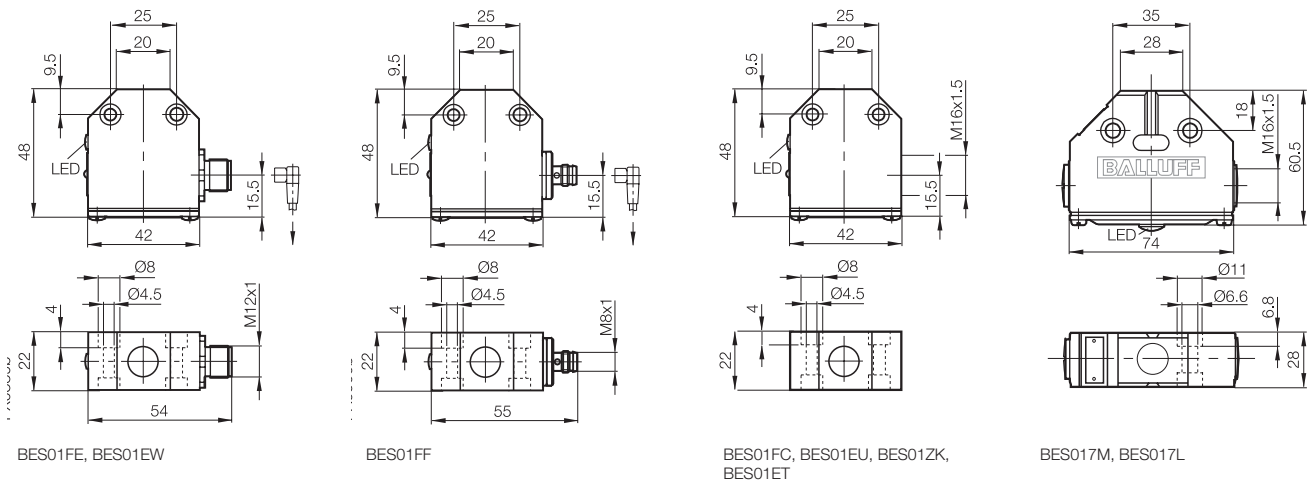


1) Reference edge

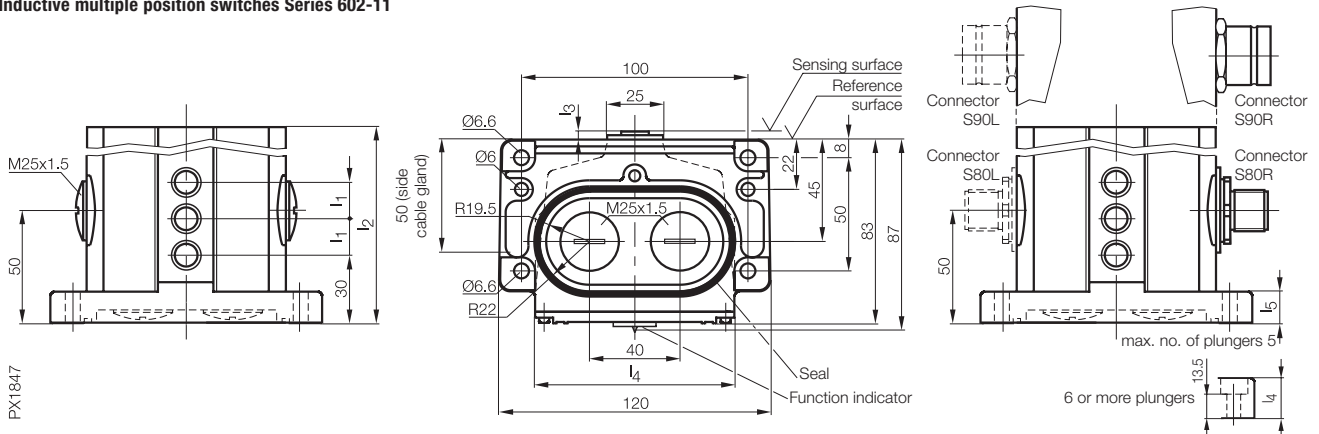


Attention!
To assure the switching function dimension $2.8_{-0.3}$ especially must be maintained.

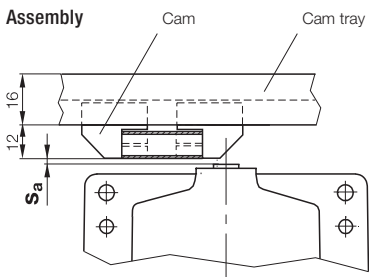
Inductive Position Switches Series H2 and H3



Inductive multiple position switches Series 602-11

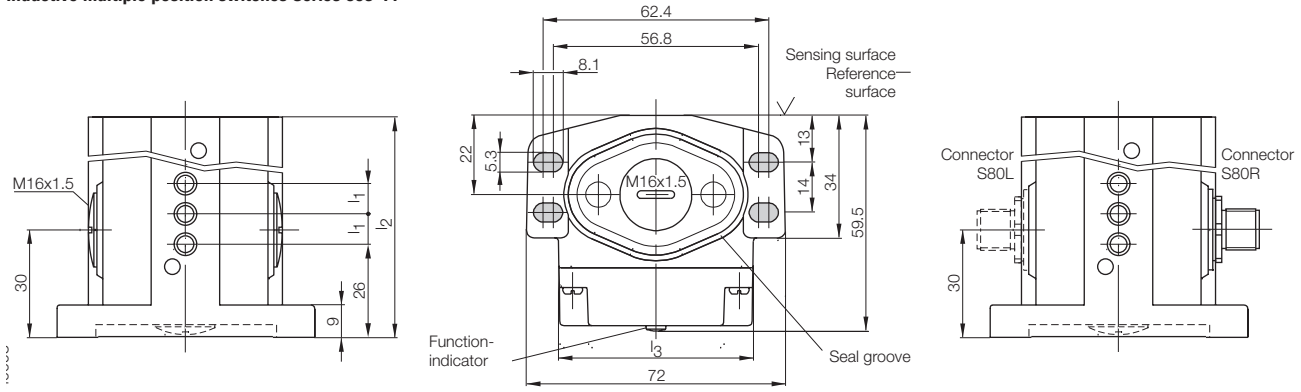


Assembly

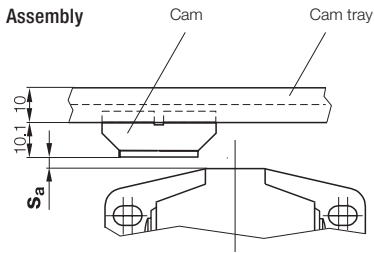


Attention!
To assure the switching function s_a must lie within $0 < s_a \leq 0.81 s_p$.

Inductive multiple position switches Series 603-11



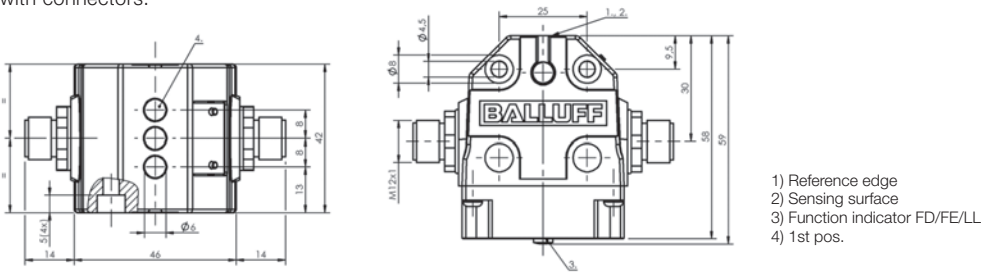
Assembly



Attention!
To assure
the switching function
 s_a must lie within
 $0 < s_a \leq 0.81 s_{p1}$

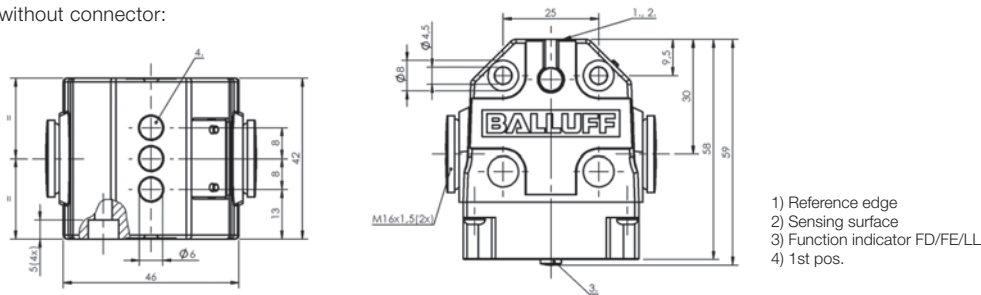
Inductive multiple position switches Series 650-11

with connectors:



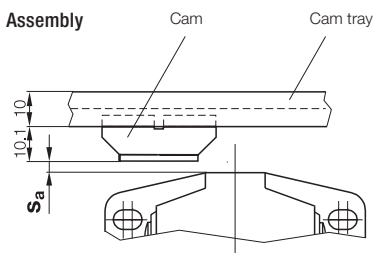
- 1) Reference edge
- 2) Sensing surface
- 3) Function indicator FD/FE/LL
- 4) 1st pos.

without connector:



- 1) Reference edge
- 2) Sensing surface
- 3) Function indicator FD/FE/LL
- 4) 1st pos.

Assembly



Attention!
To assure
the switching function
 s_b must lie within
 $0 < s_b \leq 0.81 s_{p1}$

Sensors 1

BASICS AND GLOSSARY



Technisches Glossar

Geben Sie ein Begriff ein.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Begriff

Absolut

Abstandssensor mit Analogausgang

Absolutdruck

ADA

Aktive Fläche

Alarmausgang

Definition

Charakteristik eines magnetoresistiven Messsystems, bei dem der Messwert der aktuellen Position sofort nach dem Einschalten verfügbar ist. Jeder Position, z. B. einer Messstrecke, ist ein absolut codiertes digitales Signal oder ein Analogwert zugeordnet. Eine Referenzpunktzahl ist nicht notwendig.

Sensor, der ein kontinuierlich veränderndes Ausgangssignal erzeugt, das vom Abstand zwischen aktiver Fläche und dem Bedämpfungselement abhängt.

Druck gegenüber Druck Null (Vakuum). Der Wertebereich des Absolutdrucks ist immer positiv.

Automatisierungsinitiative Deutscher Automobilisten

Aktiv messender Bereich und somit nach außen empfindliche Elektrode/Platte des Elektrodensystems. Sie ist in der Regel etwas kleiner als die Fläche der Abdeckscheibe.

> nähere Informationen

"Vorrichtung/Funktion am Empfänger, die bei Funktionsstörungen ein Warnsignal ausgeben kann. Der Alarmausgang ist aktiviert, wenn die mechanische Dejustierung von unzureichend ist."



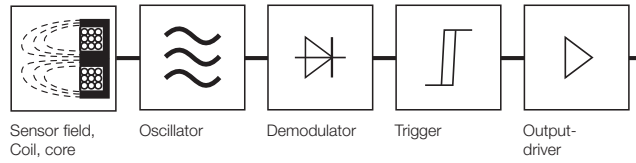
ausst. Diese
ell im Nemowoch

INDUCTIVE SENSORS

Principle

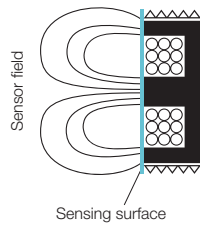
Inductive sensors are based on the interaction of metallic targets with the electromagnetic alternating field of the sensor. Eddy currents are induced in the metallic damping material, which removes energy from the field and reduces the height of the oscillation amplitude. This change is processed in the inductive sensor.

The functional groups of Balluff sensors are:



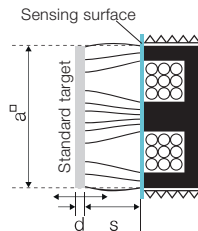
Sensing surface

Actively measuring area and thereby the externally sensitive electrode/plate of the electrode system. It is generally somewhat smaller than the surface of the cover.



Standard target

A square plate made of Fe 360 (ISO 630), used to define sensing distances per EN 60947-5-2. Thickness is 1 mm; the side length "a" corresponds to the diameter of the inscribed circle of the active surface or 3 s_n, if the value is larger than the named diameter.



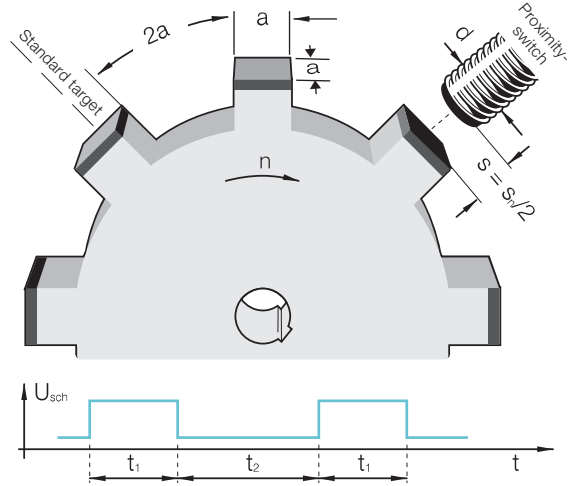
Correction factor

Reduction in the switching distance for damping materials that are not Fe 360.

Material	Factor
Steel	1.0
Copper	0.25...0.45
Brass	0.35...0.50
Aluminum	0.30...0.45
Stainless steel	0.60...1.00
Nickel	0.65...0.75
Cast iron	0.93...1.05

Switching frequency

The maximum speed at which the sensor can reliably detect an object under standardized conditions. This corresponds to the maximum number of switching operations (ON/OFF) per second. The value is dependent on the size and speed of the object and its distance from the sensing face.



Delay times

Time delay before availability

Duration between the application of power and the availability of a sensor.

Temperature effects and limits

Temperature drift

The temperature drift is the deviation of the real switching distance within the temperature range of $-25\text{ °C} \leq T_a \leq +70\text{ °C}$. In accordance with EN 60947-5-2: $\Delta s_r/s_r \leq 10\%$

Ambient temperature T_a

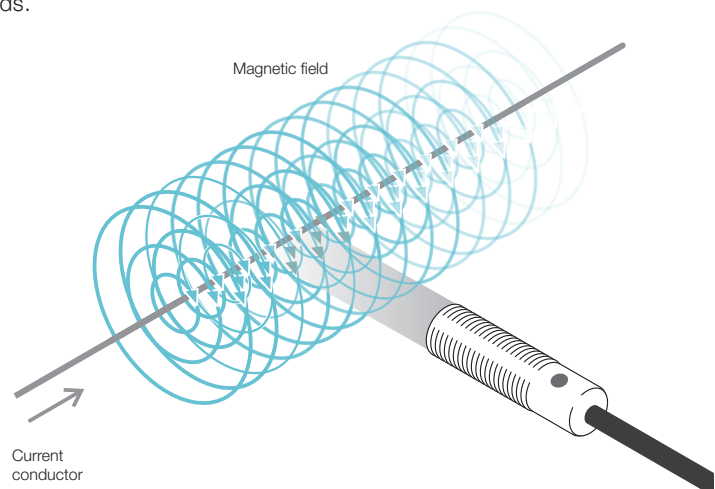
The maximum permissible temperature range at which a sensor may be operated while ensuring reliable functioning of the sensor.

Magnetic field immunity

Operating principle

Error-free function depends on the magnitude of the welding current and the distance between the sensor and the current-carrying line.

Construction and circuitry design measures ensure that magnetic field immune sensors are not influenced by magnetic fields.



Operating voltage U_B

Voltage range (V) in which flawless functioning of the sensor is assured. It includes all voltage tolerances and ripple.

Rated operating voltage

The maximum voltage at which the sensor can be used in normal use. Indicated by U_e . DC switches: $U_e = 24$ V DC; AC and AC/DC switches: $U_e = 110$ V AC.

Voltage drop U_d

The maximum voltage loss of the switching final stage between switching output and $+U_B$ (PNP) or $-U_B$ (NPN) at the maximum specified load current.

Rated isolation voltage

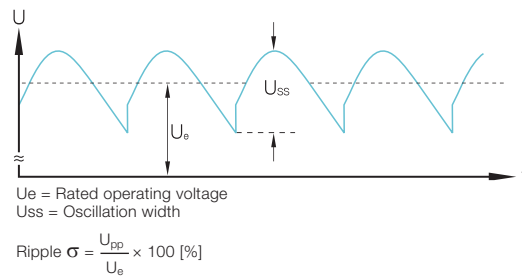
The voltage to which the insulation checks and the air and creepage distances refer. For sensors, the highest rated operating voltage is considered the rated insulation voltage.

Rated supply frequency

Frequency of the operating voltage when using alternating current

Ripple

The maximum permissible AC voltage (peak-to-peak of U_e which may be superimposed on the operating voltage U_S without affecting the function of the sensor.

**Rated operating current**

The permissible output current which flows through the load R_L .

Off-state current

The current which flows in the load circuit when a sensor is not conducting (open).

Short-term current carrying capacity I_k

For an AC device the short-term permissible current I_k (A_{eff}) during a specified turn-on duration t_k (ms) and repetition rate f (Hz).

Limited rated short-circuit current

Value of the unaffected short circuit current which the short circuit protected circuit can withstand during the entire turn-off time (duration of current flow) of the device under specified conditions. This current is prescribed in the standard in order to test the short-circuit protection of sensors.

No-load current The maximum internal current consumption with no load connected to the switching output (in general at $U_{B\ max.}$ and actuated).

Minimum operating current Minimum current (mA) required when energizing the output to maintain operation.

Output resistance Resistance (R_a) at the output of a circuit or component. The output resistance is generally a frequency-dependent, complex resistance with amount and phase and is referred to as output resistance.

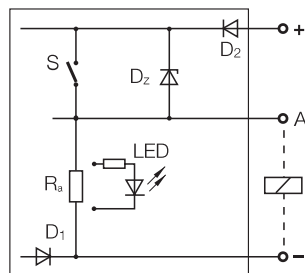
Load capacitance The load capacitance is the permitted total capacitance at the sensor output, including cable capacitance.

Output circuits

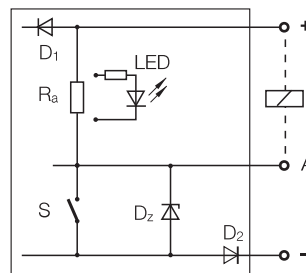
Driver stages

3-wire DC-switch

PNP, positive switching (current source)



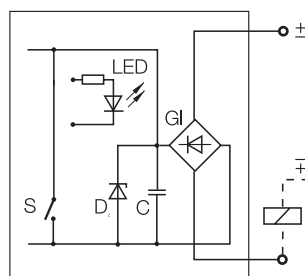
NPN, negative switching (current sink)



- S = Semiconductor switch
- R_a = output resistance
- LED = Light diode
- D_z = Z-diode, delimiter
- D_1 = Polarity reversal-protected diode
- D_2 = Polarity reversal-protected diode in the load circuit (only with short-circuit protected version)

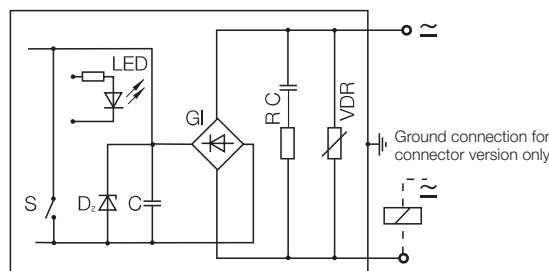
2-wire DC-switch

Non-polarized

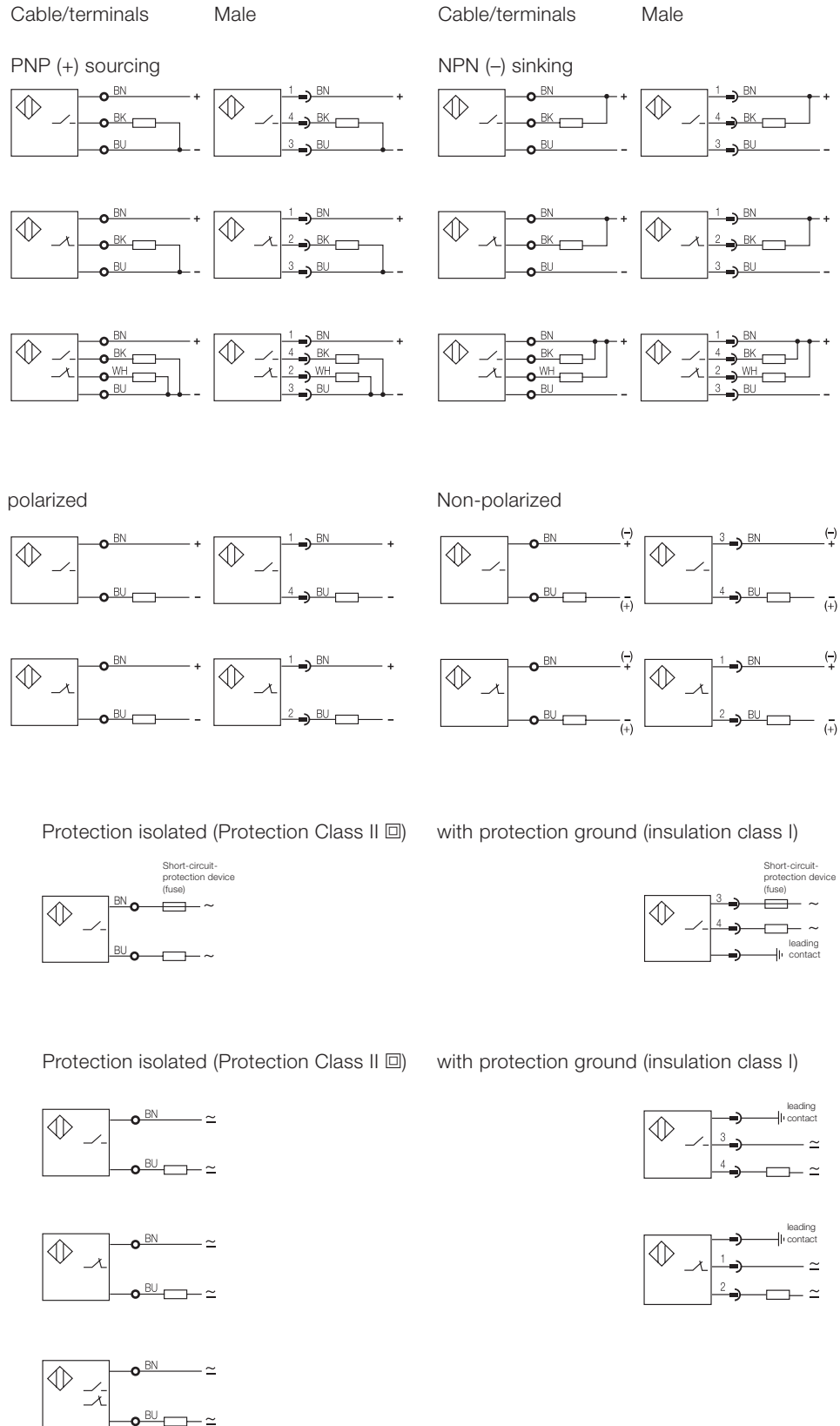


- S = Semiconductor switch
- D_z = Z-diode, delimiter
- C = capacitor
- Gl = bridge rectifier
- LED = light emitting diode

2-wire AC- and AC/DC-switch (all current switch)



- S = Semiconductor switch
- D_z = Z-diode, delimiter
- C = Sieve condenser
- RC = HF-points-limit
- Gl = bridge rectifier
- LED = Light diode
- VDR = Voltage point limiter

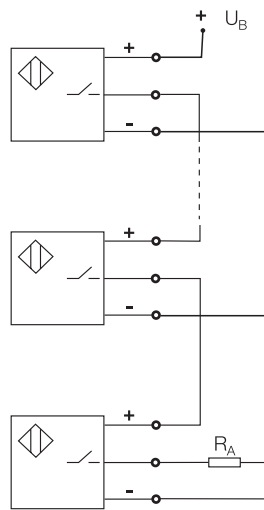


Wire colors (labeling according to DIN IEC 60757)

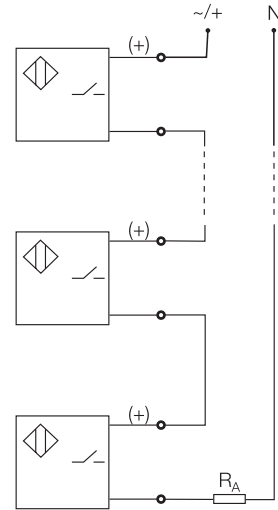
Series connection

Electrical circuit type in which the components are connected to each other in a string so that they form a single current path.

3-wire DC-switch



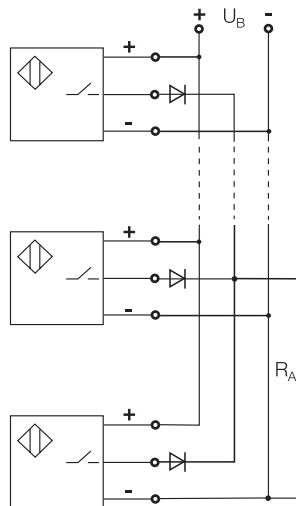
2-wire DC-switch (AC/DC)



Parallel circuit

Electrical circuit type in which all the switching elements and their same named poles are connected in common to each other, so that multiple current paths result.

3-wire DC-switch



2-wire DC-switch

Parallel wiring of 2-wire-sensors is not recommended, since missed pulses can be caused by the ready delay as the oscillator begins to oscillate.

Utilization categories in accordance with EN 60947-5-2/IEC 60947-5-2

Category		Typical load applications
AC 12	AC-switch	Resistance- and semiconductor loads, optocouplers
AC 140	AC-switch	Small electromagnetic load $I_a \leq 0.2$ A; e.g. contactor relay
DC12	DC-switch	Resistance- and semiconductor loads, optocouplers
DC 13	DC-switch	Electromagnets

Reverse polarity protection

Also called polarity reversal protection. This sensor technology protects against reversal of the supply voltage (plus and minus) and reversal of the connection wires (brown and blue).

Cable break protection

Characteristic of 3-wire switches which prevent malfunction when there is a cable break. A built-in diode prevents the current from flowing via the output line A.

Short-circuit rating

Characteristic of components or assemblies which indicates the short-circuit current which the component or assembly can withstand.

Short-circuit protection (sensors with a maximum voltage of 60 V DC)

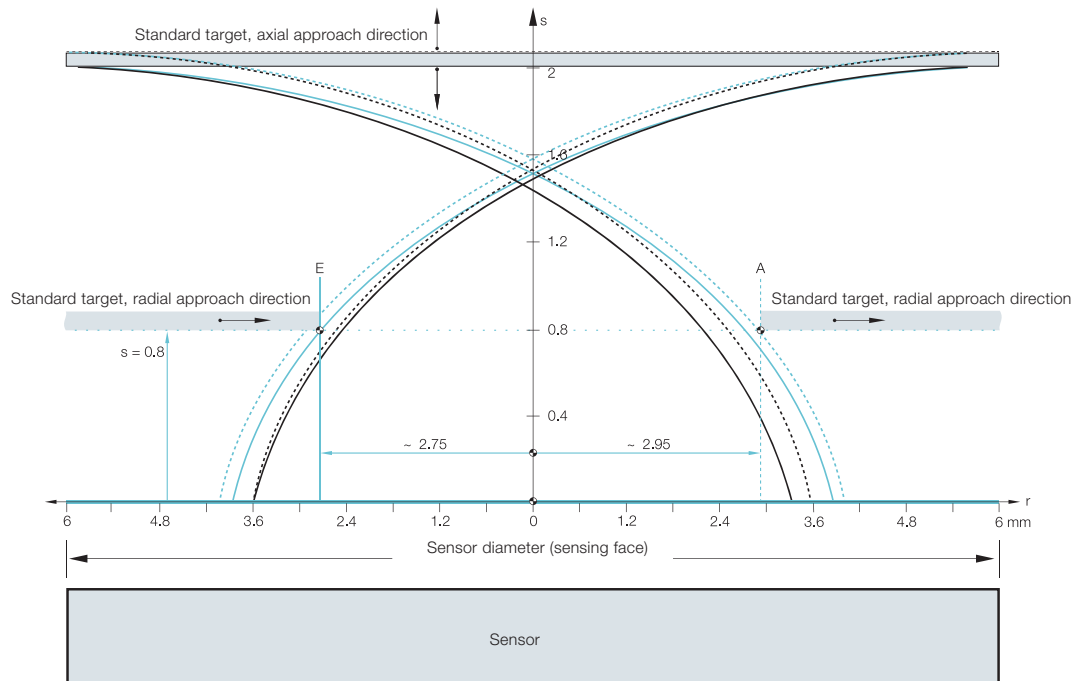
The short-circuit protection is achieved in Balluff sensors with clocked or thermal short-circuit protection circuitry. The output stage is thereby protected against overload and short circuit. The release current of the short-circuit protection is above the rated operating current I_e . Currents from switching and load capacitances are specified in the sensor data and do not trigger this function, but rather are masked by a short delay time.

Short-circuit protected/overload protected (sensors for operation optional with AC or DC power supply)

Short-circuit protected/overload protected sensors are often operated with relays or contactors as load. At switch-on, alternating current switching amplifiers (protection contactor/relay) for the sensor are briefly a substantially higher load ($6...10 \times$ rated current) than later in the later static operation, because their core is still open. The static value of the load (current) is only reached after several milliseconds. Not until the magnetic field is closed does the max. permissible rated operating current I_e listed in the data sheet flow through the sensor. The release value for a short-circuit in these sensors therefore has to be significantly greater. If for example the contactor can no longer be entirely closed due to mechanical or electrical reasons, this could lead to an overload of the sensors. This is where the overload protection comes into play. It is designed as slow-acting (time-delayed). Its trigger threshold lies only slightly above the maximum permissible I_e . A reaction (in other words, shutoff) occurs, depending on the height of the overload, only after more than 20 ms. This ensures that properly working relays and contactors can be switched normally, while defective devices will not destroy the Balluff sensors. The short-circuit/overload protection usual has a bistable design and has to be reset after triggering by switching the operating voltage.

Approach direction

Direction of an object as it enters the detection range/active range of a sensor.



Axial and radial damping

When damping in an axial direction, the standard target is moved concentric to the system axis. The switchpoint is thereby determined only by the distance "s" from the sensing surface of the sensor. When damping in the radial direction, the location of the switching point is additionally affected by the radial distance "r" of the target from the system axis. The diagram shows the response curves, which indicate the dependency of the switching point on "s" and "r". The primary purpose of this drawing is to show the possibility of damping using a lateral approach and the difference compared with axial approach.

Application

Due in part to manufacturing tolerances within a production run, the exact switchpoint must in any case be established on site. The solid curves indicate the respective turn-on point, the dashed curves the turn-off point A. The red curves apply to switches with a clear zone, and the black ones for flush-mountable switches. Since the switching operation can be induced from either direction, the curves are shown mirrored from the system axis.

Examples

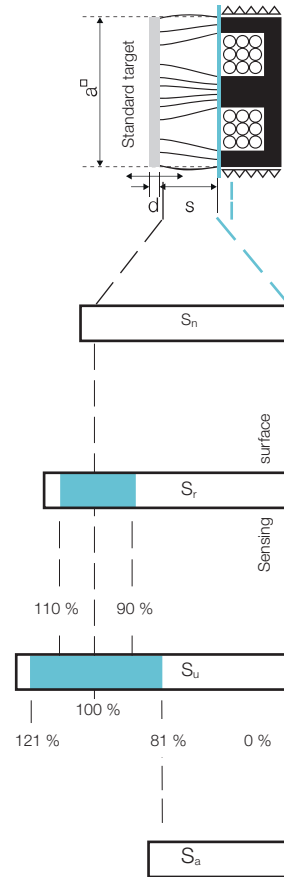
Passing objects on conveyor lines generate a signal change when their front edge crosses the turn-on curve on the entry side. The signal reverses again when the back edge of the passing object crosses the (mirrored) turn-off curve on the opposite side. In the case of reversing parts (e. g. end of travel), the signal reversal occurs at the turn-off curve on the same side.

The vertical axis in the diagram shows the distance of the switching point from the sensing surface. It is based on the rated switching distance s_n . At a distance of 0.8 mm, a laterally approaching target reaches the solid line turn-on curve at point "E" and leaves the turn-off curve at point "A". The horizontal axis in the graph is referenced to the radius of the sensing surface. The zero point of this axis lies in the center of the shell core cap. In our example for the M12 switch, the radius is $r = 6$ mm.

Switching distances

Switching distance

The distance between the standard target and the sensing surface of the sensor at which a signal change is triggered as per EN 60947-5-2. For a normally open switch this means from OFF to ON and for normally closed from ON to OFF.



Rated operating distance S_n

Maximum achievable switching distance from the standard target under device specification (generally with s_n as shipped from the factory).

Effective operating distance s_r

The switching distance of a single proximity switch measured under specified conditions, e.g. flush mountable, rated operating voltage U_e , temperature T_a .

Usable operating distance

The permissible operating distance is the permitted switching distance within fixed voltage and temperature limits ($0.81 s_n \leq s_u \leq 1.21 s_n$).

Assured switching distance S_a

Switching distance within which assured operation of the sensor at a specified voltage and temperature range is given ($0 \leq s_a \leq 0.81 s_n$).

Switching distance labeling

Switching distance	Size	Switching distance
Standard-switching distance according to EN 60947-5-2		
2x switching distance compared to standard	Ø 3 mm*	1 mm flush
	Ø 4 mm/M5*	1.5 mm flush
	Ø 6.5 mm...M30	1.5...2-x
3x switching distance compared to standard	Ø 3 mm*	3 mm non-flush
	Ø 4 mm/M5*	5 mm non-flush
	Ø 6.5 mm...M12	2.2...3-x
	M18...M30	depending on version
4x switching distance compared to standard		

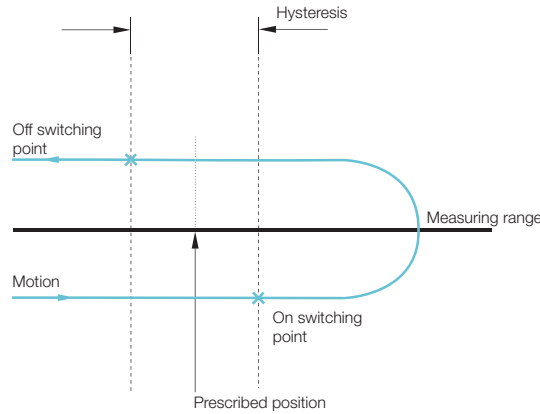
*Information for switching distance in mm. The switching distances of these sensors are not standardized.

Repeat accuracy

Variance in the output values when approaching a mechanically prescribed position repeatedly from the same direction.

Hysteresis

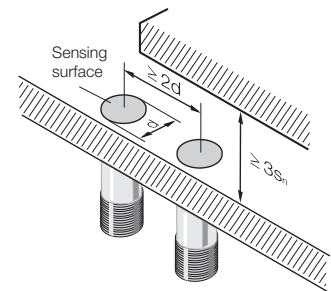
Signal difference resulting for measurement sensors when a mechanically prescribed position is approached from one side, then crosses this point and afterwards approaches this same position from the other direction. Position difference between switching point (object approaches) and switch-back point (object travels away) for switching sensors.



