

## Accessories Line

The optimum peripherals for the sensor



**more added value**



## Accessories Line

The optimum peripherals for the sensor



With over 50 years of sensor experience, Balluff is a leading global sensor specialist with its own line of connectivity products for every area of factory automation. Balluff is well represented on all continents; the German headquarters as well as 54 representatives and subsidiaries are tightly networked internationally.

Balluff stands for comprehensive systems from a single source, continuous innovation, the most modern technology, highest quality and greatest reliability and prides itself on distinctive customer orientation, custom-tailored solutions, fast worldwide service and outstanding application assistance. In short: for reliable, expert partnership.

Whether electronic and mechanical sensors, rotary and linear transducers, identification systems or optimized connectivity products for high-performance automation. Balluff not only masters the entire technological range with all operating principles, but also offers innovative technology and the most modern electronics. Balluff technology can be used anywhere in the world, since it meets even regional quality standards. Wherever you are in the world, Balluff technology is never far away. You won't have to look far for your nearest Balluff expert.

Balluff products increase throughput, quality and productivity day in and day out. They satisfy prerequisites for meeting demands for greater performance and cost reductions on the global market. Including in the most demanding areas. No matter how stringent your requirements may be, Balluff delivers state-of-the-art solutions.

**With the complete Balluff accessories line, you are well equipped for optimal integration of the sensors into your automation process.**



**more added value**

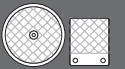
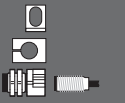
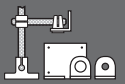
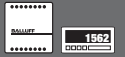
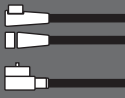
- Easy to use
- Exact positioning of the sensors
- High machine uptime



# Accessories Line



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## Accessories Line

Optimum integration, simple mounting

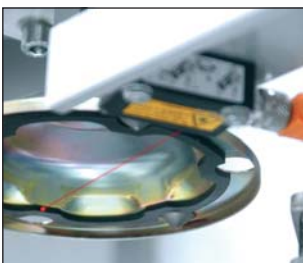
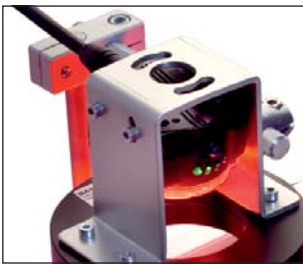
With the complete Balluff accessories line, you are well equipped for optimal integration of the sensors into your automation process. Because reliable products make assembly easier than you ever thought possible.

Only at Balluff will you find the eccentric clamp which requires no tools and attaches the sensor with just a click. Sensor integration has never been so easy. Save time and lower costs while ensuring high machine uptime.

Ease of handling comes standard with all our products. The accessory line is designed specifically for our sensors and positions sensors quickly and precisely.

### Balluff accessories in use

- for adapting sensors to a specific application
- for simplifying work during mounting and alignment
- for protecting the sensors
- as an interface to the controller

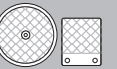
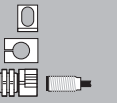
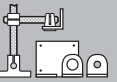
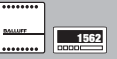
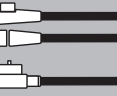


## Accessories Line

Optimum integration, simple mounting



i



# Accessories Line

## Product overview

Chapter	BCC	BPI	Electrical Devices BAE
Contents Page	17	23	27



Description	Connectors and cables, valve connectors	Passive splitters	Pulse extender	Function diagnostics	Analog switching amplifier	Tester, tester/programmer	Signal adapters	Digital display	Power supplies
From page	18	24	28	29	30	33	34	37	38

Application for									
Inductive sensors				■	■	■	■	■	
Photoelectric sensors				■		■	■		
Capacitive sensors				■		■	■		
Ultrasonic sensors				■		■	■	■	
Vision sensors									
Analog sensors					■	■		■	
Reflectors for photoelectric sensors									

Sizes									
Tubular-style housings									
Ø 3 mm									
Ø 4 mm									
Ø 5 mm, M5									
Ø 6.5 mm									
Ø 8 mm, M8									
Ø 10 mm									
Ø 12 mm, M12									
Ø 14.5 mm									
Ø 16 mm, M16									
Ø 18 mm, M18									
Ø 20 mm									
Ø 22 mm									
M24									
Ø 30 mm, M30									
Ø 36 mm, M36									
Block style housings									
8x8 mm									
40x40 mm Unicomact									
40x40 mm Unisensor									
Through-beam fork sensors									
Angle sensors									
Other block style housings									

Housing material									
Plastic				■	■	■	■	■	■
Metal						■			
Stainless steel									

Special features									
With positive stop			↑	↑					↑
Without positive stop									
Weld immune (PTFE coated)									

Information and technical data can be found in catalog "Industrial Networking and Connectivity" or online at: [www.balluff.com](http://www.balluff.com)

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# Accessories Line

## Product overview

Chapter	Fasteners BAM
Contents Page	65



Description	Holding system, mounting base	Weld protection, protective cover	Fixing nuts	Positive stops	Contact protectors	Tube switches	Cover nuts	Mounting clamps for row mounting	Nuts, sealing nuts
From page	86	88	90	92	94	96	98	100	102

Application for									
Inductive sensors	■	■	■	■	■	■	■	■	■
Photoelectric sensors			■						■
Capacitive sensors			■		■		■		■
Ultrasonic sensors									■
Analog sensors					■		■		■

Sizes									
Tubular-style housings									
Ø 3 mm			■						
Ø 4 mm			■	■		■			
Ø 5 mm, M5						■			
Ø 6.5 mm			■						
Ø 8 mm, M8			■	■	■	■			■
Ø 12 mm, M12					■		■	■	■
Ø 16 mm, M16							■		■
Ø 18 mm, M18					■		■		■
Ø 30 mm, M30					■		■		■
Ø 36 mm, M36							■		
Block style housings									
8x8 mm									
40x40 mm Unicomact	■	■							
40x40 mm Unisensor	■								
Other block style housings									

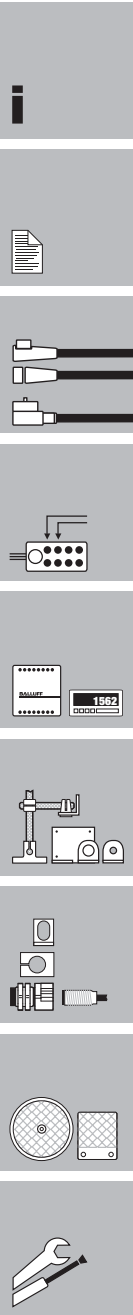
Housing material									
Plastic		■					■	■	■
Metal	■	■	■		■			■	■
Stainless steel				■		■			

Mounting characteristics									
With positive stop				■		■	■		
Without positive stop					■			■	
Weld immune (PTFE coated)		■					■		



# Accessories Line

## Product overview



### Accessories for photoelectric sensors

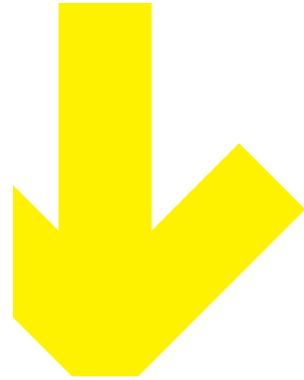
### Tools

105

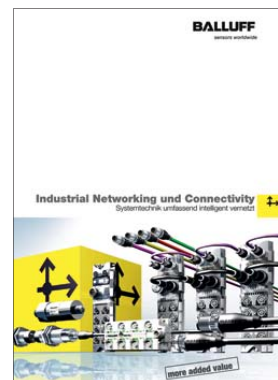
135



Reflectors (round, rectangular, laser, reflective foil ...)	Mounting brackets, mounting cuffs, mounting clamps	Apertures	Lenses	Neutral density filters	Cover nuts	90°-rotatable head, diagonal mirrors	Special accessories for fiber optics	BMF hex key, hex key set
106	114	123	126	128	129	130	132	136



You can find more accessories, e.g. bus modules, passive splitter boxes, plug connectors and power supplies, in our catalog "Industrial Networking and Connectivity" or online at: [www.balluff.com](http://www.balluff.com)





# Basic Information and Definitions

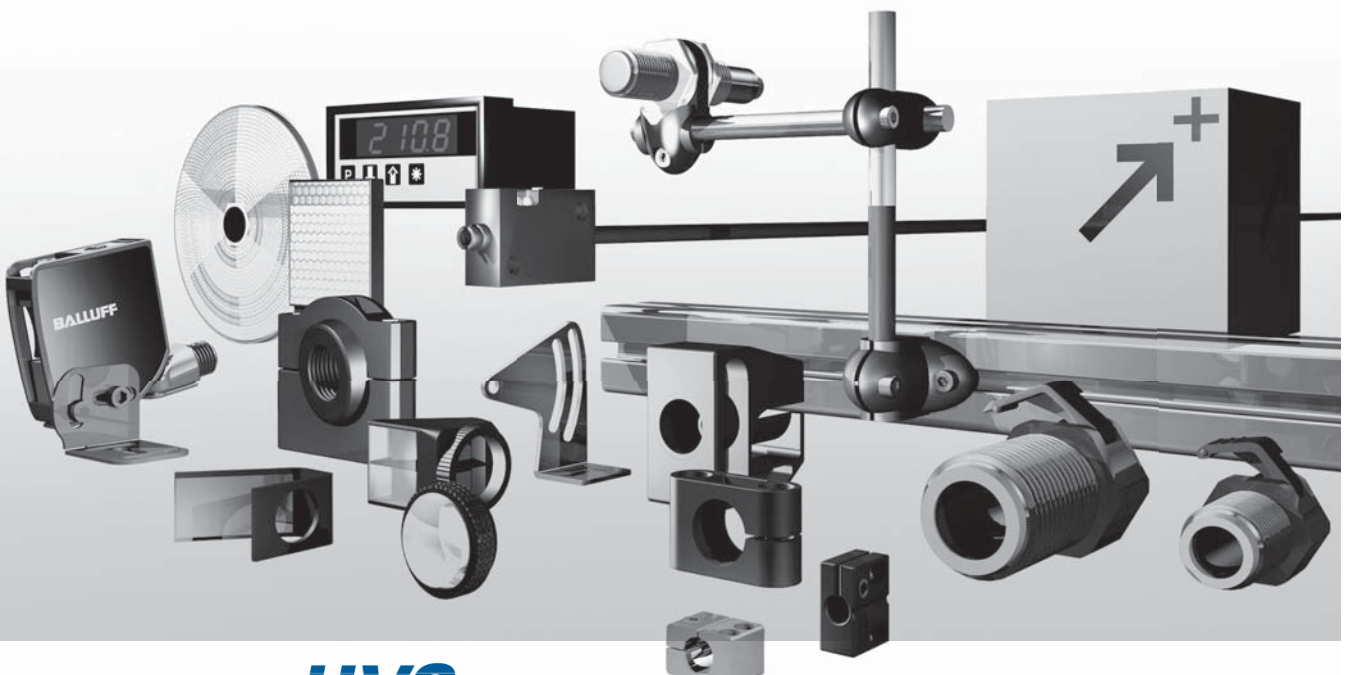
## Contents

<b>Mechanical</b>	12
<b>Quality</b>	14
<b>Operational Instructions</b>	15



Whether sensors are used in machine tools, in assembly and handling equipment, in packaging machines or in specialty machines. They all have one thing in common: if they are to work precisely, they need to be precisely positioned in the machine.

In demand are fasteners and holding systems that can be used for a wide range of different sensor applications. Balluff see themselves as a systems provider, and has not only sensors but also a correspondingly high-quality range of accessories in their lineup for optimally positioning, configuring or monitoring sensors in equipment and machines.



### Materials

Material	Use and characteristics
<b>Plastics</b>	
<b>ABS</b> Acrylonitrile Butadiene Styrene	Impact-resistant, stiff, limited chemical resistance. Some types flame-retardant. Used for housings.
<b>EP-GF</b> Fiberglass-reinforced Epoxy resin	Plastic with high strength and chemical resistance.
<b>GF</b> Fiberglass-reinforced plastic	High-quality, heavy-duty fiberglass plastic. Excellent corrosion behavior in aggressive environments.
<b>PA 6, PA 66, PA mod., PA 12</b> Polyamide	Good mechanical strength. Temperature resistance. PA 12 approved for food industry applications.
<b>PBT</b> Polybuteneterephthalate	High mechanical strength and temperature resistance. Some types flame-retardant. Good chemical resistance. Good oil resistance.
<b>PC</b> Polycarbonate	Clear, hard, elastic and impact resistant. Good temperature resistance. Limited chemical resistance.
<b>PMMA</b> Polymethylmethacrylate	Clear, transparent, hard, scratch-resistant, UV-resistant, mainly for optical applications.
<b>POM</b> Polyoxymethylene	High impact resistance, good mechanical strength. Good chemical resistance.
<b>PTFE</b> Polytetrafluorethylene	Best temperature and chemical resistance.
<b>PUR</b> Polyurethane	Elastic, abrasion-resistant, impact-resistant. Good resistance to oils, greases, solvents (used for gaskets and cable jackets).
<b>Metal</b>	
<b>Al</b> Aluminum wrought alloy	Standard aluminum for cut shaping. Can be anodized. Used for housings and mounting components.
<b>CuBe 2</b> Copper-beryllium bronze	Alloy, hardened, 250 HV3.
<b>CuZn</b> Brass	Standard housing material with surface protection.
<b>Steel</b> Machining steel	Alloyed steel for heavy-duty use.
<b>Stainless steel</b>	Excellent corrosion resistance and strength. Quality 1.4034, 1.4104: standard material. Quality 1.4305, 1.4301: standard material for foods industry. Quality 1.4401, 1.4404, 1.4571: for foods industry with higher requirements for chemical resistance at elevated temperatures.
<b>GD-Al</b> Cast aluminum	Low specific gravity. Good strength and resistance. Some types can be anodized.
<b>GD-Zn</b> Cast zinc	Good resistance and strength. Usually with protective surface coating.
Other	
<b>Glass</b>	Good chemical resistance and strength. Used primarily in optical applications (lenses, cover lenses).



**Insulation class** II □ EN 60947-5-2/IEC 60947-5-2

**Enclosure rating** The enclosure ratings IP 20, IP 40, IP 54, IP 64 up to IP 68 are in accordance with IEC 60529. Code letters IP (International Protection) designate protection against shock hazard, ingress of solid foreign bodies, and water, for electrical equipment.

**IP 69K**

Protection against ingress of water at high pressure and steam cleaning per DIN 40050 Part 9.