Installation in metal: Sensors with standard switching distance

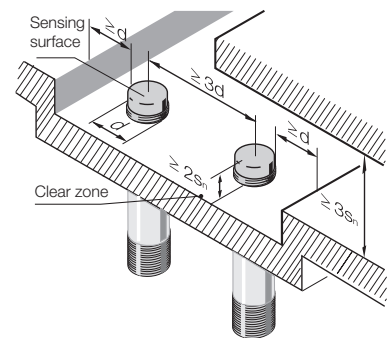
Flush mountable sensors

Flush mountable sensors can be installed with their sensing surfaces flush to the metal. The distance to the opposite metal surfaces has to be $\geq 3 s_n$, and the distance between two sensors (with row mounting) has to be $\geq 2d$.



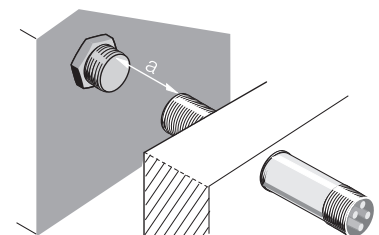
Non-flush mountable sensors

Non-flush mountable sensors can be identified by their "caps", since they have no metal housing surrounding the area of the sensing face. The sensing surface must extend $\geq 2 s_n$ from the metallic installation medium. The distance to the opposite metal surfaces has to be $\geq 3 s_n$, and the distance between two sensors (with row mounting) has to be $\geq 3 d$.



Opposing installation of two sensors

The opposing (facing) installation of two sensors requires a minimum distance of $a \geq 3d$ between the sensing faces.



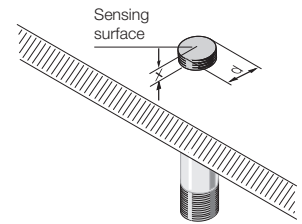
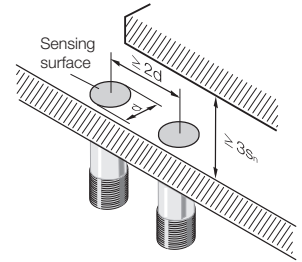
Installation medium

Materials	Description
Ferromagnetic materials	Iron, steel or other magnetizable materials
Non-ferrous metal	Brass, aluminum or other non-magnetizable materials
Other materials	Plastics, electrical non-conductive materials

Installation in metal: Sensors with 2x switching distance

Flush mountable sensors

Flush mountable sensors can be embedded flush up to their sensing surfaces in non-ferrous materials. Installation in non-ferrous metal may result in a reduction of the switching distance. The distance to the opposite metal surfaces has to be $\geq 3 s_n$, and the distance between two sensors (with row mounting) has to be $\geq 2d$. In order to install the sensor in ferromagnetic materials, the following guidelines are used for dimension "x".



Size d	Dimension x
Ø 3 mm	1 mm
Ø 4 mm	1.5 mm
M5	1.5 mm
Ø 6.5 mm	0 mm
M8	0 mm
M12	1.5 mm
M18	2.5 mm
M30	3.5 mm

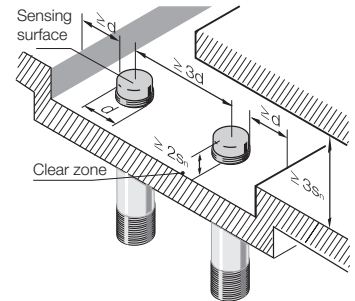
For DC 2-wire sensors, the following apply:

Size d	Dimension x
M8	0 mm
M12	0 mm
M18	0.7 mm
M30	3.5 mm

In the Factor 1 and ATEX NAMUR sensor family, dimension x is not needed when installing in metal.

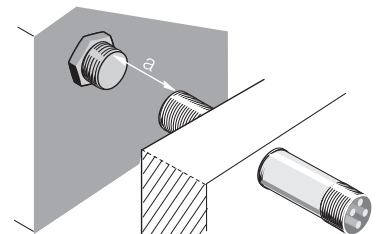
Non-flush mountable sensors

Non-flush mountable sensors can be identified by their "caps", since they have no metal housing surrounding the area of the sensing face. The sensing face must extend $\geq 2 s_n$ from the metallic installation medium. The distance to the opposite metal surfaces must be $\geq 3 s_n$, and the distance between two sensors (with row mounting) has to be $\geq 3 d$.



Oposing installation of two sensors

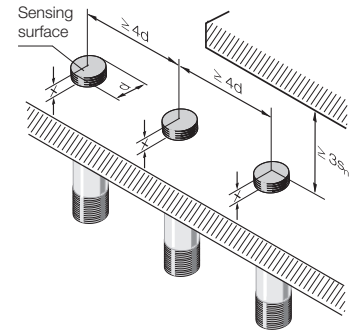
The opposing installation of two sensors requires a minimum distance of $a \geq 4d$ between the sensing surfaces.



Installation in metal: Sensors with 3- and 4x switching distance

Quasi-flush mountable sensors

Quasi-flush mountable sensors require space behind the sensing surface which is free of conductive materials. Under this condition the specified switching distance is available without limitation. Dimension "x" (see fig.) indicates the shortest distance between the sensing face and the conductive material behind it.

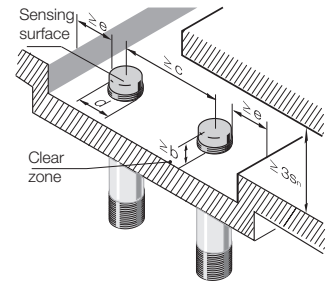


Size d	3x switching distance: Dimension x for installation in		4x switching distance: Dimension x for installation in	
	Ferromagnetic material	Other metals	Ferromagnetic material	Other metals
Ø 6.5 mm	2 mm	1 mm	3 mm	2 mm
M8	2 mm	1 mm	3 mm	2 mm
M12	2.5 mm	2 mm	4 mm	3 mm
M18	4 mm	2.5 mm		
M30	8 mm	4 mm		

Non-flush mountable sensors

Non-flush mountable sensors can be identified by their "caps", since they have no metal housing surrounding the area of the sensing face. The distance to opposing metal surfaces must be $\geq 3 s_n$.

Installation conditions:



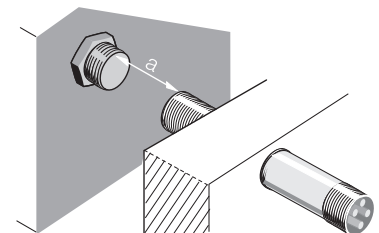
Size d	Dimension x	Dimension x	Dimension x
Size d	Dimension b	Dimension c	Dimension e
Ø 3 mm	≥ 10 mm	≥ 30 mm	≥ 10 mm
Ø 4 mm	≥ 15 mm	≥ 40 mm	≥ 20 mm
M5	≥ 15 mm	≥ 40 mm	≥ 20 mm
Ø 6.5 mm	≥ 8 mm	≥ 32 mm	≥ 8 mm
M8	≥ 8 mm	≥ 32 mm	≥ 8 mm
M12	≥ 10 mm	≥ 48 mm	≥ 12 mm
M18	≥ 20 mm	≥ 72 mm	≥ 18 mm
M30	≥ 35 mm in steel ≥ 25 mm in non-ferrous metal ≥ 20 mm in stainless steel	≥ 120 mm	≥ 30 mm

Opposing installation of two sensors

The opposing installation of two sensors requires a minimum distance of a $\geq 5d$ between the sensing surfaces.

For exceptions see table:

Size d	Dimension a
Ø 3 mm	20 mm
Ø 4 mm	45 mm
M5	45 mm



INDUCTIVE DISTANCE SENSORS WITH ANALOG OUTPUT

Distance sensor with analog output

A sensor which generates a continuously varying output signal which is a function of the distance between the sensing surface and the actuation element.

Effective distance s_e

Point in the middle of a sensor's range of linearity s_l . Serves as a reference point for further specifications.

Linearity range

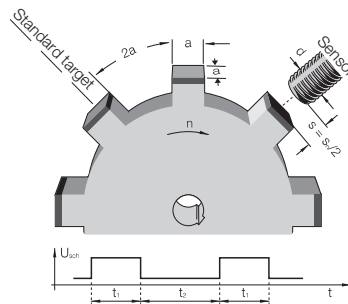
Working range in which the sensor has defined linearity.

Linearity error

Maximum deviation from the straight line that connects the zero point of the measuring range to the end point or full extension. There is a linear relationship between the position or path to be measured and the output signal for a voltage, current or digitized output information. This feature may be restricted to a defined linearity range.

Limit frequency

Maximum possible number of switching operations per second. Damping is done according to EN 60947 -5-2 with standard targets on a rotating, non-conductive disc. The area ratio of iron to non-conductor is 1:2. The rated value of the limit frequency (-3 dB limit) is reached when the output signal has dropped to approx. 70% of the original signal level.

**Measurement speed**

Speed with which changes to the active surface of a sensor are registered, processed and outputted. Up to the specified measuring speed the distance to a linear moving object can be reliably detected. The direction of movement of the object is parallel to the sensing face of the sensor.

Response time

The time which a sensor requires in order to reliably and steadily change the output signal. The specified time, which was determined at the maximum measuring speed, includes both the electrical response time of the sensor and the time for the mechanical change of the damping state.

Slope

The slope is a measure of the sensitivity of the sensor with respect to a distance change. This physical relationship can be calculated for travel sensors as follows:

$$\text{Slope } S \text{ [V/mm]} = \frac{U_a \text{ max} - U_a \text{ min}}{s_a \text{ max} - s_a \text{ min}}$$

or

$$\text{Slope } S \text{ [mA/mm]} = \frac{I_a \text{ max} - I_a \text{ min}}{s_a \text{ max} - s_a \text{ min}}$$

Temperature drift

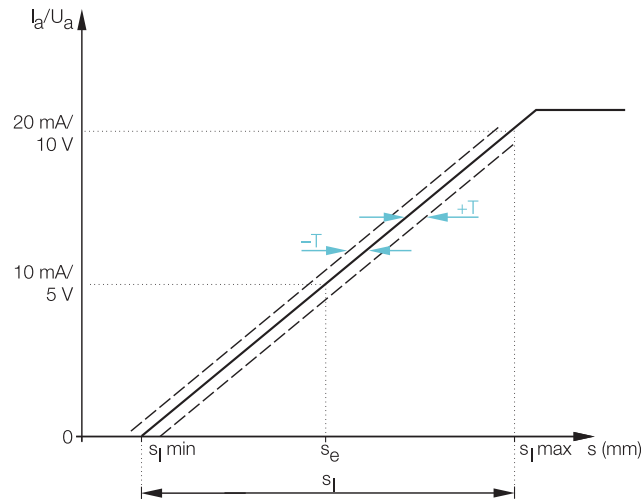
The temperature drift is the shift a point experiences on the actual output curve at different temperatures. The temperature drift is described by the temperature coefficient.

Temperature coefficient

Describes the deviation of the sensor output signal under the effect of a temperature change, and thus represents a quality criterion for the sensor also.

Tolerance T

A variable which defines the manufacturing tolerance band of the output curve, thereby determining the maximum sample deviation.



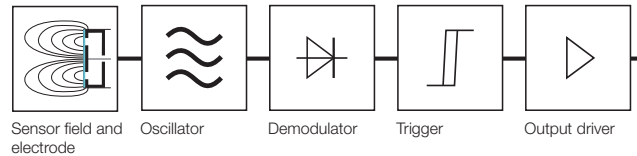
Repeat accuracy

Variance in the output values when approaching a mechanically prescribed position repeatedly from the same direction.

CAPACITIVE SENSORS

Principle of operation

The non-contacting capacitive sensor converts a variable of interest in technical production terms (e.g. object or level detection) into a signal which can be processed further. The function is based on the alteration in the electrical field around its active zone. The sensor consists essentially of an electrode system, oscillator, demodulator, trigger stage, output driver/switching amplifier. The electrode systems together with an active measuring electrode (sensing face) form an open plate capacitor. This is part of an RC oscillator.



When metallic or non-metallic objects approach the sensing surface of the capacitive sensor, the capacitance of the open plate capacitor changes and the oscillator begins to oscillate. This causes the trigger stage downstream of the oscillator to trip, and the switching amplifier to change its output state. The function of the capacitive sensor can be explained using the equation for capacitance of a plate capacitor:

$$C = \epsilon_0 \times \epsilon_r \times F \times (1/S)$$

ϵ_r : As a relative dielectric constant (property of the target medium)

ϵ_0 : As an absolute dielectric constant (natural constant)

F: As electrode surface

S: As distance

From the above formula it follows that objects which have a sufficiently large relative dielectric constant (ϵ_r) as well as area (as a ratio with the sensing surface) and sufficiently close distance are detected by the capacitive sensor. In addition to the described universal technology in which the sensor is a component of an oscillator circuit, there are also more modern technologies which satisfy the special application requirements.

Sensor for object detection (flush)

Sensors with a straight line electrical field (no side sensitivity). These detect solid bodies, e.g. cartons, paper stacks, plastic blocks and plates as well as glass. They also detect media levels through a wall made of plastic or glass. The wall thickness may not exceed 4 mm.

Sensor for level detection (non-flush)

Sensors with a spherical electrical field. These units are designed to detect the product, bulk goods or liquids (e.g. granulate, sugar, flour, corn, sand, or oil and water) with their sensing surface, preferably by contacting the medium or through a glass or plastic wall.

Smart Level technology

Patented technology which enables optimal detection of levels of electrically conductive (polar) media (water, lyes, acids...). This is accomplished with direct contact (immersion probes) and through a maximum 10 mm thick wall of plastic, glass or ceramic. The sensors which are based on this technology compensate for the dielectric effect of the container wall and enable reliable distinguishing between the target medium and its build-up, films and foaming.

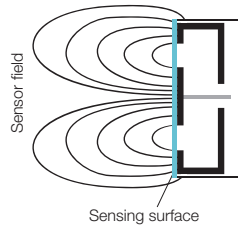
Setting the sensitivity on capacitive sensors

In most cases adjusting the sensor sensitivity (capacitance value which when exceeded causes the sensor to switch) to the environment is required (pre-loading by other objects in the capture area, e.g. a container wall). The setting is done depending on the device generation using a potentiometer, a key, a separate line or IO-Link.

Definitions and Characteristic Values

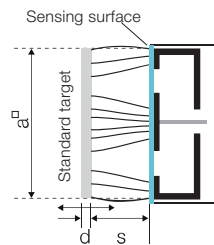
Sensing surface

Actively measuring area and thereby the externally sensitive electrode/plate of the electrode system. It is generally somewhat smaller than the surface of the cover.



Standard target

A square plate made of Fe 360 (ISO 630), used to define sensing distances per EN 60947-5-2. Thickness is 1 mm; the side length "a" corresponds to the diameter of the inscribed circle of the active surface or $3 s_n$, if the value is larger than the named diameter.



Rated operating distance S_n

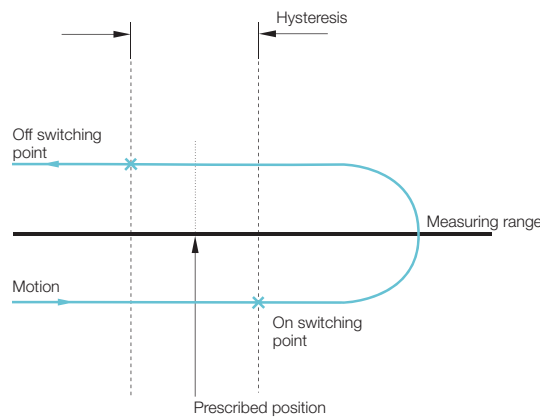
Maximum achievable switching distance from the standard target under device specification (generally with s_n as shipped from the factory).

Effective operating distance S_r

The switching distance of a single proximity switch measured under specified conditions, e.g. flush mountable, rated operating voltage U_e , temperature T_a .

Hysteresis

The hysteresis is the difference in distance between the switch-on point (for an object that is approaching) and the switch-off point (for an object that is receding).



Repeat accuracy Variance in the output values when approaching a mechanically prescribed position repeatedly from the same direction.

Switching frequency The maximum speed at which the sensor can reliably detect an object under standardized conditions. This corresponds to the maximum number of switching operations (ON/OFF) per second. The value is dependent on the size and speed of the object and its distance from the sensing face.

Temperature drift The temperature drift indicates by what percentage amount of S_r the switching distance may change (maximum) within a defined temperature range.

Ambient temperature T_a The maximum permissible temperature range at which a sensor may be operated while ensuring reliable functioning of the sensor.

Degree of protection Indicates the suitability of electrical components for various ambient conditions and protection of persons from potential hazard in their use. The degrees of protection are specified according to IEC 60529. Code letters IP (International Protection Marking) designate protection against shock hazard, ingress of solid foreign bodies, and water, for electrical equipment. Example IP69K: Protection against ingress of water at high pressure and steam cleaning per DIN 40050 Part 9.

Output functions, connections and electr. characteristic values

Normally closed (NC) Also "Normally closed" – sensor principle/output function in which the switching output is inactive (not energized) when the sensor detects an object. The switching output is energized when no object is present.



Normally open (NO) Also "Normally open" – sensor principle/output function in which the switching output is active (energized) when the sensor detects an object. The switching output is not energized when no object is present. This principle is the most commonly used in automation technology.



PNP The output switches to $+U_B$

NPN The output switches to $+U_B$

PNP/NPN (push/pull) Output switches between $+U_B$ and $+U_B$.
(The outputs from multiple devices cannot be wired in parallel)

PNP/NPN NO/NC codable Output switches between $+U_B$ and $-U_B$. By reversing the supply voltage (brown to minus, blue to $+$) the switching function can be set from NO to NC.

IO-Link

The capacitive sensor can with an appropriate counterpart (master) enter into data communication (com2, 30Kbit) through its switching output. On one hand it can transmit much data (e.g. the continuous degree of damping by an object or fill medium as a numerical value), and on the other hand be configured remotely from the counterpart. If there is no master the sensor automatically goes into its normal switching mode (SIO): e.g. PNP/NC

Analog output

Output switches between + U_B and - U_B . By reversing the supply voltage (brown to minus, blue to +) the switching function can be set from NO to NC.

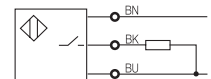
Connection diagrams

DC 3-/4-wire

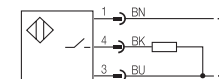
NO

PNP (+) sourcing

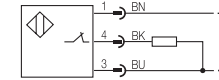
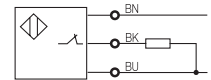
Cable/terminals



Male



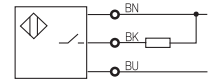
NC



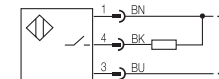
NPN (-) sinking

Cable/terminals

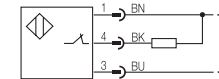
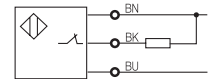
NO



Male

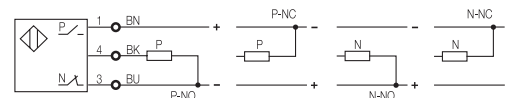


NC



PNP/NPN selectable

NO/NC user selectable

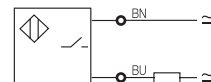


AC/DC 2-wire

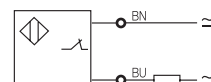
Protection isolated (Protection Class II)

Cable/terminals

NO



NC

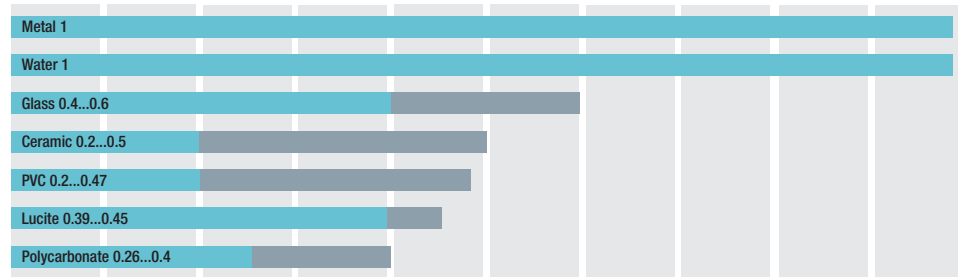


Operating voltage U_B	Voltage range (V) in which flawless functioning of the sensor is assured. It includes all voltage tolerances and ripple.
Voltage drop U_d	The maximum voltage loss of the switching final stage between switching output and $+U_B$ (PNP) or $-U_B$ (NPN) at the maximum specified load current.
Ripple	The maximum permissible AC voltage (peak-to-peak of U_e) which may be superimposed on the operating voltage U_S without affecting the function of the sensor.
Output current I_e	The maximum current with which the output of the sensor may be loaded in continuous operation. Also referred to as operating current.
No-load current	The maximum internal current consumption with no load connected to the switching output (in general at $U_{B \max.}$ and actuated).
Short-circuit protection	Protective device for overload and short-circuit. Present in all our DC sensors. In the event of overload or short-circuit at the output, the output transistor is automatically switched off. As soon as the malfunction has been corrected, the output stage is reset to normal functioning.
Reverse polarity protection	Also called polarity reversal protection. This sensor technology protects against reversal of the supply voltage (plus and minus) and reversal of the connection wires (brown and blue).
Reverse protected	The sensor electronics is protected against any possible reversal combination of all the leads.

Correction factors and guide values for SmartLevel technology

Conditions of operation and correction factors

If an electrically non-conducting actuation element (target) enters the sensor field, the capacitance changes proportionally to ϵ_r and to the immersion depth or to the distance to the sensing surface. Since the rated switching distance s_n is based on a grounded standard target made of Fe, the switching distances must be corrected when using other materials:



These data depend among other things on the sensor type and the object dimensions and should be used for reference only.

Application area for SmartLevel technology with guide values

The media and conductivity values given here are only guide values and are for general orientation only. Basically all the media listed can be reliably detected. The differences are in the compensation ability for buildup, foaming and films when the level is falling. When in doubt, testing should be carried out, since factors such as temperature and media concentration can affect the conductivity values. Please contact us. Conductivity values for other media on request.

Industrial waste water (select the sensor according to conductivity of the medium)			
	Disinfectants (media containing chlorine)		
	Table salt solution		
Alcohol	Rinsing agents		
Marmalade	Milk/buttermilk/yogurt		
Demineralized water	Fruit juice		
Mineral oils	Coolant/lubricants		Ketchup/ mayonnaise/mustard
Plant oils	Formic acid (30 %)		Phosphoric acid (10 %)
Ammonia (30 %)	Vinegar		Sulfuric acid (10 %)
Drinking water	Cola		Calcium chloride (30 %)
Sugar solution, diluted	Honey/glue	Blood	Hydrochloric acid (40 %)
Toothpaste	Beer	Seawater	Nitric acid (12 %)

BCS Standard up to approx. 0.7 mS

SmartLevel technology 15 approx. 0.7...15 mS

SmartLevel technology 50 approx. 15...50 mS

SmartLevel technology 500+ approx. 50...500 mS and greater

Application and setting examples for basic sensor types

Flush sensors

Normally, the rectilinear field of flush-mounted sensors scans objects from a distance. To ensure flawless switching of the sensor, the maximum switching distance must be checked before using the device. The following example applications show how you can do this.



Detecting solid bodies made of different materials

A flush mountable capacitive sensor will be used to detect a ceramic plate. The sensor is set to the maximum rated switching distance s_n of, for example, 4mm from metal or by approximation from your hand. With this preset distance of 4 mm, move the sensor towards the ceramic plate. The rated switching distance s_n to the ceramic plate has been reduced to approx. 2mm. The distance of 2 mm is now the maximum permissible switching distance for the ceramic plate. Only adjustment for smaller sensing distances than 2mm is permitted.

Attention! To ensure that our sensors work reliably within their technical specifications, they have a greater sensing distance than the maximum rated switching distance s_n indicated in the catalog. If the user now adjusts the switching distance for the above described ceramic plate to 4 mm, the sensor will operate outside the permitted range. This entails a risk that temperature and other environmental factors, plus electrical interference in the mains, may lead to faulty switching by the sensor.

Sensing levels through container walls

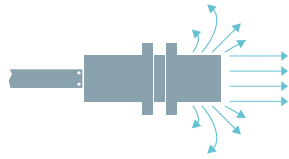
A flush mountable capacitive sensor will be used to detect a liquid, e.g. water, through the container wall. The dividing wall must be made of a non-conductive material, e.g. glass or plastic. The max. permissible wall thickness increases with the diameter of the sensing face: max. 4 mm (except SmartLevel technology).

The sensor's face (sensing surface) is now attached to the glass or plastic wall as tightly as possible. The tank is then filled with water until approx. 30 to 50% of the sensor's sensing surface is covered.

Particularly when small and ultra-small quantities of liquid are being scanned, and if the sensor has not been mounted in a form-fitting configuration (flat sensor surface on a tank wall with a small radius), 30 % should be chosen as a coverage area. Now turn the sensor's potentiometer counter-clockwise (less sensitivity) until it turns off (NO). Now turn the potentiometer clockwise again (greater sensitivity) until the LED and sensor turn on again. For modern versions with a teach function at 30-50 % coverage of the sensing face through the fill material hold down the key or placed a defined potential on the Teach line until the LED flashes (full teach).

Non-flush sensors

These capacitive sensors with their spherical electrical field are especially suited as level detectors for liquids, granulates or powders.



Sensing levels directly in the container

A non-flush mountable capacitive sensor will be used to detect a granulate in a tank. The sensor is now installed in the tank with its sensing surface (clear zone at the head as described in the catalog), in a configuration ensuring that the head is completely covered by the product.

Now turn the sensor's potentiometer counter-clockwise (lower sensitivity) until the LED, and thus the output signal, switch off. Now turn the potentiometer clockwise again (higher sensitivity) just enough until the LED, and thus the output signal, switch on again. Then turn the potentiometer another ½-turn (180°-rotation) clockwise. This compensates for possible temperature fluctuations or humidity changes in the product you are detecting. If a medium has a high ϵ_r , especially water, the sensor will react much more sensitively. Therefore the adjustment should be for around 50 % coverage or a sensor resp. immersion probe in the SmartLevel technology series should be used.

Detecting levels of conductive liquids directly in the container or through a container wall

Ideal the level sensors using SmartLevel technology detect liquid, conductive and even sticking liquids directly or indirectly through container walls. And they do it without adjustment using the factory default setting as long as the wall thickness does not exceed 6mm. For thicker walls or extremely conductive and adhering media the SmartLevel technology sensor can be adjusted.

Adjustment:

First install the sensor flush against the container wall. Bring level to 30-50 % coverage of the sensing face. Set the switching point on the potentiometer so that the sensor is just switching. For the new device generation with Teach key hold down or place a defined potential on the Teach line until the LED flashes.

Adjustment can also be made with a totally filled or empty container:

Full compensation: turn the potentiometer slowly counter-clockwise until the sensor turns off. Now slowly turn the potentiometer (with the sensor switched off) clockwise until the sensor turns on again. At the turn-on point then turn the potentiometer another half-turn (approx. 180°) clockwise and the SmartLevel sensor is adjusted.

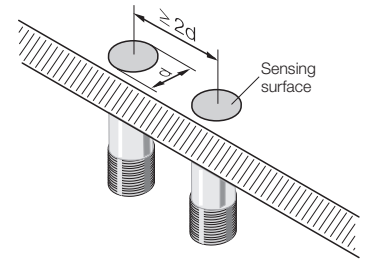
Empty compensation: Now slowly turn the potentiometer (with the sensor switched off) clockwise until the sensor turns on again. At the turn-on point the potentiometer only needs to be turned 3 times by approx. 360° counter-clockwise and the SmartLevel sensor is adjusted.

In essence the switching point for a SmartLevel sensor should be at 30-50 % coverage of the sensing face with the medium.

Installation guidelines

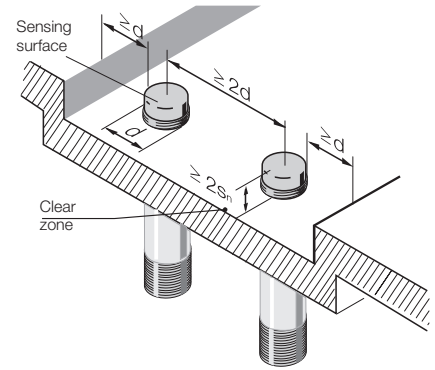
**Flush-mount
Proximity switches**

Flush mountable sensors can be installed with their sensing surface flush to the metal.
The distance between two proximity switches (in row mounting) must be $\geq 2d$.



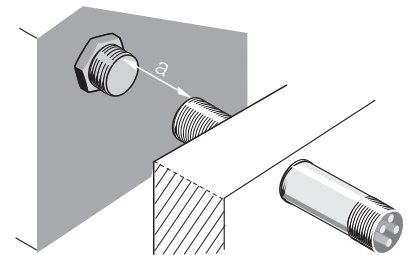
**Non-flush mountable
proximity switches**

The sensing surface must extend $\geq 2s_n$ from the metallic installation medium. The distance between two proximity switches must be $\geq 2d$.



**Opposing
Installation of two sensors**

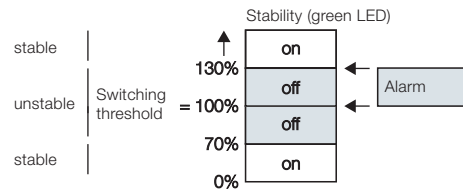
The opposing installation of two sensors requires a minimum distance of $a \geq 4d$ between the sensing surfaces.



PHOTOELECTRIC SENSORS

Alarm output

Device/function on the receiver which generates a warning signal when there is a malfunction. This can be caused by contamination or mechanical maladjustment. The alarm output is activated if the received signal lies in the alarm range for a defined amount of time.

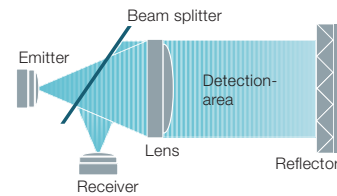


Turn-off time

The time a sensor requires to respond when the target leaves the detection range at a factor of 0.5 of the radiant power.

Autocollimation

Principle of reflection in which the light beam striking a reflector is reflected back to itself in parallel. The emitter and receiver use the same optical lens, so that the emitted light and the light beam reflected back from the reflector lie on the same optical axis. The advantage compared with the dual lens principle is that there is no dead zone in front of the sensor and that the switching response does not depend on the approach direction.



Blind zone

Area between the active surface and minimum switching distance within which a target cannot be detected.

Distance sensor with analog output

A sensor which generates a continuously varying output signal which is a function of the distance between the sensing surface and the target point. It generates a linear output signal within a certain range (measuring range).

Dark switching

Type of photoelectric sensor in which the output becomes active when there is no light at the receiver.

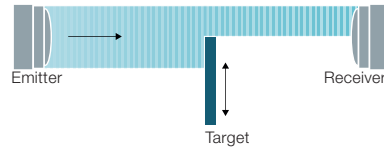
Light receiver	Amplifier	Consumer
Non-illuminated	Fully modulated	Switched on
Illuminated	Not fully modulated	switched off

On delay

Time a sensor requires to be ready when an object enters the capture range.

Through-beam sensor

A photoelectric sensor consisting of separate emitter and receiver units which must be aligned on opposite sides of the sensing path. Long ranges of up to 50 m. When an object interrupts the light beam, the receiver switches, i.e. the output signal changes - regardless of the surface composition of the target. In unfavorable conditions (e.g. dust, moisture, oil), you achieve the best results with through-beam sensors.



Detection range

Range in which the switching distance of a sensor from the standard target can be adjusted.

Color sensor

Photoelectric sensor for detecting and evaluating colors.

Fiber optics

Optical fiber made of glass or plastic with a diameter of down to 50 μm, consisting of several hundred individual fibers. Extremely flexible. The optical properties are not affected by moisture or aggressive media.

Ambient light

The portion of light which is picked up by the receiver, but does not originate from the emitter.

Fork sensors

U-shaped housing style of through-beam sensors with the emitter and receiver facing each other. Advantage: Ease of installation, alignment and simple electrical connection.

Gray value shift

The switching distance difference when calibrating using different object reflectivities. The sensor is calibrated for a distance using a Kodak gray card with 90 % reflection. A Kodak gray card having 18 % Reflexion is used and the resulting distance measured. The difference between these two switchpoints in % is referred to as the gray value shift. The smaller the gray value shift, the more color-independently the sensor operates.

Light-on switching

Type of photoelectric sensor in which the output becomes active when there is light at the receiver.

Light receiver	Amplifier	Consumer
Non-illuminated	Fully modulated	Switched on
Illuminated	Not fully modulated	switched off

Background suppression (BGA)

Procedure for reliably distinguishing an object against its background. Can be done nearly regardless of the color and surface of the object. A reflecting background has no effect. Sensors with background suppression consist of a light emitter and several light receivers. By means of triangulation the position of an object can be determined. Depending on this position the switching distance can be set and the object thereby distinguished from the background.

Hysteresis

Signal difference resulting for measurement sensors when a mechanically prescribed position is approached from one side, then crosses this point and afterwards approaches this same position from the other direction. Position difference between switching point (object approaches) and switch-back point (object travels away) for switching sensors.

**Correction factors
(for diffuse sensors)**

Values for determining the range of a sensor which is dependent on the differing reflection properties of an object. For example the range of the sensor is reduced with darker objects due to the greater light absorption.

For objects with different reflective properties the following correction factors can be applied (see table).

Correction factor	Object, surface
1	Paper, white, matte 200 g/m ²
1.2...1.6	Metal, shiny
1	Styrofoam, white
0.6	Cotton fabric, white
0.5	PVC, gray
0.4	Wood, rough
0.3	Cardboard, black, shiny
0.1	Cardboard, black, matte

Short-circuit protection

Protective device for overload and short-circuit. Present in all our DC sensors. In the event of overload or short-circuit at the output, the output transistor is automatically switched off. As soon as the malfunction has been corrected, the output stage is reset to normal functioning.

Lasers, laser class

Designation both for a physical effect as well as a device used to generate laser beams. Laser stands for "light amplification by stimulated emission of radiation". Laser beams are electromagnetic waves.

The purpose of laser protection classes is to protect persons from laser radiation by specifying limit values. Based on this, the lasers used are classified according to a scale reflecting the degree of hazard. The calculations and associated limit values relevant for the classification are described in the standard EN 60825-1:2001-11. The grouping is based on a combination of output power and wavelength, taking into account emission duration, number of pulses and angle extension.

Balluff sensors have the following laser protection classes:

Class 1: Non-hazardous, no special caution.

Class 2: Low power, eyelid closing reflex is sufficient.

Light

The medium with which photoelectric sensors operate. In the sensor there is a change in the light intensity on an optical path (between emitter and receiver) caused by a target object. This change is evaluated by the sensor. Depending on the properties of this object and the characteristics of the optical beam, the light beam is either interrupted, reflected or scattered.

The emitter usually consists of high-power red light LEDs and laser LEDs, with photodiodes or CCD (charge coupled devices) used as the receiver. Red light LEDs are used because the light beam and the detection point can be measured visually and can be adjusted more easily. In the case of laser sensors the light spot is usually more sharply delineated and is highly visible. Even over great distances.

Light type

Photoelectric sensors make use of the differing wavelengths of light, with some using visible light in different colors and others using light invisible to the human eye. Photoelectric sensors use mainly the following light types:

Red light: Visible, easy to align, universal for many applications

Infrared light (IR): Invisible, essentially color-independent, ideal in dirty environments

Laser red light: Visible, physical properties of the laser make it ideal for small parts detection and for long ranges, high switching accuracy

White light: Visible, for special applications, e.g. contrast and color sensors

Ultraviolet light (UV): Hardly visible, ideal for luminescent marks

Light band sensor**LED light band sensor**

Photoelectric sensor with LEDs consisting of multiple emitters and receivers in a row in separate housings. The close arrangement of the optical components means the emitter generates a light band is generated and the entire light intensity measured at the facing receiver side.