**First digit**

- 2 Protection against penetration of solid bodies larger than 12 mm, shielding from fingers and objects
- 4 Protection against penetration of solid bodies larger than 1 mm, shielding from tools and wires
- 5 Protection against harmful dust deposits, complete shock-hazard protection
- 6 Protection against penetration of dust, complete shock-hazard protection

**Second digit**

- 0 No special protection
- 4 Protection against water spraying from all directions against the piece of equipment concerned
- 5 Protection against a water jet from a nozzle, directed from all directions against the piece of equipment concerned
- 7 Protection against water, when the piece of equipment concerned (housing) is immersed in water under specified pressure and time conditions
- 8 Protection against water during continuous submersion

**Test conditions IP 67, IP 68 per BWN Pr. 20/27, IP 69K**

As per the standard, normal tap water without additives is used as a medium for testing the enclosure rating. Tap water is similar in its conductivity and viscosity to many coolants and lubricants. The chemical resistance properties, when used with other media, must be determined on a case-by-case basis due to the possible variations.

**Mounting torques** To ensure that the sensors are not mechanically destroyed during installation, make sure that you comply with the corresponding torque values. The permissible tightening torques can be found in the respective data sheets.

# Basic Information and Definitions

## Quality

### Quality management system acc. to DIN EN ISO 9001:2008

#### Balluff companies

Balluff GmbH	Germany
Balluff SIE Sensorik GmbH	Germany
Balluff Elektronika Kft	Hungary
Balluff Sensors (Chengdu) Co., Ltd.	China
Balluff Ltd.	Great Britain
Balluff Automation S.R.L.	Italy
Balluff Inc.	USA
Balluff GmbH	Austria
Balluff CZ, s.r.o	Czech Republic
Balluff Hy-Tech AG	Switzerland
Balluff Sensortechnik AG	Switzerland
Balluff Controles Eléctricos Ltda.	Brazil
Balluff de México S.A. de C.V.	Mexico
Balluff S.L.	Spain



### Environmental management system acc. to DIN EN ISO 14001:2005

#### Balluff companies

Balluff GmbH	Germany
Balluff Elektronika Kft	Hungary
Balluff Sensors (Chengdu) Co., Ltd.	China

### Balluff products comply with EU directives

Products that require labeling are subject to a conformity evaluation process according to the EU directive and the product is labeled with the CE marking.

Balluff products fall under the following EU directive:

2004/108/EC	EMC directive
-------------	---------------



### Approvals

... are granted by national and international institutions. Their symbols affirm that our products meet the specifications of these institutions.

"US Safety System" and "Canadian Standards Association" under the auspices of Underwriters Laboratories Inc. (cUL).





### Personal safety

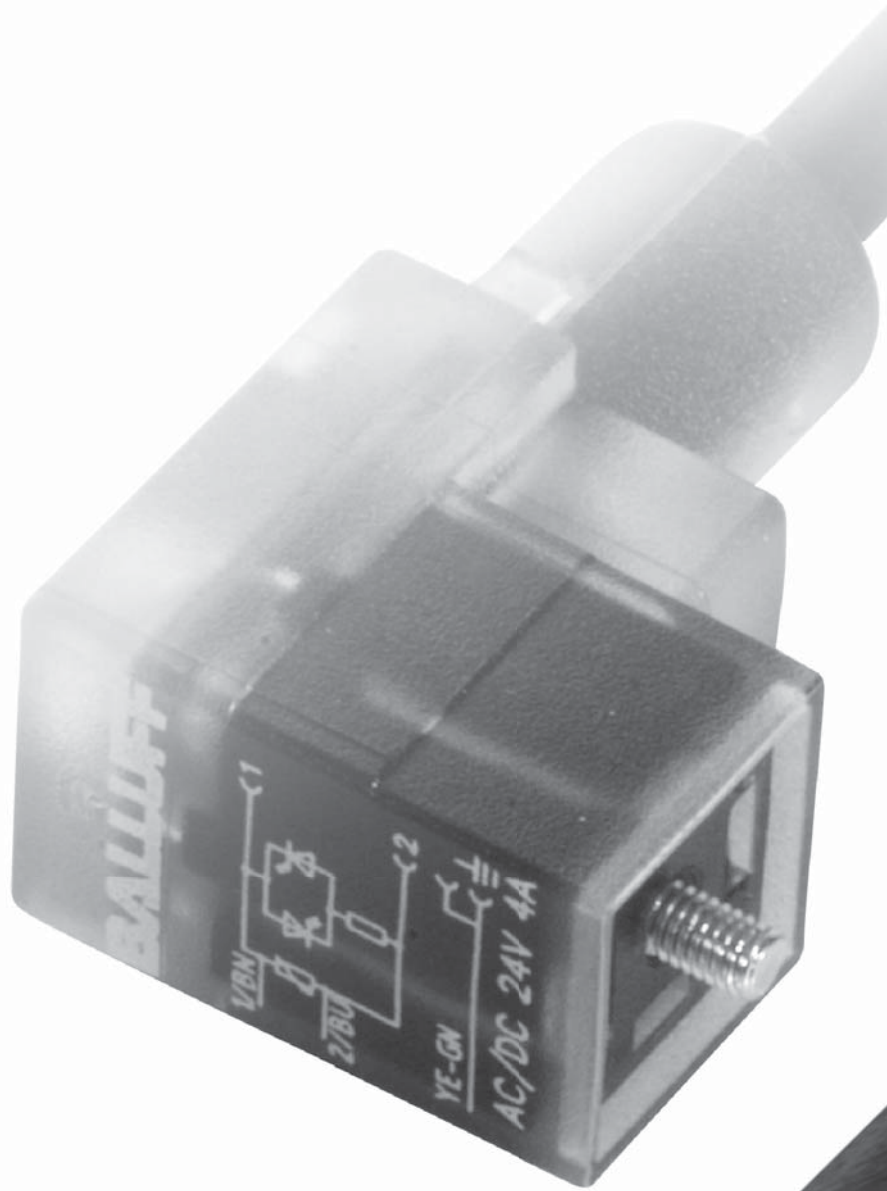
Unless otherwise noted, the products described in this catalog are not intended for applications in which the safety of persons depends on the function of the device (not considered a safety component according to EU directives).

### Important notes

The specifications in this catalog are based on our current knowledge and experience. Because of the variety of possible influences when using our products, these specifications do not absolve the user of responsibility for performing his own tests and checks. This applies, in particular, to the use of aggressive media such as cleaning agents, coolants and lubricants as well as hydraulic fluids.

No legally binding assurance of particular properties or suitability for a concrete application is implied by our specifications. Any protection rights and regulations are the responsibility of the recipient of our products.

Additional technical information on the products can be found in the data sheets or on [www.balluff.com](http://www.balluff.com)





# Connectors and Cables, Valve Connectors

**Connectors and  
cables with  
corresponding accessories**

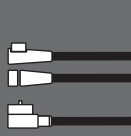
Information  
and cross-references

18

**Valve connectors with  
corresponding accessories**

Information  
and cross-references

20



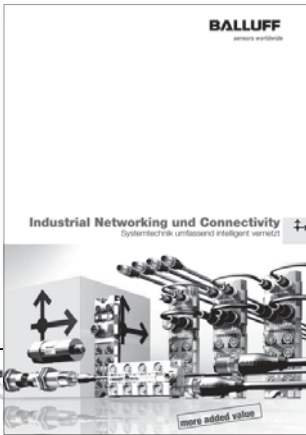
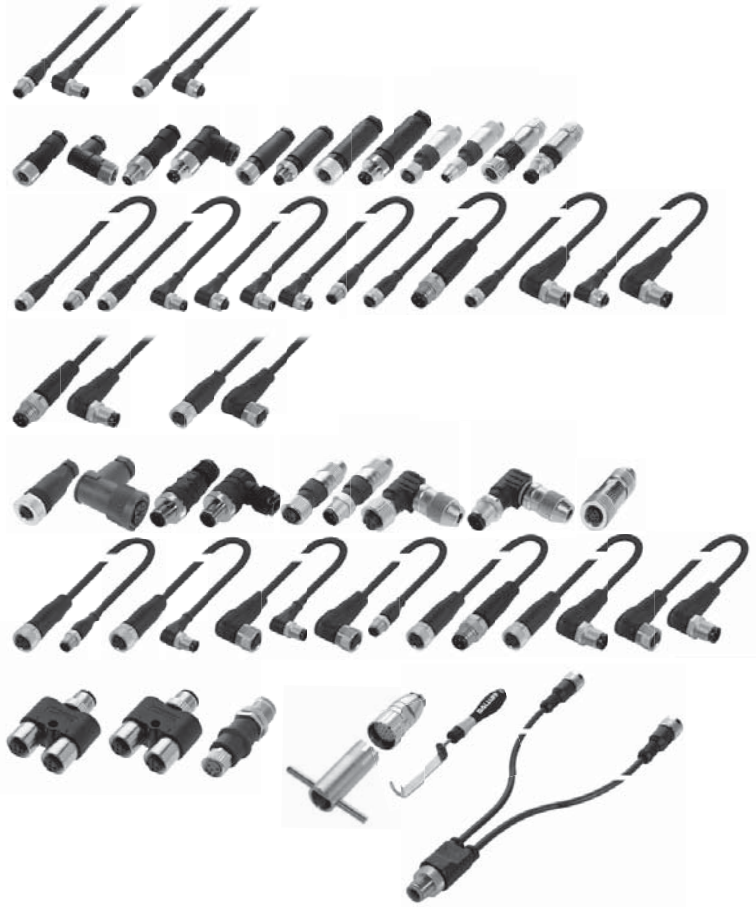
# Connectors and Cables

## Faster, simpler connection

**Faster, simpler connection**  
Clearly visible markings on the grip for easy alignment. The special BCC tool allows you to screw on the connector or set the tightening torque via the hex.

**Highly visible LEDs**  
The LEDs are clearly visible from various directions, even under difficult lighting conditions.

## Connectors and Cables



Learn more about our connectors and cables and our broad "Industrial Networking and Connectivity" product line in our brochures or online!

**Order your catalog online, via telephone or by e-mail.**

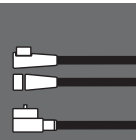
**Verbindungs-kabel**  
MS-Buchse gerawickelt ↔ MS-Stecker gerade oder gewickelt, 3-polig, ohne und mit LED

Bestandsnr. und Beschreibung	Spannungsversorgung	Spannungsversorgung	Spannungsversorgung	Spannungsversorgung
BCC M151-M153-30-300-P0000-000	BCC M151-M153-30-300-P0000-000	BCC M151-M153-30-300-P0000-000	BCC M151-M153-30-300-P0000-000	BCC M151-M153-30-300-P0000-000
BCC M151-M153-30-300-P0004-006	BCC M151-M153-30-300-P0004-006	BCC M151-M153-30-300-P0004-006	BCC M151-M153-30-300-P0004-006	BCC M151-M153-30-300-P0004-006
BCC M151-M153-30-300-P0004-015	BCC M151-M153-30-300-P0004-015	BCC M151-M153-30-300-P0004-015	BCC M151-M153-30-300-P0004-015	BCC M151-M153-30-300-P0004-015
BCC M151-M153-30-300-P0004-020	BCC M151-M153-30-300-P0004-020	BCC M151-M153-30-300-P0004-020	BCC M151-M153-30-300-P0004-020	BCC M151-M153-30-300-P0004-020
BCC M151-M153-30-300-P0004-026	BCC M151-M153-30-300-P0004-026	BCC M151-M153-30-300-P0004-026	BCC M151-M153-30-300-P0004-026	BCC M151-M153-30-300-P0004-026
BCC M151-M153-30-300-V0004-015	BCC M151-M153-30-300-V0004-015	BCC M151-M153-30-300-V0004-015	BCC M151-M153-30-300-V0004-015	BCC M151-M153-30-300-V0004-015
BCC M151-M153-30-300-V0004-020	BCC M151-M153-30-300-V0004-020	BCC M151-M153-30-300-V0004-020	BCC M151-M153-30-300-V0004-020	BCC M151-M153-30-300-V0004-020
BCC M151-M153-30-300-V0004-026	BCC M151-M153-30-300-V0004-026	BCC M151-M153-30-300-V0004-026	BCC M151-M153-30-300-V0004-026	BCC M151-M153-30-300-V0004-026

**Steckverbinder**  
MS-Buchse gerade und gewickelt, 3-polig, ohne und mit LED

Bestandsnr. und Beschreibung	Spannungsversorgung	Spannungsversorgung	Spannungsversorgung	Spannungsversorgung
BCC M151-M153-30-300-P0000-000	BCC M151-M153-30-300-P0000-000	BCC M151-M153-30-300-P0000-000	BCC M151-M153-30-300-P0000-000	BCC M151-M153-30-300-P0000-000
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# www. balluff. com

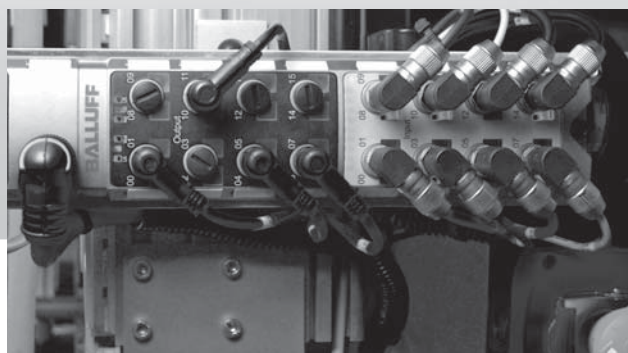
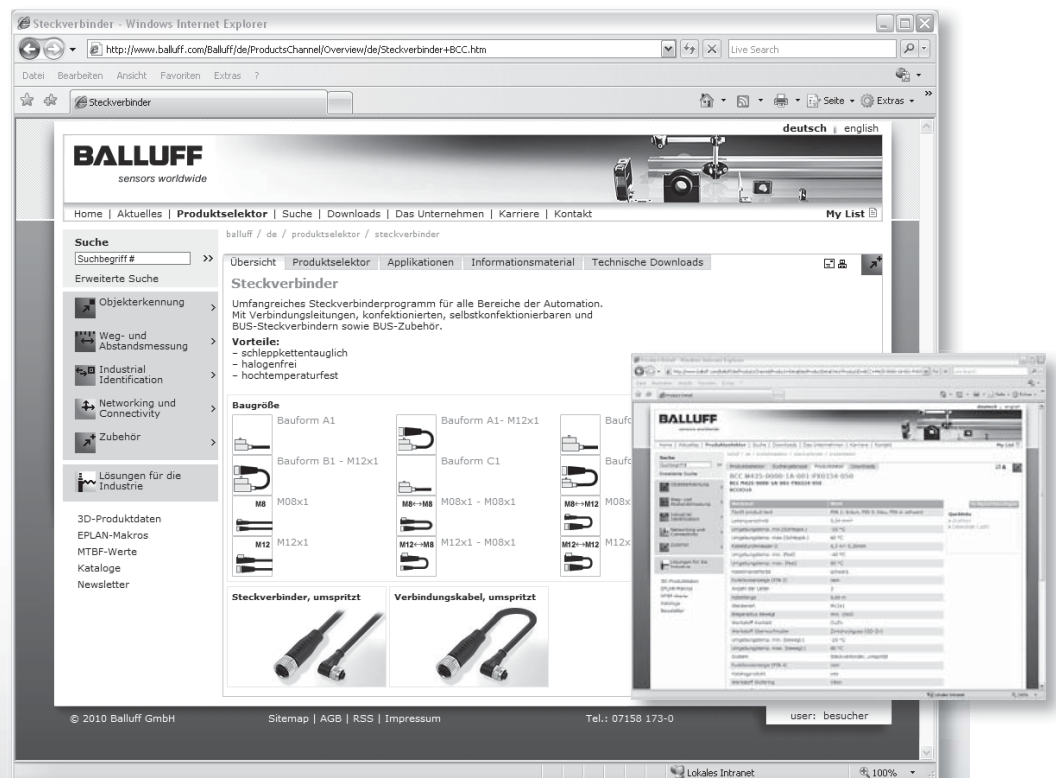


**Connectors  
and Cables**  
Connectors

**Take advantage of the broad performance spectrum from Balluff. And profit from maximum precision, even in difficult areas.**

Balluff stands for comprehensive systems from a single source, continuous innovation, the most modern technology, highest quality and greatest reliability and prides itself on distinctive customer orientation, custom-tailored solutions, fast worldwide service and outstanding application assistance. In short: for reliable, expert partnership.

Connectors and cables make connections fast and simple. You can find intelligent solutions and a wide range of products on our web site **www.balluff.com** in the Industrial Networking and Connectivity area.



# Valve Connectors

For maximum efficiency and cost savings.

From sensors to cables, Balluff offers extensive, well engineered system technology that leaves nothing to be desired outside of the switching cabinet, including valve connectors. For maximum efficiency and cost savings.

Balluff valve connectors have an outstanding record in harsh industrial use and adverse conditions. They withstand large temperature differences as well as heavy contamination and their integrated protective circuit effectively prevents voltage peaks. In addition, the drag chain compatible PUR and PVC valve connectors are available only from Balluff.

## Choose the EN 175301 compliant valve connectors for extra flexibility

- with and without protective circuit
- with 100 % on-time at -25...+80 °C
- various styles in accordance with DIN and Industry standard
- drag chain compatible connections with PUR and PVC cable



### Valve connectors

Style A

DIN



### Valve connectors

Style B

DIN

Style B

Industry



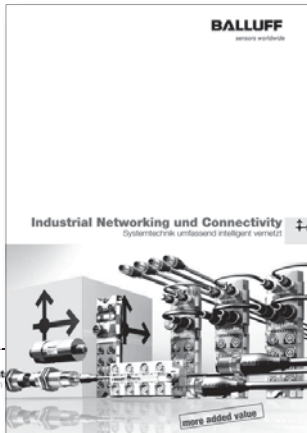
### Valve connectors

Style B

DIN

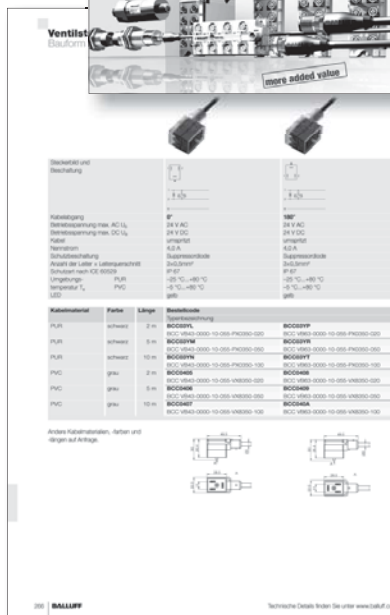
Style B

Industry

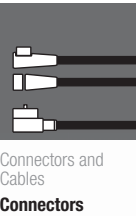


Learn more about our passive splitters and our broad "Industrial Networking and Connectivity" product line in our brochures or online!

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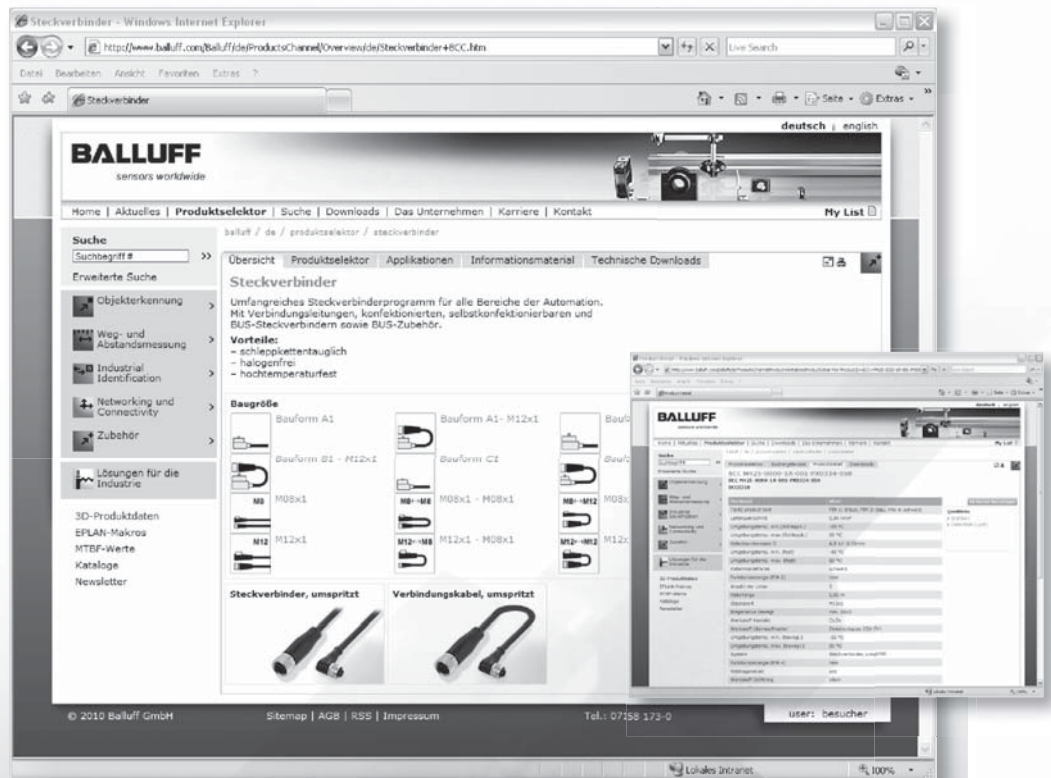
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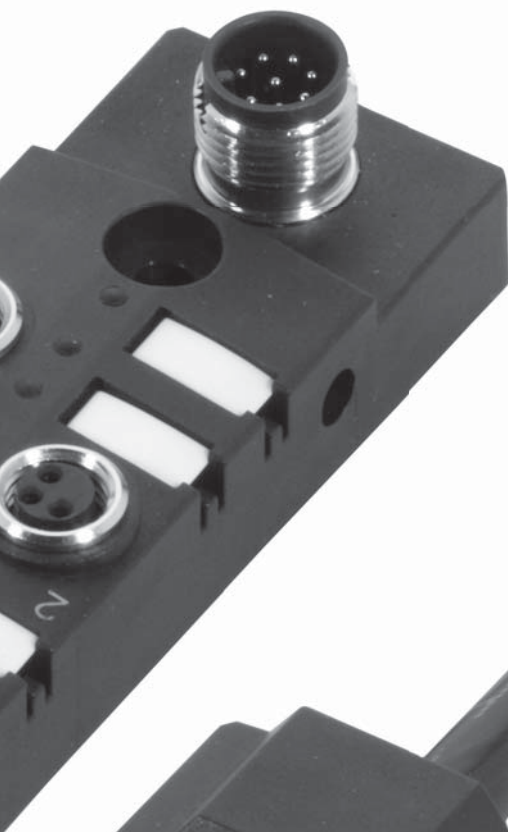


Balluff BPI passive interface for connecting sensors and actuators with the controller are particularly well suited for adverse conditions and are recommended where coolants/lubricants are used. Metal screw inserts ensure optimum media resistance. These also ensure improved fit of the connectors. And a fully enclosed housing provides a higher enclosure rating as well as better shock and vibration resistance characteristics. Though exacting design, BPI passive splitters from Balluff can be integrated in all systems and machines. The BPI can be flexibly mounted on all standard profiles and base plates and the mounting bore holes are centrally positioned. Additional mounting bore holes allow you to mount the BPI on its side. Flexible mounting is supported by highly visible LEDs. The passive splitters from Balluff include all possible variants.



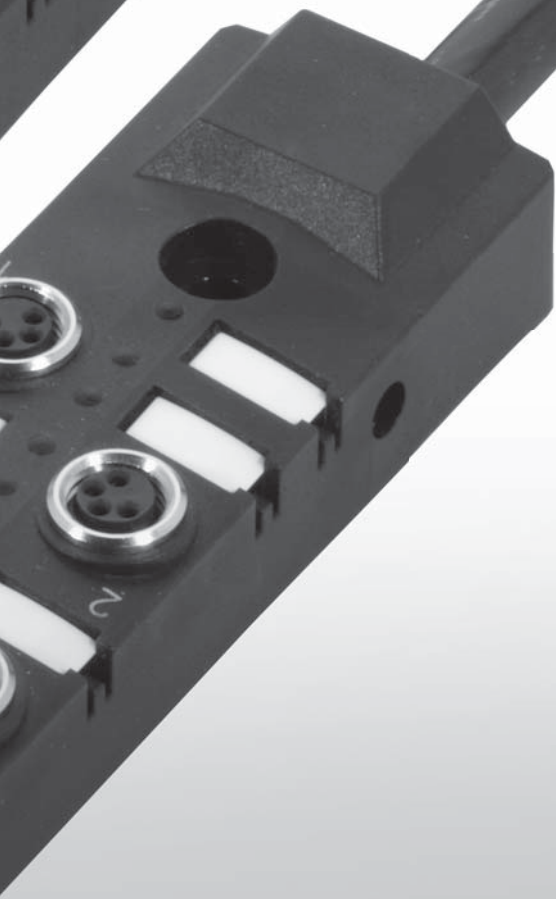
# Passive Splitters

## Contents



Passive splitters

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# Passive Splitters

A multi-talent, even under demanding conditions

## Balluff BPI passive interface – a multi-talent, even under demanding conditions

- exacting design
- fully potted housing
- high shock and vibration ratings
- metal screw inserts
- flexible mounting options

## We offer you the following versions

- M8 and M12 connection
- M12 and M23 connector versions, as well as models with cable
- with function indicator
- suitable connector
- diverse connection and mounting accessories

## Passive splitters



## Accessories for passive splitters



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**Passive Produkte**

**Passive Verteiler**  
M8, 3-polig, mit M12 Steckverbinderschluss, LED

**Passive Verteiler**  
M8, 4-polig mit Kabel, LED

Technische Details finden Sie unter [www.balluff.com](http://www.balluff.com)

**M8 Passive Verteiler**  
M8, 3-polig, mit M12 Steckverbinderschluss, LED

**Passive Verteiler**  
M8, 4-polig mit Kabel, LED

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**Passive Verteiler**  
M8, 4-polig mit Kabel, LED

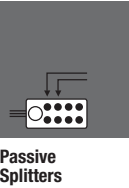
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# Passive Splitters

A multi-talent, even under demanding conditions

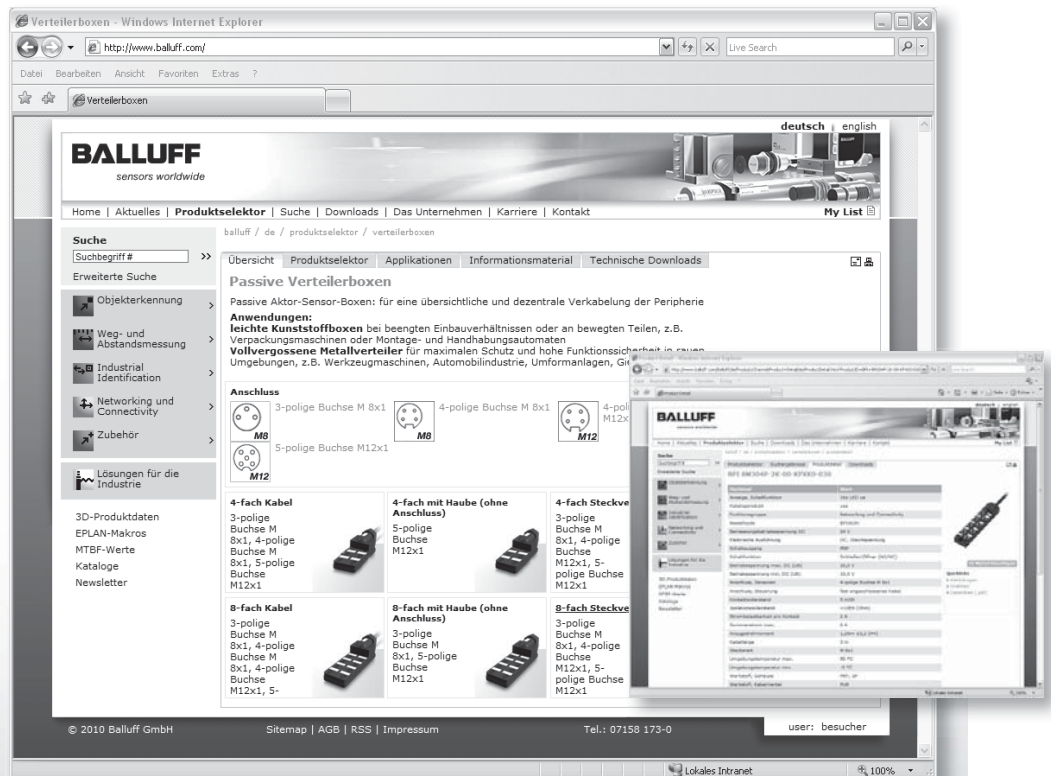
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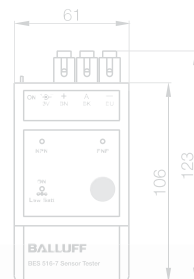
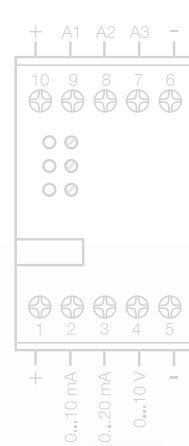
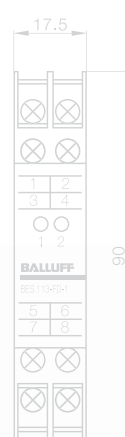
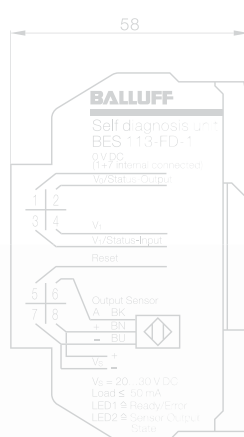
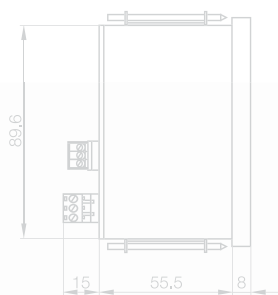
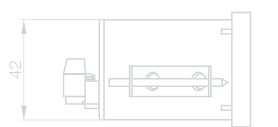