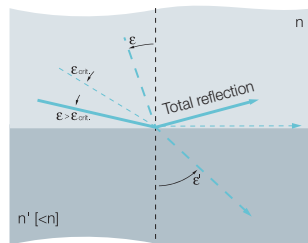
Laser light band sensor

Photoelectric laser sensor in which a laser beam is refracted on the emitter side over a prism at a sharp angle for generating a homogeneous light band. The receiver contains a CCD (charge coupled device) used for precisely detecting edges, even at up to 2 m of distance. A CCD consists of very precisely arranged light-sensitive cells whose charge is measured and processed by the electronics.

Light refraction

A change in direction of light rays at the interface between two optical media having different optical density (e.g. glass/air). The degree of refraction depends on the quotients of the optical densities of both media and on the angle of incidence ϵ to the optical axis.

If a light beam travels from a dense medium, n , into a thinner one, n' , its course there will show a greater angle ϵ' . Above $\epsilon_{crit.}$ (critical angle at which the refracted ray travels parallel to the interface). If however it again enters the medium having density n , the result is total reflection.

**Light grids**

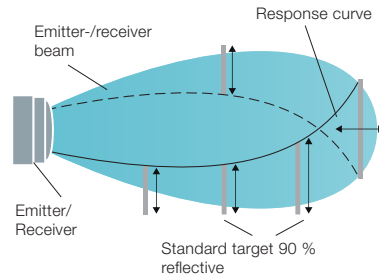
Photoelectric sensor in which the emitter and the receiver are located in separate housings. By placing individual emitter and receiver elements in a row a large area can be monitored. As soon as an object enters this area, a switching signal is triggered. Light grids with analog output also tell you the object location or its size.

Time-of-flight sensor

Photoelectric sensor in which the light time-of-flight between emitter, the object and the receiver is measured. The duration of this time-of-flight allows the distance to the object to be determined.

Diffuse sensors

Photoelectric sensor in which the emitter and the receiver are in one housing. The alignment to a detection object is largely uncritical. A target object (e. g. a standard target which is 90 % reflective) bounces a part of the light from its surface back to the receiver. If the standard target reaches the response curve, the output signal will change. The sensing distance depends on the size, shape, color and properties of the reflective object surface. Using a Kodak gray card with 90 % reflectivity (like white paper), distances of up to 2 m can be obtained.



Relative humidity

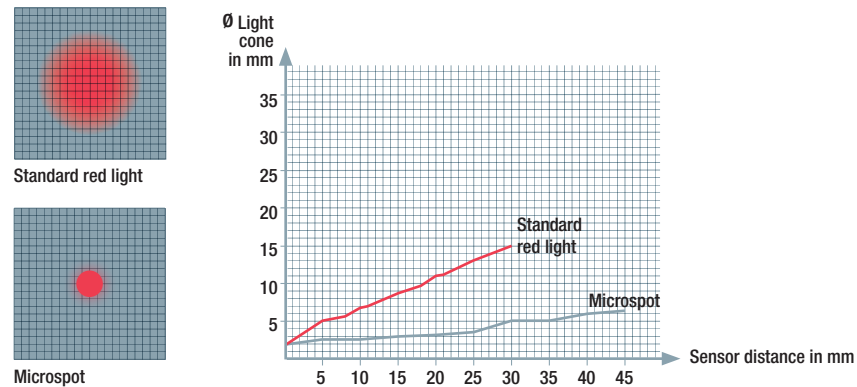
Ambient condition which can affect the sensor function. For example if the lens is subjected to high relative humidity.

MICROmote

Photoelectric sensor system which combines an external processor unit (amplifier) with exceptionally small photoelectric sensor heads. This allows miniaturized sensor heads to be realized.

Microspot/Pin Point

LEDs with opening angles of $\leq 3^\circ$. These are used where small, extremely sharp light spots are required.



Sensors

RFID

Machine Vision and Optical Identification

Human Machine Interfaces

Systems

Safety

Industrial Networking

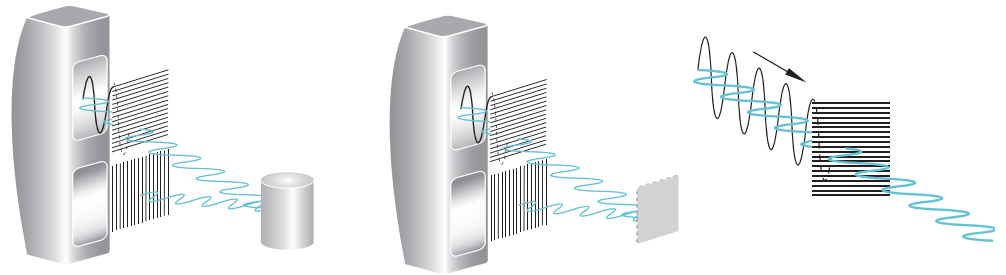
Power Supplies

Connectivity

Accessories

Polarizing filter

Light filters which allow only a certain oscillation plane to pass and thereby effectively filters out scattered light: the light is polarized. Reduces reflections from metallic surfaces and reduces spurious switching. Also referred to as a polarizing filter.



Reflector

Light beams extend to a straight line in free space. Upon striking an object, they are reflected. Depending on the surface properties of the object, we distinguish between the following reflection types: total reflection, retroreflection, and diffuse reflection.

In optical object detection and image processing retro-reflectors are often used. The retroreflection is caused by two mirrors aligned vertically to each other. A light beam is again projected back through double reflection in the same direction. The angle of incidence can thus be altered in a relatively wide range. The two-dimensional principle of retroreflection can be carried over to a spatial system with three mirrors which are oriented at right angles to each other (one corner of a cube standing on its point). A light beam entering this system is totally reflected by all three surfaces and exits parallel to the incident beam.

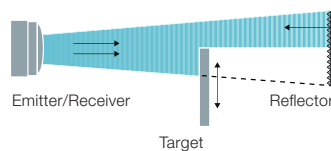
Retroreflection

A light beam which is again projected back through double reflection in the same direction. The angle of incidence can thus be altered in a relatively wide range. Is caused by two mirrors at vertical angles to each other.

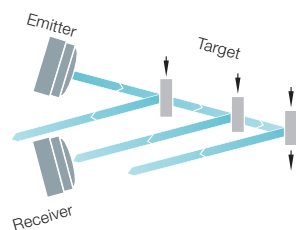


Retroreflective sensor

Photoelectric sensor in which the emitter and the receiver are in one housing. A reflector on the opposite side of the beam bounces the emitter's light back to the receiver. A target object interrupts the reflected light beam and causes a change in the output signal. With reflective surfaces it is recommended that the light reflected from the object be filtered out using a polarizing filter in front of the receiver, in order to prevent any possible fault signals.



Sensor heads	Sensor heads consist of an emitter and receiver element. In through-beam sensors the emitter and receiver elements are housed in separate enclosures.
Beam shape	<p>Focused With a focused light beam the emitter light is bundled at a certain distance into a minimum diameter. This location is referred to as the point of focus. At this point small parts detection and switching accuracy are at their greatest.</p> <p>Collimated With a collimated light beam the light emitted is radiated out in parallel. This means the size of the light spot remains virtually unchanged over the entire working range of the sensor. This allows distance-independent yet precise object detection.</p> <p>Divergent In a divergent light beam the light spot created by the emitter becomes larger with increasing object distance. In the case of through-beam sensors a divergent light beam makes possible simple alignment with the reflector or receiver.</p>
Teach-in	Method for setting sensors by pressing a button. No potentiometers or slide switches are used. Because there are defined setting increments, the advantage is that the sensor cannot be set in an unreliable range. The microcontroller also assumes control of the contamination indicator and the contamination output.
Test input	Input on a photoelectric sensor which enables function checking of the emitter and receiver by interrupting its light pulses. Contamination or maladjustment of the optical axis causes the emitter signal to reach the receiver only weakly, if at all. Therefore, the output will not switch, even though the test input is activated. The test function corresponds to a remote monitoring of the photoelectric sensor and enables a preventive system control.
Transmission	Measure for the transparency of a medium. It is defined as the ratio of: – passed to – entering light (in %). Diffuse transmission is the term which is used when the light is partially or completely diffused.
Triangulation	Procedure whereby the light cones of the emitter and receiver lobe of a through-beam system intersect each other at a narrow angle. A target object is detected where the lobes overlap. The emitter light which is reflected or diffused from objects outside this limited zone cannot be registered by the photo-receiver. Benefit: With triangulation, relatively small changes in distance can be recognized (e.g. slots, offsets on shafts). Color and shape of the object have very little effect.



Ambient temperature T_a	The maximum permissible temperature range at which a sensor may be operated while ensuring reliable functioning of the sensor.
Reverse polarity protection	Also called polarity reversal protection. This sensor technology protects against reversal of the supply voltage (plus and minus) and reversal of the connection wires (brown and blue).
Contamination	Dirt and dust particles which collect on a sensor and reduce the range of photoelectric sensors and fiber objects compared with pure air. Deposits on the lens reduce its light transmission. The light is absorbed and scattered in the beam path. An oil-free source of compressed air can be used to prevent the effects of dirt and contamination due to impure air.
Amplifier	Amplifiers prepare signals from sensor heads or fiber optics and convert them into a switching or analog signal.

Alphanumeric Index

SORTED BY
ORDERING CODE

BAE00KJ	BAE SA-CS-026-YP-BP02	343	BCS00LZ	BCS M18BBH1-NSC15H-EP02	321
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BAW001T	BAW M18ME-ICC50B-BP03	269	BCS00PP	BCS M12BBE2-POC80H-S04K	317
BAW002F	BAW M18MI-BLC50B-S04G	269	BCS00PU	BCS M12BBI1-PSC40D-EP02	293
BAW002H	BAW M18MI-IAC50B-S04G	269	BCS00R0	BCS M12BBG1-PSC80H-EP02	317
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BAW0040	BAW Z08EO-UAD20B-S04G-H11	265	BCS00ZY	BCS S44KK03-PSCFNG-EP00,3-GS49	327
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BCS00A3	BCS S10T401-XXSFNC-SZ02-T07	347	BCS001R	BCS G06T4D2-PSM15C-S49G	293
BCS00A5	BCS S10T403-XXSFNC-SZ02-T07	347	BCS001Y	BCS G06T4E1-PSM30G-EP02	317
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BCS008T	BCS M18VVN-PSCFAG-S49G	319	BES00AC	BES M30MI-PSC15B-BV03	81
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BCS010A	BCS S44KK02-POCFAG-EP00,3-GS49	327	BES00AY	BES M30MM-PSC30F-BV02	87
BCS010F	BCS S44KK03-PSCFAG-EP00,3-GS49	327	BES00AZ	BES M30MM-PSC30F-S04K	89
BCS010L	BCS S44KK01-GPCFAG-EP02	325	BES00CN	BES M08EF-NSC15B-BP02-003	29
BCS010M	BCS S44KK02-GPCFAG-EP02	329	BES00CR	BES M08EF-POC15B-BP02-003	29
BCS010N	BCS S44KK03-GPCFAG-EP02	327	BES00CW	BES M08EF-PSC20B-BP02-003	31
BCS0011	BCS M05T4C-XXS10C-EP02-GZ01-002	335	BES00LR	BES 516-3028-G-E4-Y-PU-05	81
BCS011E	BCS S04K501-PICFNG-S04G-T50	329	BES00LT	BES 516-3028-G-E4-Y-S4-01	81
BCS011F	BCS S04K501-PSCFNG-S04G-T50	329	BES00LU	BES 516-3028-G-E5-Y-S4	85
BCS011H	BCS S04K501-POCFNG-S04G-T50	329	BES00Y0	BES 516-362-E5-Y-S4	87
BCS011J	BCS S04K501-NSCFNG-S04G-T50	329	BES01JC	BES 516-362-G-S4-H	89
BCS011K	BCS S04K501-NOCFNG-S04G-T50	329	BES01NP	BES G06EF-PSC40F-S49G	25
BCS011L	BCS S04K501-PICFNG-S04G-T51	329	BES000E	BES G06ED-PSC40F-BP02	25
BCS0012	BCS G06T4B-XXS15C-EP02-GZ01-002	335	BES00E5	BES M12MD-PSC40B-BP02-003	49
BCS012A	BCS R08RRE-PSM80C-EP02	303	BES00EF	BES M12ME-PSC40B-S04G-003	55
BCS012C	BCS R08RRE-POM80C-EP02	303	BES00EY	BES M18ME-PSC50B-S04G-003	69
BCS012E	BCS R08RRE-NSM80C-EP02	303	BES000L	BES M08EB-POC40F-S49G	43
BCS012F	BCS R08RRE-NOM80C-EP02	303	BES000M	BES M08EB-PSC40F-S49G	43
BCS012H	BCS R08RRE-PSMFHC-EP02	311	BES00PK	BES 516-325-E5-C-S4	51
BCS012J	BCS R08RRE-POMFHC-EP02	311	BES00PW	BES 516-325-G-E4-C-S4-00,5	51
BCS012K	BCS R08RRE-NSMFHC-EP02	311	BES00PY	BES 516-325-G-E5-C-S4	55
BCS012L	BCS R08RRE-NOMFHC-EP02	311	BES00PZ	BES 516-325-G-E5-C-S49	55
BCS012N	BCS R08RRE-PIM80C-EP00,3-GS04	303	BES00R5	BES 516-326-E4-C-S4-00,2	69
BCS012P	BCS R08RRE-PIMFHC-EP00,3-GS04	311	BES00R6	BES 516-326-E5-C-S4	69
BCS012T	BCS R08RRE-PSM80C-EP00,3-GS75	303	BES00RC	BES 516-326-G-E5-C-S4	71
BCS012U	BCS R08RRE-POM80C-EP00,3-GS75	303	BES00RE	BES 516-327-E4-Y-01,5	79
BCS012W	BCS R08RRE-NSM80C-EP00,3-GS75	303	BES00RP	BES 516-327-E5-Y-S4	83
BCS012Y	BCS R08RRE-NOM80C-EP00,3-GS75	303	BES00RT	BES 516-327-G-E4-Y-03	81
BCS012Z	BCS R08RRE-PSMFHC-EP00,3-GS75	311	BES00RW	BES 516-327-G-E5-Y-S4	85
BCS0013	BCS G06T4B-XXS30G-EP02-GZ01-002	335	BES000T	BES M08ED-NSC40F-BV02	41
BCS013E	BCS Z094401-XXS20B-SZ02-T07	347	BES00UY	BES 516-356-E5-C-S4	59
BCS0014	BCS M08T4C-XXS15C-EP02-GZ01-002	337	BES00WV	BES 516-360-E5-Y-S4	75
BCS0015	BCS M08T4C1-XXS30G-EP02-GZ01-002	337	BES000Y	BES M08ED-PSC40F-BP02	41
BCS0016	BCS G10T4B-XXS40C-EP02-GZ01-002	335	BES00YT	BES 516-370-E5-C-S4	51
BCS0017	BCS G10T4C-XXS80G-EP02-GZ01-002	335	BES00Z0	BES 516-370-G-E5-C-S4	57
BCS0019	BCS M12T4D1-XXS80G-EP02-GZ01-002	337	BES0001	BES M12MI-PSC40B-BV03	51
BCS0022	BCS G06T4D2-PSM30G-S49G	317	BES001A	BES M08EH-NSC40F-S04G	45
BCS0026	BCS M08T4E1-PSM15C-EP02	293	BES001C	BES M08EH-NSC40F-S49G	43
BCS0033	BCS D22V4M1-PSC10C-EV02	297	BES01C7	BES 516-325-G-S4-C	57
BCS0037	BCS M12T4D2-PSM40C-S04G	295	BES01C8	BES 516-325-S4-C	53
BCS0062	BCS M12T4D2-PSM80G-S04G	319	BES01CW	BES 516-326-S4-C	71
BCS0070	BCS M12TTG1-POM80G-ET02	317	BES001E	BES M08EH-POC40F-S04G	45
BCS0072	BCS M12TTG1-NOM80G-ET02	317	BES01EA	BES 516-327-G-S4-C	87
BCS0073	BCS M18TTI2-PSC15G-AT02	321	BES01EC	BES 516-327-G-S4-H	87
BCS0076	BCS M18TTI2-NOC15G-AT02	321	BES01EE	BES 516-327-S4-C	85
BCS0077	BCS M30TTH2-PSC30G-AT02	323	BES01ET	BES 516-340-H2-Y	717
BCS0078	BCS M30TTH2-POC30G-AT02	323	BES01EU	BES 516-341-H2-Y	717
BCS0084	BCS D500004-PPCFAC-EV02	311	BES01EW	BES 516-341-H2-Y-S4	717
BCS0086	BCS M30TTH2-PSCFAG-AT02	323	BES001F	BES M08EH-POC40F-S49G	43

774 | Alphanumeric Index | Sorted by ordering code

BES01FC	BES 516-346-H2-Y	717	BES01PN	BES M12EG-PSC80F-S04G	61
BES01FE	BES 516-346-H2-Y-S4	717	BES01PY	BES M12MD-PSC80F-S04G	61
BES01FF	BES 516-346-H2-Y-S49	717	BES01W0	BES R01ZC-NAC70B-BP05	101
BES01FJ	BES 516-347-MO-C-03	91	BES01W2	BES R01ZC-PAC70B-BP00.2-GS04	103
BES01FK	BES 516-347-MO-C-05	91	BES01W3	BES R01ZC-PAC70B-BP00.5-GS04	103
BES01FM	BES 516-347-MO-C-PU-05	91	BES01W4	BES R01ZC-PAC70B-BP03	101
BES01FN	BES 516-347-MO-C-S4-00,2	93	BES01WE	BES R01ZC-PSC70B-BP00.2-GS49	101
BES01FR	BES 516-347-MO-C-S49	93	BES01WF	BES R01ZC-PSC70B-BP00.3-GS49	101
BES01FT	BES 516-347-MO-C-S49-00,2	93	BES001Y	BES M08ME1-USC20B-S04G	141
BES001H	BES M08EH-PSC40F-S04G	45	BES01YZ	BES R05KB-NSC20B-EP05	95
BES01H6	BES 516-356-S4-C	61	BES01Z2	BES R05KB-POC40B-S49A	97
BES01HW	BES 516-360-G-S4-H	77	BES01Z5	BES R05KB-PSC20B-EP05	95
BES01HY	BES 516-360-S4-C	77	BES01Z7	BES R05KB-PSC20B-S49A	97
BES001J	BES M08EH-PSC40F-S49G	43	BES01Z8	BES R05KB-PSC40B-EP00,3-GS04	97
BES01JE	BES 516-362-S4-C	89	BES01ZA	BES R05KB-PSC40B-EV02	95
BES01JW	BES 516-367-S4-C	71	BES01ZC	BES R05KB-PSC40B-EV03	97
BES01K6	BES 516-370-S4-C	55	BES01ZE	BES R05KB-PSC40B-S49A	97
BES001L	BES M08MG-GSC20B-BV02	139	BES01ZK	BES 516-344-H2-Y	717
BES01MM	BES 517-351-NO-C-03	99	BES01ZN	BES M12MI-PSH80B-S04G	63
BES01MT	BES 517-351-NO-C-S49-00,2	99	BES01ZT	BES M08MI-NSC40B-S49G	47
BES01N1	BES 517-398-N1-C	99	BES01ZU	BES M08MI-PSC40B-BP00,2-GS04	45
BES01N2	BES 517-398-N2-C	99	BES02A5	BES 516-217-E4-E-03	87
BES01N5	BES 517-398-NO-C-03	97	BES02AU	BES 516-420-E4-L-02	65
BES01N6	BES 517-398-NO-C-05	97	BES02AW	BES 516-420-E4-L-05	65
BES01N8	BES 517-398-NO-C-PU-03	99	BES02C5	BES 516-437-E4-L-02	73
BES01N9	BES 517-398-NO-C-PU-05	99	BES02C7	BES 516-437-E5-L-S21	75
BES01NA	BES 517-398-NO-C-S49-00,2	99	BES02C9	BES 516-449-BO-L-05	47
BES01NH	BES 517-399-NO-C-03	97	BES02CT	BES R05KB-USU20B-EV02	95
BES01NT	BES G06MI-PSC40B-S49G	27	BES02CU	BES R05KB-USU20B-EV03	95
BES01NY	BES G08EG-PSC15B-BV02	27	BES02CY	BES R05KB-USU40B-EV02	95
BES001P	BES M08MG-USC20B-BP03	139	BES02E9	BES 515-215-E5-E-S21	83
BES01P5	BES M08EG-NSC25F-S04G	43	BES02EU	BES 515-326-S4-C	71
BES01P6	BES M08EG-POC25F-S04G	43	BES02F1	BES 515-327-S4-C	85
BES01P9	BES M08EG1-PSC40F-S04G	43	BES02FN	BES 515-362-S4-C	89
BES001T	BES M08MG-USC20B-BV02	139	BES02FU	BES M12EI-PSC40B-S04G	57
BES001U	BES M08MG-USC20B-BV03	139	BES02HO	BES M18EI-PSC80B-S04G	73
BES001W	BES M08MG-USC20B-BV05	139	BES02H5	BES 516-105-SA2-05	225
BES001Z	BES M08MG-GSC20B-BP00,3-GS04	141	BES02H6	BES 516-105-SA5	227
BES01ZR	BES M08MI-NSC40B-BP00,2-GS04	45	BES02H7	BES 516-114-SA1-05	227
BES01ZW	BES M08MI-PSC40B-S49G	47	BES02HE	BES 516-125-SA1-05	229
BES02AC	BES 516-217-E5-E-S27	89	BES02HU	BES 516-325-SA19-03	225
BES02AE	BES 516-217-E5-E-S5	89	BES02HW	BES 516-325-SA19-05	225
BES02ET	BES 515-326-E5-T-S4	69	BES02J2	BES M05ED-PSD05B-ES02-T01	223
BES02FO	BES 515-327-E5-T-S4	83	BES02J5	BES 516-325-S4-CW	211
BES02FP	BES 515-449-SA7-S21	53	BES02J9	BES 516-326-S4-CW	211
BES002H	BES M08MI-NSC15B-BV03	29	BES02JH	BES 516-327-S4-CW	211
BES02P3	BES 516-326-SA96-G-E5-Y-S4	71	BES02JM	BES 516-356-S4-CW	211
BES02UR	BES G06MH1-PSC30B-S04G	25	BES02JZ	BES M12MF1-PSC30A-S04G-W	189
BES02W0	BES M08MG1-NSC60F-S04G	45	BES002K	BES M08MI-NSC15B-S49G	37
BES02W6	BES M08MH-PSC40B-S49G-507	47	BES02K0	BES M12MF1-PSC30A-S04G-W01	189
BES02YJ	BES M30MG1-PSC40F-S04G	91	BES02K3	BES M12ML-PSC30A-S04G-W	189
BES02YL	BES M30MI1-POC22B-S04G	91	BES02K4	BES M12ML-PSC30A-S04G-W01	191
BES02YM	BES M30MI1-PSC22B-S04G	91	BES02K5	BES M12ML-PSC80E-S04G-W	191
BES03AR	BES 516-325-G-S4-L	57	BES02KC	BES M18MI-PSC70B-S04G-W	217
BES03EJ	BES G06MH-PSC30B-BP00,3-GS49	25	BES02KM	BES M30ML-PSC10A-S04G-W	193
BES003F	BES M08MI-PSC20B-BP02	31	BES02KN	BES M30ML-PSC10A-S04G-W01	193
BES003J	BES M08MI-PSC20B-BP05	31	BES02L6	BES 516-3005-FO-N-03	255
BES03P4	BES G06EH-PSC20B-S49G	23	BES02LA	BES 516-324-E0-N-03	255
BES03P5	BES G06EH-PSC40F-S49G	25	BES02LE	BES 516-325-E3-N-PU-05	257
BES003R	BES M08MI-PSC40B-BP00,3-GS49	47	BES02LL	BES 516-327-E3-N-PU-05	257
BES03R9	BES G06EE-PSC20B-S49G-003	23	BES02LW	BES 516-371-SA3-03	255
BES01P0	BES M04EC-PSD06B-BP02	17	BES02LY	BES 516-371-SA3-05	255
BES01P3	BES M08ED-PSC25F-S04G	43	BES02N3	BES M08EH1-NSC20B-S04G-S	161
BES01P7	BES M08EG-PSC15B-S49G	35	BES02N4	BES M08EH1-NSC20B-S04G-S01	161
BES01P8	BES M08EG-PSC25F-S04G	43	BES02N5	BES M08EH1-PSC20B-S04G-S	203
BES01PC	BES M08EH-NSC15B-S04G	35	BES02N6	BES M08EH1-PSC20B-S04G-S01	203
BES01PE	BES M08EH-POC15B-S04G	35	BES02NA	BES M12EI-PSC40B-S04G-S	163
BES01PH	BES M08EH-PSC20B-S04G	39	BES02NC	BES M12EI-PSC40B-S04G-S01	163

BES02NK	BES M18EI-PSC72B-S04G-S01	173	BES003Z	BES M12MF-GSC30B-S04G	145
BES02NR	BES M18MF-USC70B-S04G	149	BES03Z3	BES M08EE1-NSC20B-S49G-S	159
BES002P	BES M08MI-NSC20B-BV02	31	BES03Z8	BES M04EC-PSC10B-EP02	17
BES02PU	BES M08MH1-PSC20B-S04G-101	217	BES03ZJ	BES M04EC-NSC10B-EP02	17
BES02PW	BES M08MH1-PSC30B-S04G-101	217	BES04AT	BES 515-326-SA49-D-TF-05	225
BES02TN	BES IKU-031.28-S4	105	BES04AU	BES 515-327-SA22-D-TF-05	227
BES002U	BES M08MI-NSC20B-S49G	39	BES04C7	BES 515-360-SA13-D-TF-05	227
BES02W3	BES M08MG1-PSC60F-S04G	45	BES04C8	BES 515-362-SA4-D-TF-05	229
BES02W4	BES M08MG1-PSC60F-S49G	45	BES04CK	BES 515-325-SA74-D-TF-02	223
BES02W7	BES M08MH1-NSC30B-S04G	41	BES04CL	BES 515-356-SA35-D-TF-02	225
BES02W9	BES M08MH1-PSC30B-S04G	41	BES04F1	BES M18MD-PSC80B-BP05-003	67
BES02WH	BES M12EG1-PSC60Z-S04G-S11	163	BES04FK	BES M12MI-PSIC20C-S04G	53
BES02WK	BES M12MC1-PSC10F-S04G	63	BES04FL	BES M05ED-PSD05B-ES05-GS04-T50	223
BES02WM	BES M12MD1-PSC60B-S04G	63	BES004N	BES M12MG-PSC80F-S04G	61
BES02WR	BES M12MF1-PSC10F-S04G	63	BES004T	BES M12MG-USC30B-BV02	141
BES02WY	BES M12MG1-POC60B-S04G	63	BES04TU	BES G10ED-PSC08B-EP00,3-GS49	47
BES02WZ	BES M12MG1-PSC60B-S04G	63	BES04Z5	BES M12EI-PSC40A-S04G-S	203
BES02Y1	BES M18EF1-PSC20F-S04G-S	173	BES0005	BES G06EB-PSC40F-S49G	25
BES02Y3	BES M18EG1-PSC10Z-S04G-S11	175	BES05AH	BES M18MI-PSC80A-S04G-W07	191
BES02Y5	BES M18MD1-PSC12B-S04G	79	BES05AJ	BES M18ME-PSC80A-S04G-W08	191
BES02Y7	BES M18ME1-PSC20F-S04G	79	BES05AK	BES M18MI-PSC80A-S04G-W08	191
BES02Y9	BES M18MG1-PSC12B-S04G	79	BES05AL	BES M18ME-PSC12E-S04G-W08	193
BES02YC	BES M30EE1-PSC40F-S04G-S	177	BES05AM	BES M18MI-PSC12E-S04G-W08	193
BES02YF	BES M30EG1-PSC20Z-S04G-S11	177	BES05FN	BES M08EM-PSD20B-ET05-T	223
BES02YR	BES M08EG-PSC15A-S49G-W	189	BES05K7	BES M18EG1-PSC80A-S04G-S	205
BES02YT	BES M08EG1-PSC15A-S04G-W	189	BES05K8	BES M18EG1-PSC80S-S04G-S	207
BES02YZ	BES M08EG1-PSC15S-S04G-S	203	BES05K9	BES M18EG1-PSC80N-S04G-S	207
BES02Z2	BES M12EG1-PSC20N-S04G-S	203	BES05L3	BES M18MF2-PSC80F-BV02-EXD	243
BES02Z3	BES M12EG1-PSC20S-S04G-S	203	BES05L4	BES M30MF2-PSC10B-BV02-EXD	243
BES02Z8	BES M18EG1-PSC50N-S04G-S	205	BES05L5	BES M30MF2-PSC15F-BV02-EXD	245
BES02Z9	BES M18EG1-PSC50S-S04G-S	205	BES05L9	BES M18MF2-PSC80F-BV02-EXE	243
BES02ZE	BES M18MN-USU80B-S21G	73	BES05LA	BES M30MF2-PSC10B-BV02-EXE	245
BES02ZH	BES M30EG1-PSC80N-S04G-S	207	BES05LC	BES M30MF2-PSC15F-BV02-EXE	245
BES02ZJ	BES M30EG1-PSC80S-S04G-S	207	BES05M5	BES M30EG2-PSC10B-BV02-EXF	243
BES02ZR	BES G06MD-GNX10B-EV02-EEX	237	BES005N	BES M12MI-POC40B-S04G	57
BES02ZT	BES M08MD-GNX10B-EV02-EEX	237	BES05N0	BES M18MH2-GNX80F-S04G-EXC	243
BES02ZU	BES M12ME-GNX40B-S04G-EEX	239	BES05N1	BES M30MH2-GNX10B-S04G-EXC	245
BES02ZW	BES M18ME1-GNX80B-S04G-EEX	243	BES05N2	BES M30MH2-GNX15F-S04G-EXC	247
BES02ZY	BES M30ME1-GNX15B-S04G-EEX	245	BES05N4	BES M18ED-PSC50B-GT05-T	227
BES02ZZ	BES Q40KFU-GNX20B-S92G-EEX	247	BES05N5	BES M30N1-PSC10B-GT05-T	229
BES003C	BES M08MI-PSC15B-S49G	37	BES05N6	BES Q40KG-X20F-SZ03	231
BES03FH	BES M18MF-GSC70B-S04G-U	149	BES05N7	BES Q08EC-PSD20B-ES05	229
BES03FJ	BES M18MG-GSC70B-BX00,3-GS04-U	147	BES05N8	BES Q12EC-PSD40B-ES05	229
BES03H6	BES M05EG-PSC08B-BP02	157	BES05N9	BES Q40KG-PSD25F-S04G	231
BES03HH	BES M08MG-UOC20B-BV03	141	BES05NC	BES M18EG1-PSC80A-S04G-S02	207
BES03HM	BES M12MG-UOC30B-BV03	143	BES05NE	BES M12MG2-GNX20B-BT02-EXA	237
BES03JA	BES IKVS-010.23-G-S4	261	BES05NF	BES M12MG2-GNX40F-BT02-EXA	239
BES03JC	BES IKVS-015.23-G-S4	261	BES05NJ	BES M18MH2-GNX80F-BT02-EXA	243
BES03JH	BES IKVS-025.23-G-S4	261	BES05NK	BES M30MH2-GNX10B-BT02-EXA	245
BES03JM	BES M05EG-PSC08B-BP00,2-GS49	159	BES05NL	BES M30MH2-GNX15F-BT02-EXA	245
BES003K	BES M08MI-PSC20B-BV02	33	BES05NM	BES M12MG2-GNX20B-BT02-EXB	237
BES03KL	BES M30MF-GSC15B-S04G-U	151	BES05NN	BES M12MG2-GNX40F-BT02-EXB	239
BES03L7	BES M05ED-PSD08B-BP02-R03	159	BES05NR	BES M18MH2-GNX80F-BT02-EXB	243
BES03LC	BES M05ED-PSD08B-BP00,3-GS49-R03	159	BES05NT	BES M30MH2-GNX10B-BT02-EXB	245
BES03LE	BES M05ED-POD08B-BP00,3-GS49-R03	159	BES05NU	BES M30MH2-GNX15F-BT02-EXB	247
BES003M	BES M08MI-PSC20B-BV05	33	BES006A	BES M18MF-USC70B-S04K	147
BES03M5	BES R04KC-GNX15B-EP02	257	BES006C	BES M18MG-GSC70B-BP00,3-GS04	147
BES03NZ	BES M05ED-PSC08B-BP02-R50	159	BES007H	BES M18MI-NSC80B-BP03	67
BES003P	BES M08MI-PSC20B-S49G	39	BES007J	BES M18MI-NSC80B-BV03	67
BES03P1	BES M05ED-PSD08B-ES02-T01	223	BES0008	BES G06ED-NSC40F-BP02	25
BES03P6	BES M08MI-POC15B-S49G	37	BES008E	BES M18MI-PSC80B-BV02	67
BES03PN	BES Q40KHU-PAC20B-S04G	107	BES008F	BES M18MI-PSC80B-BV03	67
BES03RM	BES M18MG-PSC16F-S04G	77	BES008H	BES M18MI-PSC80B-BV05	69
BES03T5	BES M08MH1-POC20B-S04G	39	BES008L	BES M18MI-PSC80B-S04G	73
BES03TH	BES M08MI-POC20B-BV02	33	BES008M	BES M18MI-PSC80B-S04K	73
BES03TL	BES M08MI-PSC20B-BP10	33	BES008R	BES M30MF-GSC15B-BV02	149
BES03UY	BES M08EE1-PSC20B-S49G-S	159	BES008W	BES M30MF-GSC15B-S04K	151
BES03YP	BES M08MG1-PSC20A-S04G-W	189	BES008Z	BES M30MF-USC15B-BP03	151