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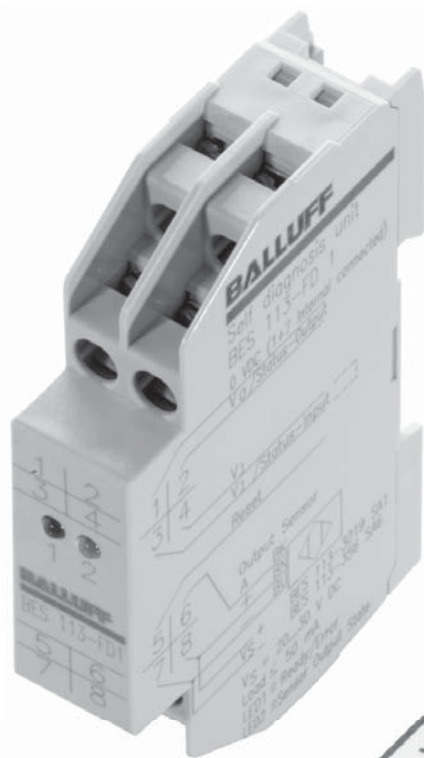
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# Electrical Devices

## Contents



A wide selection of accessories, such as pulse extender, digital display and testers for all applications and the areas of inspection, testing, function and monitoring.

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# Electrical Devices

## Pulse extender

### Detecting fast motion

*Your problem:* rapid motions on machines mean that the proximity switches are only actuated for a short time.

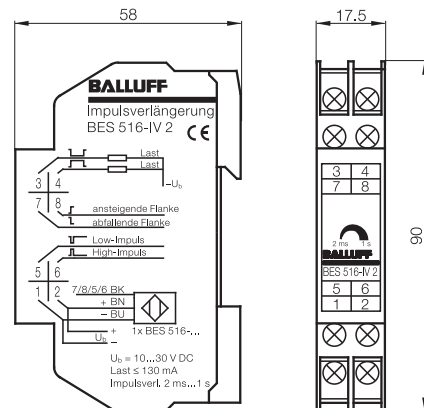
The length of the output signal of the sensor – whether inductive, capacitive or photoelectric – is then no longer sufficient for ensuring secure evaluation. Due to its cycle time, the controller does not detect the output signal.

*The result:* important information in the controller sequence is lost. This can pose a risk to your machine!

*The solution:* Balluff pulse extender **BES 516-IV 2**. Just the rising or falling edge of the output signal from a sensor is enough to drive this device. The extender generates a proper pulse that can be detected by your controller. The length is adjustable from 2 ms to 1 sec. Small and space-saving, the device can be snapped onto a rail in accordance with EN 50022-35.



<b>Description</b>		<b>Pulse extender</b>
<b>Use</b>		Ensures secure output signals from inductive, capacitive or optoelectronic sensors to the controller
<b>Ordering code</b>		<b>BAE0073</b>
<b>Part number</b>		BES 516-IV 2
<b>Output (display by LEDs)</b>		Positive-switching (PNP), complementary
<b>Adjustable pulse extender</b>		2 ms...1 s
<b>Set value</b>		200 ms (+50 ms)
<b>Input 7/8</b>		Referenced to the respective edge of the input signal
<b>Input 5/6</b>		Referenced to the pulse end of the input signal
<b>Repeatability</b>		< 10 %
<b>Input</b>		1 PNP or 1 NPN - NO or NC
<b>Min. input pulse length</b>		1.5 ms
<b>Supply voltage <math>U_B</math></b>		10...30 V DC (input voltage = output voltage)
<b>Ripple</b>		$\leq 15 \%$
<b>No-load current</b>		Approx. 20 mA
<b>Output current</b>		$\leq 130 \text{ mA}$
<b>Permissible load capacitance</b>		$\leq 0.5 \mu\text{F}/24 \text{ V}$
<b>Ambient temperature <math>T_a</math></b>		0...60 °C
<b>Housing attachment</b>		DIN rail EN 50022-35
<b>Max. conductor cross-section</b>		2x2.5 mm <sup>2</sup>
<b>Polarity reversal protected</b>		Yes
<b>Short-circuit protected</b>		Yes
<b>Degree of protection per IEC 60529</b>		Housing IP 40/terminals IP 20
<b>Output</b>	3	Low-pulse, extended
	4	High-pulse, extended
<b>Input</b>	7	Falling edge
	8	Rising edge
	5	Low pulse
	6	High pulse
	1	- $U_B$
	2	+ $U_B$
<b>Falling edge</b>		Output signal is triggered by rising edge
<b>Rising edge</b>		Output signal is triggered by rising edge
<b>Low pulse</b>		PNP-NC/NPN-NO short damped PNP-NO/NPN-NC short undamped
<b>High pulse</b>		PNP-NC/NPN-NO short damped PNP-NO/NPN-NC short undamped



The **BES 113-FD-1** function diagnostics unit monitors a proximity switch with dynamic function diagnostics and its cable. A logic circuit polls the sensor signals for the presence of test pulses and also monitors for proper function of the device. For the machine controller, it emits a High level signal on the "Status/Output" message output when there is no fault and a Low signal when a fault is present. LEDs indicate the switching state of the sensor.

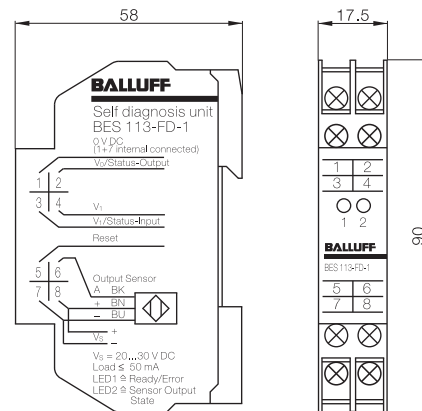
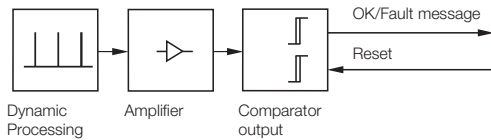
Faults that occur are stored by the device. They must be reset using a reset function (Low signal on 5).

If the BES 113-FD-1 is used as a single unit, terminals VI (3 and 4) must be bridged together.



Description	<b>Function diagnostics unit</b> with electronic output	
Use	Monitoring the dynamic function diagnostics and connection cable for function diagnostics sensors BES 113-356-SA 6-..., BES 113-3019-SA 1-..	
<b>Ordering code</b>	<b>BAE006W</b>	
Part number	BES 113-FD-1	
Supply voltage $U_B$	20...30 V DC	
No-load current	Approx. 20 mA	
Output voltage $U_o$	Low	0...(0.1× $U_B$ ) when the sensor or diagnostics unit has a fault
(referenced to 0 V)	High	(0.5× $U_o$ )... $U_B$ when functioning properly
Output current max.	50 mA	
Ambient temperature $T_a$	0...+60 °C	
LED 1 green	"Ready/Error" – when functioning properly, the LED is on bright. When there is a fault, the LED illuminates dimly).	
LED 2 yellow	"Sensor Output State" indicates the switching state of the sensor.	
Degree of protection per IEC 60529	Housing IP 40, terminals IP 20	
Housing attachment	Rail mount per DIN EN 50022-35	
Max. conductor cross-section	2×2.5 mm <sup>2</sup>	

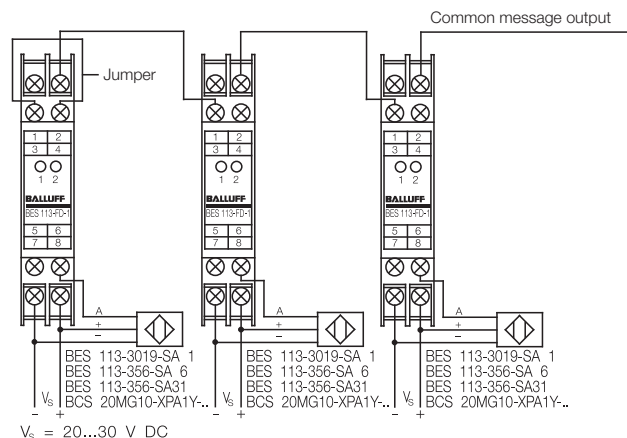
### Functional principle



### Cascading

When cascading several BES 113-FD-1 (row connection), the output (2) must be connected to the input (3) of the downstream device. The jumper between VI is not needed except for the first device. When there is a malfunction, the message appears on the last device. The defective sensor is indicated by the first weakly illuminated LED in the cascade.

Small and space-saving, the BES 113-FD-1 can be mounted in a DIN rail per DIN EN 50022-35.



# Electrical Devices

## Analog switching amplifier for direct installation

### Analog switching amplifier for direct installation

This switching amplifier allows you to easily program sensors which have an analog output signal, such as the BOD family, with three switching thresholds for direct programming.

The sensor connected to the switching amplifier is simply moved to the desired switching distance from the target. Then connecting the control line to the (+) side of the supply voltage enables a "Teach-in" mode, whereby the set distance is assigned to the signal level present and these values are stored in the device. This procedure is assisted using LEDs. During operation, these LEDs are available as switching state indicators.

For sensors with a temperature output, the analog temperature signal is made available in unchanged form on the device output.



### Connection example

#### Analog sensors

#### Analog switching amplifier

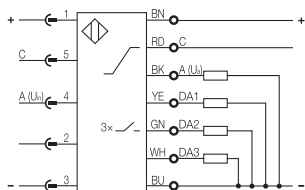


e.g. BOD...

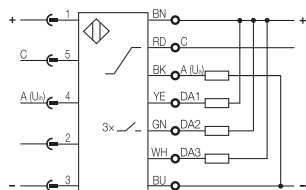
BES 516-615-PS-1-PU-05

### Wiring diagrams

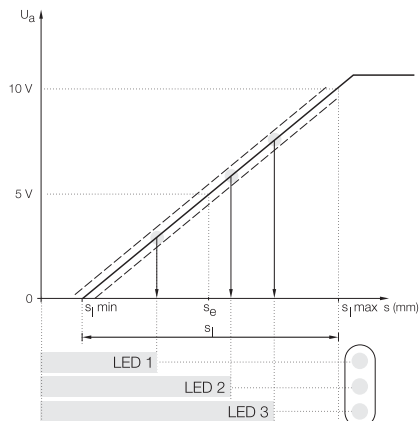
PNP analog and PNP normally open



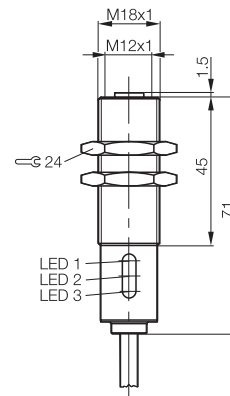
PNP analog and NPN normally open



### Approach curve



Size	<b>M18x1</b>	
Use	For analog sensors	
PNP analog and PNP NO	<b>Ordering code</b>	<b>BAE0070</b>
	Part number	BES 516-615-PS-1-PU-05
PNP analog and NPN NO	<b>Ordering code</b>	<b>BAE006Z</b>
	Part number	BES 516-615-NS-1-PU-05
Rated operating voltage $U_e$	15...30 V DC	
Supply voltage $U_B$	15...30 V DC	
Ripple	$\leq 15\%$ of $U_e$	
Rated insulation voltage $U_i$	75 V DC	
Rated operating current $I_e$ per output	100 mA	
No-load supply current $I_0$ max.	$\leq 20$ mA	
Off-state current $I_r$	$\leq 10$ $\mu$ A	
Polarity reversal protected	Only against $\pm$ -reversal	
Short-circuit protected	Yes	
Ambient temperature $T_a$	$-10...+70$ °C	
Switching frequency $f$	2 kHz	
Utilization category	DC 13	
Function indicator for each output	Yes	
<b>Analog input</b>		
input voltage $U_{in}$	0...10 V (implemented to output A)	
Input impedance	4.2 k $\Omega$	
<b>Switching outputs</b>		
Freely programmable switching outputs	3	
Hysteresis H	500 mV	
Temperature drift	$\leq 2\%$ of $U_{in}$ max.	
Degree of protection per IEC 60529	IP 67	
Housing material	CuZn coated	
Connection	Input	M12 connector, 5-pin
	Output	5 m cable PUR, 7x0.25 mm <sup>2</sup>



## Electrical Devices

Analog switching amplifier for control cabinet installation

### Analog switching amplifier for control cabinet installation

The analog switching amplifier is powered with 24 V and provides the supply voltage for analog sensors such as the Balluff BOD. The device is driven directly by the current signals (2) or voltage signals (4).

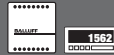
From this signal, separate push-pull final stages (PNP/NPN) are used to create three switching points (A1...A3), which can be set independently using the potentiometer on the front side. The respective switching state is indicated by LEDs. The operating direction (rising/falling) can be set using DIP switches inside the unit. This circuit allows width-adjustable "ranges" to be defined (cascading).

The voltage signal (4) proportional to the current can be used to drive additional switching amplifiers (expansion for additional switching points).