776 | Alphanumeric Index | Sorted by ordering code

BES009E	BES M30MI-NSC10B-BV03	79	BES0042	BES M12MG-GSC30B-BP00,3-GS04	145
BES012F	BES G04ED-PSC15B-S26G	15	BES043T	BES 515-326-SA49-D-TF-02	225
BES012H	BES G04ED-PSC50F-EP02	15	BES043W	BES 515-327-SA22-D-TF-02	227
BES012J	BES G04ED-PSC50F-EP05	15	BES043Y	BES 515-362-SA4-D-TF-02	229
BES012K	BES G04ED-PSC50F-S26G	17	BES0046	BES M12MG-GSC30B-BV03	143
BES012L	BES G08EE-PSC20B-BP02	27	BES046C	BES M05ED-PSD05B-ES05-T01	223
BES012R	BES G08EG-PSC15B-BP05	27	BES048A	BES R05KB-POC20B-S49A	97
BES012T	BES G08EG-PSC15B-BV05	27	BES048K	BES R01ZC-PSC50B-BZ00,2-GS04-W05	219
BES012W	BES M05EC-NSC08B-S26G	17	BES048N	BES R01ZC-PSC50B-BZ00,2-GS04-W13	219
BES012Z	BES M05EC-PSC08B-S26G	17	BES048Y	BES R01ZC-PSC70B-BZ00,2-GS04-108	219
BES0013	BES M08EG-NSC40F-BV02	41	BES048Z	BES R01ZC-PSC70B-BZ00,2-GS04-110	101
BES013A	BES M05ED-PSC15B-S26G	19	BES050P	BES M05ED-GNX08B-EP02	255
BES013C	BES M05ED-PSC50F-EP00,3-GS04	19	BES051H	BES G06E60-POC15B-EP01-GS49	23
BES013E	BES M05ED-PSC50F-EP02	19	BES051J	BES M05ED-PSC10B-EP00,2-097	17
BES013F	BES M05ED-PSC50F-EP05	19	BES051L	BES M05ED-POC10B-EP00,3-097	17
BES013H	BES M05ED-PSC50F-S26G	19	BES052M	BES Q40KFA-PSY20B-DV02	105
BES013J	BES M08EC-NSC15B-S49G	35	BES054Z	BES M08EH1-PSC60F-S49G	45
BES013K	BES M08EC-POC15B-S49G	35	BES056A	BES M12EI-PSC40B-S04G-S03	217
BES013L	BES M08EC-POC20B-S49G	37	BES056C	BES M18EI-PSC72B-S04G-S03	217
BES013Y	BES M08EE-NSC15B-S04G	35	BES0057	BES M12MI-NSC40B-BV03	49
BES0014	BES M08EG-POC40F-BP02	41	BES0058	BES M12MI-NSC40B-BV05	49
BES014A	BES M08EE-PSC20B-S49G	39	BES058J	BES M08EH1-PSC60F-S04G	45
BES014M	BES M08EF-PSC40F-S49G	43	BES0059	BES M12MI-NSC40B-S04G	57
BES014W	BES M12EE-PSC40B-S04G	55	BES0060	BES M12MI-PSC20B-S04G	53
BES015N	BES 516-105-S4-C	71	BES0062	BES M12MI-PSC40B-BP03	49
BES0016	BES M08EG-PSC40F-BP02	41	BES0064	BES M12MI-PSC40B-BV02	49
BES016W	BES 516-123-G-S4-H	77	BES0065	BES M12MI-PSC40B-BV05	51
BES017H	BES 516-133-MO-C-PU-05	93	BES0069	BES M18MF-GSC70B-S04K	147
BES017M	BES 516-161-H3-L	717	BES0070	BES M18MG-PSC16F-S04K	77
BES020Z	BES 517-223-M4-E	107	BES0071	BES M18MG-USC70B-BP03	147
BES0021	BES M08MG-GSC20B-BP03	139	BES0073	BES M18MG-USC70B-BV02	145
BES022Z	BES 517-3036-I02-C-S4	103	BES0074	BES M18MG-USC70B-BV03	147
BES0024	BES M08MH1-NSC15B-S04G	37	BES0086	BES M18MI-PSC50B-S04G	69
BES0025	BES M08MH1-NSC20B-S04G	39	BES0089	BES M18MI-PSC80B-BP03	67
BES025U	BES G06K40-PSC15B-FP02	19	BES0091	BES M30MF-USC15B-BV02	149
BES0026	BES M08MH1-POC15B-S04G	37	BES0092	BES M30MF-USC15B-BV03	149
BES026M	BES M08E60-PSC15B-EP02	27	BES0094	BES M30MF-USC15B-S04K	151
BES0027	BES M08MH1-PSC15B-S04G	37	BES0120	BES G04EC-POC08B-S26G	15
BES027K	BES M30MF-GSC15B-BX00,3-GS04-U	151	BES0122	BES G04EC-PSC08B-S26G	15
BES027M	BES 516-207-BO-E-03	47	BES03Z6	BES G03EC-PSC10B-EP02	15
BES027N	BES 516-207-BO-E-05	49	BES03ZA	BES G06K40-PSC20B-FP02	21
BES027T	BES 516-207-G-S21-E	57	BES04AH	BES R01EC-PSC50A-BP00,3-GS04-W50	193
BES027U	BES 516-207-S21-E	53	BES004P	BES M12MG-USC30B-BP03	143
BES027W	BES 516-207-S27-E	53	BES04RE	BES R01EC-PSC50A-BS00,3-GS04-W51	195
BES0028	BES M08MH1-PSC20B-S04G	39	BES004T	BES M12MG-USC30B-BV02	143
BES028L	BES 516-211-E4-E-03	65	BES004U	BES M12MG-USC30B-BV03	143
BES028N	BES 516-211-E4-E-PU-05	65	BES004W	BES M12MG-USC30B-BV05	143
BES028R	BES 516-211-E5-E-S27	71	BES05L2	BES M18MF2-PSC50B-BV02-EXD	241
BES028U	BES 516-211-E6-E-05	65	BES05L6	BES M12MF2-PSC20B-BV02-EXE	237
BES029A	BES 516-213-G-E5-E-S21	77	BES05L7	BES M12MF2-PSC40F-BV02-EXE	239
BES029L	BES 516-215-E4-E-03	79	BES05L8	BES M18MF2-PSC50B-BV02-EXE	241
BES029M	BES 516-215-E4-E-05	81	BES05M3	BES M12EG2-PSC20B-BV02-EXF	237
BES030E	BES Z03K-GSS10B-EP00,15-GS04-006	103	BES05M4	BES M18EG2-PSC50B-BV02-EXF	241
BES030F	BES Z03K-GSS10B-EP00,8-GS04-006	103	BES05MW	BES M12MG2-GNX20B-S04G-EXC	239
BES0031	BES M08MI-POC15B-BV03	29	BES05MY	BES M12MG2-GNX40F-S04G-EXC	241
BES0032	BES M08MI-POC15B-BV05	31	BES05MZ	BES M18MH2-GNX50B-S04G-EXC	241
BES032M	BES 516-113-SA3-S4-C	51	BES05NH	BES M18MH2-GNX50B-BT02-EXA	241
BES032R	BES 516-133-SA3-C-PU-04	93	BES05NP	BES M18MH2-GNX50B-BT02-EXB	241
BES033H	BES 516-300-S255	101	BES007M	BES M18MI-NSC80B-S04K	73
BES033J	BES 516-300-S279	101	BES007Y	BES M18MI-POC80B-S04K	73
BES034K	BES 516-324-SA17-05	159	BES013M	BES M08EC-PSC15B-S04G	35
BES035E	BES 516-325-SA45	51	BES013N	BES M08EC-PSC15B-S49G	35
BES036R	BES 516-356-SA24-S4-C	61	BES013P	BES M08EC-PSC20B-S49G	37
BES036T	BES 516-356-SA26-S4-C	59	BES014K	BES M08EF-PSC15B-BP02	29
BES0037	BES M08MI-PSC15B-BV02	31	BES020A	BES 517-132-M6-H-S4	107
BES038Y	BES G06EI-PSC30B-S49G	23	BES020C	BES 517-132-M7-H	109
BES040R	BES M04EC-PSC10B-EP00,3-GS49	17	BES020E	BES 517-132-M7-H-S4	111
BES0041	BES M12MF-USC30B-S04G	145	BES020Y	BES 517-223-M3-E	105

BES021E	BES Q40KFU-PAC30F-S04G	111	BES0270	BES M08EA-POD15B-S49G	33
BES021H	BES Q40KFU-PAC35E-S04G	197	BES0275	BES M08EA-PSC15B-EP02	29
BES021K	BES Q40KFU-PAC35E-S04G-W01	197	BES0276	BES M08EA-PSC20B-EP00,3-GS49	33
BES021M	BES Q40KFU-PAC40E-S04G	197	BES0277	BES M08EA-PSD15B-S49G	33
BES021P	BES Q40KFU-PSC15A-S04G	195	BES0278	BES M08EA-PSD20B-S49G	37
BES021T	BES Q40KFU-PSC15A-S04G-W01	195	BES0285	BES 516-209-B0-E-03	59
BES021U	BES Q40KFU-PSC20A-S04G	195	BES0286	BES 516-209-B0-E-05	59
BES021W	BES Q40KFU-PSC20B-S04G	107	BES0289	BES 516-209-G-S21-E	63
BES021Z	BES Q40KFU-PSC30F-S04G	111	BES0292	BES 516-213-E4-E-03	75
BES0022	BES M08ME1-GSC20B-S04G	141	BES0296	BES 516-213-E5-E-S21	75
BES022K	BES Q40KFU-PAC15A-S04G	195	BES0297	BES 516-213-E5-E-S27	75
BES022R	BES 517-460-U5-L-D	113	BES0298	BES 516-213-E5-E-S5	75
BES023P	BES 517-139-M4-H	113	BES0300	BES Q40KFU-GNX35F-S92G-EEX	247
BES023R	BES 517-139-M5-H	113	BES0308	BES Q40KFU-PSC40F-S04G-012	111
BES023W	BES 517-139-U5-H-S4	113	BES0314	BES R01ZC-PAC70B-BP00,2-GS04-107	103
BES023Y	BES 517-223-M5-E	109	BES0315	BES M05EG-NSC08B-BP00,2-GS49	159
BES024F	BES 517-224-M5-E	113	BES0316	BES 516-418-E5-L-S27	83
BES025H	BES G06EA-POC15B-EP02	21	BES0324	BES M08MG-GSC20B-BP00,3-GS04-101	141
BES025L	BES G06EA-PSC15B-EP01	21	BES0326	BES M12MG-GSC30B-BP00,3-GS04-101	145
BES025M	BES G06EA-PSC15B-EP02	21	BES0328	BES M18MF-GSC70B-S04G	149
BES025N	BES G06EA-PSD15B-S49G	23	BES0330	BES 516-209-SA1-S21-E	59
BES028A	BES 516-209-S21-E	59	BES0341	BES 516-3009-SA2-M0-C-05	91
BES028F	BES 516-210-B0-E-03	59	BES0389	BES M08EE-PSC20B-EP05-511	31
BES029W	BES 516-215-E5-E-S5	85	BES0409	BES G03EC-PSC10B-EP00,3-GS49	15
BES030C	BES Q80KA-PAC50B-S04Q-U	111	BES0427	BES M08EE-PSC25B-S49G	41
BES0033	BES M08MI-POC20B-S49G	39	BES0428	BES Z06K-PSC16F-S49G	261
BES0034	BES M08MI-PSC15B-BP02	29	BES0429	BES Z06K-PSC16F-BP00,1-GS04	261
BES0036	BES M08MI-PSC15B-BP05	29	BES0431	BES G12EE1-PSY40F-S04G-L02	185
BES039W	BES M12MG-GSC30B-BX00,3-GS04-U	145	BES0433	BES M12EE-PSC40B-S04G-L01	185
BES042L	BES 516-300-S338-S4-D	167	BES0435	BES M12EI-PSC40B-S04G-L01	185
BES042M	BES 516-300-S337-S4-D	167	BES0437	BES M18EI-PSC80B-S04G-L01	185
BES048J	BES R01ZC-PSC50B-BZ00,2-GS04-V02	213	BES0441	BES M18EE1-PSY50B-S04G-L01	185
BES048W	BES R01ZC-PSC50B-BZ00,5-GS04-V02	213	BES0443	BES M12EE1-PSY40F-S04G-L01	185
BES049Y	BES R01EC-PSC50A-BP00,3-GS04-W51	195	BES0444	BES M12EE1-PSY20B-S04G-L01	185
BES050N	BES G04ED-GNX08B-EP02	255	BES0452	BES M12MG-PSC40A-S04G-W12	191
BES054N	BES M08MI-PSC30B-S49G	41	BES0454	BES M30MI-PSC15A-S04G-W12	193
BES055Y	BES M05EE1-PSC08B-EV00,9-116	157	BES0457	BES Q40KFU-PAC20A-S04G-W01	197
BES0068	BES M12MI-PSC40B-S04G	57	BES0474	BES M12MG-GOC30B-BV03	143
BES0083	BES M18MI-PSC50B-BV03	65	BES0481	BES R01ZC-PSC50B-BZ03-V02	213
BES0130	BES M05ED-NOC15B-S26G	19	BES0493	BES R01ZC-PSC50B-BZ00,2-GS49-V02	213
BES0137	BES M05ED-POC15B-S26G	19	BES0496	BES M18MI2-PSC80B-S04G	73
BES0139	BES M05ED-POC50F-S26G	19	BES0510	BES M12EI-PSC40S-S04G-S	205
BES0142	BES M08EE-POC15B-S04G	35	BES0511	BES M12EI-PSC40N-S04G-S	205
BES0143	BES M08EE-POC15B-S49G	35	BES0550	BES M08EH1-POC60F-S49G	45
BES0145	BES M08EE-POC20B-S49G	39	BES0555	BES Q40KFC-PSY20B-DV02	105
BES0146	BES M08EE-PSC15B-S04G	35	BES0566	BES Q05EC-GNX08B-EP02	257
BES0147	BES M08EE-PSC15B-S49G	35	BES0567	BES M12EI-PSC40A-S04G-S02	205
BES0149	BES M08EE-PSC20B-S04G-101	39	BES0568	BES Q08ZC-GNX15B-EP02	257
BES0153	BES 516-133-M0-C-S4-00,2	93	BFB000A	BFB M18M-002-P-S4	537
BES0161	BES 516-113-S4-C	55	BFB000C	BFB M18M-011-P-S4	535
BES0166	BES 516-114-G-S4-H	87	BFB000E	BFB M18M-012-P-S4	535
BES0167	BES 516-114-S4-C	85	BFB0003	BFB 75K-001-P-02	535
BES0178	BES 516-131-S4-C	61	BFB0004	BFB 75K-001-P-S75	535
BES0201	BES 517-132-M3-H	105	BFB0006	BFB 75K-002-P-S75	535
BES0206	BES 517-132-M5-H	109	BFB0008	BFB 75K-003-P-02	535
BES0209	BES 517-132-M6-H	107	BFB0009	BFB M18M-001-P-S4	537
BES0217	BES Q40KFU-PAC20B-S04G	107	BF000AP	BFO D22-LA-GD-EAK-52-02	559
BES0222	BES Q40KFU-PSC35Z-S04G-011	197	BF000AR	BFO D13-XV-AK-EAK-50-02	567
BES0223	BES Q40KFU-PSC40E-S04G	197	BF000AT	BFO D13-XB-AB-EAK-10-01	567
BES0236	BES 517-385-V-C-S4	109	BF000AW	BFO D22-LAH-BK-EAK-10-02	559
BES0241	BES 517-223-U3-E	105	BF000AY	BFO D22-LAT-YB-EAK-10-0,5	557
BES0244	BES 517-223-U4-E	109	BF0000C	BFO N22-LA-FB-EAK-05-01	555
BES0247	BES 517-223-U5-E	109	BF000C3	BFO D10-XA-VB-EAK-10-02	561
BES0251	BES G06E60-POC15B-EP02	21	BF000C4	BFO D22-XB-LB-EAK-15-SA1-02	565
BES0254	BES G06E60-PSC15B-EP00,3-GS49	21	BF000C5	BFO D25-LA-ED-EAK-250-0,5	559
BES0256	BES G06E60-PSC15B-EP02	21	BF000C6	BFO D10-LAH-CK-EAK-05-02	559
BES0257	BES G06E60-PSC20B-EP00,3-GS49	23	BF000C7	BFO D10-LAH-DK-EAK-05-02	559
BES0258	BES G06E60-PSC20B-EP02	21	BF000C8	BFO D25 LA-HD-EAK-465-02	559

778 | Alphanumeric Index | Sorted by ordering code

BF000C9	BFO D22-XB-UB-EAK-15-SA1-02	563	BF00013	BFO 18A-LEE-MZG-20-0,5	545
BF0000F	BFO 18A-LAA-MZG-20-0,5	541	BF00014	BFO 18A-LEE-MZG-20-1	545
BF000FN	BFO D22-XB-LB-EAK-15-SA1-05	565	BF00019	BFO 18A-LEE-SMG-20-0,5	545
BF000FP	BFO D22-XB-LB-EAK-15-SA1-01	565	BF00020	BFO 18A-LGG-MZG-10-1	541
BF0000H	BFO 18A-LAA-MZG-20-1	541	BF00023	BFO 18A-LGG-SMG-10-0,5	541
BF000H3	BFO 18A-XAA-MZG-30-5	549	BF00024	BFO 18A-LGG-SMG-10-1	543
BF000H4	BFO D22-XB-LB-EAK-15-SA1-0,5	563	BF00026	BFO 18A-XAA-MZG-30-0,5	547
BF000H5	BFO D22-XA-08B-EAK-26-02	565	BF00027	BFO 18A-XAA-MZG-30-1	547
BF000H6	BFO D22-LAH-JD-EAK-10-02	557	BF00031	BFO 18A-XAE-MZG-30-0,5	553
BF000H8	BFO NU1-XB-05K-MZG-11-01	549	BF00032	BFO 18A-XAE-MZG-30-1	553
BF0000J	BFO 18A-LAA-MZG-20-1,5	541	BF00037	BFO 18A-XAE-SMG-30-0,5	553
BF0000M	BFO 18A-LAA-UZG-20-0,5	541	BF00038	BFO 18A-XAE-SMG-30-1	553
BF0000N	BFO 18A-LAA-UZG-20-1	541	BF00042	BFO 18V-LCC-SMG-23-0,5	543
BF0000U	BFO 18A-LCC-SMG-20-0,5	543	BF00047	BFO 18V-LDD-MZG-23-0,75	547
BF0000W	BFO 18A-LCC-SMG-20-1	543	BF00049	BFO 18V-LDD-MZG-23-2,0	547
BF0000Z	BFO 18A-LCC-UZG-20-1	543	BF00051	BFO D10-LA-CB-EAK-05-02	557
BF0001A	BFO 18A-LEE-SMG-20-1	545	BF00052	BFO D10-XA-GB-EAK-10-02	561
BF0001F	BFO 18A-LEE-UZG-20-0,5	545	BF00053	BFO D10-XA-HB-EAK-10-02	563
BF0001H	BFO 18A-LEE-UZG-20-1	547	BF00054	BFO D10-XA-RB-EAK-10-02	561
BF0001P	BFO 18A-LFF-MZG-10-0,5	543	BF00055	BFO D10-XAH-KB-EAK-10-02	563
BF0001R	BFO 18A-LFF-MZG-10-1	545	BF00056	BFO D13-LA-QB-EAK-05-02	559
BF0001U	BFO 18A-LFF-SMG-10-0,5	545	BF00057	BFO D13-LA-WB-EAK-05-02	557
BF0001W	BFO 18A-LFF-SMG-10-1	545	BF00058	BFO D13-LG-05-EAK-30-02	561
BF0001Z	BFO 18A-LGG-MZG-10-0,5	541	BF00059	BFO D13-LG-10-EAK-30-02	561
BF00002	BFO D22-LA-TB-EAK-10-02	557	BF00060	BFO D22-XA-ED-EAK-250-02	567
BF0002F	BFO 18A-XAA-SMG-30-0,5	549	BF00062	BFO D22-XA-MB-PAK-10-02	567
BF0002H	BFO 18A-XAA-SMG-30-1	549	BF00063	BFO D22-XAH-LB-EAK-20-02	565
BF0002M	BFO 18A-XAA-UZG-30-0,5	549	BF00064	BFO D22-XAP-LB-EAK-30-02	565
BF0002N	BFO 18A-XAA-UZG-30-1	549	BF00065	BFO D22-XAT-LB-EAK-20-02	567
BF0002U	BFO 18A-XAC-SMG-30-0,5	551	BF00066	BFO D22-XB-LB-EAK-15-02	563
BF0002W	BFO 18A-XAC-SMG-30-1	551	BF00067	BFO D25-LA-CD-EAK-110-02	559
BF00003	BFO D22-XA-DB-EAK-20-01	565	BF00068	BFO D25-LA-ED-EAK-250-02	561
BF0003C	BFO 18A-XAE-UZG-30-0,5	553	BFS000L	BFS 33M-GSS-F01-PU-02	521
BF0003E	BFO 18A-XAE-UZG-30-1	553	BFS000M	BFS 33M-GSI-F01-S75	521
BF0003H	BFO 18A-XAF-MZG-15-0,5	551	BFS0001	BFS 26K-PS-L01-S115	521
BF0003J	BFO 18A-XAF-MZG-15-1	551	BGL000C	BGL 120A-005-S49	469
BF0003M	BFO 18A-XAF-SMG-15-0,5	551	BGL000F	BGL 120A-007-S49	467
BF0003N	BFO 18A-XAF-SMG-15-1	553	BGL000J	BGL 180A-001-S49	473
BF0003R	BFO 18A-XAG-MZG-15-0,5	549	BGL000L	BGL 180A-005-S49	471
BF0003T	BFO 18A-XAG-MZG-15-1	549	BGL000N	BGL 180A-007-S49	467
BF0003Y	BFO 18V-LCC-MZG-23-0,5	543	BGL000R	BGL 20A-001-S49	471
BF0003Z	BFO 18V-LCC-MZG-23-0,75	543	BGL000U	BGL 20A-005-S49	469
BF00004	BFO D22-XA-SB-EAK-20-02	567	BGL000Y	BGL 20A-007-S49	465
BF0004A	BFO 18V-LDD-MZG-23-3	547	BGL0001	BGL 10A-001-S49	471
BF0004C	BFO 18V-LDD-SMG-23-0,5	547	BGL001C	BGL 30A-005-S49	469
BF0004F	BFO 18V-LDD-SMG-23-1	547	BGL001F	BGL 30A-007-S49	465
BF0004M	BFO 18V-XAC-MZG-30-0,5	551	BGL001J	BGL 50A-001-S49	471
BF0004P	BFO 18V-XAC-SMG-30-0,5	551	BGL001M	BGL 50A-003-S49	467
BF0004R	BFO 18V-XAC-SMG-30-1	551	BGL001P	BGL 50A-005-S49	469
BF0004U	BFO 18V-XAD-MZG-30-0,5	553	BGL001T	BGL 50A-007-S49	465
BF0004Y	BFO 18V-XAD-SMG-30-0,5	555	BGL001W	BGL 5A-001-S49	471
BF0004Z	BFO 18V-XAD-SMG-30-1	555	BGL001Z	BGL 5A-005-S49	469
BF00005	BFO D22-XA-UB-EAK-20-02	563	BGL002L	BGL 21-IR	465
BF0005A	BFO D13-XA-JB-EAK-20-02	567	BGL002M	BGL 21-RG	465
BF0005C	BFO D13-XB-KB-EAK-10-02	563	BGL002Z	BGL 30C-001-S4	475
BF0005E	BFO D13-XB-RB-EAK-10-02	561	BGL0003	BGL 10A-005-S49	469
BF0005K	BFO D22-LA-BD-EAK-52-02	561	BGL003C	BGL 50C-005-S4	475
BF0005M	BFO D22-LA-KB-EAK-10-02	555	BGL003F	BGL 50C-007-S4	473
BF0005N	BFO D22-LA-NB-EAK-10-02	557	BGL003J	BGL 30A-011-S49	465
BF0005P	BFO D22-LA-QB-PAK-05-02	557	BGL003L	BGL 80A-011-S49	467
BF0005R	BFO D22-LA-RB-EAK-10-02	555	BGL004L	BGL 50F-001-00,2-S4	475
BF0005T	BFO D22-LAH-KB-EAK-10-02	555	BGL004M	BGL 50F-007-00,2-S4	475
BF0005U	BFO D22-LAT-KB-EAK-15-02	555	BGL004N	BGL 80F-001-00,2-S4	475
BF0005W	BFO D22-LAT-KB-EAK-10-02	557	BGL004P	BGL 80F-007-00,2-S4	475
BF0005Y	BFO D22-LD-EAK-10-20	555	BGL0005	BGL 10A-007-S49	465
BF0005Z	BFO D22-XA-CD-EAK-110-02	567	BGL0007	BGL 120A-001-S49	473
BF00006	BFO D22-XB-UB-EAK-15-02	563	BGL0009	BGL 120A-003-S49	469
BF00007	BFO D22-XBF-LB-EAK-15-02	565	BGL0010	BGL 220A-001-S49	473

BGL0012	BGL 220A-005-S49	471	BIP000L	BIP AD2-T030-02-S4	279
BGL0014	BGL 220A-007-S49	467	BIP000M	BIP ED2-B048-03-S75	281
BGL0016	BGL 30A-001-S49	471	BIP000R	BIP ED2-B133-03-S75	283
BGL0019	BGL 30A-003-S49	467	BIP000T	BIP AD2-T014-01-EB02-505	279
BGL0021	BGL 5A-007-S49	465	BIP0001	BIP AD0-B014-01-EP02	279
BGL0023	BGL 80A-001-S49	471	BIP001F	BIP LD2-T133-03-S75	283
BGL0025	BGL 80A-003-S49	467	BIP001H	BIP LD2-T070-03-S75	281
BGL0027	BGL 80A-005-S49	469	BIP001J	BIP LD2-T048-03-S75	281
BGL0029	BGL 80A-007-S49	467	BIP001K	BIP AD2-T017-04-BP02	279
BGL0031	BGL 30C-003-S4	473	BIP001L	BIP CD2-T017-04-BP02	279
BGL0033	BGL 30C-005-S4	473	BIP001M	BIP LD2-T017-04-BP00,5-S4	279
BGL0035	BGL 30C-007-S4	473	BIP0002	BIP AD2-B040-02-S4	281
BGL0037	BGL 50C-001-S4	475	BIP0004	BIP LD2-T040-02-S4	281
BGL0039	BGL 50C-003-S4	473	BIP0005	BIP CD2-B040-02-S4	281
BHS000T	BES 516-200-S2/2.062"-S21	165	BIP0008	BIP CD2-B014-01-EP02	279
BHS000U	BES 516-200-S2/2.062"-S5	165	BIP0014	BIP LD2-T103-03-S75	283
BHS0001	BES 516-100-S45-S4-D	173	BIW1-A310	BIW1-A310-M____-P1-S115	289
BHS001F	BES 516-300-S135-D-PU-05	169	BIW1-C310	BIW1-C310-M____-P1-S115	289
BHS001L	BES 516-300-S135-S4-D	171	BIW1-E310	BIW1-E310-M____-P1-S115	289
BHS001N	BES 516-300-S144-S4-D	175	BIW1-G310	BIW1-G310-M____-P1-S115	289
BHS002H	BES 516-300-S240-D-PU-03	169	BKT000H	BKT 18KF-001-P-S4	525
BHS002J	BES 516-300-S240-D-PU-05	169	BKT000Y	BKT 21M-002-P-S4	525
BHS002W	BES 516-300-S249-NEX-S4-D	237	BKT0001	BKT 67M-001-U-S92	525
BHS002Y	BES 516-300-S249-S4-D	169	BKT0003	BKT 67M-003-U-S92	525
BHS003A	BES 516-300-S291-S4-D	163	BKT0005	BKT 67M-005-U-S92	525
BHS003M	BES 516-300-S295/1.250"-S4	165	BKT0006	BKT 67M-006-U-S92	525
BHS004A	BES 516-300-S299-S4-D	175	BKT0010	BKT 6K-002-P-S75	525
BHS004C	BES 516-300-S300-S4-D	173	BLA0001	BLA 50A-001-S115	517
BHS004H	BES 516-300-S308-NEX-S4-D	241	BLA0003	BLA 50A-002-S4	517
BHS004K	BES 516-300-S315-S4-N	239	BLG0001	BLG 1-010-210-050-PV01-SX	513
BHS004L	BES 516-300-S318-S4-N	237	BLG0002	BLG 1-010-210-070-PV01-SX	513
BHS004N	BES 516-300-S321-S4-D	169	BLG0003	BLG 1-015-210-050-PV01-SX	513
BHS005H	BHS G408N-PSC10-S49	157	BLG0005	BLG 1-030-210-070-PV01-SX	513
BHS005P	BHS B135V-PSD15-NEX-S04	239	BLT0004	BLT 18KF-001-P-S4	531
BHS005R	BHS B135V-PSD15-S04	171	BLT0009	BLT 21M-001-P-S4	531
BHS005U	BHS B135V-PSD25-S04-003	173	BMF00A1	BMF 214K-PS-C-2A-PU-02	647
BHS005Y	BHS B249V-PSD15-S04	171	BMF00A2	BMF 214K-PS-C-2A-SA2-S49-00,3	647
BHS0006	BES 516-200-S2/1.025"-S5	163	BMF00A3	BMF 214K-PS-C-2A-SA2-S49-00,5	647
BHS006M	BES 516-300-S331-S4-D	177	BMF00A4	BMF 214K-PS-C-2A-SA95-S4-00,3	677
BHS006N	BHS G403N-PSD10-S26	157	BMF00A5	BMF 214K-PS-C-2A-SA95-S75-00,3	679
BHS006U	BHS G409N-PSD10-EP02	157	BMF00A6	BMF 204K-PS-C-2A-SA2-S4-00,3	645
BHS006Y	BHS G409N-NSD10-EP02	157	BMF00AR	BMF 235K-PS-C-2A-PU-02	637
BHS007A	BES 516-300-S332-S4-N	177	BMF00AU	BMF 235K-NS-C-2A-PU-02	637
BHS007J	BHS G409N-PSD10-EP00,3-GS49	157	BMF00C1	BMF 315M-PS-W-2-SA4-S4-00,3	639
BHS0008	BES 516-200-S2/1.250"-S21	163	BMF00C2	BMF 235K-NS-C-2A-SA2-S49-00,3	635
BHS0009	BES 516-200-S2/1.250"-S5	165	BMF00C4	BMF 235K-PS-C-2A-SA2-S49-00,3	635
BHS0014	BES 516-200-S2/2.875"-S5	165	BMF00C5	BMF 235K-PS-C-2A-SA2-S4-00,3	635
BHS0019	BES 516-200-S2/4.560"-S5	167	BMF00C6	BMF 235K-PO-C-2A-SA2-S49-00,3	635
BHS0021	BES 516-300-S162-S4-D	171	BMF00C9	BMF 235K-PS-C-2A-SA95-S4-00,3	679
BHS0022	BES 516-300-S163-S4-D	173	BMF00CA	BMF 235K-PS-C-2A-SA95-S75-00,3	679
BHS0026	BES 516-300-S190-S4	175	BMF00CF	BMF 235K-PS-C-2A-SA2-S49-00,5	637
BHS0027	BES 516-300-S203	175	BMF00CH	BMF 235K-PS-C-2A-PU-05	639
BHS0028	BES 516-300-S205-D-PU-03	167	BMF00E3	BMF 214K-PS-C-2A-PU-05	649
BHS0029	BES 516-300-S205-D-PU-05	167	BMF00E4	BMF 255K-N-06-EEX	641
BHS0030	BES 516-300-S260-S4-D	167	BMF00E5	BMF 214K-PS-C-2A-S4-03	647
BHS0032	BES 516-300-S262-S4-D	169	BMF00EF	BMF 243K-PS-C-2A-PU-02	651
BHS0033	BES 516-300-S265-S4-D	171	BMF00EL	BMF 243K-PS-C-2A-SA2-S49-00,3	649
BHS0034	BES 516-300-S266-S4	239	BMF00EN	BMF 243K-NS-C-2A-SA2-S49-00,3	649
BHS0036	BES 516-300-S271-S4	175	BMF00ER	BMF 243K-PS-C-2A-SA2-S4-00,3	649
BHS0039	BES 516-300-S289-B0-D-PU-05	161	BMF00ET	BMF 243K-PS-C-2A-SA95-S75-00,3	679
BHS0041	BES 516-300-S295/2.062"-S4	165	BMF00FF	BMF 07M-PS-C-2-KPU-03	687
BHS0050	BHS A402N-PSC15-S49	161	BMF00F5	BMF 235K-PS-C-2A-SA2-S49-01	637
BHS0054	BHS A404N-PSC15-S49	161	BMF00F9	BMF 243K-PS-C-2A-SA95-S4-00,3	679
BHS0058	BHS A407N-PSD15-BP02	161	BMF00FC	BMF 214K-PS-C-2A-SA2-S4-00,3	647
BHS0061	BHS B265V-PSD15-S04	171	BMF00FY	BMF 235K-PS-C-2A-SA4-S4-00,3	635
BIP000C	BIP ED2-B070-03-S75	281	BMF00H3	BMF 235K-PS-C-2A-SA93-S49-00,3	637
BIP000E	BIP ED2-B103-03-S75	281	BMF00H5	BMF 235K-PS-C-2A-SA93-S4-00,3	635
BIP000F	BIP LD2-T014-01-EP01-S4	279	BMF00H6	BMF 243K-PS-C-2A-SA93-S4-00,3	651