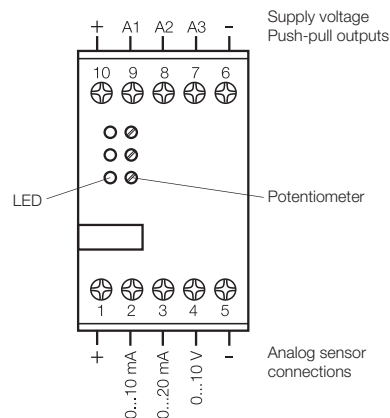
The signal inputs on the analog switching amplifier are protected against polarity reversal and the push-pull output stages against short circuit (internal fuses).



Description	<b>Analog switching amplifier</b> for analog current and voltage signals
Use	Switching point setting on analog sensors, e.g. BOD, BAW
<b>Ordering code</b>	<b>BAE006Y</b>
Part number	BES 516-611-A-1
Supply voltage $U_B$	24 V DC $\pm 10\%$
Ripple	$\leq 10\%$
<b>Input circuit</b>	
Current input, terminal 2/3	0...10 mA/0...20 mA
Input impedance	308 $\Omega$ /154 $\Omega$
Voltage input terminal 4	0...10 V
Input impedance	13 k $\Omega$
Adjustment range	3...100 %
Hysteresis (referenced to set value)	3%
<b>Output current circuit</b>	
Voltage drop PNP-transistor	$\leq 3.5$ V
Voltage drop NPN-transistor	$\leq 2.5$ V
Operating current per push-pull stage	$\leq 200$ mA
Housing material	PC (glass fiber reinforced)
Housing dimensions	74x45x120 mm
Connection type	Screw terminals
Max. wire cross-section	Up to 2.5 mm <sup>2</sup>
Housing attachment	Snap-mount on rail
Ambient temperature $T_a$	0...+50 °C
Degree of protection per IEC 60529	Terminals IP 20, housing IP 40



Pulse Extension  
Function Diagnostics Unit  
**Analog Switching Amplifier**  
Sensor Tester  
Tester/Programmer  
Signal Adapters  
Digital Display  
Power Supplies



# Electrical Devices

Tester, tester/programmer

## Tester BES 516-7

Tester BES 516-7 in the Balluff design offers the following improved features: flatter, easier to handle and visually appealing. The tester is a simple manual testing unit for PNP/NPN, normally open and normally closed sensors with significantly improved features.

### Benefits

- Built-in steel target for checking sensors
- Automatic shut-off after approx. 30 sec. of non-use
- Power provided by a single 9V battery
- Visual and acoustic signal

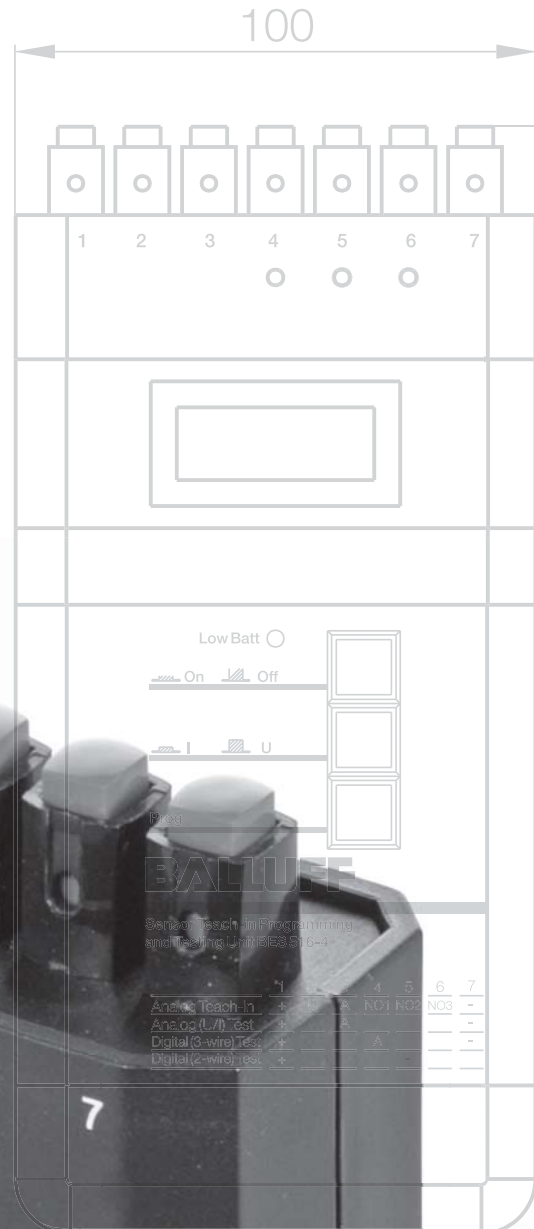
### Caution!

Tester is not suitable for 2-wire Desina sensors

## Tester/programmer BES 516-4

This programming device provides an easy way to perform the following tests and calibration on sensors:

- Program the switching distance of analog sensors
- Sensors with teachable switching points can also be programmed
- Test 3-wire sensors
- Test 2-wire sensors





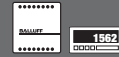
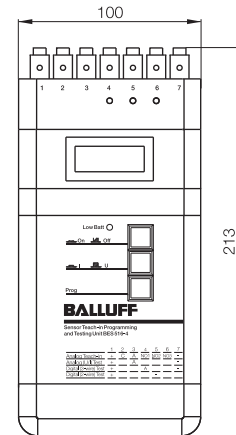
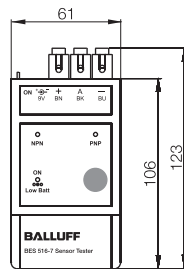
# Electrical Devices

## Tester, tester/programmer



Description	Sensor tester	Tester/programmer
Use	For DC PNP/NPN 3-wire sensors	For DC PNP/NPN 2/3-wire sensors and analog sensors
<b>Ordering code</b>	<b>BAE002C</b>	<b>BAE0029</b>
Part number	BES 516-7	BES 516-4
Output voltage	18 V DC	18 V DC
LED indicators	1 operating indicator	3 function indicators, 1 operating indicator
Battery type	1× 9 V battery	2× 9 V batteries
Sensor connection	3 spring-loaded terminals	7 spring-loaded terminals
Degree of protection per IEC 60529	IP 40	IP 40
Housing material	Plastic	Plastic

Acoustic and visual signal,  
built-in steel target



Pulse Extension  
Function Diagnostics Unit  
Analog Switching Amplifier  
**Sensor Tester Tester/Programmer**  
Signal Adapters  
Digital Display  
Power Supplies

# Electrical Devices

## Signal adapters

With the signal adapters, various additional functions on the sensors can be adjusted quickly. For example, these can be used to change the output signals or counting and time functions without any additional installation. The signal adapter is simply plugged in between the standardized M12 connection of the sensor and connection cable and adjusted via a control cable.

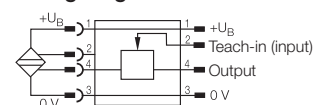
Signal adapters can also be used as switching amplifiers and can be combined with each other.



Version	Functionality	Device	Setting
NO/NC-inverter	<b>Pulse or pause counter:</b> The BOS S-C counts a sensor's output pulses or pauses and sends an output pulse when a predefined number is reached. The count range is from 1...65535 and can be freely set. It also includes an output inverter function (NO/NC).	BOS S-C...	Pause counter 1
Flip-Flop			Pause counter 2
Divider (1 pulse per rotation)			Pulse counter n
Count parts (Count down)			Pulse counter n
Switching amplifier up to 400 mA			Pulse counter 1
Release delay	<b>Timer for switch-on delay and release delay:</b> With the BOS S-T, a switch-on delay or release delay of 1 ms to 65 s can be implemented. A release delay of 100 ms is set in the factory.	BOS S-T...	Release delay n
Switch-on delay			Switch-on delay n
PNP/NPN conversion	<b>PNP/NPN converter:</b> The BOS S-F converts a connected PNP signal to a NPN signal. In addition, the N.C./N.O. output function can be toggled.	BOS S-F...	Factory settings
PNP/NPN conversion and NO/NC toggle			Teach NO/NC
Standstill monitoring	<b>Frequency monitoring:</b> The BOS S-M is a freely adjustable module for frequency monitoring. It is "active" when the frequency value is 5% below the set frequency.	BOS S-M...	
Speed monitoring			
Backlog detection			

Function	
PNP	<b>Ordering code</b>
	Part number
NPN	<b>Ordering code</b>
	Part number
Supply voltage $U_B$	
Rated operating current $I_B$	
No-load supply current $I_0$ max.	
Polarity reversal protected	
Short-circuit protected	
Input impedance	
On/off delay	
Max. input frequency	
Input	
Output	
Smallest preset number	
Largest preset number	
Shortest settable time	
Longest settable time	
Monitoring frequency range	
Function indicator	
Ambient temperature $T_a$	
Degree of protection per IEC 60529	
Insulation class	
Housing material	
Connection type - input	
Connection type - output	
Weight	

### Wiring diagram



### Use

All of the listed signal adapters can be used with sensors with switching output and M12 plug connection. The sensors can be connected independent of functional principle (ultrasonic, inductive, optoelectronic or capacitive). Depending on which sensor is used, either a signal adapter with PNP or with NPN input is used.

### Signal adapter selection aid

BOS S-...01: PNP input (for sensors with PNP output)  
 BOS S-...02: NPN input (for sensors with NPN output)



Connector with 2 m cable (PUR)  
**Ordering code: BCC032F**

For information on other cable lengths and cable materials, refer to our "Industrial Networking and Connectivity" catalog or visit us online at [www.balluff.com](http://www.balluff.com).

# Electrical Devices

## Signal Adapters

**BOS S-C**



**BOS S-T**



**BOS S-F**

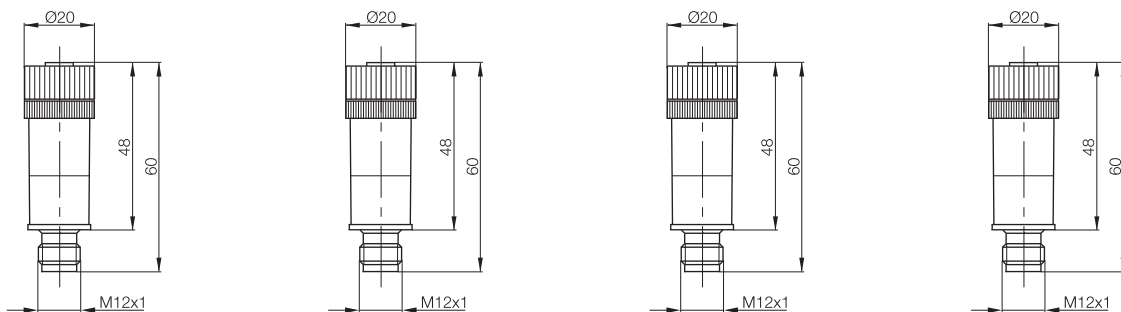


**BOS S-M**



Programmable pulse or pause counter, switching inverter	Programmable timer for on- and off-delay	NPN/PNP converter, configurable NO/NC toggle	Programmable frequency monitoring
<b>BAE002E</b>	<b>BAE002M</b>	<b>BAE002H</b>	<b>BAE002K</b>
BOS S-C01	BOS S-T01	BOS S-F01	BOS S-M01
<b>BAE002F</b>	<b>BAE002N</b>	<b>BAE002J</b>	<b>BAE002L</b>
BOS S-C02	BOS S-T02	BOS S-F02	BOS S-M02
10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
< 400 mA	< 400 mA	< 400 mA	< 400 mA
≤ 10 mA	≤ 10 mA	≤ 10 mA	≤ 10 mA
Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes
> 10 kΩ	> 10 kΩ	> 10 kΩ	> 10 kΩ
0.1 ms	0.1 ms	0.1 ms	0.1 ms
10 kHz	10 kHz	10 kHz	10 kHz
PNP	PNP	PNP	PNP
NPN	NPN	NPN	NPN
PNP	PNP	PNP	PNP
NPN	NPN	NPN	NPN
1			
65535			
	1 ms		
	65535 ms		
			0.015 Hz...1 kHz
Red LED	Red LED	Red LED	Red LED
0...+60 °C	0...+60 °C	0...+60 °C	0...+60 °C
IP 67	IP 67	IP 67	IP 67
☐	☐	☐	☐
PBT/PA 6.6	PBT/PA 6.6	PBT/PA 6.6	PBT/PA 6.6
M12 female 4-pin	M12 female 4-pin	M12 female 4-pin	M12 female 4-pin
M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
15 g	15 g	15 g	15 g

- 1562
- Pulse Extension
- Function Diagnostics Unit
- Analog Switching Amplifier
- Sensor Tester
- Tester/Programmer
- Signal Adapters**
- Digital Display
- Power Supplies



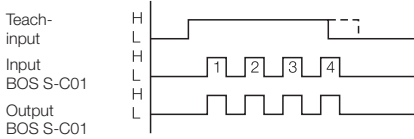
# Electrical Devices

## Signal-adapter adjustment functions

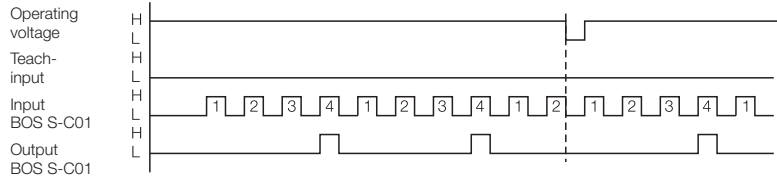
### Signal adapter BOS S-C

Programmable pulse or interval counter

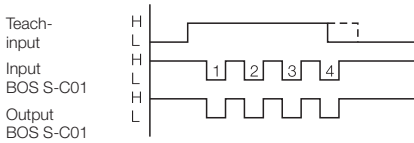
#### Pulse counter teaching



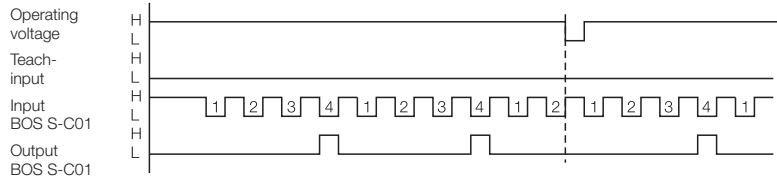
#### Use as a pulse counter



#### Interval counter teaching



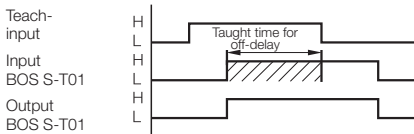
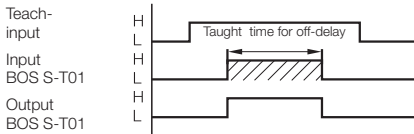
#### Use as an interval counter



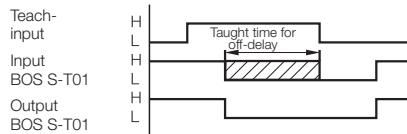
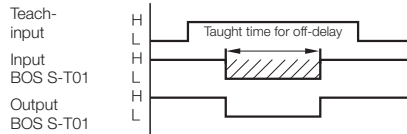
### Signal adapter BOS S-T

Programmable timer for turn-on or turn-off delay

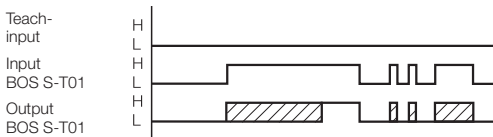
#### On-delay teaching



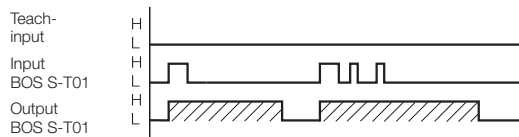
#### Teaching an off-delay



#### Operation with on-delay



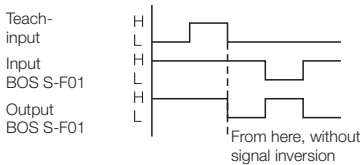
#### Use with off-delay



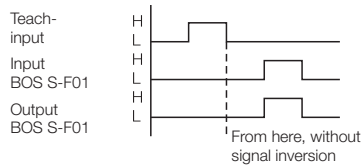
### Signal adapter BOS S-F

NPN-/PNP converter, configurable NO/NC toggle

#### Signal inversion teaching



#### Teaching without signal inversion



H = input or output active; L = input or output active

# Electrical Devices

## Digital display

### Digital display for analog input signals

The model **BDD-UM 3023** digital measurement value display is a universal measurement device for acquiring analog measurement values.