780 | Alphanumeric Index | Sorted by ordering code

BMF00H7	BMF 243K-PS-C-2A-SA93-S49-00,3	651	BMF0049	BMF 303K-PS-C-2A-SA6-S49-00,3	657
BMF00HA	BMF 233K-PS-C-2A-PU-02	649	BMF0055	BMF 305K-PO-C-2-SA2-S49-00,3	663
BMF00HF	BMF 233K-PS-C-2A-SA2-S49-00,3	649	BMF0056	BMF 305K-PS-C-2-PU-02	667
BMF000J	BMF 07M-PS-D-2-S4-00,6	687	BMF0057	BMF 305K-PS-C-2-PU-05	667
BMF00J6	BMF 235K-PS-C-2A-SA5-02	639	BMF0058	BMF 305K-PS-C-2-S4-00,2	661
BMF00JF	BMF 203K-H-PS-C-A2-PU-02	645	BMF0059	BMF 305K-PS-C-2-S4-00,5	663
BMF00JH	BMF 203K-H-PS-C-A2-S75-00,3	645	BMF0061	BMF 305K-PS-W-2-SA3-S4-00,8	665
BMF000K	BMF 07M-PS-D-2-S49-00,3	687	BMF0062	BMF 305K-R-PS-F-3-03	667
BMF00K9	BMF 203K-H-PI-C-A8-S75-00,3	645	BMF0063	BMF 305K-R-PS-F-3-S49-00,2	663
BMF00KH	BMF 235K-H-PS-C-A2-PU-02	637	BMF0064	BMF 305K-R-US-L-3-03	667
BMF000L	BMF 07M-PS-D-2-SA2-S49-00,3	687	BMF0066	BMF 305M-PS-C-2-SA4-S49	661
BMF00L6	BMF 235K-H-PS-C-A2-S75-00,3	635	BMF0067	BMF 305M-PS-W-2-S4	661
BMF00LC	BMF 235K-H-PI-C-A8-S4-00,3	635	BMF0081	BMF 315M-PS-W-2-S4-00,3	639
BMF000N	BMF 08M-NS-C-2-KPU-03	687	BMF0082	BMF 315M-PS-W-2-S49-00,3	639
BMF000P	BMF 08M-PS-C-2-KPU-02	687	BMF0084	BMF 315M-PS-W-2-SA95-S4-00,3	679
BMF000R	BMF 08M-PS-C-2-KPU-03	687	BMF0087	BMF 32M-PS-C-2-S4	667
BMF000T	BMF 08M-PS-C-2-KPU-05	687	BMF0088	BMF 32M-PS-C-2-S49	667
BMF0001	BMF 204K-PS-C-2A-PU-02	647	BMF0089	BMF 32M-PS-C-2-SA1-S49	667
BMF001E	BMF 103K-PS-C-2A-PU-02	655	BOD000C	BOD 26K-LBR04-S115-C	621
BMF001F	BMF 103K-PS-C-2A-PU-03	655	BOD000E	BOD 26K-LBR05-S115-C	621
BMF001K	BMF 103K-PS-C-2A-S4-00,5	655	BOD000L	BOD 21M-LA01-S92	615
BMF001L	BMF 103K-PS-C-2A-SA2-S49-00,3	655	BOD000M	BOD 21M-LA02-S92	615
BMF001M	BMF 103K-PS-C-2A-SA2-S49-00,5	655	BOD000N	BOD 21M-LA04-S92	615
BMF001P	BMF 103K-PS-C-2A-SA7-S49-00,3	655	BOD000P	BOD 21M-LB01-S92	615
BMF001R	BMF 103K-PS-C-2A-SA95-S75-00,3	677	BOD000R	BOD 21M-LB02-S92	615
BMF0002	BMF 204K-PS-C-2A-SA2-S49-00,3	645	BOD000T	BOD 21M-LB04-S92	617
BMF0003	BMF 204K-PS-C-2A-SA2-S49-00,5	645	BOD000U	BOD 63M-LA02-S115	621
BMF003U	BMF 303K-PS-C-2A-PU-02	659	BOD000W	BOD 63M-LA04-S115	621
BMF003W	BMF 303K-PS-C-2A-PU-03	659	BOD001C	BOD 66M-RB11-S92	623
BMF003Y	BMF 303K-PS-C-2A-PU-05	659	BOD001E	BOD 66M-LA14-S92	623
BMF004A	BMF 303K-PS-C-2A-SA6-S49-00,5	657	BOD001F	BOD 66M-LB14-S92	623
BMF004C	BMF 303K-PS-C-2A-SA7-S49-00,3	657	BOD001H	BOD 66M-RA11-S92	623
BMF004E	BMF 303K-PS-C-2A-SA95-S4-00,3	677	BOD001J	BOD 66M-LA12-S92	623
BMF004F	BMF 303K-PS-C-2A-SA95-S75-00,3	677	BOD001K	BOD 66M-LB12-S92	623
BMF0005	BMF 204K-PS-C-2A-SA95-S4-00,3	677	BOD001L	BOD 6K-RA02-S75	615
BMF005A	BMF 305K-PS-C-2-S4-00,8	665	BOD001N	BOD 23K-LA01-S92	617
BMF005C	BMF 305K-PS-C-2-S4-01,5	665	BOD001P	BOD 23K-LB01-S92	617
BMF005F	BMF 305K-PS-C-2-S49-00,1	661	BOD001R	BOD 6K-RA03-S75	615
BMF005H	BMF 305K-PS-C-2-S49-00,2	661	BOD001U	BOD 37M-LA01-S92	621
BMF005J	BMF 305K-PS-C-2-S49-00,5	663	BOD001W	BOD 37M-LB01-S92	621
BMF005K	BMF 305K-PS-C-2-SA2-S49-00,2	663	BOD001Y	BOD 37M-LPR02-S115	621
BMF005L	BMF 305K-PS-C-2-SA2-S49-00,3	663	BOD001Z	BOD 6K-RA04-S75	615
BMF005M	BMF 305K-PS-C-2-SA2-S49-00,4	663	BOD0002	BOD 26K-LA01-S4-C	619
BMF005N	BMF 305K-PS-C-2-SA2-S49-00,5	665	BOD0004	BOD 26K-LA02-S4-C	619
BMF005P	BMF 305K-PS-C-2-SA2-S49-00,6	665	BOD0005	BOD 26K-LB04-S115-C	619
BMF005R	BMF 305K-PS-C-2-SA2-S49-01	665	BOD0006	BOD 26K-LB05-S115-C	619
BMF005W	BMF 305K-PS-C-2-SA5-S49-00,2	663	BOD0007	BOD 26K-LB06-S92-C	619
BMF0006	BMF 204K-PS-C-2A-SA95-S75-00,3	677	BOD0008	BOD 26K-LB07-S92-C	619
BMF007U	BMF 315M-PS-D-2-SA3-PU-02	641	BOD0010	BOD 63M-LB02-S115	623
BMF007W	BMF 315M-PS-D-2-SA3-PU-05	641	BOD0011	BOD 63M-LB04-S115	623
BMF007Y	BMF 315M-PS-D-2-SA3-S49-00,3	639	BOD0012	BOD 63M-LI06-S4	621
BMF008A	BMF 32M-PS-W-2-S4	667	BOD0020	BOD 23K-LI01-S4	617
BMF008E	BMF 305M-PS-C-2-S4	661	BOD0021	BOD 24K-LA02-S92	617
BMF008F	BMF 305M-PS-C-2-S49	661	BOD0022	BOD 24K-LB02-S92	619
BMF0025	BMF 21K-NS-C-2-S49	673	BOD0023	BOD 24K-LI04-S92	617
BMF0027	BMF 21K-PS-C-2-PU-03	673	BOD0024	BOD 24K-LA03-S92	617
BMF0028	BMF 21K-PS-C-2-PU-05	673	BOD0025	BOD 24K-LB03-S92	619
BMF0029	BMF 21K-PS-C-2-S49	673	BOD0026	BOD 24K-LI05-S92	617
BMF0039	BMF 303K-PO-C-2A-SA2-S49-00,3	657	BOH000A	BOH TR-G02-001-01-S49F	587
BMF0040	BMF 303K-PS-C-2A-S4-00,5	657	BOH000C	BOH TK-G02-001-01-S49F	587
BMF0041	BMF 303K-PS-C-2A-S49-00,2	655	BOH000E	BOH TK-M03-005-01-S49F	587
BMF0042	BMF 303K-PS-C-2A-SA2-S49-00,2	657	BOH00E5	BOH TR-M04-020-01-S49F	589
BMF0043	BMF 303K-PS-C-2A-SA2-S49-00,3	657	BOH00E6	BOH TK-M04-020-01-S49F	589
BMF0044	BMF 303K-PS-C-2A-SA2-S49-00,5	657	BOH00EL	BOH AI-R034-025-01-S49F	591
BMF0045	BMF 303K-PS-C-2A-SA2-S49-00,7	659	BOH000F	BOH TK-M05-006-01-S49F	589
BMF0046	BMF 303K-PS-C-2A-SA2-S49-01	659	BOH000H	BOH TL-M06-007-02-S49F	591
BMF0047	BMF 303K-PS-C-2A-SA2-S49-01,5	659	BOH000J	BOH TJ-G02-001-01-S49F	587
BMF0048	BMF 303K-PS-C-2A-SA6-PU-03	659	BOH000K	BOH TR-M06-002-02-S49F	591

BOH000L	BOH DR-Q06-001-01-S49F	597	BOS00K1	BOS 18KF-PA-1PE-S4-C	363
BOH000M	BOH DK-Q06-001-01-S49F	597	BOS00K3	BOS 18KF-PA-1QD-S4-C	411
BOH000N	BOH TR-Q06-001-01-S49F	591	BOS00K5	BOS 18KF-PA-1RE-S4-C	411
BOH000P	BOH TK-Q06-001-01-S49F	591	BOS00K7	BOS 18KF-PA-1TB-S4-C	411
BOH000R	BOH TJ-Q06-001-01-S49F	591	BOS00K9	BOS 18KF-PA-1XA-S4-C	363
BOH000T	BOH TR-M03-001-01-S49F	587	BOS00LH	BOS 18KW-PA-1HA-S4-C	387
BOH000U	BOH TK-M03-001-01-S49F	587	BOS00LM	BOS 18KW-PA-1LQH-S4-C	411
BOH000Y	BOH TR-M05-003-01-S49F	589	BOS00LT	BOS 18KW-PA-1PD-S4-C	363
BOH001A	BOH TR-T64-001-01-S49F	601	BOS00LW	BOS 18KW-PA-1QC-S4-C	411
BOH001M	BOH AR-F40-001-01-S49F	599	BOS00LZ	BOS 18KW-PA-1TB-S4-C	411
BOH001N	BOH AR-F40-002-01-S49F	599	BOS00TL	BOS 21M-PA-LR10-S4	417
BOH001P	BOH AR-F80-003-01-S49F	599	BOS00TN	BOS 21M-PA-PR10-S4	417
BOH001R	BOH TR-T16-001-01-S49F	599	BOS00TR	BOS 21M-PA-PR10-S4	417
BOH001U	BOH TJ-T32-001-01-S49F	601	BOS00TU	BOS 21M-PA-PT10-S4	417
BOH001Y	BOH TR-T32-001-01-S49F	601	BOS00WF	BOS 12M-PA-LE10-S4	435
BOH001Z	BOH TK-R003-007-01-S49F	593	BOS00WH	BOS 12M-X-LS11-S4	435
BOH0002	BOH DI-G02-001-01-S49F	595	BOS00WJ	BOS 12M-X-LS12-S4	435
BOH002A	BOH DK-R027-004-01-S49F	599	BOS00WL	BOS 12M-XT-LS11-S4	435
BOH002C	BOH TK-R018-001-01-S49F	593	BOS00WN	BOS 12M-XT-LS12-S4	435
BOH002E	BOH TK-R018-002-01-S49F	593	BOS00WT	BOS 21M-PA-IE10-S4	449
BOH002F	BOH TK-R027-003-01-S49F	593	BOS00WW	BOS 21M-PA-LE10-S4	449
BOH002H	BOH TK-R027-004-01-S49F	593	BOS00WZ	BOS 21M-XT-IS11-S4	449
BOH002K	BOH DK-R002-006-01-S49F	597	BOS00Y0	BOS 21M-XT-LS11-S4	449
BOH002L	BOH FK-Z001-001-01-S49F	599	BOS01C0	BOS 18M-X-RS20-S4	439
BOH002M	BOH AI-R165-011-01-S49F	595	BOS01C1	BOS 18M-PS-RD20-S4	361
BOH0003	BOH DR-G02-001-01-S49F	595	BOS01C2	BOS 18M-PS-RE20-S4	437
BOH0003C	BOH DI-G05-002-01-S49F	595	BOS01C5	BOS 18M-PA-LH23-S4	385
BOH0003M	BOH DI-M06-002-01-S49F	597	BOS01CA	BOS 18M-PA-RD21-S4	361
BOH0003W	BOH DI-Q06-001-01-S49F	597	BOS01CC	BOS 18M-PA-RE20-S4	437
BOH0004	BOH DI-M03-001-01-S49F	595	BOS01CE	BOS 18M-PA-PR20-S4	407
BOH0005	BOH DR-G05-002-01-S49F	595	BOS01CF	BOS 18M-PA-RD20-S4	361
BOH0005J	BOH TI-G02-001-01-S49F	587	BOS01CJ	BOS 50K-PA-RD10-S4	369
BOH0006	BOH DK-G05-002-01-S49F	595	BOS01CK	BOS 50K-PA-RE10-S4	451
BOH0006H	BOH TI-M06-002-01-S49F	589	BOS01CN	BOS 50K-XT-RS10-S4	451
BOH0006P	BOH TI-Q06-001-01-S49F	591	BOS01CR	BOS 50K-PA-PR10-S4	419
BOH0007	BOH DR-M06-002-01-S49F	597	BOS01CY	BOS 18M-X-RS30-S4	439
BOH0007A	BOH TJ-R010-008-01-S49F	593	BOS01E7	BOS 18M-PS-RD21-S4	361
BOH0008	BOH DK-M06-002-01-S49F	597	BOS01EY	BOS 18M-PA-ID20-S4	359
BOH0009	BOH DR-M03-001-01-S49F	595	BOS01F0	BOS 18M-PA-IR20-S4	407
BOH0010	BOH TR-G05-005-02-S49F	589	BOS01F3	BOS 18M-PA-IE20-S4	435
BOH0012	BOH TK-M08-004-02-S49F	591	BOS01F5	BOS 18M-X-IS20-S4	437
BOH0013	BOH TK-M05-003-01-S49F	589	BOS01F8	BOS 18M-PS-PR23-S4	409
BOH0015	BOH TJ-T48-001-01-S49F	601	BOS01FA	BOS 18M-PS-RD23-S4	361
BOH0016	BOH TJ-T64-001-01-S49F	601	BOS01FE	BOS 18M-PS-RE23-S4	437
BOH0019	BOH TR-T48-001-01-S49F	601	BOS01FH	BOS 18M-X-RS23-S4	439
BOH0020	BOH TR-R010-008-02-S49F	593	BOS01FJ	BOS 18M-PA-PR20-S4S	409
BOH0024	BOH AR-R113-010-01-S49F	593	BOS01FL	BOS 23K-PA-RH10-S4	395
BOH0027	BOH DK-R018-001-01-S49F	599	BOS01FM	BOS 23K-PA-RD10-S4	369
BOH0028	BOH DK-R018-002-01-S49F	597	BOS01FN	BOS 23K-PA-RR10-S4	419
BOH0029	BOH DK-R027-003-01-S49F	599	BOS01FP	BOS 23K-PA-RE10-S4	451
BOH0061	BOH TI-M03-001-01-S49F	587	BOS01FR	BOS 23K-PA-LH10-S4	393
BOH0065	BOH TI-M05-003-01-S49F	589	BOS01FU	BOS 23K-PA-LE10-S4	449
BOS00CH	BLE 18KF-PA-1LT-S4-C	443	BOS01H0	BOS 08E-PS-KH22-00,2-S49	383
BOS00CK	BLE 18KF-PA-1PP-S4-C	443	BOS01H2	BOS 08E-PS-KF20-00,2-S49	383
BOS00CT	BLE 18KW-PA-1LT-S4-C	441	BOS01H4	BOS 08E-PS-KH22-S49	383
BOS00CW	BLE 18KW-PA-1PP-S4-C	441	BOS01H6	BOS 08E-PS-KF20-S49	383
BOS00EM	BLS 18KF-XX-1LT-S4-L	443	BOS01HK	BOS 18M-PS-IR23-S4	407
BOS00EP	BLS 18KF-XX-1P-S4-L	443	BOS01HN	BOS 18M-XT-IS20-S4	437
BOS00ET	BLS 18KW-XX-1LT-S4-L	443	BOS01HR	BOS 18M-PA-IR21-S4	407
BOS00EW	BLS 18KW-XX-1P-S4-L	443	BOS01J4	BOS 18M-PA-RH23-S4	385
BOS00JJ	BOS 18KF-PA-1FR-S4-C	537	BOS01J7	BOS 18M-PUV-RE30-S4	437
BOS00JK	BOS 18KF-PA-1GA-S4-C	387	BOS01J8	BOS 18M-PUV-RD30-S4	361
BOS00JM	BOS 18KF-PA-1HA-S4-C	387	BOS01JA	BOS 50K-PU-RD11-S4	369
BOS00JP	BOS 18KF-PA-1LOC-S4-C	365	BOS01JJ	BOS 50K-PI-RD11-S4	369
BOS00JT	BOS 18KF-PA-1LQP-S4-C	411	BOS01JK	BOS 5K-PU-LH12-S75	391
BOS00JW	BOS 18KF-PA-1N1R-S4-C	387	BOS01JP	BOS 5K-PU-LX10-S75	447
BOS00JZ	BOS 18KF-PA-1PD-S4-C	363	BOS01JT	BOS 5K-PU-LR10-02	415
BOS00K0	BOS 18KF-PA-1PE-C-02	363	BOS01JW	BOS 5K-PU-LR10-S75	415

782 | Alphanumeric Index | Sorted by ordering code

BOS01K1	BOS 64K-AA-IH12-TG	397	BOS01Z9	BOS 21M-PA-LH23-S4	393
BOS01K2	BOS 64K-AA-ID10-TG	369	BOS01ZT	BOS 12M-PA-RF11-S4	383
BOS01K3	BOS 64K-AA-PR10-TG	419	BOS01ZU	BOS 12M-PA-RH12-S4	385
BOS01K4	BOS 64K-AA-IE10-TG	451	BOS002H	BOS 18M-PS-LH22-S4	385
BOS01K5	BOS 64K-AA-IS10-TG	451	BOS002K	BOS 18M-PSV-LH22-S4	385
BOS01KE	BOS 18E-PA-RD20-S4	361	BOS008A	BOS 26K-PA-1IE-S4-C	395
BOS01KH	BOS G18E-PA-RD20-S4	363	BOS008E	BOS 26K-PA-1LHB-S4-C	395
BOS01KK	BOS G18E-PA-PR20-S4	409	BOS008F	BOS 26K-PA-1LHC-S4-C	395
BOS01KL	BOS 18E-PA-PR20-S4	409	BOS008L	BOS 26K-PA-1LQP-S4-C	419
BOS01KM	BOS 18E-PA-RE20-S4	439	BOS008M	BOS 26K-PA-1QE-S4-C	419
BOS01KR	BOS G18E-PA-RE20-S4	439	BOS010J	BOS 18MR-PS-1HA-E5-C-S4	385
BOS01KT	BOS 18E-X-RS20-S4	441	BOS011E	BOS 5K-NS-RH12-02	391
BOS01KU	BOS G18E-X-RS20-S4	441	BOS011R	BOS 5K-PO-IX10-S75	447
BOS01KW	BOS 6K-PU-RH10-S49	393	BOS012A	BOS 5K-PS-RH12-S75	391
BOS01KY	BOS 6K-PU-RH10-S75	393	BOS012C	BOS 5K-PS-RR10-02	415
BOS01L3	BOS 6K-PU-RH11-S75	393	BOS012E	BOS 5K-PS-RR10-S75	415
BOS01L8	BOS 6K-PU-PT10-S75	417	BOS014W	BOS 18M-PA-RH22-S4	385
BOS01LE	BOS 6K-PU-LH10-S75	391	BOS015E	BOS 5K-PS-RR10-S49	415
BOS01LU	BOS 6K-PU-LE10-S49	447	BOS015J	BOS 5K-PS-ID10-S49	367
BOS01LW	BOS 6K-PU-LE10-S75	449	BOS015N	BOS 5K-PS-RD11-S49	367
BOS01M1	BOS 6K-XT-LS10-S49	449	BOS015U	BOS 5K-PS-RH12-S49	391
BOS01M2	BOS 6K-XT-LS10-S75	449	BOS0016	BOS 18E-PS-1N2M-S4-D	387
BOS01M4	BOS 6K-PU-LK10-S75	417	BOS016E	BOS 23K-XT-RS11-S4	451
BOS01MH	BOS 6K-PU-PR10-S49	417	BOS016F	BOS 23K-PU-RE10-S4	451
BOS01MJ	BOS 6K-PU-PR10-S75	417	BOS016K	BOS 23K-XT-LS11-S4	451
BOS01MP	BOS Q08M-PS-LR20-S49	413	BOS016L	BOS 23K-PU-LE10-S4	449
BOS01MU	BOS Q08M-PS-LR20-00,2-S49	413	BOS016P	BOS 23K-PU-RR10-S4	419
BOS01MW	BOS Q08M-PO-LR20-00,2-S49	413	BOS016U	BOS 23K-PU-LR10-S4	419
BOS01NA	BOS 18KF-PA-1XA-SA1-C-00,2	363	BOS016Z	BOS 23K-PU-RD10-S4	369
BOS01NC	BOS 23K-PA-LK10-S4	419	BOS016Z	BOS 23K-PU-RD10-S4	369
BOS01NE	BOS 18M-PA-LR20-S4	407	BOS017C	BOS 23K-PU-LH10-S4	393
BOS01NF	BOS 18M-PA-LD20-S4	359	BOS017H	BOS 23K-PU-LH20-S4	395
BOS01NH	BOS 18M-XT-LS20-S4	437	BOS018K	BOS Q08M-X-LS20-S49	445
BOS01NJ	BOS 18M-PA-LE20-S4	437	BOS018N	BOS 50K-PS-RH12-S4	395
BOS01NN	BOS 08E-PS-KD20-S49	359	BOS018P	BOS 50K-PA-RH12-S4	395
BOS01R8	BOS 08E-PS-KD20-00,2-S49	359	BOS019J	BOS 63M-PS-LH13-S4	397
BOS01RJ	BOS Q08M-PS-KD20-S49	365	BOS019M	BOS Q08M-X-LS20-00,2-S49	445
BOS01RK	BOS 08E-PS-PR20-S49	407	BOS020A	BOS 08E-PO-KE20-S49	433
BOS01RL	BOS 08E-PS-PR20-00,2-S49	407	BOS020C	BOS 08E-PS-KE20-00,2-S49	433
BOS01RM	BOS 08E-PO-PR20-S49	407	BOS020F	BOS 08E-PS-KE20-S49	433
BOS01RZ	BOS Q08M-PS-KD20-00,2-S49	365	BOS020K	BOS R020K-PS-RF11-02	389
BOS01T8	BOS Q08M-PS-PR20-S49	413	BOS020M	BOS R020K-PS-RF11-00,2-S49	389
BOS01T9	BOS Q08M-PS-PR20-00,2-S49	413	BOS020N	BOS R020K-PS-RF11-00,2-S75	389
BOS01TN	BOS 12M-PS-RD11-S4	359	BOS020R	BOS R020K-PS-PR11-02	413
BOS01TP	BOS 12M-PS-RD10-S4	359	BOS020T	BOS R020K-PS-PR11-00,2-S49	413
BOS01TT	BOS 12M-PS-PR10-S4	407	BOS020U	BOS R020K-PS-PR11-00,2-S75	413
BOS01TU	BOS 12M-PS-RD12-S4	359	BOS021C	BOS R020K-PS-RF10-00,2-S49	387
BOS01TW	BOS 12M-X-RS10-S4	435	BOS021J	BOS R01E-PS-KD20-00,2-S49	365
BOS01TY	BOS 12M-PS-RE10-S4	435	BOS021K	BOS R01E-PS-KD20-02	365
BOS01U3	BOS 08E-PS-LE20-S49	433	BOS021L	BOS R01E-PS-KR20-00,2-S49	415
BOS01U8	BOS 08E-X-LS20-S49	433	BOS021M	BOS R01E-PS-KR20-02	415
BOS01UA	BOS 18M-PI-RD30-S4	361	BOS021N	BOS R01E-PS-KE20-00,2-S49	447
BOS01UC	BOS 18M-PI-RE30-S4	437	BOS021P	BOS R01E-PS-KE20-02	447
BOS01UE	BOS 18M-PI-PR30-S4	409	BOS021R	BOS R01E-X-KS20-00,2-S49	447
BOS01UF	BOS 18M-XI-RS30-S4	439	BOS021T	BOS R01E-X-KS20-02	447
BOS01UM	BOS 12M-PA-RF10-S4	383	BOS021U	BOS R01E-PS-KF20-00,2-S49	389
BOS01UW	BOS 23K-UU-LH11-S92	395	BOS021W	BOS R01E-PS-KF20-02	389
BOS01WC	BOS Q08M-PS-LD20-S49	365	BOS022C	BOS R020K-PS-RH12-02	389
BOS01WH	BOS Q08M-PS-LD20-0,02-S49	365	BOS022M	BOS R01E-PS-KF21-00,2-S49	391
BOS01Y2	BOS 12M-PS-ID10-S4	359	BOS022N	BOS R01E-PS-KF21-02	391
BOS01Y4	BOS Q08M-PS-KE21-S49	445	BOS023E	BOS 18E-PI-RD30-S4	361
BOS01Y6	BOS Q08M-PS-KE21-00,2-S49	445	BOS023F	BOS 18E-PI-PR30-S4	409
BOS01Y7	BOS Q08M-PO-KE21-S49	445	BOS023H	BOS 18E-PI-RE30-S4	439
BOS01YK	BOS Q08M-X-KS21-S49	445	BOS023J	BOS 18E-XI-RS30-S4	441
BOS01YM	BOS Q08M-X-KS21-00,2-S49	445	BOS023R	BOS 18E-PA-RD30-S4	361
BOS01Z5	BOS 08E-X-KS20-S49	433	BOS023U	BOS 18E-X-RS30-S4	441
BOS01Z7	BOS 08E-X-KS20-00,2-S49	433	BOS023W	BOS 18E-PA-RE30-S4	439
BOS01Z8	BOS 21M-PA-RH22-S4	393	BOS023Y	BOS 18E-PA-PR30-S4	409

BOS024L	BOS 08E-PS-LE20-00,2-S49	433
BOS024N	BOS 08E-X-LS20-00,2-S49	433
BOS026K	BOS 21M-UUI-LH31-S4	393
BOS026R	BOS 21M-UUI-RP30-S4	357
BOS0031	BOS 21M-PA-ID10-S4	367
BOS0032	BOS 21M-PA-LD10-S4	367
BOS0033	BOS 21M-PA-RD10-S4	367
BOS0036	BOS 21M-PUS-RV13-S4	393
BOS0081	BOS 18MR-PA-1HA-S4-C	385
BOS0089	BOS 26K-PA-1HC-S4-C	395
BOS0121	BOS 5K-PO-RR10-S75	415
BOS0123	BOS 5K-PS-ID10-02	365
BOS0124	BOS 5K-PS-ID10-S75	367
BOS0125	BOS 5K-PS-IX10-02	447
BOS0126	BOS 5K-PS-IX10-S75	447
BOS0127	BOS 5K-PS-RD11-02	367
BOS0128	BOS 5K-PS-RD11-S75	367
BOS0156	BOS 50K-PSV-RH12-S4	397
BOS0160	BOS Q08M-PS-KF20-S49	387
BOS0163	BOS Q08M-PS-KF20-00,2-S49	387
BOS0175	BOS 23K-PU-LD20-S4	369
BOS0178	BOS 23K-PU-RH10-S4	395
BOS0196	BOS Q08M-PO-LE20-S49	443
BOS0197	BOS Q08M-PS-LE20-00,2-S49	443
BOS0199	BOS Q08M-PS-LE20-S49	443
BOS0211	BOS R020K-PS-RX11-02	445
BOS0214	BOS R020K-PS-RX11-00,2-S49	445
BOS0217	BOS R020K-PS-RF12-00,2-S49	389
BOS0234	BOS R020K-PS-RH12-00,2-S75	389
BOS0240	BOS G18E-PA-RD30-S4	363
BOS0242	BOS G18E-X-RS30-S4	441
BOS0243	BOS G18E-PA-RE30-S4	441
BOS0245	BOS G18E-PA-PR30-S4	409
BOS0246	BOS 08E-PI-KH22-00,2-S49	383
BOS0247	BOS 08E-PI-KH22-S49	383
BOS0265	BOS R01E-UI-KH22-00,2-S49	391
BOW001A	BOW A-0408-PS-C-S49	503
BOW001J	BOW A-0808-PS-C-S49	503
BOW002A	BOW A-1616-NS-C-S49	503
BOW002H	BOW A-1216-PS-C-S49	503
BOW002J	BOW A-1616-PS-C-S49	503
BOW002U	BOW B-0404-DU-C-S75	503
BOW002Y	BOW B-0808-DU-C-S75	505
BOW0012	BOW A-1208-PS-C-S49	503
BOW0029	BOW A-1216-NS-C-S49	503
BOW0031	BOW B-1212-DU-C-S75	505
BOW0034	BOW B-1616-DU-C-S75	505
BOW0037	BOW B-2020-DU-C-S75	505
BWL000C	BWL 4040D-L011-S49	491
BWL000F	BWL 4040D-R011-S49	493
BWL000J	BWL 4040D-R013-S49	493
BWL000L	BWL 5454D-I011-S49	491
BWL000N	BWL 5454D-L011-S49	491
BWL000R	BWL 5454D-R011-S49	495
BWL000U	BWL 5454D-R013-S49	493
BWL000Y	BWL 6868D-I011-S49	491
BWL0001	BWL 110110D-I011-S49	491
BWL001C	BWL 9090D-R013-S49	493
BWL001N	BWL 6868D-R013-S49	493
BWL0003	BWL 110110D-L011-S49	493
BWL0005	BWL 110110D-R011-S49	495
BWL0007	BWL 110110D-R013-S49	493
BWL0009	BWL 4040D-I011-S49	491
BWL0010	BWL 6868D-L011-S49	491
BWL0012	BWL 6868D-R011-S49	495
BWL0015	BWL 9090D-I011-S49	491
BWL0017	BWL 9090D-L011-S49	493
BWL0019	BWL 9090D-R011-S49	495

Alphanumeric Index

SORTED BY
PART NUMBER

BES03Z6	BES G03EC-PSC10B-EP02	15	BES0036	BES M08MI-PSC15B-BP05	29
BES0409	BES G03EC-PSC10B-EP00,3-GS49	15	BES00CR	BES M08EF-POC15B-BP02-003	29
BES0122	BES G04EC-PSC08B-S26G	15	BES0031	BES M08MI-POC15B-BV03	29
BES012F	BES G04ED-PSC15B-S26G	15	BES00CN	BES M08EF-NSC15B-BP02-003	29
BES012H	BES G04ED-PSC50F-EP02	15	BES002H	BES M08MI-NSC15B-BV03	29
BES012J	BES G04ED-PSC50F-EP05	15	BES0037	BES M08MI-PSC15B-BV02	31
BES0120	BES G04EC-POC08B-S26G	15	BES0389	BES M08EE-PSC20B-EP05-511	31
BES012K	BES G04ED-PSC50F-S26G	17	BES00CW	BES M08EF-PSC20B-BP02-003	31
BES01P0	BES M04EC-PSD06B-BP02	17	BES003F	BES M08MI-PSC20B-BP02	31
BES03Z8	BES M04EC-PSC10B-EP02	17	BES003J	BES M08MI-PSC20B-BP05	31
BES040R	BES M04EC-PSC10B-EP00,3-GS49	17	BES0032	BES M08MI-POC15B-BV05	31
BES051J	BES M05ED-PSC10B-EP00,2-097	17	BES002P	BES M08MI-NSC20B-BV02	31
BES012Z	BES M05EC-PSC08B-S26G	17	BES03TL	BES M08MI-PSC20B-BP10	33
BES051L	BES M05ED-PSC10B-EP00,3-097	17	BES003K	BES M08MI-PSC20B-BV02	33
BES03ZJ	BES M04EC-NSC10B-EP02	17	BES003M	BES M08MI-PSC20B-BV05	33
BES012W	BES M05EC-NSC08B-S26G	17	BES0276	BES M08EA-PSC20B-EP00,3-GS49	33
BES013A	BES M05ED-PSC15B-S26G	19	BES0277	BES M08EA-PSD15B-S49G	33
BES013E	BES M05ED-PSC50F-EP02	19	BES03TH	BES M08MI-POC20B-BV02	33
BES013F	BES M05ED-PSC50F-EP05	19	BES0270	BES M08EA-POD15B-S49G	33
BES013C	BES M05ED-PSC50F-EP00,3-GS04	19	BES013N	BES M08EC-PSC15B-S49G	35
BES013H	BES M05ED-PSC50F-S26G	19	BES013M	BES M08EC-PSC15B-S04G	35
BES025U	BES G06K40-PSC15B-FP02	19	BES0147	BES M08EE-PSC15B-S49G	35
BES0137	BES M05ED-POC15B-S26G	19	BES0146	BES M08EE-PSC15B-S04G	35
BES0139	BES M05ED-POC50F-S26G	19	BES01P7	BES M08EG-PSC15B-S49G	35
BES0130	BES M05ED-NOC15B-S26G	19	BES013K	BES M08EC-POC15B-S49G	35
BES0256	BES G06E60-PSC15B-EP02	21	BES0143	BES M08EE-POC15B-S49G	35
BES025L	BES G06EA-PSC15B-EP01	21	BES0142	BES M08EE-POC15B-S04G	35
BES025M	BES G06EA-PSC15B-EP02	21	BES01PE	BES M08EH-POC15B-S04G	35
BES0258	BES G06E60-PSC20B-EP02	21	BES013J	BES M08EC-NSC15B-S49G	35
BES03ZA	BES G06K40-PSC20B-FP02	21	BES013Y	BES M08EE-NSC15B-S04G	35
BES0254	BES G06E60-PSC15B-EP00,3-GS49	21	BES01PC	BES M08EH-NSC15B-S04G	35
BES0251	BES G06E60-POC15B-EP02	21	BES003C	BES M08MI-PSC15B-S49G	37
BES025H	BES G06EA-POC15B-EP02	21	BES0027	BES M08MH1-PSC15B-S04G	37
BES0257	BES G06E60-PSC20B-EP00,3-GS49	23	BES0278	BES M08EA-PSD20B-S49G	37
BES025N	BES G06EA-PSD15B-S49G	23	BES013P	BES M08EC-PSC20B-S49G	37
BES03R9	BES G06EE-PSC20B-S49G-003	23	BES03P6	BES M08MI-POC15B-S49G	37
BES03P4	BES G06EH-PSC20B-S49G	23	BES0026	BES M08MH1-POC15B-S04G	37
BES038Y	BES G06EI-PSC30B-S49G	23	BES013L	BES M08EC-POC20B-S49G	37
BES051H	BES G06E60-POC15B-EP01-GS49	23	BES002K	BES M08MI-NSC15B-S49G	37
BES000E	BES G06ED-PSC40F-BP02	25	BES0024	BES M08MH1-NSC15B-S04G	37
BES0005	BES G06EB-PSC40F-S49G	25	BES014A	BES M08EE-PSC20B-S49G	39
BES01NP	BES G06EF-PSC40F-S49G	25	BES0149	BES M08EE-PSC20B-S04G-101	39
BES03P5	BES G06EH-PSC40F-S49G	25	BES01PH	BES M08EH-PSC20B-S04G	39
BES03EJ	BES G06MH-PSC30B-BP00,3-GS49	25	BES003P	BES M08MI-PSC20B-S49G	39
BES02UR	BES G06MH1-PSC30B-S04G	25	BES0028	BES M08MH1-PSC20B-S04G	39
BES0008	BES G06ED-NSC40F-BP02	25	BES0145	BES M08EE-POC20B-S49G	39
BES01NT	BES G06MI-PSC40B-S49G	27	BES0033	BES M08MI-POC20B-S49G	39
BES012R	BES G08EG-PSC15B-BP05	27	BES03T5	BES M08MH1-POC20B-S04G	39
BES01NY	BES G08EG-PSC15B-BV02	27	BES002U	BES M08MI-NSC20B-S49G	39
BES012T	BES G08EG-PSC15B-BV05	27	BES0025	BES M08MH1-NSC20B-S04G	39
BES012L	BES G08EE-PSC20B-BP02	27	BES0427	BES M08EE-PSC25B-S49G	41
BES026M	BES M08E60-PSC15B-EP02	27	BES054N	BES M08MI-PSC30B-S49G	41
BES0275	BES M08EA-PSC15B-EP02	29	BES02W9	BES M08MH1-PSC30B-S04G	41
BES014K	BES M08EF-PSC15B-BP02	29	BES000Y	BES M08ED-PSC40F-BP02	41
BES0034	BES M08MI-PSC15B-BP02	29	BES0016	BES M08EG-PSC40F-BP02	41

BES0014	BES M08EG-POC40F-BP02	41	BES0285	BES 516-209-B0-E-03	59
BES02W7	BES M08MH1-NSC30B-S04G	41	BES0286	BES 516-209-B0-E-05	59
BES000T	BES M08ED-NSC40F-BV02	41	BES028A	BES 516-209-S21-E	59
BES0013	BES M08EG-NSC40F-BV02	41	BES0330	BES 516-209-SA1-S21-E	59
BES01P3	BES M08ED-PSC25F-S04G	43	BES028F	BES 516-210-B0-E-03	59
BES01P8	BES M08EG-PSC25F-S04G	43	BES01H6	BES 516-356-S4-C	61
BES000M	BES M08EB-PSC40F-S49G	43	BES036R	BES 516-356-SA24-S4-C	61
BES014M	BES M08EF-PSC40F-S49G	43	BES01PY	BES M12MD-PSC80F-S04G	61
BES001J	BES M08EH-PSC40F-S49G	43	BES01PN	BES M12EG-PSC80F-S04G	61
BES01P9	BES M08EG1-PSC40F-S04G	43	BES004N	BES M12MG-PSC80F-S04G	61
BES01P6	BES M08EG-POC25F-S04G	43	BES0178	BES 516-131-S4-C	61
BES000L	BES M08EB-POC40F-S49G	43	BES02WK	BES M12MC1-PSC10F-S04G	63
BES001F	BES M08EH-POC40F-S49G	43	BES02WR	BES M12MF1-PSC10F-S04G	63
BES01P5	BES M08EG-NSC25F-S04G	43	BES02WM	BES M12MD1-PSC60B-S04G	63
BES001C	BES M08EH-NSC40F-S49G	43	BES02WZ	BES M12MG1-PSC60B-S04G	63
BES001H	BES M08EH-PSC40F-S04G	45	BES01ZN	BES M12MI-PSH80B-S04G	63
BES054Z	BES M08EH1-PSC60F-S49G	45	BES02WY	BES M12MG1-POC60B-S04G	63
BES02W4	BES M08MG1-PSC60F-S49G	45	BES0289	BES 516-209-G-S21-E	63
BES058J	BES M08EH1-PSC60F-S04G	45	BES0083	BES M18MI-PSC50B-BV03	65
BES02W3	BES M08MG1-PSC60F-S04G	45	BES02AU	BES 516-420-E4-L-02	65
BES01ZU	BES M08MI-PSC40B-BP00,2-GS04	45	BES02AW	BES 516-420-E4-L-05	65
BES001E	BES M08EH-POC40F-S04G	45	BES028L	BES 516-211-E4-E-03	65
BES0550	BES M08EH1-POC60F-S49G	45	BES028N	BES 516-211-E4-E-PU-05	65
BES001A	BES M08EH-NSC40F-S04G	45	BES028U	BES 516-211-E6-E-05	65
BES02W0	BES M08MG1-NSC60F-S04G	45	BES04F1	BES M18MD-PSC80B-BP05-003	67
BES01ZR	BES M08MI-NSC40B-BP00,2-GS04	45	BES008E	BES M18MI-PSC80B-BV02	67
BES003R	BES M08MI-PSC40B-BP00,3-GS49	47	BES0089	BES M18MI-PSC80B-BP03	67
BES01ZW	BES M08MI-PSC40B-S49G	47	BES008F	BES M18MI-PSC80B-BV03	67
BES02W6	BES M08MH-PSC40B-S49G-507	47	BES007H	BES M18MI-NSC80B-BP03	67
BES04TU	BES G10ED-PSC08B-EP00,3-GS49	47	BES007J	BES M18MI-NSC80B-BV03	67
BES01ZT	BES M08MI-NSC40B-S49G	47	BES008H	BES M18MI-PSC80B-BV05	69
BES02C9	BES 516-449-B0-L-05	47	BES00R5	BES 516-326-E4-C-S4-00,2	69
BES027M	BES 516-207-B0-E-03	47	BES00EY	BES M18ME-PSC50B-S04G-003	69
BES00E5	BES M12MD-PSC40B-BP02-003	49	BES00R6	BES 516-326-E5-C-S4	69
BES0062	BES M12MI-PSC40B-BP03	49	BES02ET	BES 515-326-E5-T-S4	69
BES0064	BES M12MI-PSC40B-BV02	49	BES0086	BES M18MI-PSC50B-S04G	69
BES0057	BES M12MI-NSC40B-BV03	49	BES02EU	BES 515-326-S4-C	71
BES0058	BES M12MI-NSC40B-BV05	49	BES01CW	BES 516-326-S4-C	71
BES027N	BES 516-207-B0-E-05	49	BES00RC	BES 516-326-G-E5-C-S4	71
BES0001	BES M12MI-PSC40B-BV03	51	BES02P3	BES 516-326-SA96-G-E5-Y-S4	71
BES0065	BES M12MI-PSC40B-BV05	51	BES01JW	BES 516-367-S4-C	71
BES00PW	BES 516-325-G-E4-C-S4-00,5	51	BES015N	BES 516-105-S4-C	71
BES035E	BES 516-325-SA45	51	BES028R	BES 516-211-E5-E-S27	71
BES00PK	BES 516-325-E5-C-S4	51	BES008L	BES M18MI-PSC80B-S04G	73
BES00YT	BES 516-370-E5-C-S4	51	BES008M	BES M18MI-PSC80B-S04K	73
BES032M	BES 516-113-SA3-S4-C	51	BES02H0	BES M18EI-PSC80B-S04G	73
BES0060	BES M12MI-PSC20B-S04G	53	BES0496	BES M18MI2-PSC80B-S04G	73
BES01C8	BES 516-325-S4-C	53	BES007Y	BES M18MI-POC80B-S04K	73
BES02FP	BES 515-449-SA7-S21	53	BES007M	BES M18MI-NSC80B-S04K	73
BES027U	BES 516-207-S21-E	53	BES02ZE	BES M18MN-USU80B-S21G	73
BES027W	BES 516-207-S27-E	53	BES02C5	BES 516-437-E4-L-02	73
BES04FK	BES M12MI-PSIC20C-S04G	53	BES00WM	BES 516-360-E5-Y-S4	75
BES00PZ	BES 516-325-G-E5-C-S49	55	BES0292	BES 516-213-E4-E-03	75
BES00EF	BES M12ME-PSC40B-S04G-003	55	BES02C7	BES 516-437-E5-L-S21	75
BES00PY	BES 516-325-G-E5-C-S4	55	BES0296	BES 516-213-E5-E-S21	75
BES014W	BES M12EE-PSC40B-S04G	55	BES0297	BES 516-213-E5-E-S27	75
BES01K6	BES 516-370-S4-C	55	BES0298	BES 516-213-E5-E-S5	75
BES0161	BES 516-113-S4-C	55	BES01HY	BES 516-360-S4-C	77
BES0068	BES M12MI-PSC40B-S04G	57	BES03RM	BES M18MG-PSC16F-S04G	77
BES02FU	BES M12EI-PSC40B-S04G	57	BES0070	BES M18MG-PSC16F-S04K	77
BES01C7	BES 516-325-G-S4-C	57	BES01HW	BES 516-360-G-S4-H	77
BES03AR	BES 516-325-G-S4-L	57	BES016W	BES 516-123-G-S4-H	77
BES00Z0	BES 516-370-G-E5-C-S4	57	BES029A	BES 516-213-G-E5-E-S21	77
BES005N	BES M12MI-POC40B-S04G	57	BES02Y7	BES M18ME1-PSC20F-S04G	79
BES0059	BES M12MI-NSC40B-S04G	57	BES02Y5	BES M18MD1-PSC12B-S04G	79
BES027T	BES 516-207-G-S21-E	57	BES02Y9	BES M18MG1-PSC12B-S04G	79
BES00UY	BES 516-356-E5-C-S4	59	BES00RE	BES 516-327-E4-Y-01,5	79
BES036T	BES 516-356-SA26-S4-C	59	BES00A1	BES M30MI-PSC10B-BV03	79

786 | Alphanumeric Index | Sorted by part number

BES009E	BES M30MI-NSC10B-BV03	79	BES033J	BES 516-300-S279	101
BES029L	BES 516-215-E4-E-03	79	BES01WE	BES R01ZC-PSC70B-BP00.2-GS49	101
BES00RT	BES 516-327-G-E4-Y-03	81	BES01WF	BES R01ZC-PSC70B-BP00.3-GS49	101
BES00AA	BES M30MI-PSC15B-BV02	81	BES048Z	BES R01ZC-PSC70B-BZ00.2-GS04-110	101
BES00AC	BES M30MI-PSC15B-BV03	81	BES01W4	BES R01ZC-PAC70B-BP03	101
BES00LR	BES 516-3028-G-E4-Y-PU-05	81	BES033H	BES 516-300-S255	101
BES00LT	BES 516-3028-G-E4-Y-S4-01	81	BES01W0	BES R01ZC-NAC70B-BP05	101
BES029M	BES 516-215-E4-E-05	81	BES022Z	BES 517-3036-I02-C-S4	103
BES00RP	BES 516-327-E5-Y-S4	83	BES01W2	BES R01ZC-PAC70B-BP00.2-GS04	103
BES02F0	BES 515-327-E5-T-S4	83	BES0314	BES R01ZC-PAC70B-BP00.2-GS04-107	103
BES00A3	BES M30MI-PSC10B-S04G	83	BES01W3	BES R01ZC-PAC70B-BP00.5-GS04	103
BES00A4	BES M30MI-PSC10B-S04K	83	BES030E	BES Z03K-GSS10B-EP00,15-GS04-006	103
BES0316	BES 516-418-E5-L-S27	83	BES030F	BES Z03K-GSS10B-EP00,8-GS04-006	103
BES02E9	BES 515-215-E5-E-S21	83	BES052M	BES Q40KFA-PSY20B-DV02	105
BES02F1	BES 515-327-S4-C	85	BES0555	BES Q40KFC-PSY20B-DV02	105
BES01EE	BES 516-327-S4-C	85	BES02TN	BES IKU-031.28-S4	105
BES00RW	BES 516-327-G-E5-Y-S4	85	BES0201	BES 517-132-M3-H	105
BES00AF	BES M30MI-PSC15B-S04G	85	BES020Y	BES 517-223-M3-E	105
BES00LU	BES 516-3028-G-E5-Y-S4	85	BES0241	BES 517-223-U3-E	105
BES0167	BES 516-114-S4-C	85	BES021W	BES Q40KFU-PSC20B-S04G	107
BES029W	BES 516-215-E5-E-S5	85	BES0209	BES 517-132-M6-H	107
BES01EA	BES 516-327-G-S4-C	87	BES020A	BES 517-132-M6-H-S4	107
BES01EC	BES 516-327-G-S4-H	87	BES0217	BES Q40KFU-PAC20B-S04G	107
BES00AY	BES M30MM-PSC30F-BV02	87	BES03PN	BES Q40KHU-PAC20B-S04G	107
BES00Y0	BES 516-362-E5-Y-S4	87	BES020Z	BES 517-223-M4-E	107
BES0166	BES 516-114-G-S4-H	87	BES0236	BES 517-385-V-C-S4	109
BES02A5	BES 516-217-E4-E-03	87	BES0206	BES 517-132-M5-H	109
BES02FN	BES 515-362-S4-C	89	BES020C	BES 517-132-M7-H	109
BES01JE	BES 516-362-S4-C	89	BES0244	BES 517-223-U4-E	109
BES00AZ	BES M30MM-PSC30F-S04K	89	BES023Y	BES 517-223-M5-E	109
BES01JC	BES 516-362-G-S4-H	89	BES0247	BES 517-223-U5-E	109
BES02AC	BES 516-217-E5-E-S27	89	BES021Z	BES Q40KFU-PSC30F-S04G	111
BES02AE	BES 516-217-E5-E-S5	89	BES0308	BES Q40KFU-PSC40F-S04G-012	111
BES02YJ	BES M30MG1-PSC40F-S04G	91	BES021E	BES Q40KFU-PAC30F-S04G	111
BES02YM	BES M30MI1-PSC22B-S04G	91	BES020E	BES 517-132-M7-H-S4	111
BES01FJ	BES 516-347-M0-C-03	91	BES030C	BES Q80KA-PAC50B-S04Q-U	111
BES01FK	BES 516-347-M0-C-05	91	BES023P	BES 517-139-M4-H	113
BES01FM	BES 516-347-M0-C-PU-05	91	BES023R	BES 517-139-M5-H	113
BES02YL	BES M30MI1-POC22B-S04G	91	BES024F	BES 517-224-M5-E	113
BES0341	BES 516-3009-SA2-M0-C-05	91	BES023W	BES 517-139-U5-H-S4	113
BES01FN	BES 516-347-M0-C-S4-00,2	93	BES022R	BES 517-460-U5-L-D	113
BES01FT	BES 516-347-M0-C-S49-00,2	93	BES001L	BES M08MG-GSC20B-BV02	139
BES01FR	BES 516-347-M0-C-S49	93	BES0021	BES M08MG-GSC20B-BP03	139
BES017H	BES 516-133-M0-C-PU-05	93	BES001P	BES M08MG-USC20B-BP03	139
BES032R	BES 516-133-SA3-C-PU-04	93	BES001T	BES M08MG-USC20B-BV02	139
BES0153	BES 516-133-M0-C-S4-00,2	93	BES001U	BES M08MG-USC20B-BV03	139
BES01Z5	BES R05KB-PSC20B-EP05	95	BES001W	BES M08MG-USC20B-BV05	139
BES01ZA	BES R05KB-PSC40B-EV02	95	BES001Z	BES M08MG-GSC20B-BP00,3-GS04	141
BES01YZ	BES R05KB-NSC20B-EP05	95	BES0324	BES M08MG-GSC20B-BP00,3-GS04-101	141
BES02CT	BES R05KB-USU20B-EV02	95	BES0022	BES M08ME1-GSC20B-S04G	141
BES02CU	BES R05KB-USU20B-EV03	95	BES001Y	BES M08ME1-USC20B-S04G	141
BES02CY	BES R05KB-USU40B-EV02	95	BES004T	BES M12MG-USC30B-BV02	141
BES01ZC	BES R05KB-PSC40B-EV03	97	BES03HH	BES M08MG-UOC20B-BV03	141
BES01Z8	BES R05KB-PSC40B-EP00,3-GS04	97	BES0046	BES M12MG-GSC30B-BV03	143
BES01Z7	BES R05KB-PSC20B-S49A	97	BES0474	BES M12MG-GOC30B-BV03	143
BES01ZE	BES R05KB-PSC40B-S49A	97	BES004P	BES M12MG-USC30B-BP03	143
BES01N5	BES 517-398-NO-C-03	97	BES004T	BES M12MG-USC30B-BV02	143
BES01N6	BES 517-398-NO-C-05	97	BES004U	BES M12MG-USC30B-BV03	143
BES048A	BES R05KB-POC20B-S49A	97	BES004W	BES M12MG-USC30B-BV05	143
BES01Z2	BES R05KB-POC40B-S49A	97	BES03HM	BES M12MG-UOC30B-BV03	143
BES01NH	BES 517-399-NO-C-03	97	BES0042	BES M12MG-GSC30B-BP00,3-GS04	145
BES01N8	BES 517-398-NO-C-PU-03	99	BES0326	BES M12MG-GSC30B-BP00,3-GS04-101	145
BES01N9	BES 517-398-NO-C-PU-05	99	BES039W	BES M12MG-GSC30B-BX00,3-GS04-U	145
BES01NA	BES 517-398-NO-C-S49-00,2	99	BES003Z	BES M12MF-GSC30B-S04G	145
BES01N1	BES 517-398-N1-C	99	BES0041	BES M12MF-USC30B-S04G	145
BES01N2	BES 517-398-N2-C	99	BES0073	BES M18MG-USC70B-BV02	145
BES01MM	BES 517-351-NO-C-03	99	BES006C	BES M18MG-GSC70B-BP00,3-GS04	147
BES01MT	BES 517-351-NO-C-S49-00,2	99	BES03FJ	BES M18MG-GSC70B-BX00,3-GS04-U	147

BES0069	BES M18MF-GSC70B-S04K	147	BHS004C	BES 516-300-S300-S4-D	173
BES0074	BES M18MG-USC70B-BV03	147	BHS005U	BHS B135V-PSD25-S04-003	173
BES0071	BES M18MG-USC70B-BP03	147	BES02NK	BES M18EI-PSC72B-S04G-S01	173
BES006A	BES M18MF-USC70B-S04K	147	BES02Y1	BES M18EF1-PSC20F-S04G-S	173
BES0328	BES M18MF-GSC70B-S04G	149	BHS0001	BES 516-100-S45-S4-D	173
BES03FH	BES M18MF-GSC70B-S04G-U	149	BES02Y3	BES M18EG1-PSC10Z-S04G-S11	175
BES008R	BES M30MF-GSC15B-BV02	149	BHS001N	BES 516-300-S144-S4-D	175
BES02NR	BES M18MF-USC70B-S04G	149	BHS004A	BES 516-300-S299-S4-D	175
BES0091	BES M30MF-USC15B-BV02	149	BHS0026	BES 516-300-S190-S4	175
BES0092	BES M30MF-USC15B-BV03	149	BHS0027	BES 516-300-S203	175
BES027K	BES M30MF-GSC15B-BX00,3-GS04-U	151	BHS0036	BES 516-300-S271-S4	175
BES008W	BES M30MF-GSC15B-S04K	151	BES02YF	BES M30EG1-PSC20Z-S04G-S11	177
BES03KL	BES M30MF-GSC15B-S04G-U	151	BES02YC	BES M30EE1-PSC40F-S04G-S	177
BES008Z	BES M30MF-USC15B-BP03	151	BHS006M	BES 516-300-S331-S4-D	177
BES0094	BES M30MF-USC15B-S04K	151	BHS007A	BES 516-300-S332-S4-N	177
BHS006U	BHS G409N-PSD10-EP02	157	BES0431	BES G12EE1-PSY40F-S04G-L02	185
BHS007J	BHS G409N-PSD10-EP00,3-GS49	157	BES0444	BES M12EE1-PSY20B-S04G-L01	185
BHS006N	BHS G403N-PSD10-S26	157	BES0433	BES M12EE-PSC40B-S04G-L01	185
BHS005H	BHS G408N-PSC10-S49	157	BES0435	BES M12EI-PSC40B-S04G-L01	185
BES055Y	BES M05EE1-PSC08B-EV00,9-116	157	BES0443	BES M12EE1-PSY40F-S04G-L01	185
BES03H6	BES M05EG-PSC08B-BP02	157	BES0441	BES M18EE1-PSY50B-S04G-L01	185
BHS006Y	BHS G409N-NSD10-EP02	157	BES0437	BES M18EI-PSC80B-S04G-L01	185
BES03JM	BES M05EG-PSC08B-BP00,2-GS49	159	BES02YR	BES M08EG-PSC15A-S49G-W	189
BES03NZ	BES M05ED-PSC08B-BP02-R50	159	BES02YT	BES M08EG1-PSC15A-S04G-W	189
BES03L7	BES M05ED-PSD08B-BP02-R03	159	BES03YP	BES M08MG1-PSC20A-S04G-W	189
BES03LC	BES M05ED-PSD08B-BP00,3-GS49-R03	159	BES02JZ	BES M12MF1-PSC30A-S04G-W	189
BES034K	BES 516-324-SA17-05	159	BES02K0	BES M12MF1-PSC30A-S04G-W01	189
BES03UY	BES M08EE1-PSC20B-S49G-S	159	BES02K3	BES M12ML-PSC30A-S04G-W	189
BES03LE	BES M05ED-POD08B-BP00,3-GS49-R03	159	BES02K4	BES M12ML-PSC30A-S04G-W01	191
BES0315	BES M05EG-NSC08B-BP00,2-GS49	159	BES0452	BES M12MG-PSC40A-S04G-W12	191
BES03Z3	BES M08EE1-NSC20B-S49G-S	159	BES02K5	BES M12ML-PSC80E-S04G-W	191
BHS0039	BES 516-300-S289-BO-D-PU-05	161	BES05AJ	BES M18ME-PSC80A-S04G-W08	191
BHS0058	BHS A407N-PSD15-BP02	161	BES05AH	BES M18MI-PSC80A-S04G-W07	191
BHS0054	BHS A404N-PSC15-S49	161	BES05AK	BES M18MI-PSC80A-S04G-W08	191
BHS0050	BHS A402N-PSC15-S49	161	BES05AL	BES M18ME-PSC12E-S04G-W08	193
BES02N3	BES M08EH1-NSC20B-S04G-S	161	BES05AM	BES M18MI-PSC12E-S04G-W08	193
BES02N4	BES M08EH1-NSC20B-S04G-S01	161	BES02KM	BES M30ML-PSC10A-S04G-W	193
BHS003A	BES 516-300-S291-S4-D	163	BES02KN	BES M30ML-PSC10A-S04G-W01	193
BES02NA	BES M12EI-PSC40B-S04G-S	163	BES0454	BES M30MI-PSC15A-S04G-W12	193
BES02NC	BES M12EI-PSC40B-S04G-S01	163	BES04AH	BES R01EC-PSC50A-BP00,3-GS04-W50	193
BES02WH	BES M12EG1-PSC60Z-S04G-S11	163	BES04RE	BES R01EC-PSC50A-BS00,3-GS04-W51	195
BHS0008	BES 516-200-S2/1.250"-S21	163	BES049Y	BES R01EC-PSC50A-BP00,3-GS04-W51	195
BHS0006	BES 516-200-S2/1.025"-S5	163	BES021P	BES Q40KFU-PSC15A-S04G	195
BHS003M	BES 516-300-S295/1.250"-S4	165	BES021T	BES Q40KFU-PSC15A-S04G-W01	195
BHS0041	BES 516-300-S295/2.062"-S4	165	BES021U	BES Q40KFU-PSC20A-S04G	195
BHS0009	BES 516-200-S2/1.250"-S5	165	BES022K	BES Q40KFU-PAC15A-S04G	195
BHS000T	BES 516-200-S2/2.062"-S21	165	BES0222	BES Q40KFU-PSC35Z-S04G-011	197
BHS000U	BES 516-200-S2/2.062"-S5	165	BES0223	BES Q40KFU-PSC40E-S04G	197
BHS0014	BES 516-200-S2/2.875"-S5	165	BES0457	BES Q40KFU-PAC20A-S04G-W01	197
BHS0030	BES 516-300-S260-S4-D	167	BES021H	BES Q40KFU-PAC35E-S04G	197
BHS0028	BES 516-300-S205-D-PU-03	167	BES021K	BES Q40KFU-PAC35E-S04G-W01	197
BHS0029	BES 516-300-S205-D-PU-05	167	BES021M	BES Q40KFU-PAC40E-S04G	197
BES042M	BES 516-300-S337-S4-D	167	BES02YZ	BES M08EG1-PSC15S-S04G-S	203
BES042L	BES 516-300-S338-S4-D	167	BES02N5	BES M08EH1-PSC20B-S04G-S	203
BHS0019	BES 516-200-S2/4.560"-S5	167	BES02N6	BES M08EH1-PSC20B-S04G-S01	203
BHS004N	BES 516-300-S321-S4-D	169	BES02Z3	BES M12EG1-PSC20S-S04G-S	203
BHS002H	BES 516-300-S240-D-PU-03	169	BES02Z2	BES M12EG1-PSC20N-S04G-S	203
BHS002J	BES 516-300-S240-D-PU-05	169	BES04Z5	BES M12EI-PSC40A-S04G-S	203
BHS001F	BES 516-300-S135-D-PU-05	169	BES0567	BES M12EI-PSC40A-S04G-S02	205
BHS0032	BES 516-300-S262-S4-D	169	BES0510	BES M12EI-PSC40S-S04G-S	205
BHS002Y	BES 516-300-S249-S4-D	169	BES0511	BES M12EI-PSC40N-S04G-S	205
BHS0033	BES 516-300-S265-S4-D	171	BES02Z9	BES M18EG1-PSC50S-S04G-S	205
BHS005Y	BHS B249V-PSD15-S04	171	BES02Z8	BES M18EG1-PSC50N-S04G-S	205
BHS0061	BHS B265V-PSD15-S04	171	BES05K7	BES M18EG1-PSC80A-S04G-S	205
BHS0021	BES 516-300-S162-S4-D	171	BES05NC	BES M18EG1-PSC80A-S04G-S02	207
BHS001L	BES 516-300-S135-S4-D	171	BES05K8	BES M18EG1-PSC80S-S04G-S	207
BHS005R	BHS B135V-PSD15-S04	171	BES05K9	BES M18EG1-PSC80N-S04G-S	207
BHS0022	BES 516-300-S163-S4-D	173	BES02ZJ	BES M30EG1-PSC80S-S04G-S	207

788 | Alphanumeric Index | Sorted by part number

BES02ZH	BES M30EG1-PSC80N-S04G-S	207	BES05NJ	BES M18MH2-GNX80F-BT02-EXA	243
BES02J5	BES 516-325-S4-CW	211	BES05NR	BES M18MH2-GNX80F-BT02-EXB	243
BES02JM	BES 516-326-S4-CW	211	BES05N0	BES M18MH2-GNX80F-S04G-EXC	243
BES02J9	BES 516-326-S4-CW	211	BES05L3	BES M18MF2-PSC80F-BV02-EXD	243
BES02JH	BES 516-327-S4-CW	211	BES05L9	BES M18MF2-PSC80F-BV02-EXE	243
BES0481	BES R01ZC-PSC50B-BZ03-V02	213	BES05M5	BES M30EG2-PSC10B-BV02-EXF	243
BES048J	BES R01ZC-PSC50B-BZ00,2-GS04-V02	213	BES05L4	BES M30MF2-PSC10B-BV02-EXD	243
BES0493	BES R01ZC-PSC50B-BZ00,2-GS49-V02	213	BES05NK	BES M30MH2-GNX10B-BT02-EXA	245
BES048W	BES R01ZC-PSC50B-BZ00,5-GS04-V02	213	BES05NT	BES M30MH2-GNX10B-BT02-EXB	245
BES02PU	BES M08MH1-PSC20B-S04G-101	217	BES05N1	BES M30MH2-GNX10B-S04G-EXC	245
BES02PW	BES M08MH1-PSC30B-S04G-101	217	BES02ZY	BES M30ME1-GNX15B-S04G-EEX	245
BES056A	BES M12EI-PSC40B-S04G-S03	217	BES05NL	BES M30MH2-GNX15F-BT02-EXA	245
BES02KC	BES M18MI-PSC70B-S04G-W	217	BES05LA	BES M30MF2-PSC10B-BV02-EXE	245
BES056C	BES M18EI-PSC72B-S04G-S03	217	BES05L5	BES M30MF2-PSC15F-BV02-EXD	245
BES048K	BES R01ZC-PSC50B-BZ00,2-GS04-W05	219	BES05LC	BES M30MF2-PSC15F-BV02-EXE	245
BES048N	BES R01ZC-PSC50B-BZ00,2-GS04-W13	219	BES05NU	BES M30MH2-GNX15F-BT02-EXB	247
BES048Y	BES R01ZC-PSC70B-BZ00,2-GS04-108	219	BES05N2	BES M30MH2-GNX15F-S04G-EXC	247
BES02J2	BES M05ED-PSD05B-ES02-T01	223	BES02ZZ	BES Q40KFU-GNX20B-S92G-EEX	247
BES046C	BES M05ED-PSD05B-ES05-T01	223	BES0300	BES Q40KFU-GNX35F-S92G-EEX	247
BES03P1	BES M05ED-PSD08B-ES02-T01	223	BES050N	BES G04ED-GNX08B-EP02	255
BES04FL	BES M05ED-PSD05B-ES05-GS04-T50	223	BES02L6	BES 516-3005-FO-N-03	255
BES05FN	BES M08EM-PSD20B-ET05-T	223	BES050P	BES M05ED-GNX08B-EP02	255
BES04CK	BES 515-325-SA74-D-TF-02	223	BES02LW	BES 516-371-SA3-03	255
BES02HU	BES 516-325-SA19-03	225	BES02LY	BES 516-371-SA3-05	255
BES02HW	BES 516-325-SA19-05	225	BES02LA	BES 516-324-EO-N-03	255
BES04CL	BES 515-356-SA35-D-TF-02	225	BES02LE	BES 516-325-E3-N-PU-05	257
BES043T	BES 515-326-SA49-D-TF-02	225	BES02LL	BES 516-327-E3-N-PU-05	257
BES04AT	BES 515-326-SA49-D-TF-05	225	BES0566	BES Q05EC-GNX08B-EP02	257
BES02H5	BES 516-105-SA2-05	225	BES0568	BES Q08ZC-GNX15B-EP02	257
BES05N4	BES M18ED-PSC50B-GT05-T	227	BES03M5	BES R04KC-GNX15B-EP02	257
BES04C7	BES 515-360-SA13-D-TF-05	227	BES03JA	BES IKVS-010.23-G-S4	261
BES043W	BES 515-327-SA22-D-TF-02	227	BES03JC	BES IKVS-015.23-G-S4	261
BES04AU	BES 515-327-SA22-D-TF-05	227	BES03JH	BES IKVS-025.23-G-S4	261
BES02H6	BES 516-105-SA5	227	BES0429	BES Z06K-PSC16F-BP00,1-GS04	261
BES02H7	BES 516-114-SA1-05	227	BES0428	BES Z06K-PSC16F-S49G	261
BES05N5	BES M30N1-PSC10B-GT05-T	229	BAW000J	BAW G06EE-UAF20B-EP03-K	265
BES043Y	BES 515-362-SA4-D-TF-02	229	BAW000L	BAW G06EF-UAC20B-S49G	265
BES04C8	BES 515-362-SA4-D-TF-05	229	BAW000T	BAW M08EI-UAD15B-BP03	265
BES05N7	BES Q08EC-PSD20B-ES05	229	BAW000W	BAW M08EI-UAD25F-BP03	265
BES05N8	BES Q12EC-PSD40B-ES05	229	BAW0040	BAW Z08EO-UAD20B-S04G-H11	265
BES02HE	BES 516-125-SA1-05	229	BAW004K	BAW M12ME-UAC35C-S04G	265
BES05N9	BES Q40KG-PSD25F-S04G	231	BAW0054	BAW M12ME-IAC35C-S04G	267
BES05N6	BES Q40KG-X20F-SZ03	231	BAW0055	BAW M12ME-ICC35C-S04G	267
BES02ZR	BES G06MD-GNX10B-EV02-EEX	237	BAW004M	BAW M12MI-BLC35C-S04G	267
BES02ZT	BES M08MD-GNX10B-EV02-EEX	237	BAW004H	BAW M12ME-UAC70G-S04G	267
BES05NE	BES M12MG2-GNX20B-BT02-EXA	237	BAW0056	BAW M12MH-BLC70G-S04G	267
BES05NM	BES M12MG2-GNX20B-BT02-EXB	237	BAW0011	BAW M12ME-UAD50B-BP01	267
BHS004L	BES 516-300-S318-S4-N	237	BAW001T	BAW M18ME-ICC50B-BP03	269
BES05M3	BES M12EG2-PSC20B-BV02-EXF	237	BAW002M	BAW M18MI2-UAC50B-BP05-002	269
BES05L6	BES M12MF2-PSC20B-BV02-EXE	237	BAW0026	BAW M18ME-UAE50B-S04G-K	269
BHS002W	BES 516-300-S249-NEX-S4-D	237	BAW002F	BAW M18MI-BLC50B-S04G	269
BHS0034	BES 516-300-S266-S4	239	BAW002H	BAW M18MI-IAC50B-S04G	269
BHS004K	BES 516-300-S315-S4-N	239	BAW0029	BAW M18MG-UAC16F-S04G-K	269
BES05MW	BES M12MG2-GNX20B-S04G-EXC	239	BAW005Y	BAW M30EE-ICD10B-S04G-L01	271
BES02ZU	BES M12ME-GNX40B-S04G-EEX	239	BAW002W	BAW M30ME-UAC10B-S04G	271
BES05NF	BES M12MG2-GNX40F-BT02-EXA	239	BAW002Y	BAW M30ME-UAC15F-S04G	271
BES05NN	BES M12MG2-GNX40F-BT02-EXB	239	BAW005Z	BAW R03KC-UAA40B-BP03-505	271
BHS005P	BHS B135V-PSD15-NEX-S04	239	BAW003E	BAW Z01AC-UAD50B-DP03-K	271
BES05L7	BES M12MF2-PSC40F-BV02-EXE	239	BAW003W	BAW Z05AC-BLD50B-BP00,75-GS04	271
BES05MY	BES M12MG2-GNX40F-S04G-EXC	241	BAW0034	BAW R06AC-UAF20B-S49G	273
BES05NH	BES M18MH2-GNX50B-BT02-EXA	241	BIP0001	BIP AD0-B014-01-EP02	279
BES05NP	BES M18MH2-GNX50B-BT02-EXB	241	BIP000T	BIP AD2-T014-01-EB02-505	279
BES05MZ	BES M18MH2-GNX50B-S04G-EXC	241	BIP0008	BIP CD2-B014-01-EP02	279
BES05M4	BES M18EG2-PSC50B-BV02-EXF	241	BIP000F	BIP LD2-T014-01-EP01-S4	279
BES05L2	BES M18MF2-PSC50B-BV02-EXD	241	BIP001K	BIP AD2-T017-04-BP02	279
BES05L8	BES M18MF2-PSC50B-BV02-EXE	241	BIP001L	BIP CD2-T017-04-BP02	279
BHS004H	BES 516-300-S308-NEX-S4-D	241	BIP001M	BIP LD2-T017-04-BP00,5-S4	279
BES02ZW	BES M18ME1-GNX80B-S04G-EEX	243	BIP000L	BIP AD2-T030-02-S4	279