- Voltage 0...10 V DC
- Current 0...20 mA/4...20 mA

### Standard hardware

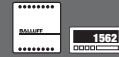
- 4 function keys on the front panel

### Standard software with the following functions

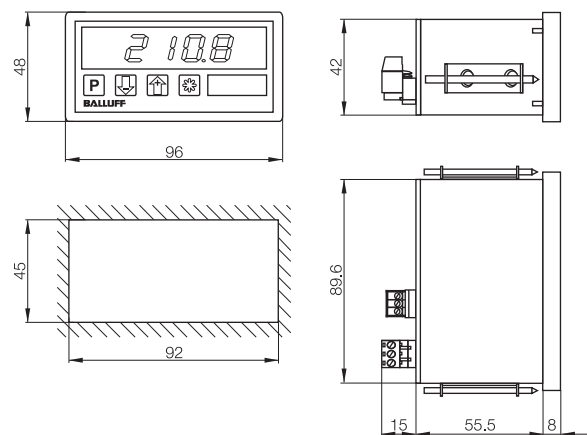
- Scaling
- Tare
- Decimal point
- Display test



Description	Digital display
Use	For analog input signals BOD, BTL, BAW
<b>Ordering code</b>	<b>BAE006K</b>
Part number	BDD-UM 3023
A/D converter resolution	12 Bit
<b>Measuring ranges</b>	
Voltage	0...10 V, $\pm 0.05\%$ , $\pm 1$ digit
Input impedance	$\leq 50\text{ k}\Omega$
Current	0/4...20 mA, $\pm 0.05\%$ , $\pm 1$ digit
Input impedance	10 $\Omega$
Sampling rate	5 measurements/s
Indicator	4-digit, 14 mm, red, programmable decimal point, leading zero suppression, minus symbol for negative values
Operation, keypad	Front keypad with short-stroke keys
Rated supply voltage	24 V, $\pm 20\%$ DC (isolated)
Current consumption	Max. 65 mA
<b>Housing</b>	
Dimensions	96x48x63.5 mm
Installation depth	$\leq 72$ mm (incl. screw terminals)
Housing front enclosure rating	IP 54
Terminals enclosure rating	IP 20
Ambient temperature $T_a$	0...+60 °C
Storage temperature	-20...+70 °C
Relative humidity	$\leq 80\%$ , non-condensing
Contamination class	2
Insulation class	□
Weight	Approx. 200 g



Pulse Extension  
Function Diagnostics Unit  
Analog Switching Amplifier  
Sensor Tester  
Tester/Programmer  
**Signal Adapters**  
**Digital Display**  
Power Supplies



# Electrical Devices

Power Supplies – reliable power for demanding industrial automation

Industrial automation is becoming ever more demanding and the complexity of tasks is constantly increasing. Efficient operation of equipment and machines demands reliable power sources. Balluff power supplies: the powerful solution for fault-free operation of your system.

Take advantage of the special benefits of Balluff power supplies

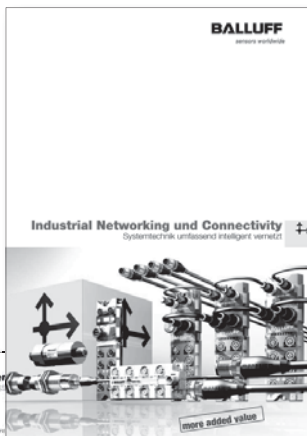
- Full product line – choose just what you need
- Short-circuit and overload protection in industrial environments
- High availability of all devices
- Unlimited, precise power for increased demands
- Long life for reliable operation
- Worldwide approvals for use anywhere

Output voltage (24 V DC)							Input voltage	Features	Product information	
750 mA/18 W	1.25 A/30 W	2.5 A/60 W	3.8 A/91.20 W	5 A/120 W	10 A/240 W	20 A/480 W				40 A/960 W
■							Single-phase <sup>1</sup>	Plastic	BAE0001	BAE-PS-XA-1W-24-007-001
	■						Single-phase <sup>1</sup>	Plastic	BAE0004	BAE-PS-XA-1W-24-012-002
		■					Single-phase <sup>1</sup>	Plastic	BAE0005	BAE-PS-XA-1W-24-025-002
			■				Single-phase <sup>2</sup>	Metal	BAE003J	BAE-PS-XA-1W-24-038-003
				■			Single-phase <sup>2</sup>	Metal	BAE0006	BAE-PS-XA-1W-24-050-003
					■		3-phase <sup>3</sup>	Metal	BAE0007	BAE-PS-XA-3Y-24-050-009
						■	Single-phase <sup>2</sup>	Metal	BAE0002	BAE-PS-XA-1W-24-100-004
						■	3-phase <sup>3</sup>	Metal	BAE0008	BAE-PS-XA-3Y-24-100-006
						■	Single-phase <sup>2</sup>	Metal	BAE0003	BAE-PS-XA-1W-24-200-005
						■	3-phase <sup>3</sup>	Metal	BAE0009	BAE-PS-XA-3Y-24-200-007
						■	3-phase <sup>3</sup>	Metal	BAE000A	BAE-PS-XA-3Y-24-400-008

<sup>1</sup> = 100...240 V AC

<sup>2</sup> = 115/230 V AC (Auto-Select)

<sup>3</sup> = 340...575 V AC



Learn more about our passive splitters and our broad "Industrial Networking and Connectivity" product line in our brochures or online!

Order your catalog online, via telephone or by e-mail.

**Netzgeräte**  
Zusätzliche Informationen

- Schutz gegen unvorhergesehene Ereignisse
- automatische Abschaltung zur Abschaltung
- exzellente Stromversorgung für besonders anspruchsvolle Systeme
- lange Lebensdauer für weniger Systemwartung

**Parallel-Einspeisung**  
Bis zu vier Leuchten können an einer Leuchte angeschlossen werden.

**Einzelkanalige Ausgänge**  
Erstellung der Spannungsversorgung für verschiedene Leuchten und weitere Komponenten zu Verfügung.

**LED-Beleuchtung**  
LED für Gleichstrom-DC- und Wechselstrom-AC-Anlage bei der meisten Leuchte.

**Anschlüsse mit Berührungsschutz**  
Neue, zusätzliche Schutzmaßnahmen erforderlich.

Technische Details finden Sie unter [www.balluff.com](http://www.balluff.com)

**Netzgeräte Auswahl**

Modell	Leistung	Spannung	Material	Produktinformation
BAE0001	18 W	24 V DC	Plastik	BAE-PS-XA-1W-24-007-001
BAE0004	30 W	24 V DC	Plastik	BAE-PS-XA-1W-24-012-002
BAE0005	25 W	24 V DC	Plastik	BAE-PS-XA-1W-24-025-002
BAE0006	50 W	24 V DC	Metal	BAE-PS-XA-1W-24-050-003
BAE0007	150 W	24 V DC	Metal	BAE-PS-XA-3Y-24-050-009
BAE0002	100 W	24 V DC	Metal	BAE-PS-XA-1W-24-100-004
BAE0003	200 W	24 V DC	Metal	BAE-PS-XA-1W-24-200-005
BAE0008	100 W	24 V DC	Metal	BAE-PS-XA-3Y-24-100-006
BAE0009	200 W	24 V DC	Metal	BAE-PS-XA-3Y-24-200-007
BAE000A	400 W	24 V DC	Metal	BAE-PS-XA-3Y-24-400-008

Technische Details finden Sie unter [www.balluff.com](http://www.balluff.com)

**Netzgeräte**  
Einspeisung Eingangsspannung 10 A, 20 A

SE A  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE B  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE C  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE D  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE E  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE F  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE G  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE H  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE I  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE J  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE K  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE L  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE M  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE N  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE O  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE P  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE Q  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE R  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE S  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE T  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE U  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE V  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE W  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE X  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE Y  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

SE Z  
24V DC  
24 V DC 2000 mA  
115/230 V AC Auto-Select

Technische Details finden Sie unter [www.balluff.com](http://www.balluff.com)

## Electrical Devices

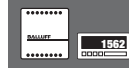
Power supplies – reliable power for demanding industrial automation

# www.balluff.com

**Take advantage of the broad performance spectrum from Balluff. And profit from maximum precision, even in difficult areas.**

Balluff stands for comprehensive systems from a single source, continuous innovation, the most modern technology, highest quality and greatest reliability and prides itself on distinctive customer orientation, custom-tailored solutions, fast worldwide service and outstanding application assistance. In short: for reliable, expert partnership.

Balluff BAE power supplies supply reliable power for demanding application in industrial automation. You can find intelligent solutions and a wide range of products on our web site [www.balluff.com](http://www.balluff.com) in the Industrial Networking and Connectivity area



- Pulse Extension
- Function Diagnostics Unit
- Analog Switching Amplifier
- Sensor Tester
- Tester/ Programmer
- Signal Adapters
- Digital Display
- Power Supplies**

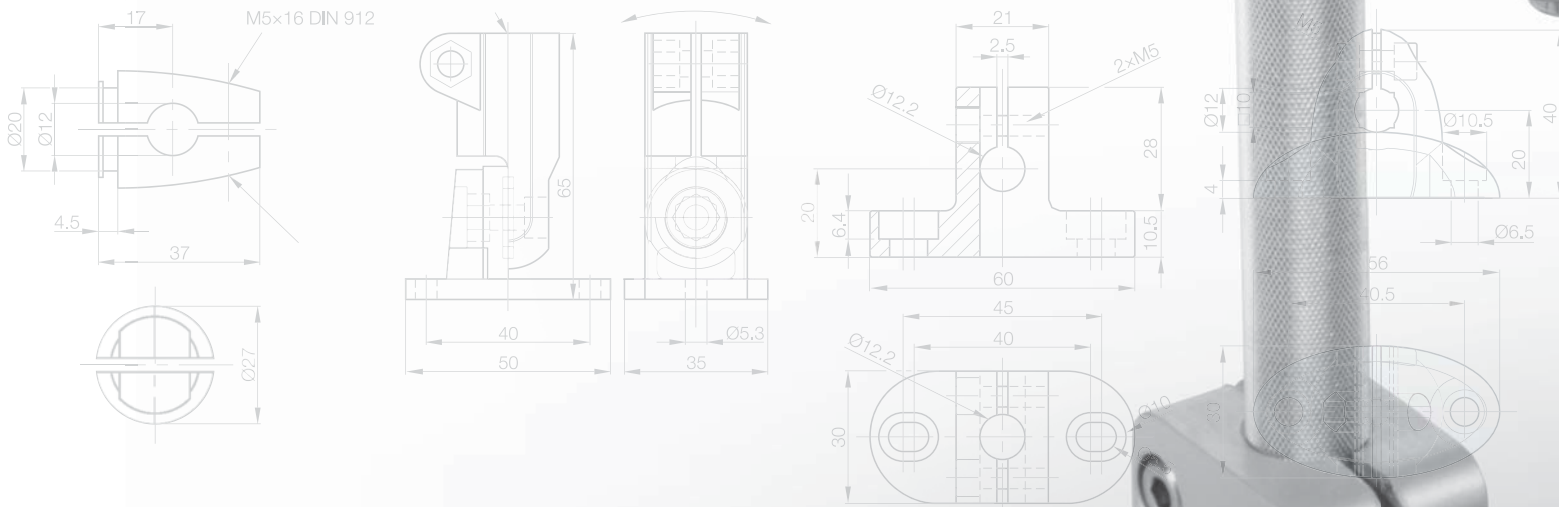
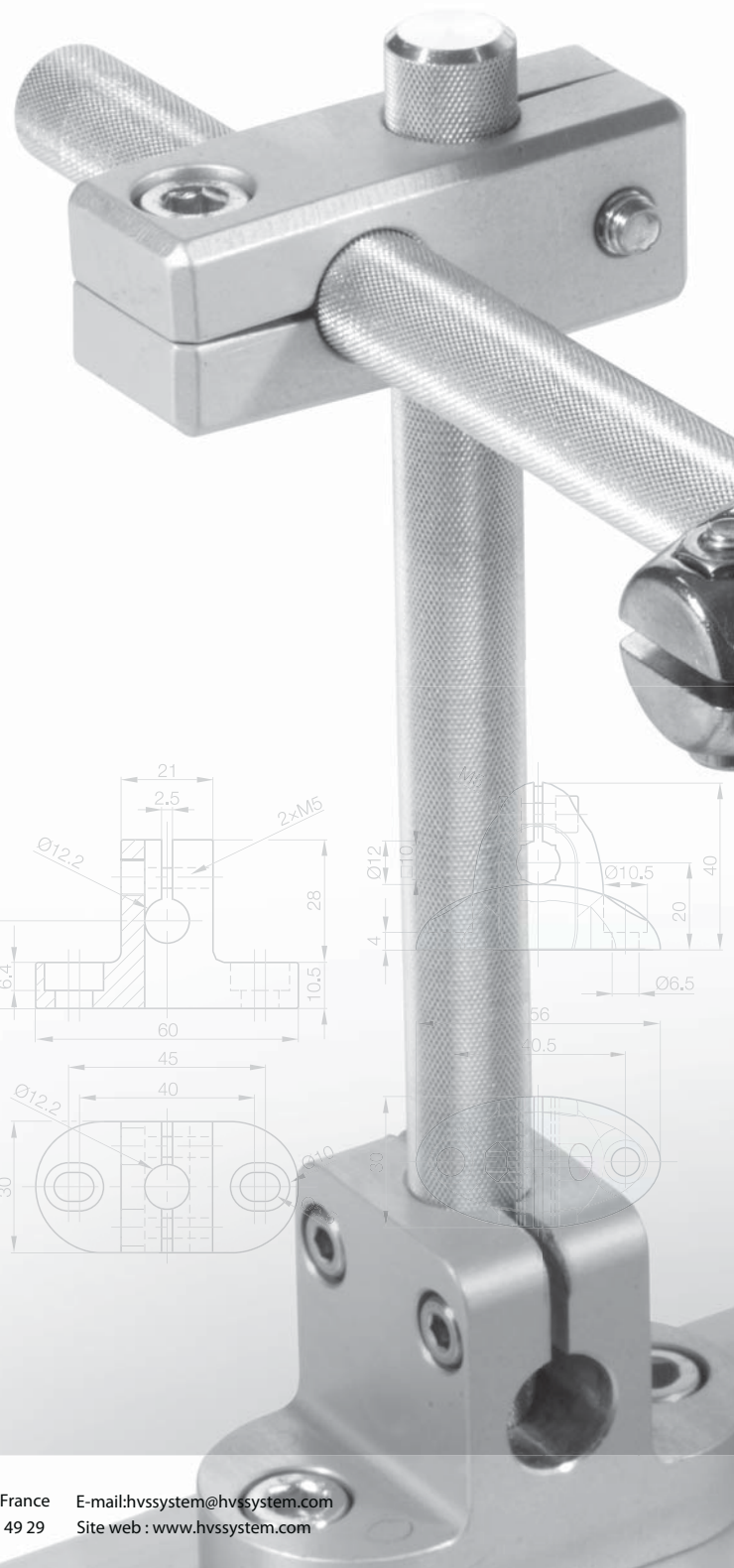
**Stainless Steel**