BIP0002	BIP AD2-B040-02-S4	281	BCS0132	BCS R08RRE-NOMFHC-EP00,3-GS75	311
BIP0005	BIP CD2-B040-02-S4	281	BCS012L	BCS R08RRE-NOMFHC-EP02	311
BIP0004	BIP LD2-T040-02-S4	281	BCS0134	BCS Q40BBAA-PSCFHC-EP00,3-GS49	313
BIP000M	BIP ED2-B048-03-S75	281	BCS0135	BCS Q40BBAA-POCFHC-EP00,3-GS49	313
BIP001J	BIP LD2-T048-03-S75	281	BCS0133	BCS Q40BBAA-GPCFHC-EP02	313
BIP000C	BIP ED2-B070-03-S75	281	BCS001Y	BCS G06T4E1-PSM30G-EP02	317
BIP001H	BIP LD2-T070-03-S75	281	BCS0022	BCS G06T4D2-PSM30G-S49G	317
BIP000E	BIP ED2-B103-03-S75	281	BCS002M	BCS M08T4E2-PSM30G-S49G	317
BIP0014	BIP LD2-T103-03-S75	283	BCS00R0	BCS M12BBG1-PSC80H-EP02	317
BIP000R	BIP ED2-B133-03-S75	283	BCS00PN	BCS M12BBE2-PSC80H-S04K	317
BIP001F	BIP LD2-T133-03-S75	283	BCS006Z	BCS M12TTG1-PSM80G-ET02	317
BIW1-A310	BIW1-A310-M___-P1-S115	289	BCS00R1	BCS M12BBG1-POC80H-EP02	317
BIW1-E310	BIW1-E310-M___-P1-S115	289	BCS00PP	BCS M12BBE2-POC80H-S04K	317
BIW1-C310	BIW1-C310-M___-P1-S115	289	BCS0070	BCS M12TTG1-POM80G-ET02	317
BIW1-G310	BIW1-G310-M___-P1-S115	289	BCS0072	BCS M12TTG1-NOM80G-ET02	317
BCS001L	BCS G06T4E1-PSM15C-EP02	293	BCS00PC	BCS M12B4G1-PSC80H-EP02	319
BCS001R	BCS G06T4D2-PSM15C-S49G	293	BCS00P4	BCS M12B4E2-PSC80H-S04K	319
BCS0026	BCS M08T4E1-PSM15C-EP02	293	BCS0062	BCS M12T4D2-PSM80G-S04G	319
BCS002A	BCS M08T4E2-PSM15C-S49G	293	BCS007N	BCS M18VV1-PSCFAG-DV02	319
BCS002T	BCS G10T4H-PSM40C-EP02	293	BCS008T	BCS M18VVN-PSCFAG-S49G	319
BCS00PU	BCS M12BB11-PSC40D-EP02	293	BCS008A	BCS M18TT2-PSCFAG-AT02	319
BCS00PJ	BCS M12BBG2-PSC40D-S04K	295	BCS007P	BCS M18VV11-POCFAG-DV02	319
BCS00AU	BCS M12TTG1-PSM40C-ET02	295	BCS008C	BCS M18TT2-POCFAG-AT02	319
BCS00R4	BCS M12B411-PSC40D-EP02	295	BCS00LL	BCS M18BBH1-PSC15H-EP02	321
BCS00P0	BCS M12B4G2-PSC40D-S04K	295	BCS00LM	BCS M18BBG2-PSC15H-S04K	321
BCS002Z	BCS M12T4G1-PSM40C-EP02	295	BCS0073	BCS M18TT2-PSC15G-AT02	321
BCS0037	BCS M12T4D2-PSM40C-S04G	295	BCS00ME	BCS M18B4G2-PSC15H-S04K	321
BCS00NZ	BCS M18BBN1-PSC80D-EP02	297	BCS006A	BCS M18T4G2-PSC15G-S04G	321
BCS00M8	BCS M18BBI3-PSC80D-S04K	297	BCS00M0	BCS M18BBH1-NOC15H-EP02	321
BCS00MF	BCS M18B4I3-PSC80D-S04K	297	BCS00LT	BCS M18BBG2-POC15H-S04K	321
BCS003H	BCS D22T403-PSM60C-EP02	297	BCS00ML	BCS M18B4G2-POC15H-S04K	321
BCS00HK	BCS D22T402-PSM60C-EP02	297	BCS006C	BCS M18T4G2-POC15G-S04G	321
BCS0033	BCS D22V4M1-PSC10C-EV02	297	BCS005T	BCS M18T4I1-POC15G-DV02	321
BCS00M2	BCS M18BBN1-NSC80D-EP02	297	BCS00LZ	BCS M18BBH1-NSC15H-EP02	321
BCS003A	BCS D30T401-PSC15C-EP02	299	BCS0076	BCS M18TT2-NOC15G-AT02	321
BCS00NM	BCS M30BB11-PSC15D-EP02	299	BCS0086	BCS M30TTH2-PSCFAG-AT02	323
BCS00NA	BCS M30BB12-PSC15D-S04K	299	BCS00NT	BCS M30BBE1-PSC25H-EP02	323
BCS003F	BCS D30T401-NOC15C-EP02	299	BCS00NH	BCS M30BBE2-PSC25H-S04K	323
BCS004H	BCS D30B4M3-PPC20C-EP02	299	BCS0077	BCS M30TTH2-PSC30G-AT02	323
BCS004K	BCS M30BBM3-PPC20C-EP02	299	BCS0087	BCS M30TTH2-POCFAG-AT02	323
BCS004M	BCS M30BBM2-PPM20C-S04G	299	BCS0078	BCS M30TTH2-POC30G-AT02	323
BCS003E	BCS D30T401-NSC15C-EP02	299	BCS007Y	BCS M30BBM2-PPCFAG-S04G	323
BCS00MR	BCS M30B4I2-PSC15D-S04K	301	BCS007F	BCS M30BBM2-PPC30G-S04G	323
BCS00UJ	BCS G3400I2-PSC15D-S04K	301	BCS00N6	BCS M30B4E1-PSC25H-EP02	325
BCS004T	BCS M30B4M2-PPM20C-S04G	301	BCS00MY	BCS M30B4E2-PSC25H-S04K	325
BCS003K	BCS D500002-YPC25C-EV02	301	BCS0105	BCS S44KK01-PSCFAG-EP00,3-GS49	325
BCS012N	BCS R08RRE-PIM80C-EP00,3-GS04	303	BCS00ZL	BCS S44KK01-PSCFNG-EP00,3-GS49	325
BCS012T	BCS R08RRE-PSM80C-EP00,3-GS75	303	BCS007L	BCS M30T4M2-PPC30G-S04G	325
BCS012A	BCS R08RRE-PSM80C-EP02	303	BCS010L	BCS S44KK01-GPCFAG-EP02	325
BCS00U6	BCS Q40BBAA-PSC20C-EP00,3-GS49	303	BCS00N9	BCS M30B4E1-NOC25H-EP02	325
BCS012U	BCS R08RRE-POM80C-EP00,3-GS75	303	BCS010F	BCS S44KK03-PSCFAG-EP00,3-GS49	327
BCS012C	BCS R08RRE-POM80C-EP02	303	BCS00ZY	BCS S44KK03-PSCFNG-EP00,3-GS49	327
BCS00U5	BCS Q40BBAA-POC20C-EP00,3-GS49	303	BCS0109	BCS S44KK02-PSCFAG-EP00,3-GS49	327
BCS012W	BCS R08RRE-NSM80C-EP00,3-GS75	303	BCS010A	BCS S44KK02-POCFAG-EP00,3-GS49	327
BCS012E	BCS R08RRE-NSM80C-EP02	303	BCS0102	BCS S44KK01-GPCFNG-EP02	327
BCS012Y	BCS R08RRE-NOM80C-EP00,3-GS75	303	BCS010N	BCS S44KK03-GPCFAG-EP02	327
BCS012F	BCS R08RRE-NOM80C-EP02	303	BCS0104	BCS S44KK03-GPCFNG-EP02	327
BCS00TR	BCS Q40BBAA-GPC20C-EP02	303	BCS00ZR	BCS S44KK02-PSCFNG-EP00,3-GS49	329
BCS00UW	BCS D50TT06-PSCFSC-ET02	311	BCS011L	BCS S04K501-PICFNG-S04G-T51	329
BCS012P	BCS R08RRE-PIMFHC-EP00,3-GS04	311	BCS011E	BCS S04K501-PICFNG-S04G-T50	329
BCS012Z	BCS R08RRE-PSMFHC-EP00,3-GS75	311	BCS011F	BCS S04K501-PSCFNG-S04G-T50	329
BCS012H	BCS R08RRE-PSMFHC-EP02	311	BCS011H	BCS S04K501-POCFNG-S04G-T50	329
BCS00UY	BCS D50TT06-POCFSC-ET02	311	BCS011J	BCS S04K501-NSCFNG-S04G-T50	329
BCS0130	BCS R08RRE-POMFHC-EP00,3-GS75	311	BCS011K	BCS S04K501-NOCFNG-S04G-T50	329
BCS012J	BCS R08RRE-POMFHC-EP02	311	BCS010M	BCS S44KK02-GPCFAG-EP02	329
BCS0084	BCS D500004-PPCFAC-EV02	311	BCS0103	BCS S44KK02-GPCFNG-EP02	329
BCS0131	BCS R08RRE-NSMFHC-EP00,3-GS75	311	BCS0010	BCS G04T4D-XXS10C-EP02-GZ01-002	335
BCS012K	BCS R08RRE-NSMFHC-EP02	311	BCS0012	BCS G06T4B-XXS15C-EP02-GZ01-002	335

790 | Alphanumeric Index | Sorted by part number

BCS0013	BCS G06T4B-XXS30G-EP02-GZ01-002	335	BOS00JP	BOS 18KF-PA-1L0C-S4-C	365
BCS0016	BCS G10T4B-XXS40C-EP02-GZ01-002	335	BOS015J	BOS 5K-PS-ID10-S49	367
BCS0017	BCS G10T4C-XXS80G-EP02-GZ01-002	335	BOS0124	BOS 5K-PS-ID10-S75	367
BCS0011	BCS M05T4C-XXS10C-EP02-GZ01-002	335	BOS0127	BOS 5K-PS-RD11-02	367
BCS0014	BCS M08T4C-XXS15C-EP02-GZ01-002	337	BOS015N	BOS 5K-PS-RD11-S49	367
BCS0015	BCS M08T4C1-XXS30G-EP02-GZ01-002	337	BOS0128	BOS 5K-PS-RD11-S75	367
BCS0019	BCS M12T4D1-XXS80G-EP02-GZ01-002	337	BOS0031	BOS 21M-PA-ID10-S4	367
BCS001A	BCS D18T403-XXS30C-EP02-GZ01-002	337	BOS0032	BOS 21M-PA-LD10-S4	367
BCS001C	BCS D18T404-XXS50C-EP02-GZ01-002	337	BOS0033	BOS 21M-PA-RD10-S4	367
BCS001F	BCS D22T405-XXS10C-EP02-GZ01-002	337	BOS01FM	BOS 23K-PA-RD10-S4	369
BCS001H	BCS D22T408-XXS10C-EP02-GZ01-002	339	BOS01CJ	BOS 50K-PA-RD10-S4	369
BAE00LC	BAE SA-CS-027-YI-BP00,3-GS04	343	BOS01JJ	BOS 50K-PI-RD11-S4	369
BAE00KH	BAE SA-CS-025-YI-BP02	343	BOS0175	BOS 23K-PU-LD20-S4	369
BAE00L9	BAE SA-CS-025-YP-BP00,3-GS04	343	BOS016Z	BOS 23K-PU-RD10-S4	369
BAE00KJ	BAE SA-CS-026-YP-BP02	343	BOS016Z	BOS 23K-PU-RD10-S4	369
BAE00LA	BAE SA-CS-026-YP-BP00,3-GS04	343	BOS01JA	BOS 50K-PU-RD11-S4	369
BCS000K	BCS M18KM3-UST80G-BV02	347	BOS01K2	BOS 64K-AA-ID10-TG	369
BCS000J	BCS M18KM3-UOT80G-BV02	347	BOS01H2	BOS 08E-PS-KF20-00,2-S49	383
BCW0001	BCW M18B4M1-ICM80C-DV02	347	BOS01H6	BOS 08E-PS-KF20-S49	383
BCS013E	BCS Z094401-XXS20B-SZ02-T07	347	BOS01H0	BOS 08E-PS-KH22-00,2-S49	383
BCS00A3	BCS S10T401-XXSFNC-SZ02-T07	347	BOS01H4	BOS 08E-PS-KH22-S49	383
BCS00A5	BCS S10T403-XXSFNC-SZ02-T07	347	BOS0246	BOS 08E-PI-KH22-00,2-S49	383
BCS00A1	BCS M18T4H1-XXS10H-SZ02-T08	347	BOS0247	BOS 08E-PI-KH22-S49	383
BCS00W7	BCS G20L4Q-PAC10C-EV03-D03	349	BOS01UM	BOS 12M-PA-RF10-S4	383
BCS000W	BCS M30KN2-UST15G-AV02	349	BOS01ZT	BOS 12M-PA-RF11-S4	383
BCS000U	BCS M30KN2-UOT15G-AV02	349	BOS002H	BOS 18M-PS-LH22-S4	385
BCS00A2	BCS M30T4G1-XXS20H-SZ02-T08	349	BOS002K	BOS 18M-PSV-LH22-S4	385
BCS000Y	BCS F01CP01-XXS10C-EP02-GZ01-002	349	BOS010J	BOS 18MR-PS-1HA-E5-C-S4	385
BCW0004	BCW F03EA85-XXSFNC-EP00,3-GZ01	349	BOS01ZU	BOS 12M-PA-RH12-S4	385
BCS006H	BCS S01T401-PSCFNG-KM16-T02	351	BOS01C5	BOS 18M-PA-LH23-S4	385
BCS00A6	BCS S03T401-PSCFNG-KM16-T02	351	BOS0081	BOS 18MR-PA-1HA-S4-C	385
BCS006M	BCS S02T401-PSCFNG-KM16-T02	351	BOS014W	BOS 18M-PA-RH22-S4	385
BCS006J	BCS S01T401-POCFNG-KM16-T02	351	BOS01J4	BOS 18M-PA-RH23-S4	385
BCS00A9	BCS S03T401-NOCFNG-KM16-T02	351	BOS00LH	BOS 18KW-PA-1HA-S4-C	387
BOS026R	BOS 21M-UUI-RP30-S4	357	BOS00JK	BOS 18KF-PA-1GA-S4-C	387
BOS01R8	BOS 08E-PS-KD20-00,2-S49	359	BOS00JW	BOS 18KF-PA-1N1R-S4-C	387
BOS01NN	BOS 08E-PS-KD20-S49	359	BOS00JM	BOS 18KF-PA-1HA-S4-C	387
BOS01Y2	BOS 12M-PS-ID10-S4	359	BOS0016	BOS 18E-PS-1N2M-S4-D	387
BOS01TP	BOS 12M-PS-RD10-S4	359	BOS0163	BOS Q08M-PS-KF20-00,2-S49	387
BOS01TN	BOS 12M-PS-RD11-S4	359	BOS0160	BOS Q08M-PS-KF20-S49	387
BOS01TU	BOS 12M-PS-RD12-S4	359	BOS021C	BOS R020K-PS-RF10-00,2-S49	387
BOS01EY	BOS 18M-PA-ID20-S4	359	BOS020M	BOS R020K-PS-RF11-00,2-S49	389
BOS01NF	BOS 18M-PA-LD20-S4	359	BOS020N	BOS R020K-PS-RF11-00,2-S75	389
BOS01C1	BOS 18M-PS-RD20-S4	361	BOS020K	BOS R020K-PS-RF11-02	389
BOS01E7	BOS 18M-PS-RD21-S4	361	BOS0217	BOS R020K-PS-RF12-00,2-S49	389
BOS01FA	BOS 18M-PS-RD23-S4	361	BOS0234	BOS R020K-PS-RH12-00,2-S75	389
BOS01CF	BOS 18M-PA-RD20-S4	361	BOS022C	BOS R020K-PS-RH12-02	389
BOS01CA	BOS 18M-PA-RD21-S4	361	BOS021U	BOS R01E-PS-KF20-00,2-S49	389
BOS01KE	BOS 18E-PA-RD20-S4	361	BOS021W	BOS R01E-PS-KF20-02	389
BOS023R	BOS 18E-PA-RD30-S4	361	BOS022M	BOS R01E-PS-KF21-00,2-S49	391
BOS01UA	BOS 18M-PI-RD30-S4	361	BOS022N	BOS R01E-PS-KF21-02	391
BOS023E	BOS 18E-PI-RD30-S4	361	BOS015U	BOS 5K-PS-RH12-S49	391
BOS01J8	BOS 18M-PUV-RD30-S4	361	BOS012A	BOS 5K-PS-RH12-S75	391
BOS01NA	BOS 18KF-PA-1XA-SA1-C-00,2	363	BOS0265	BOS R01E-UI-KH22-00,2-S49	391
BOS01KH	BOS G18E-PA-RD20-S4	363	BOS01JK	BOS 5K-PU-LH12-S75	391
BOS0240	BOS G18E-PA-RD30-S4	363	BOS01LE	BOS 6K-PU-LH10-S75	391
BOS00LT	BOS 18KW-PA-1PD-S4-C	363	BOS011E	BOS 5K-NS-RH12-02	391
BOS00K9	BOS 18KF-PA-1XA-S4-C	363	BOS026K	BOS 21M-UUI-LH31-S4	393
BOS00K0	BOS 18KF-PA-1PE-C-02	363	BOS01Z9	BOS 21M-PA-LH23-S4	393
BOS00JZ	BOS 18KF-PA-1PD-S4-C	363	BOS01Z8	BOS 21M-PA-RH22-S4	393
BOS00K1	BOS 18KF-PA-1PE-S4-C	363	BOS01FR	BOS 23K-PA-LH10-S4	393
BOS01WH	BOS Q08M-PS-LD20-0,02-S49	365	BOS01KW	BOS 6K-PU-RH10-S49	393
BOS01WC	BOS Q08M-PS-LD20-S49	365	BOS01KY	BOS 6K-PU-RH10-S75	393
BOS01RZ	BOS Q08M-PS-KD20-00,2-S49	365	BOS01L3	BOS 6K-PU-RH11-S75	393
BOS01RJ	BOS Q08M-PS-KD20-S49	365	BOS0036	BOS 21M-PUS-RV13-S4	393
BOS021J	BOS R01E-PS-KD20-00,2-S49	365	BOS017C	BOS 23K-PU-LH10-S4	393
BOS021K	BOS R01E-PS-KD20-02	365	BOS018N	BOS 50K-PS-RH12-S4	395
BOS0123	BOS 5K-PS-ID10-02	365	BOS01FL	BOS 23K-PA-RH10-S4	395

BOS008A	BOS 26K-PA-1IE-S4-C	395	BOS01U3	BOS 08E-PS-LE20-S49	433
BOS008E	BOS 26K-PA-1LHB-S4-C	395	BOS020F	BOS 08E-PS-KE20-S49	433
BOS008F	BOS 26K-PA-1LHC-S4-C	395	BOS020C	BOS 08E-PS-KE20-00,2-S49	433
BOS0089	BOS 26K-PA-1HC-S4-C	395	BOS020A	BOS 08E-PO-KE20-S49	433
BOS018P	BOS 50K-PA-RH12-S4	395	BOS024N	BOS 08E-X-LS20-00,2-S49	433
BOS017H	BOS 23K-PU-LH20-S4	395	BOS01U8	BOS 08E-X-LS20-S49	433
BOS0178	BOS 23K-PU-RH10-S4	395	BOS01Z7	BOS 08E-X-KS20-00,2-S49	433
BOS01UW	BOS 23K-UU-LH11-S92	395	BOS01Z5	BOS 08E-X-KS20-S49	433
BOS019J	BOS 63M-PS-LH13-S4	397	BOS01TY	BOS 12M-PS-RE10-S4	435
BOS0156	BOS 50K-PSV-RH12-S4	397	BOS00WF	BOS 12M-PA-LE10-S4	435
BOS01K1	BOS 64K-AA-IH12-TG	397	BOS01F3	BOS 18M-PA-IE20-S4	435
BOS01RK	BOS 08E-PS-PR20-S49	407	BOS00WH	BOS 12M-X-LS11-S4	435
BOS01RL	BOS 08E-PS-PR20-00,2-S49	407	BOS00WJ	BOS 12M-X-LS12-S4	435
BOS01TT	BOS 12M-PS-PR10-S4	407	BOS00WL	BOS 12M-XT-LS11-S4	435
BOS01HK	BOS 18M-PS-IR23-S4	407	BOS00WN	BOS 12M-XT-LS12-S4	435
BOS01RM	BOS 08E-PO-PR20-S49	407	BOS01TW	BOS 12M-X-RS10-S4	435
BOS01F0	BOS 18M-PA-IR20-S4	407	BOS01C2	BOS 18M-PS-RE20-S4	437
BOS01HR	BOS 18M-PA-IR21-S4	407	BOS01FE	BOS 18M-PS-RE23-S4	437
BOS01NE	BOS 18M-PA-LR20-S4	407	BOS01NJ	BOS 18M-PA-LE20-S4	437
BOS01CE	BOS 18M-PA-PR20-S4	407	BOS01CC	BOS 18M-PA-RE20-S4	437
BOS01F8	BOS 18M-PS-PR23-S4	409	BOS01J7	BOS 18M-PUV-RE30-S4	437
BOS01FJ	BOS 18M-PA-PR20-S4S	409	BOS01UC	BOS 18M-PI-RE30-S4	437
BOS01KL	BOS 18E-PA-PR20-S4	409	BOS01F5	BOS 18M-X-IS20-S4	437
BOS023Y	BOS 18E-PA-PR30-S4	409	BOS01HN	BOS 18M-XT-IS20-S4	437
BOS01KK	BOS G18E-PA-PR20-S4	409	BOS01NH	BOS 18M-XT-LS20-S4	437
BOS0245	BOS G18E-PA-PR30-S4	409	BOS01KM	BOS 18E-PA-RE20-S4	439
BOS01UE	BOS 18M-PI-PR30-S4	409	BOS023W	BOS 18E-PA-RE30-S4	439
BOS023F	BOS 18E-PI-PR30-S4	409	BOS01KR	BOS G18E-PA-RE20-S4	439
BOS00LM	BOS 18KW-PA-1LQH-S4-C	411	BOS023H	BOS 18E-PI-RE30-S4	439
BOS00LW	BOS 18KW-PA-1QC-S4-C	411	BOS01C0	BOS 18M-X-RS20-S4	439
BOS00LZ	BOS 18KW-PA-1TB-S4-C	411	BOS01FH	BOS 18M-X-RS23-S4	439
BOS00K5	BOS 18KF-PA-1RE-S4-C	411	BOS01CY	BOS 18M-X-RS30-S4	439
BOS00JT	BOS 18KF-PA-1LQP-S4-C	411	BOS01UF	BOS 18M-XI-RS30-S4	439
BOS00K3	BOS 18KF-PA-1QD-S4-C	411	BOS0243	BOS G18E-PA-RE30-S4	441
BOS00K7	BOS 18KF-PA-1TB-S4-C	411	BOS00CT	BLE 18KW-PA-1LT-S4-C	441
BOS01MU	BOS Q08M-PS-LR20-00,2-S49	413	BOS00CW	BLE 18KW-PA-1PP-S4-C	441
BOS01MP	BOS Q08M-PS-LR20-S49	413	BOS01KT	BOS 18E-X-RS20-S4	441
BOS01T9	BOS Q08M-PS-PR20-00,2-S49	413	BOS023U	BOS 18E-X-RS30-S4	441
BOS01T8	BOS Q08M-PS-PR20-S49	413	BOS023J	BOS 18E-XI-RS30-S4	441
BOS020T	BOS R020K-PS-PR11-00,2-S49	413	BOS01KU	BOS G18E-X-RS20-S4	441
BOS020U	BOS R020K-PS-PR11-00,2-S75	413	BOS0242	BOS G18E-X-RS30-S4	441
BOS020R	BOS R020K-PS-PR11-02	413	BOS0199	BOS Q08M-PS-LE20-S49	443
BOS01MW	BOS Q08M-PO-LR20-00,2-S49	413	BOS0197	BOS Q08M-PS-LE20-00,2-S49	443
BOS021L	BOS R01E-PS-KR20-00,2-S49	415	BOS0196	BOS Q08M-PO-LE20-S49	443
BOS021M	BOS R01E-PS-KR20-02	415	BOS00CH	BLE 18KF-PA-1LT-S4-C	443
BOS012E	BOS 5K-PS-RR10-S75	415	BOS00CK	BLE 18KF-PA-1PP-S4-C	443
BOS012C	BOS 5K-PS-RR10-02	415	BOS00EW	BLS 18KW-XX-1P-S4-L	443
BOS015E	BOS 5K-PS-RR10-S49	415	BOS00ET	BLS 18KW-XX-1LT-S4-L	443
BOS0121	BOS 5K-PO-RR10-S75	415	BOS00EP	BLS 18KF-XX-1P-S4-L	443
BOS01JT	BOS 5K-PU-LR10-02	415	BOS00EM	BLS 18KF-XX-1LT-S4-L	443
BOS01JW	BOS 5K-PU-LR10-S75	415	BOS01Y4	BOS Q08M-PS-KE21-S49	445
BOS00TL	BOS 21M-PA-LR10-S4	417	BOS01Y6	BOS Q08M-PS-KE21-00,2-S49	445
BOS00TN	BOS 21M-PA-PK10-S4	417	BOS0214	BOS R020K-PS-RX11-00,2-S49	445
BOS00TR	BOS 21M-PA-PR10-S4	417	BOS0211	BOS R020K-PS-RX11-02	445
BOS00TU	BOS 21M-PA-PT10-S4	417	BOS01Y7	BOS Q08M-PO-KE21-S49	445
BOS01M4	BOS 6K-PU-LK10-S75	417	BOS019M	BOS Q08M-X-LS20-00,2-S49	445
BOS01MH	BOS 6K-PU-PR10-S49	417	BOS018K	BOS Q08M-X-LS20-S49	445
BOS01MJ	BOS 6K-PU-PR10-S75	417	BOS01YM	BOS Q08M-X-KS21-00,2-S49	445
BOS01L8	BOS 6K-PU-PT10-S75	417	BOS01YK	BOS Q08M-X-KS21-S49	445
BOS01NC	BOS 23K-PA-LK10-S4	419	BOS021N	BOS R01E-PS-KE20-00,2-S49	447
BOS01FN	BOS 23K-PA-RR10-S4	419	BOS021P	BOS R01E-PS-KE20-02	447
BOS008L	BOS 26K-PA-1LQP-S4-C	419	BOS0126	BOS 5K-PS-IX10-S75	447
BOS008M	BOS 26K-PA-1QE-S4-C	419	BOS0125	BOS 5K-PS-IX10-02	447
BOS01CR	BOS 50K-PA-PR10-S4	419	BOS011R	BOS 5K-PO-IX10-S75	447
BOS016U	BOS 23K-PU-LR10-S4	419	BOS01JP	BOS 5K-PU-LX10-S75	447
BOS016P	BOS 23K-PU-RR10-S4	419	BOS01LU	BOS 6K-PU-LE10-S49	447
BOS01K3	BOS 64K-AA-PR10-TG	419	BOS021R	BOS R01E-X-KS20-00,2-S49	447
BOS024L	BOS 08E-PS-LE20-00,2-S49	433	BOS021T	BOS R01E-X-KS20-02	447

792 | Alphanumeric Index | Sorted by part number

BOS00WT	BOS 21M-PA-IE10-S4	449	BWL0001	BWL 110110D-I011-S49	491
BOS00WW	BOS 21M-PA-LE10-S4	449	BWL000C	BWL 4040D-L011-S49	491
BOS01FU	BOS 23K-PA-LE10-S4	449	BWL000N	BWL 5454D-L011-S49	491
BOS01LW	BOS 6K-PU-LE10-S75	449	BWL0010	BWL 6868D-L011-S49	491
BOS016L	BOS 23K-PU-LE10-S4	449	BWL0017	BWL 9090D-L011-S49	493
BOS01M1	BOS 6K-XT-LS10-S49	449	BWL0003	BWL 110110D-L011-S49	493
BOS01M2	BOS 6K-XT-LS10-S75	449	BWL000J	BWL 4040D-R013-S49	493
BOS00WZ	BOS 21M-XT-IS11-S4	449	BWL000U	BWL 5454D-R013-S49	493
BOS00Y0	BOS 21M-XT-LS11-S4	449	BWL001N	BWL 6868D-R013-S49	493
BOS01FP	BOS 23K-PA-RE10-S4	451	BWL001C	BWL 9090D-R013-S49	493
BOS01CK	BOS 50K-PA-RE10-S4	451	BWL0007	BWL 110110D-R013-S49	493
BOS016F	BOS 23K-PU-RE10-S4	451	BWL000F	BWL 4040D-R011-S49	493
BOS01K4	BOS 64K-AA-IE10-TG	451	BWL000R	BWL 5454D-R011-S49	495
BOS016K	BOS 23K-XT-LS11-S4	451	BWL0012	BWL 6868D-R011-S49	495
BOS016E	BOS 23K-XT-RS11-S4	451	BWL0019	BWL 9090D-R011-S49	495
BOS01CN	BOS 50K-XT-RS10-S4	451	BWL0005	BWL 110110D-R011-S49	495
BOS01K5	BOS 64K-AA-IS10-TG	451	BOW001A	BOW A-0408-PS-C-S49	503
BGL0021	BGL 5A-007-S49	465	BOW001J	BOW A-0808-PS-C-S49	503
BGL0005	BGL 10A-007-S49	465	BOW0012	BOW A-1208-PS-C-S49	503
BGL000Y	BGL 20A-007-S49	465	BOW002H	BOW A-1216-PS-C-S49	503
BGL001F	BGL 30A-007-S49	465	BOW002J	BOW A-1616-PS-C-S49	503
BGL003J	BGL 30A-011-S49	465	BOW0029	BOW A-1216-NS-C-S49	503
BGL001T	BGL 50A-007-S49	465	BOW002A	BOW A-1616-NS-C-S49	503
BGL002L	BGL 21-IR	465	BOW002U	BOW B-0404-DU-C-S75	503
BGL002M	BGL 21-RG	465	BOW002Y	BOW B-0808-DU-C-S75	505
BGL0029	BGL 80A-007-S49	467	BOW0031	BOW B-1212-DU-C-S75	505
BGL003L	BGL 80A-011-S49	467	BOW0034	BOW B-1616-DU-C-S75	505
BGL000F	BGL 120A-007-S49	467	BOW0037	BOW B-2020-DU-C-S75	505
BGL000N	BGL 180A-007-S49	467	BLG0001	BLG 1-010-210-050-PV01-SX	513
BGL0014	BGL 220A-007-S49	467	BLG0002	BLG 1-010-210-070-PV01-SX	513
BGL0019	BGL 30A-003-S49	467	BLG0003	BLG 1-015-210-050-PV01-SX	513
BGL001M	BGL 50A-003-S49	467	BLG0005	BLG 1-030-210-070-PV01-SX	513
BGL0025	BGL 80A-003-S49	467	BLA0001	BLA 50A-001-S115	517
BGL0009	BGL 120A-003-S49	469	BLA0003	BLA 50A-002-S4	517
BGL001Z	BGL 5A-005-S49	469	BFS0001	BFS 26K-PS-L01-S115	521
BGL0003	BGL 10A-005-S49	469	BFS000M	BFS 33M-GSI-F01-S75	521
BGL000U	BGL 20A-005-S49	469	BFS000L	BFS 33M-GSS-F01-PU-02	521
BGL001C	BGL 30A-005-S49	469	BKT000H	BKT 18KF-001-P-S4	525
BGL001P	BGL 50A-005-S49	469	BKT0010	BKT 6K-002-P-S75	525
BGL0027	BGL 80A-005-S49	469	BKT000Y	BKT 21M-002-P-S4	525
BGL000C	BGL 120A-005-S49	469	BKT0003	BKT 67M-003-U-S92	525
BGL000L	BGL 180A-005-S49	471	BKT0001	BKT 67M-001-U-S92	525
BGL0012	BGL 220A-005-S49	471	BKT0005	BKT 67M-005-U-S92	525
BGL001W	BGL 5A-001-S49	471	BKT0006	BKT 67M-006-U-S92	525
BGL0001	BGL 10A-001-S49	471	BLT0004	BLT 18KF-001-P-S4	531
BGL000R	BGL 20A-001-S49	471	BLT0009	BLT 21M-001-P-S4	531
BGL0016	BGL 30A-001-S49	471	BFB000C	BFB M18M-011-P-S4	535
BGL001J	BGL 50A-001-S49	471	BFB000E	BFB M18M-012-P-S4	535
BGL0023	BGL 80A-001-S49	471	BFB0006	BFB 75K-002-P-S75	535
BGL0035	BGL 30C-007-S4	473	BFB0003	BFB 75K-001-P-02	535
BGL003F	BGL 50C-007-S4	473	BFB0004	BFB 75K-001-P-S75	535
BGL0007	BGL 120A-001-S49	473	BFB0008	BFB 75K-003-P-02	535
BGL000J	BGL 180A-001-S49	473	BFB0009	BFB M18M-001-P-S4	537
BGL0010	BGL 220A-001-S49	473	BFB000A	BFB M18M-002-P-S4	537
BGL0033	BGL 30C-005-S4	473	BOS00JJ	BOS 18KF-PA-1FR-S4-C	537
BGL0031	BGL 30C-003-S4	473	BFO000F	BFO 18A-LAA-MZG-20-0,5	541
BGL0039	BGL 50C-003-S4	473	BFO000H	BFO 18A-LAA-MZG-20-1	541
BGL002Z	BGL 30C-001-S4	475	BFO000J	BFO 18A-LAA-MZG-20-1,5	541
BGL0037	BGL 50C-001-S4	475	BFO000M	BFO 18A-LAA-UZG-20-0,5	541
BGL004M	BGL 50F-007-00,2-S4	475	BFO000N	BFO 18A-LAA-UZG-20-1	541
BGL004P	BGL 80F-007-00,2-S4	475	BFO001Z	BFO 18A-LGG-MZG-10-0,5	541
BGL004L	BGL 50F-001-00,2-S4	475	BFO0020	BFO 18A-LGG-MZG-10-1	541
BGL004N	BGL 80F-001-00,2-S4	475	BFO0023	BFO 18A-LGG-SMG-10-0,5	541
BGL003C	BGL 50C-005-S4	475	BFO0024	BFO 18A-LGG-SMG-10-1	543
BWL0009	BWL 4040D-I011-S49	491	BFO000U	BFO 18A-LCC-SMG-20-0,5	543
BWL000L	BWL 5454D-I011-S49	491	BFO000W	BFO 18A-LCC-SMG-20-1	543
BWL000Y	BWL 6868D-I011-S49	491	BFO000Z	BFO 18A-LCC-UZG-20-1	543
BWL0015	BWL 9090D-I011-S49	491	BFO003Y	BFO 18V-LCC-MZG-23-0,5	543