**Stainless steel mounting system and accessories – for seamless integration**

What is the use of the best sensor if you do not have a matching stainless steel system for mounting? Use customized Balluff accessories for optimized integration. High-quality Balluff products are fully compatible throughout the entire range.

Sensors and systems made of stainless steel offer everything you need to design your production process for safety, stability and hygiene. And perfected fastening and wiring technology in stainless steel guarantees optimal integration.

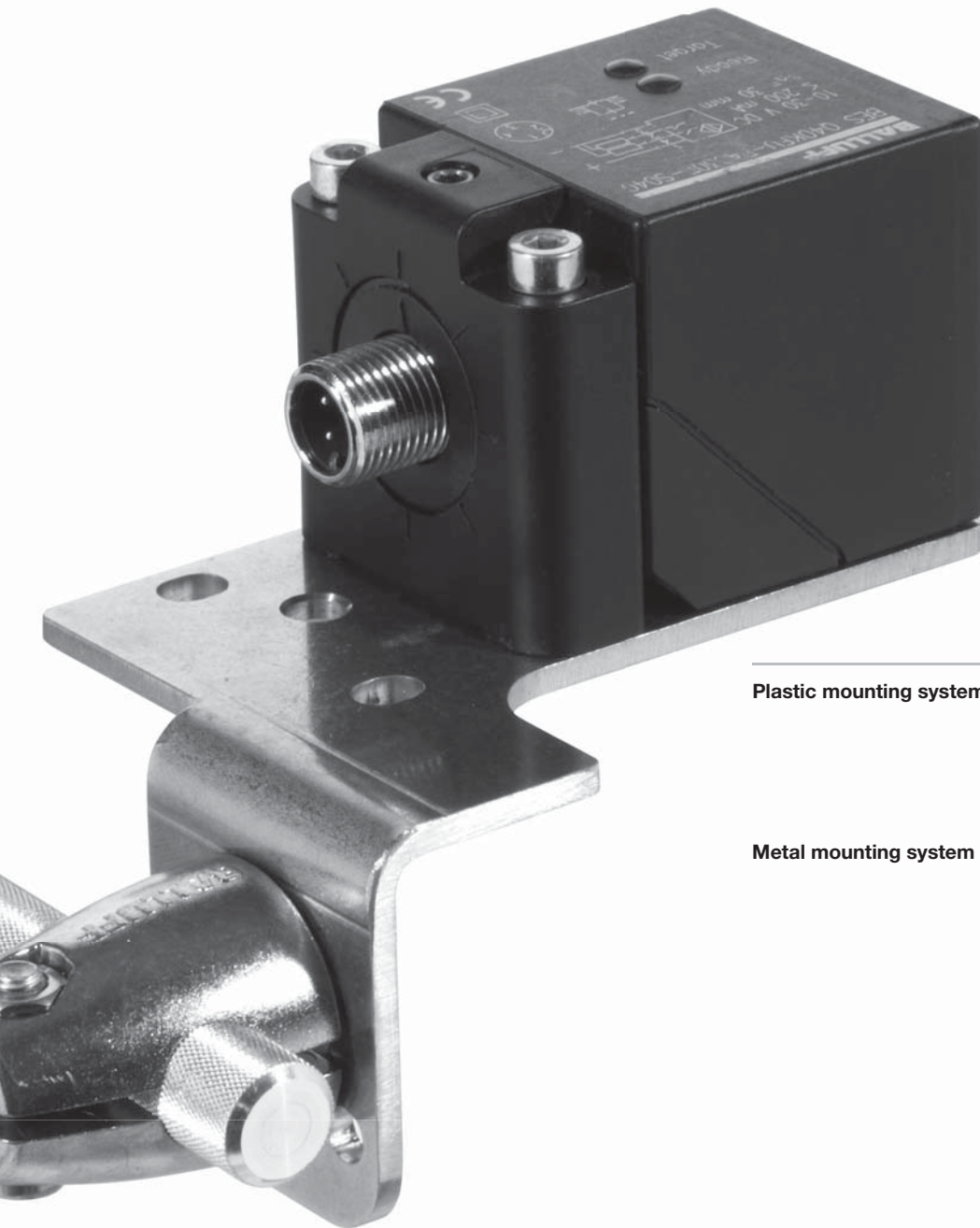
Optimized for extreme environments, the Balluff stainless steel product line is resistant to aggressive cleaning agents. These products also meet all the specifications and directives for the pharmaceutical and foods industries. Precisely matched fasteners made of plastic, aluminum and stainless steel are standard.



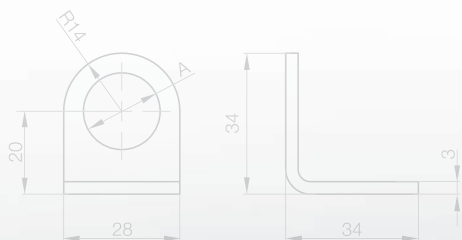
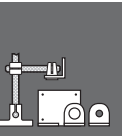


# Mounting System

## Contents



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In demand are holding systems that can be used for a wide range of sensor applications. Balluff see themselves as a systems provider, and has not only sensors but also a correspondingly high-quality range of mounting accessories in their lineup for optimally positioning sensors in equipment and machines.

The Balluff mounting system helps you optimally integrate sensors in their peripherals.

# Mounting System

## Base holder

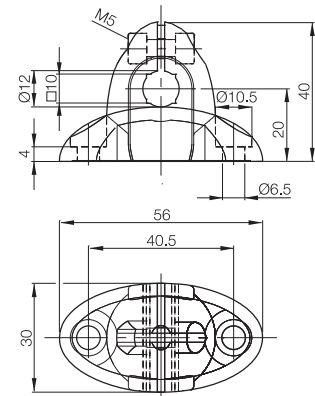
Whether sensors are used in machine tools, assembly and handling, in packaging or specialty machines – one thing is certain: to work properly they must be precisely positioned. The Balluff Mounting System makes this simple.

Balluff offers you not only the highest quality sensors, but also matched mounting accessories. For optimum positioning of the sensors in equipment and machines.

The Balluff mounting system can be used on base plates or on all commonly available extruded profiles and for tubular or block-style sensors. The flexible accessories kit allows you to cover virtually any required spatial angle, and even offers supplementary accessories such as sensor holders and reflector holders.



Description	<b>Base holder</b>
Version	For 1 mounting rod Ø 12 mm or 10x10 mm
Use	For mounting on base plates or profiles
<b>Ordering code</b>	<b>BAM002J</b>
Part number	BMS CU-P-D12-A040-00
Material	POM



Mounting rods Ø 12 mm,  
anodized Al or stainless steel  
see page 62



# Mounting System

Articulated base holder, sensor holders



## Articulated base holder

For 1 mounting rod  
Ø 12 mm  
For mounting on  
base plates or profiles

### BAM002Y

BMS CUJ-P-D12-R040-00

POM

## M8 sensor holder

For 1 mounting rod  
Ø 12 mm or 10x10 mm  
For M8 sensors

### BAM002K

BMS CS-P-D12-AD08-00

POM

## M12 sensor holder

For 1 mounting rod  
Ø 12 mm or 10x10 mm  
For M12 sensors

### BAM002N

BMS CS-P-D12-AD12-00

POM

## M18 sensor holder

For 1 mounting rod  
Ø 12 mm or 10x10 mm  
For M18 sensors

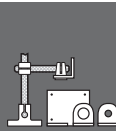
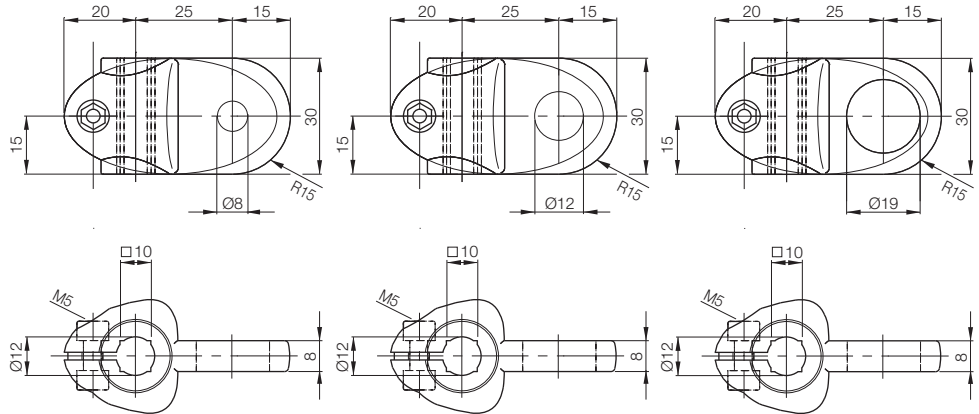
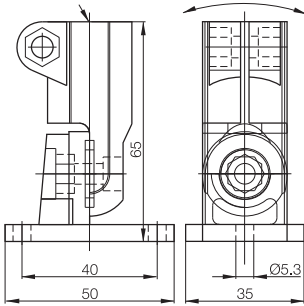
### BAM002P

BMS CS-P-D12-AD18-00

POM

Reducing sleeve for  
reducing from  
18 to 12 mm (included  
in scope of delivery)

Ratchet  
setting at 15°  
increments



## Plastic Mounting System

Base Holder  
Articulated Base Holder  
Sensor Holders  
Reflector Holders  
Cross-Connectors

## Metal Mounting System

Cross-Connectors  
Clamping  
Cylinders  
Base Holders  
Sensor Holders  
Alignment Units  
Sensor and Reflector Holder  
Reflector Holders  
Cover Bracket  
Adapter Ring  
Air Blow  
Accessories for BVS Vision Sensors  
Mounting Rods  
Mounting Kit

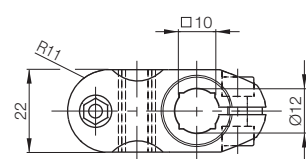
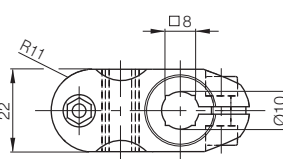
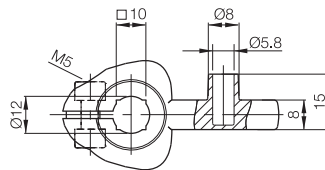
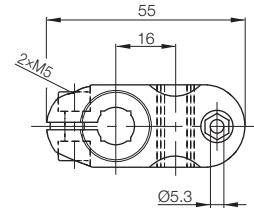
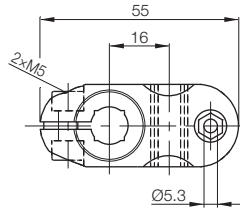
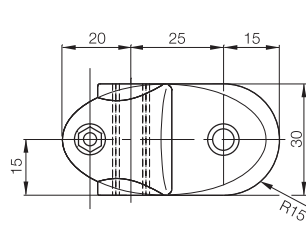


# Mounting System

Reflector holder, cross-connectors



Description	<b>Reflector holder</b>	<b>Cross-connector Ø 10 mm</b>	<b>Cross-connector Ø 12 mm</b>
Version	For 1 mounting rod Ø 12 mm or 10x10 mm	For 2 mounting rods Ø 10 mm or 10x10 mm	For 2 mounting rods Ø 12 mm
Use	For reflectors Ø 20 mm (glue attachment) and BOS R-14, Ø 51 mm (plug-in)	Connecting element for 2 mounting rods Ø 10 mm or 8x8 mm	Connecting element for 2 mounting rods Ø 12 mm or 10x10 mm
<b>Ordering code</b>	<b>BAM002L</b>	<b>BAM003U</b>	<b>BAM002M</b>
Part number	BMS CR-P-D12-AU-00	BMS CC-P-D10-A-00	BMS CC-P-D12-A-00
Material	POM	POM	POM



Mounting rods Ø 12 mm,  
anodized aluminum or stainless steel  
see page 62

# Mounting System

Cross-connectors, clamping cylinders



Stainless Steel

### Cross-connector

For 2 mounting rods  
Ø 12 mm  
Connecting element for  
2 mounting rods Ø 12 mm

### BAM002Z

BMS CC-M-D12-B-00  
Al anodized

### Cross-connector

For 1 mounting rod  
Ø 12 mm  
For BGL through-beam fork  
sensors and BOS 2K and  
BOS 6K photoelectric sensors