BF0003Z	BF0 18V-LCC-MZG-23-0,75	543	BF0005K	BF0 D22-LA-BD-EAK-52-02	561
BF00042	BF0 18V-LCC-SMG-23-0,5	543	BF00059	BF0 D13-LG-10-EAK-30-02	561
BF0001P	BF0 18A-LFF-MZG-10-0,5	543	BF00058	BF0 D13-LG-05-EAK-30-02	561
BF0001R	BF0 18A-LFF-MZG-10-1	545	BF0005E	BF0 D13-XB-RB-EAK-10-02	561
BF0001U	BF0 18A-LFF-SMG-10-0,5	545	BF00054	BF0 D10-XA-RB-EAK-10-02	561
BF0001W	BF0 18A-LFF-SMG-10-1	545	BF000C3	BF0 D10-XA-VB-EAK-10-02	561
BF00013	BF0 18A-LEE-MZG-20-0,5	545	BF00052	BF0 D10-XA-GB-EAK-10-02	561
BF00014	BF0 18A-LEE-MZG-20-1	545	BF0005C	BF0 D13-XB-KB-EAK-10-02	563
BF00019	BF0 18A-LEE-SMG-20-0,5	545	BF00006	BF0 D22-XB-UB-EAK-15-02	563
BF0001A	BF0 18A-LEE-SMG-20-1	545	BF000C9	BF0 D22-XB-UB-EAK-15-SA1-02	563
BF0001F	BF0 18A-LEE-UZG-20-0,5	545	BF00055	BF0 D10-XAH-KB-EAK-10-02	563
BF0001H	BF0 18A-LEE-UZG-20-1	547	BF00005	BF0 D22-XA-UB-EAK-20-02	563
BF00047	BF0 18V-LDD-MZG-23-0,75	547	BF00053	BF0 D10-XA-HB-EAK-10-02	563
BF00049	BF0 18V-LDD-MZG-23-2,0	547	BF00066	BF0 D22-XB-LB-EAK-15-02	563
BF0004A	BF0 18V-LDD-MZG-23-3	547	BF000H4	BF0 D22-XB-LB-EAK-15-SA1-0,5	563
BF0004C	BF0 18V-LDD-SMG-23-0,5	547	BF000FP	BF0 D22-XB-LB-EAK-15-SA1-01	565
BF0004F	BF0 18V-LDD-SMG-23-1	547	BF000C4	BF0 D22-XB-LB-EAK-15-SA1-02	565
BF00026	BF0 18A-XAA-MZG-30-0,5	547	BF000FN	BF0 D22-XB-LB-EAK-15-SA1-05	565
BF00027	BF0 18A-XAA-MZG-30-1	547	BF00007	BF0 D22-XBF-LB-EAK-15-02	565
BF000H3	BF0 18A-XAA-MZG-30-5	549	BF000H5	BF0 D22-XA-08B-EAK-26-02	565
BF0002F	BF0 18A-XAA-SMG-30-0,5	549	BF00064	BF0 D22-XAP-LB-EAK-30-02	565
BF0002H	BF0 18A-XAA-SMG-30-1	549	BF00003	BF0 D22-XA-DB-EAK-20-01	565
BF0002M	BF0 18A-XAA-UZG-30-0,5	549	BF00063	BF0 D22-XAH-LB-EAK-20-02	565
BF0002N	BF0 18A-XAA-UZG-30-1	549	BF00065	BF0 D22-XAT-LB-EAK-20-02	567
BF000H8	BF0 NU1-XB-05K-MZG-11-01	549	BF00004	BF0 D22-XA-SB-EAK-20-02	567
BF0003R	BF0 18A-XAG-MZG-15-0,5	549	BF000AT	BF0 D13-XB-AB-EAK-10-01	567
BF0003T	BF0 18A-XAG-MZG-15-1	549	BF0005A	BF0 D13-XA-JB-EAK-20-02	567
BF0002U	BF0 18A-XAC-SMG-30-0,5	551	BF00062	BF0 D22-XA-MB-PAK-10-02	567
BF0002W	BF0 18A-XAC-SMG-30-1	551	BF0005Z	BF0 D22-XA-CD-EAK-110-02	567
BF0004M	BF0 18V-XAC-MZG-30-0,5	551	BF000AR	BF0 D13-XV-AK-EAK-50-02	567
BF0004P	BF0 18V-XAC-SMG-30-0,5	551	BF00060	BF0 D22-XA-ED-EAK-250-02	567
BF0004R	BF0 18V-XAC-SMG-30-1	551	BOH005J	BOH TI-G02-001-01-S49F	587
BF0003H	BF0 18A-XAF-MZG-15-0,5	551	BOH000C	BOH TK-G02-001-01-S49F	587
BF0003J	BF0 18A-XAF-MZG-15-1	551	BOH000A	BOH TR-G02-001-01-S49F	587
BF0003M	BF0 18A-XAF-SMG-15-0,5	551	BOH000J	BOH TJ-G02-001-01-S49F	587
BF0003N	BF0 18A-XAF-SMG-15-1	553	BOH000E	BOH TK-M03-005-01-S49F	587
BF00031	BF0 18A-XAE-MZG-30-0,5	553	BOH0061	BOH TI-M03-001-01-S49F	587
BF00032	BF0 18A-XAE-MZG-30-1	553	BOH000U	BOH TK-M03-001-01-S49F	587
BF00037	BF0 18A-XAE-SMG-30-0,5	553	BOH000T	BOH TR-M03-001-01-S49F	587
BF00038	BF0 18A-XAE-SMG-30-1	553	BOH00E6	BOH TK-M04-020-01-S49F	589
BF0003C	BF0 18A-XAE-UZG-30-0,5	553	BOH00E5	BOH TR-M04-020-01-S49F	589
BF0003E	BF0 18A-XAE-UZG-30-1	553	BOH0010	BOH TR-G05-005-02-S49F	589
BF0004U	BF0 18V-XAD-MZG-30-0,5	553	BOH000F	BOH TK-M05-006-01-S49F	589
BF0004Y	BF0 18V-XAD-SMG-30-0,5	555	BOH0065	BOH TI-M05-003-01-S49F	589
BF0004Z	BF0 18V-XAD-SMG-30-1	555	BOH0013	BOH TK-M05-003-01-S49F	589
BF0005Y	BF0 D22-LD-EAK-10-20	555	BOH000Y	BOH TR-M05-003-01-S49F	589
BF0000C	BF0 N22-LA-FB-EAK-05-01	555	BOH006H	BOH TI-M06-002-01-S49F	589
BF0005R	BF0 D22-LA-RB-EAK-10-02	555	BOH000K	BOH TR-M06-002-02-S49F	591
BF0005M	BF0 D22-LA-KB-EAK-10-02	555	BOH000H	BOH TL-M06-007-02-S49F	591
BF0005U	BF0 D22-LAP-KB-EAK-15-02	555	BOH0012	BOH TK-M08-004-02-S49F	591
BF0005T	BF0 D22-LAH-KB-EAK-10-02	555	BOH006P	BOH TI-Q06-001-01-S49F	591
BF0005W	BF0 D22-LAT-KB-EAK-10-02	557	BOH000P	BOH TK-Q06-001-01-S49F	591
BF0005N	BF0 D22-LA-NB-EAK-10-02	557	BOH000N	BOH TR-Q06-001-01-S49F	591
BF00002	BF0 D22-LA-TB-EAK-10-02	557	BOH000R	BOH TJ-Q06-001-01-S49F	591
BF00051	BF0 D10-LA-CB-EAK-05-02	557	BOH00EL	BOH AI-R034-025-01-S49F	591
BF000AY	BF0 D22-LAT-YB-EAK-10-0,5	557	BOH001Z	BOH TK-R003-007-01-S49F	593
BF00057	BF0 D13-LA-WB-EAK-05-02	557	BOH0020	BOH TR-R010-008-02-S49F	593
BF0005P	BF0 D22-LA-QB-PAK-05-02	557	BOH007A	BOH TJ-R010-008-01-S49F	593
BF000H6	BF0 D22-LAH-JD-EAK-10-02	557	BOH002E	BOH TK-R018-002-01-S49F	593
BF00056	BF0 D13-LA-QB-EAK-05-02	559	BOH002C	BOH TK-R018-001-01-S49F	593
BF000AW	BF0 D22-LAH-BK-EAK-10-02	559	BOH002H	BOH TK-R027-004-01-S49F	593
BF000C8	BF0 D25 LA-HD-EAK-465-02	559	BOH002F	BOH TK-R027-003-01-S49F	593
BF000C6	BF0 D10-LAH-CK-EAK-05-02	559	BOH0024	BOH AR-R113-010-01-S49F	593
BF000C7	BF0 D10-LAH-DK-EAK-05-02	559	BOH002M	BOH AI-R165-011-01-S49F	595
BF000AP	BF0 D22-LA-GD-EAK-52-02	559	BOH0002	BOH DI-G02-001-01-S49F	595
BF00067	BF0 D25-LA-CD-EAK-110-02	559	BOH0003	BOH DR-G02-001-01-S49F	595
BF000C5	BF0 D25-LA-ED-EAK-250-0,5	559	BOH0004	BOH DI-M03-001-01-S49F	595
BF00068	BF0 D25-LA-ED-EAK-250-02	561	BOH0009	BOH DR-M03-001-01-S49F	595

794 | Alphanumeric Index | Sorted by part number

BOH003C	BOH DI-G05-002-01-S49F	595	BOD000W	BOD 63M-LA04-S115	621
BOH0006	BOH DK-G05-002-01-S49F	595	BOD0010	BOD 63M-LB02-S115	623
BOH0005	BOH DR-G05-002-01-S49F	595	BOD0011	BOD 63M-LB04-S115	623
BOH003M	BOH DI-M06-002-01-S49F	597	BOD001J	BOD 66M-LA12-S92	623
BOH0008	BOH DK-M06-002-01-S49F	597	BOD001E	BOD 66M-LA14-S92	623
BOH0007	BOH DR-M06-002-01-S49F	597	BOD001H	BOD 66M-RA11-S92	623
BOH003W	BOH DI-Q06-001-01-S49F	597	BOD001K	BOD 66M-LB12-S92	623
BOH000M	BOH DK-Q06-001-01-S49F	597	BOD001F	BOD 66M-LB14-S92	623
BOH000L	BOH DR-Q06-001-01-S49F	597	BOD001C	BOD 66M-RB11-S92	623
BOH002K	BOH DK-R002-006-01-S49F	597	BMF00LC	BMF 235K-H-PI-C-A8-S4-00,3	635
BOH0028	BOH DK-R018-002-01-S49F	597	BMF00L6	BMF 235K-H-PS-C-A2-S75-00,3	635
BOH0027	BOH DK-R018-001-01-S49F	599	BMF00C4	BMF 235K-PS-C-2A-SA2-S49-00,3	635
BOH002A	BOH DK-R027-004-01-S49F	599	BMF00C5	BMF 235K-PS-C-2A-SA2-S4-00,3	635
BOH0029	BOH DK-R027-003-01-S49F	599	BMF00FY	BMF 235K-PS-C-2A-SA4-S4-00,3	635
BOH002L	BOH FK-Z001-001-01-S49F	599	BMF00H5	BMF 235K-PS-C-2A-SA93-S4-00,3	635
BOH001M	BOH AR-F40-001-01-S49F	599	BMF00C6	BMF 235K-PO-C-2A-SA2-S49-00,3	635
BOH001N	BOH AR-F40-002-01-S49F	599	BMF00C2	BMF 235K-NS-C-2A-SA2-S49-00,3	635
BOH001P	BOH AR-F80-003-01-S49F	599	BMF00H3	BMF 235K-PS-C-2A-SA93-S49-00,3	637
BOH001R	BOH TR-T16-001-01-S49F	599	BMF00CF	BMF 235K-PS-C-2A-SA2-S49-00,5	637
BOH001Y	BOH TR-T32-001-01-S49F	601	BMF00F5	BMF 235K-PS-C-2A-SA2-S49-01	637
BOH001U	BOH TJ-T32-001-01-S49F	601	BMF00KH	BMF 235K-H-PS-C-A2-PU-02	637
BOH0019	BOH TR-T48-001-01-S49F	601	BMF00AR	BMF 235K-PS-C-2A-PU-02	637
BOH0015	BOH TJ-T48-001-01-S49F	601	BMF00AU	BMF 235K-NS-C-2A-PU-02	637
BOH001A	BOH TR-T64-001-01-S49F	601	BMF00J6	BMF 235K-PS-C-2A-SA5-02	639
BOH0016	BOH TJ-T64-001-01-S49F	601	BMF00CH	BMF 235K-PS-C-2A-PU-05	639
BAE00NE	BAE SA-OH-035-PP-DV02	609	BMF007Y	BMF 315M-PS-D-2-SA3-S49-00,3	639
BAE00NF	BAE SA-OH-035-PP-S75G	609	BMF0081	BMF 315M-PS-W-2-S4-00,3	639
BAE00PR	BAE SA-OH-035-NP-DV02	609	BMF0082	BMF 315M-PS-W-2-S49-00,3	639
BAE00PT	BAE SA-OH-035-NP-S75G	609	BMF00C1	BMF 315M-PS-W-2-SA4-S4-00,3	639
BAE00NH	BAE SA-OH-038-UA-DV02	609	BMF007U	BMF 315M-PS-D-2-SA3-PU-02	641
BAE00N6	BAE SA-OH-038-UA-S75G	609	BMF007W	BMF 315M-PS-D-2-SA3-PU-05	641
BAE00N4	BAE SA-OH-038-IC-DV02	609	BMF00E4	BMF 255K-N-06-EEX	641
BAE00N5	BAE SA-OH-038-IC-S75G	609	BMF00K9	BMF 203K-H-PI-C-A8-S75-00,3	645
BAE00YC	BAE SA-OH-050-PP-DV02	611	BMF00JH	BMF 203K-H-PS-C-A2-S75-00,3	645
BAE00Y7	BAE SA-OH-050-PP-S75G	611	BMF00JF	BMF 203K-H-PS-C-A2-PU-02	645
BAE00NJ	BAE SA-OH-040-PP-DV02	611	BMF00A6	BMF 204K-PS-C-2A-SA2-S4-00,3	645
BAE00N7	BAE SA-OH-040-PP-S75G	611	BMF0002	BMF 204K-PS-C-2A-SA2-S49-00,3	645
BOD001L	BOD 6K-RA02-S75	615	BMF0003	BMF 204K-PS-C-2A-SA2-S49-00,5	645
BOD001R	BOD 6K-RA03-S75	615	BMF0001	BMF 204K-PS-C-2A-PU-02	647
BOD001Z	BOD 6K-RA04-S75	615	BMF00FC	BMF 214K-PS-C-2A-SA2-S4-00,3	647
BOD000L	BOD 21M-LA01-S92	615	BMF00A2	BMF 214K-PS-C-2A-SA2-S49-00,3	647
BOD000M	BOD 21M-LA02-S92	615	BMF00A3	BMF 214K-PS-C-2A-SA2-S49-00,5	647
BOD000N	BOD 21M-LA04-S92	615	BMF00A1	BMF 214K-PS-C-2A-PU-02	647
BOD000P	BOD 21M-LB01-S92	615	BMF00E5	BMF 214K-PS-C-2A-S4-03	647
BOD000R	BOD 21M-LB02-S92	615	BMF00E3	BMF 214K-PS-C-2A-PU-05	649
BOD000T	BOD 21M-LB04-S92	617	BMF00HF	BMF 233K-PS-C-2A-SA2-S49-00,3	649
BOD0020	BOD 23K-LI01-S4	617	BMF00HA	BMF 233K-PS-C-2A-PU-02	649
BOD001N	BOD 23K-LA01-S92	617	BMF00ER	BMF 243K-PS-C-2A-SA2-S4-00,3	649
BOD001P	BOD 23K-LB01-S92	617	BMF00EL	BMF 243K-PS-C-2A-SA2-S49-00,3	649
BOD0023	BOD 24K-LI04-S92	617	BMF00EN	BMF 243K-NS-C-2A-SA2-S49-00,3	649
BOD0026	BOD 24K-LI05-S92	617	BMF00H6	BMF 243K-PS-C-2A-SA93-S4-00,3	651
BOD0021	BOD 24K-LA02-S92	617	BMF00H7	BMF 243K-PS-C-2A-SA93-S49-00,3	651
BOD0024	BOD 24K-LA03-S92	617	BMF00EF	BMF 243K-PS-C-2A-PU-02	651
BOD0022	BOD 24K-LB02-S92	619	BMF001L	BMF 103K-PS-C-2A-SA2-S49-00,3	655
BOD0025	BOD 24K-LB03-S92	619	BMF001P	BMF 103K-PS-C-2A-SA7-S49-00,3	655
BOD0002	BOD 26K-LA01-S4-C	619	BMF001K	BMF 103K-PS-C-2A-S4-00,5	655
BOD0004	BOD 26K-LA02-S4-C	619	BMF001M	BMF 103K-PS-C-2A-SA2-S49-00,5	655
BOD0005	BOD 26K-LB04-S115-C	619	BMF001E	BMF 103K-PS-C-2A-PU-02	655
BOD0006	BOD 26K-LB05-S115-C	619	BMF001F	BMF 103K-PS-C-2A-PU-03	655
BOD0007	BOD 26K-LB06-S92-C	619	BMF0041	BMF 303K-PS-C-2A-S49-00,2	655
BOD0008	BOD 26K-LB07-S92-C	619	BMF0042	BMF 303K-PS-C-2A-SA2-S49-00,2	657
BOD000C	BOD 26K-LBR04-S115-C	621	BMF0043	BMF 303K-PS-C-2A-SA2-S49-00,3	657
BOD000E	BOD 26K-LBR05-S115-C	621	BMF0049	BMF 303K-PS-C-2A-SA6-S49-00,3	657
BOD001Y	BOD 37M-LPR02-S115	621	BMF004C	BMF 303K-PS-C-2A-SA7-S49-00,3	657
BOD001U	BOD 37M-LA01-S92	621	BMF0040	BMF 303K-PS-C-2A-S4-00,5	657
BOD001W	BOD 37M-LB01-S92	621	BMF0044	BMF 303K-PS-C-2A-SA2-S49-00,5	657
BOD0012	BOD 63M-LI06-S4	621	BMF004A	BMF 303K-PS-C-2A-SA6-S49-00,5	657
BOD000U	BOD 63M-LA02-S115	621	BMF0039	BMF 303K-PO-C-2A-SA2-S49-00,3	657

BMF0045	BMF 303K-PS-C-2A-SA2-S49-00,7	659
BMF0046	BMF 303K-PS-C-2A-SA2-S49-01	659
BMF0047	BMF 303K-PS-C-2A-SA2-S49-01,5	659
BMF003U	BMF 303K-PS-C-2A-PU-02	659
BMF003W	BMF 303K-PS-C-2A-PU-03	659
BMF0048	BMF 303K-PS-C-2A-SA6-PU-03	659
BMF003Y	BMF 303K-PS-C-2A-PU-05	659
BMF008E	BMF 305M-PS-C-2-S4	661
BMF008F	BMF 305M-PS-C-2-S49	661
BMF0066	BMF 305M-PS-C-2-SA4-S49	661
BMF0067	BMF 305M-PS-W-2-S4	661
BMF005F	BMF 305K-PS-C-2-S49-00,1	661
BMF0058	BMF 305K-PS-C-2-S4-00,2	661
BMF005H	BMF 305K-PS-C-2-S49-00,2	661
BMF005K	BMF 305K-PS-C-2-SA2-S49-00,2	663
BMF005W	BMF 305K-PS-C-2-SA5-S49-00,2	663
BMF005L	BMF 305K-PS-C-2-SA2-S49-00,3	663
BMF005M	BMF 305K-PS-C-2-SA2-S49-00,4	663
BMF0059	BMF 305K-PS-C-2-S4-00,5	663
BMF005J	BMF 305K-PS-C-2-S49-00,5	663
BMF0055	BMF 305K-PO-C-2-SA2-S49-00,3	663
BMF0063	BMF 305K-R-PS-F-3-S49-00,2	663
BMF005N	BMF 305K-PS-C-2-SA2-S49-00,5	665
BMF005P	BMF 305K-PS-C-2-SA2-S49-00,6	665
BMF005A	BMF 305K-PS-C-2-S4-00,8	665
BMF0061	BMF 305K-PS-W-2-SA3-S4-00,8	665
BMF005R	BMF 305K-PS-C-2-SA2-S49-01	665
BMF005C	BMF 305K-PS-C-2-S4-01,5	665
BMF0056	BMF 305K-PS-C-2-PU-02	667
BMF0057	BMF 305K-PS-C-2-PU-05	667
BMF0087	BMF 32M-PS-C-2-S4	667
BMF0088	BMF 32M-PS-C-2-S49	667
BMF0089	BMF 32M-PS-C-2-SA1-S49	667
BMF008A	BMF 32M-PS-W-2-S4	667
BMF0062	BMF 305K-R-PS-F-3-03	667
BMF0064	BMF 305K-R-US-L-3-03	667
BMF0025	BMF 21K-NS-C-2-S49	673
BMF0029	BMF 21K-PS-C-2-S49	673
BMF0027	BMF 21K-PS-C-2-PU-03	673
BMF0028	BMF 21K-PS-C-2-PU-05	673
BMF001R	BMF 103K-PS-C-2A-SA95-S75-00,3	677
BMF004E	BMF 303K-PS-C-2A-SA95-S4-00,3	677
BMF004F	BMF 303K-PS-C-2A-SA95-S75-00,3	677
BMF0005	BMF 204K-PS-C-2A-SA95-S4-00,3	677
BMF0006	BMF 204K-PS-C-2A-SA95-S75-00,3	677
BMF00A4	BMF 214K-PS-C-2A-SA95-S4-00,3	677
BMF00A5	BMF 214K-PS-C-2A-SA95-S75-00,3	679
BMF00F9	BMF 243K-PS-C-2A-SA95-S4-00,3	679
BMF00ET	BMF 243K-PS-C-2A-SA95-S75-00,3	679
BMF00C9	BMF 235K-PS-C-2A-SA95-S4-00,3	679
BMF00CA	BMF 235K-PS-C-2A-SA95-S75-00,3	679
BMF0084	BMF 315M-PS-W-2-SA95-S4-00,3	679
BMF000K	BMF 07M-PS-D-2-S49-00,3	687
BMF000L	BMF 07M-PS-D-2-SA2-S49-00,3	687
BMF000J	BMF 07M-PS-D-2-S4-00,6	687
BMF000F	BMF 07M-PS-C-2-KPU-03	687
BMF000P	BMF 08M-PS-C-2-KPU-02	687
BMF000R	BMF 08M-PS-C-2-KPU-03	687
BMF000T	BMF 08M-PS-C-2-KPU-05	687
BMF000N	BMF 08M-NS-C-2-KPU-03	687
BES01FE	BES 516-346-H2-Y-S4	717
BES01FF	BES 516-346-H2-Y-S49	717
BES01FC	BES 516-346-H2-Y	717
BES01EW	BES 516-341-H2-Y-S4	717
BES01EU	BES 516-341-H2-Y	717
BES017M	BES 516-161-H3-L	717
BES01ZK	BES 516-344-H2-Y	717
BES01ET	BES 516-340-H2-Y	717

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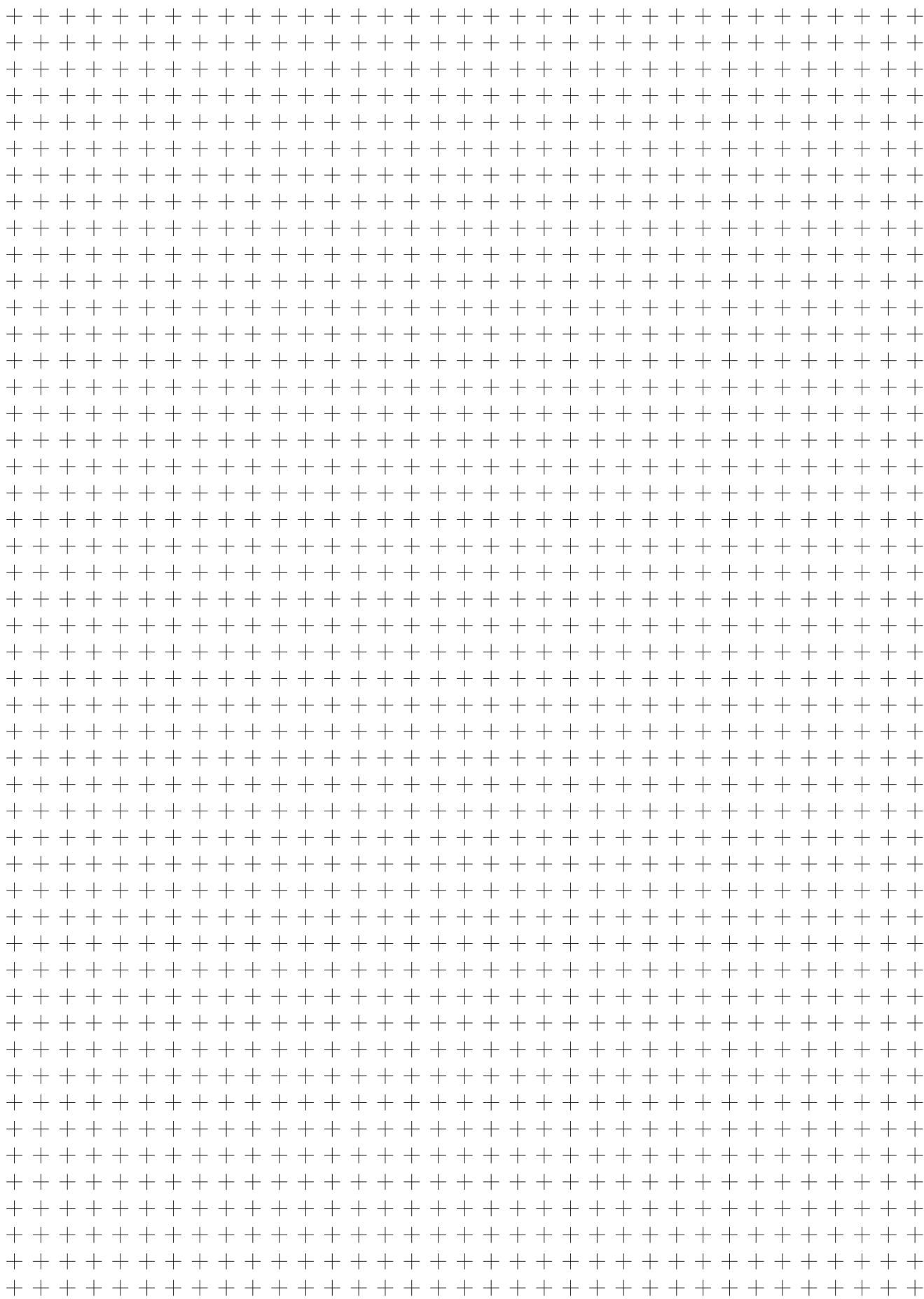
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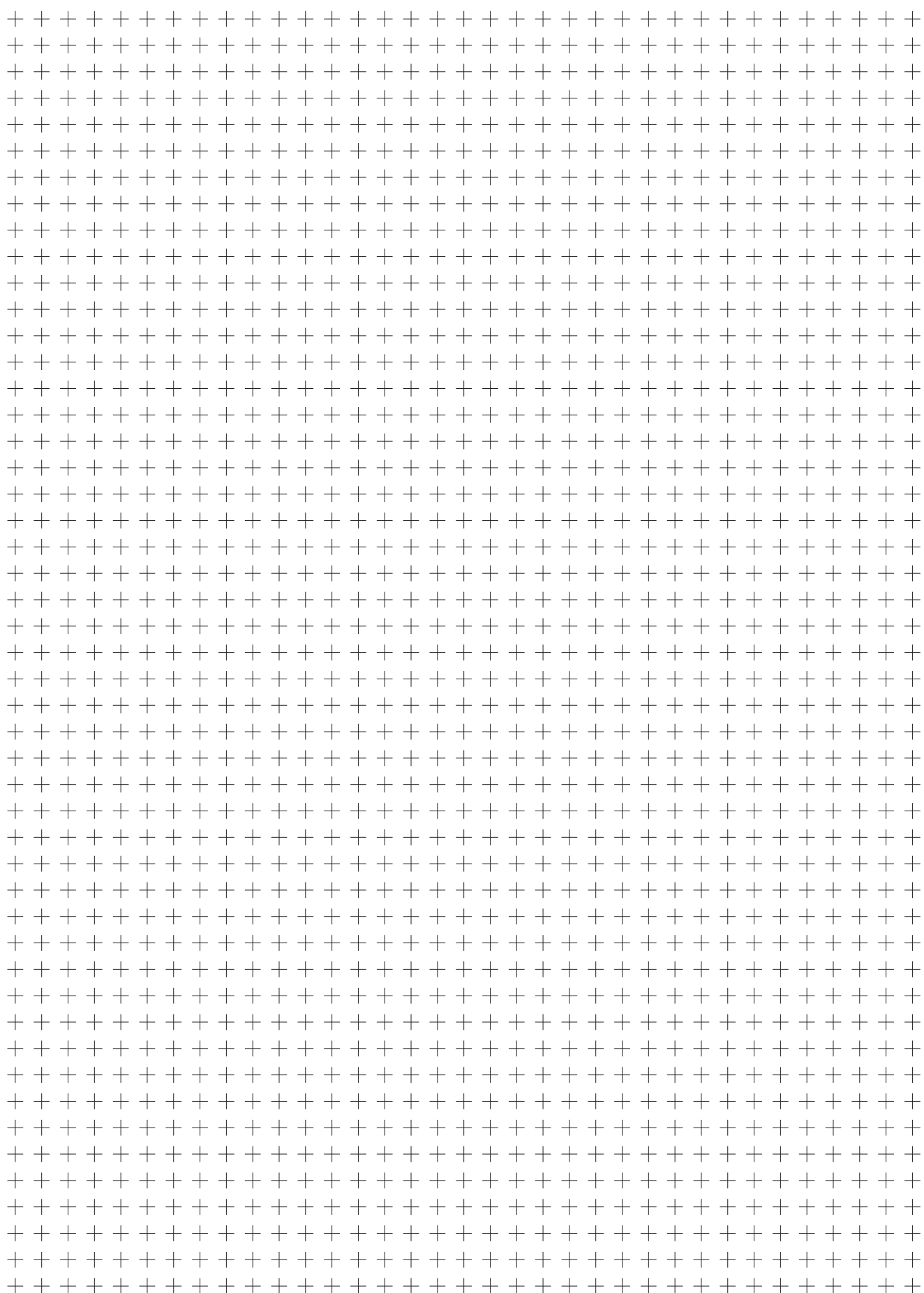
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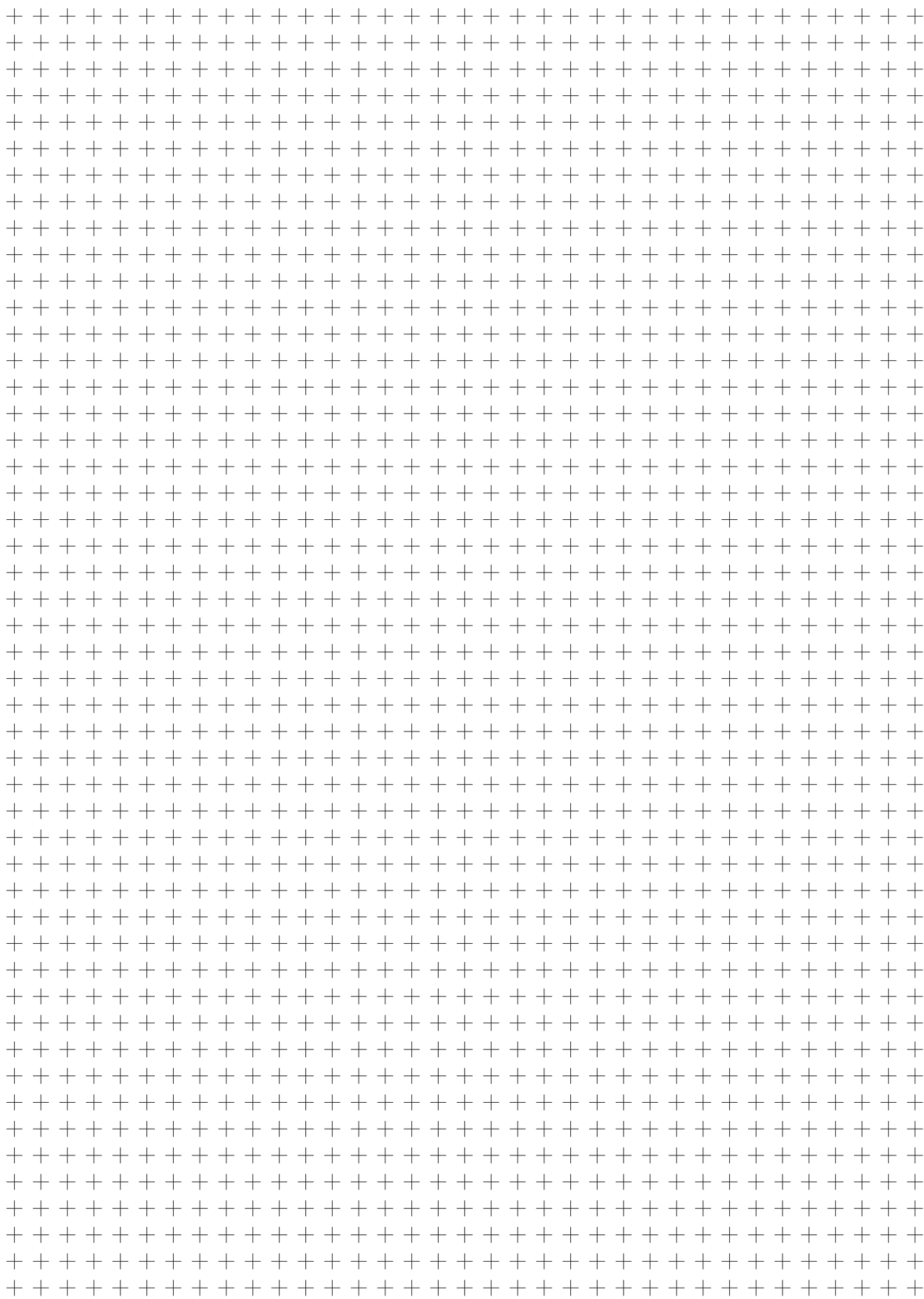
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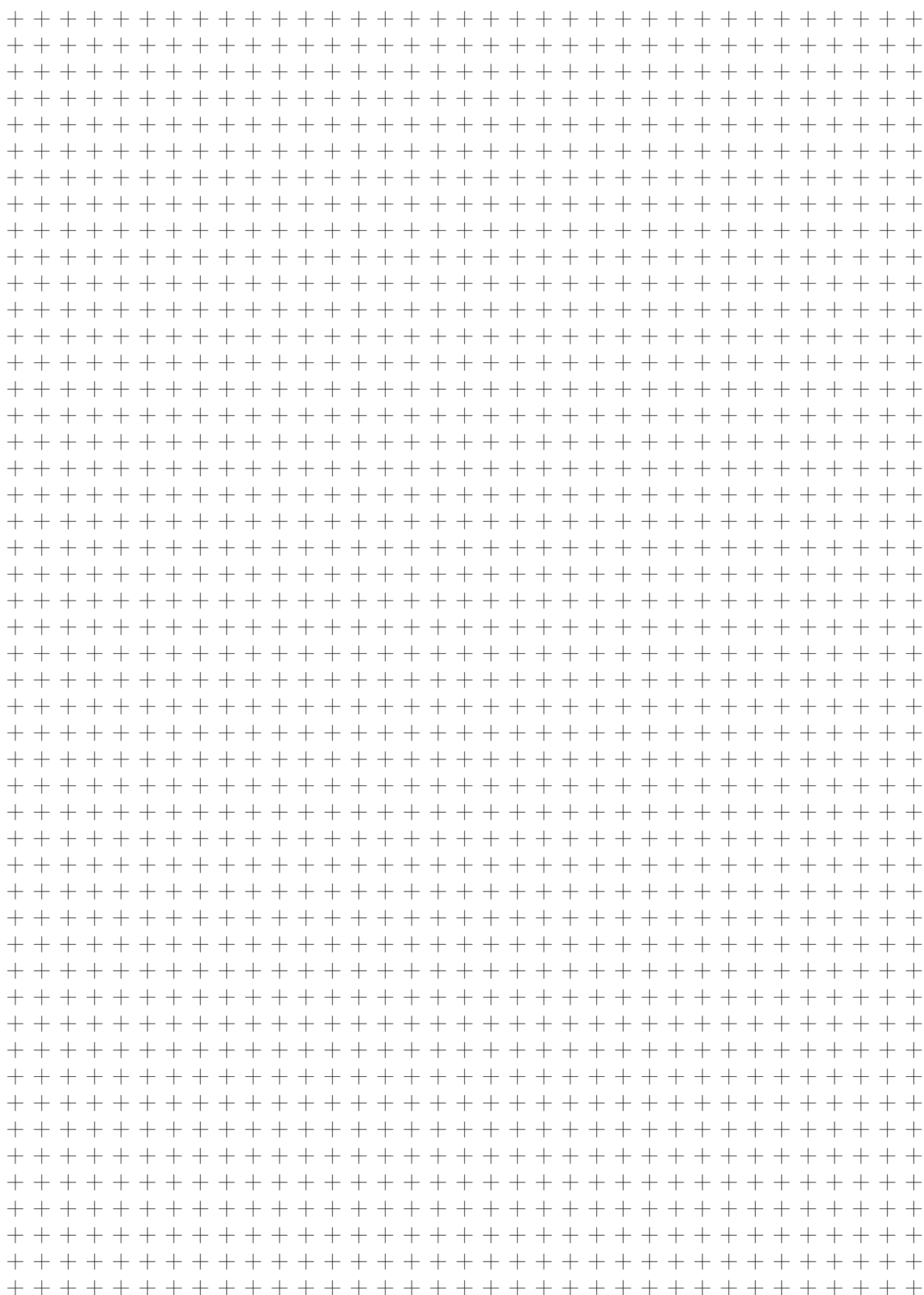
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