### BAM01CW

BMS CS-M-D12-BX08-07  
Al anodized

### Clamping cylinder

For 1 mounting rod  
Ø 12 mm  
For holding all  
sensor and reflector holders

### BAM0031

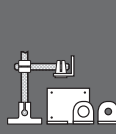
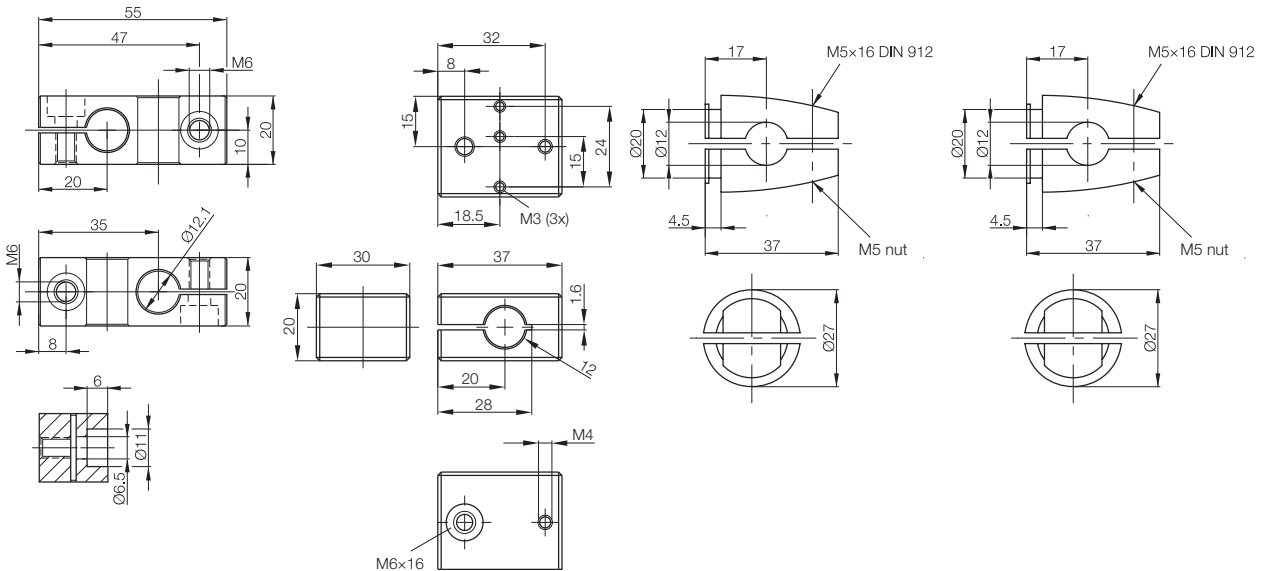
BMS CS-M-D12-IZ  
GD-Zn

### Clamping cylinder

For 1 mounting rod  
Ø 12 mm  
For holding all  
sensor and reflector holder

### BAM003Y

BMS CS-M-D12-IZ-01  
Stainless steel



### Plastic Mounting System

Base Holder  
Articulated Base Holder  
Sensor Holders

### Reflector Holders

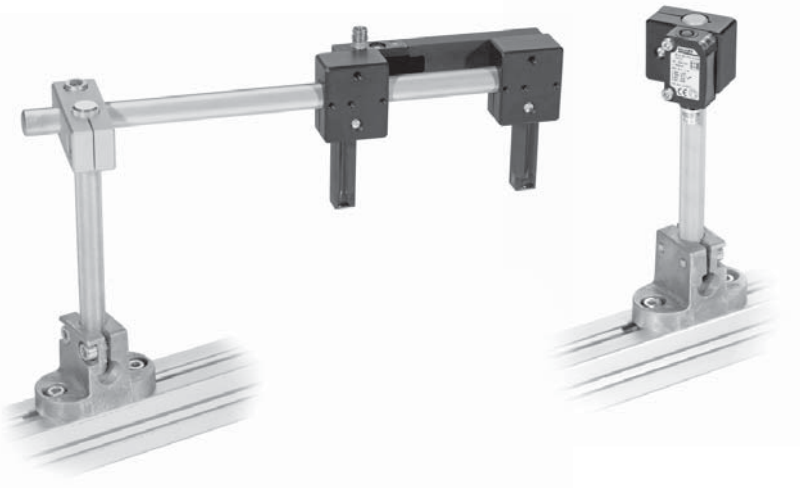
### Cross-Connectors

### Metal Mounting System

### Cross-Connectors

### Clamping Cylinders

Base Holders  
Sensor Holders  
Alignment Units  
Sensor and Reflector Holder  
Reflector Holders  
Cover Bracket  
Adapter Ring  
Air Blow  
Accessories for BVS Vision Sensors  
Mounting Rods  
Mounting Kit



# Mounting System

## Base holders

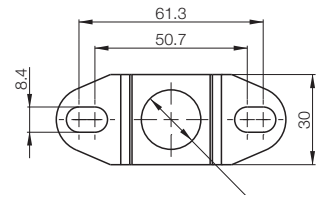
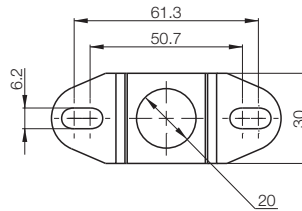
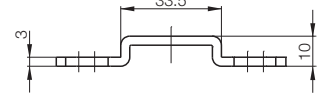
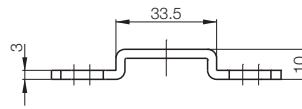
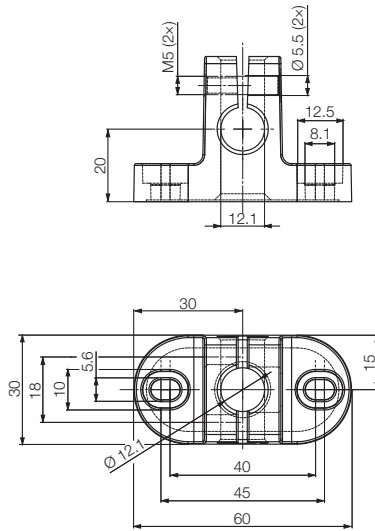


Stainless Steel



Stainless Steel

Description	<b>Base holder</b>	<b>Base holder</b>	<b>Base holder</b>
Version	For 1 mounting rod $\varnothing$ 12 mm (vertical or horizontal)	For clamping cylinders	For clamping cylinders
Use	For mounting on base plates or profiles	For mounting on base plates or profiles with M6	For mounting on base plates or profiles with M8
<b>Ordering code</b>	<b>BAM002W</b>	<b>BAM01CH</b>	<b>BAM0044</b>
Part number	BMS CU-M-D12-A040-00	BMS CU-M-D12-IO60-02	BMS CU-M-D12-IO60-01
Material	Al anodized	Stainless steel	Stainless steel








Mounting rods  $\varnothing$  12 mm,  
anodized aluminum or stainless steel  
see page 62

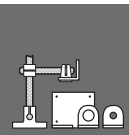
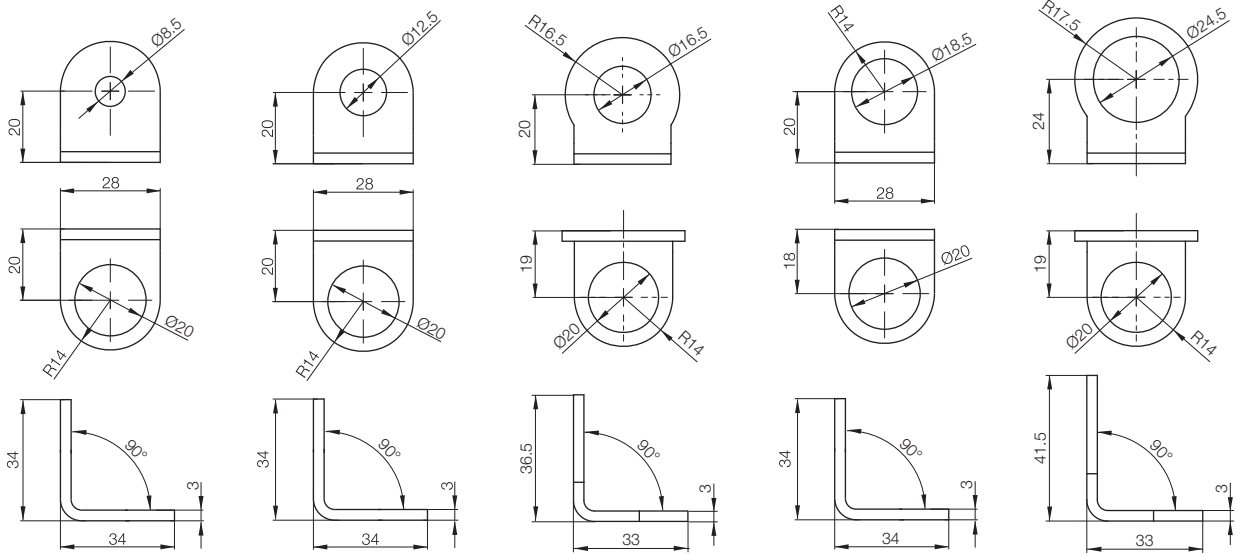


Clamping cylinder  
Base holder

# Mounting System

## Sensor holders

				
<b>M8 sensor holder</b>	<b>M12 sensor holder</b>	<b>M16 sensor holder</b>	<b>M18 sensor holder</b>	<b>M24 sensor holder</b>
For clamping cylinders	For clamping cylinders	For clamping cylinders	For clamping cylinders	For clamping cylinders
For sensors and clamps, M8	For sensors and clamps, M12	For sensors and clamps, M16	For sensors and clamps, M18	For sensors and clamps, M24
<b>BAM0036</b>	<b>BAM0037</b>	<b>BAM003K</b>	<b>BAM0032</b>	<b>BAM003L</b>
BMS CS-M-D12-ID08-01	BMS CS-M-D12-ID12-01	BMS CS-M-D12-ID16-01	BMS CS-M-D12-ID18-01	BMS CS-M-D12-ID24-01
Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel



- Plastic Mounting System**
- Base Holder
  - Articulated Base Holder
  - Sensor Holders
  - Reflector Holder
  - Cross-Connectors

- Metal Mounting System**
- Cross-Connectors
  - Clamping Cylinders

- Base Holders**
- Sensor Holders**
- Alignment Units
  - Sensor and Reflector Holder
  - Reflector Holders
  - Cover Bracket
  - Adapter Ring
  - Air Blow
  - Accessories for BVS Vision Sensors
  - Mounting Rods
  - Mounting Kit

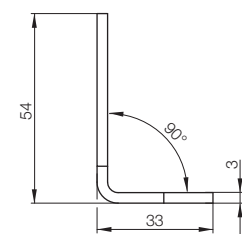
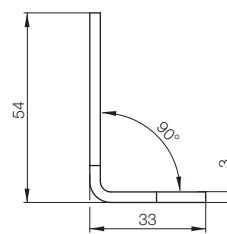
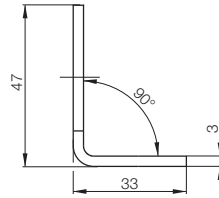
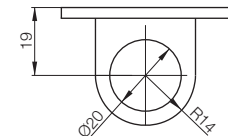
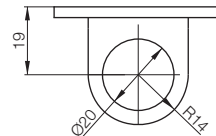
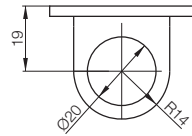
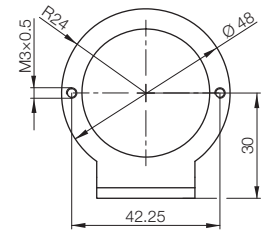
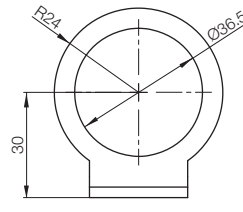
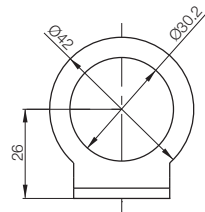


# Mounting System

## Sensor holders



Description	<b>M30 sensor holder</b>	<b>M36 sensor holder</b>	<b>Ø 50 mm sensor holder</b>
Version	For clamping cylinders	For clamping cylinders	For clamping cylinders
Use	For M30 sensors and clamps	For M36 sensors and clamps	For capacitive sensors Ø 50 mm (disk style)
<b>Ordering code</b>	<b>BAM0033</b>	<b>BAM003M</b>	<b>BAM01J2</b>
Part number	BMS CS-M-D12-ID30-01	BMS CS-M-D12-ID36-01	BMS CS-M-D12-IX09-01
Material	Stainless steel	Stainless steel	Stainless steel



Clamping cylinder



Mounting rods Ø 12 mm,  
anodized aluminum or stainless steel  
see page 62



# Mounting System

## Alignment units



Stainless Steel



Stainless Steel

### M12 alignment unit

For clamping cylinders  
For aligning M12 laser sensors

### BAM003E

BMS AD-M-002-D12/D12

Stainless steel

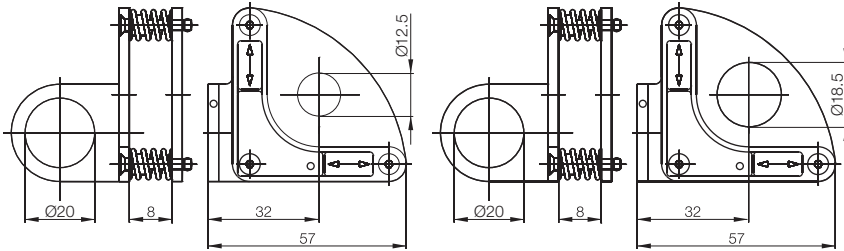
### M18 alignment unit

For clamping cylinders  
For aligning M18 laser sensors

### BAM0038

BMS AD-M-002-D12/D18

Stainless steel



### Plastic Mounting System

Base Holder  
Articulated Base Holder  
Sensor Holders  
Reflector Holder  
Cross-Connectors

### Metal Mounting System

Cross-Connectors  
Clamping Cylinders  
Base Holders  
**Sensor Holders**  
**Alignment Units**  
Sensor and Reflector Holder  
Reflector Holders  
Cover Bracket  
Adapter Ring  
Air Blow  
Accessories for BVS Vision Sensors  
Mounting Rods  
Mounting Kit



# Mounting System

## Sensor holders

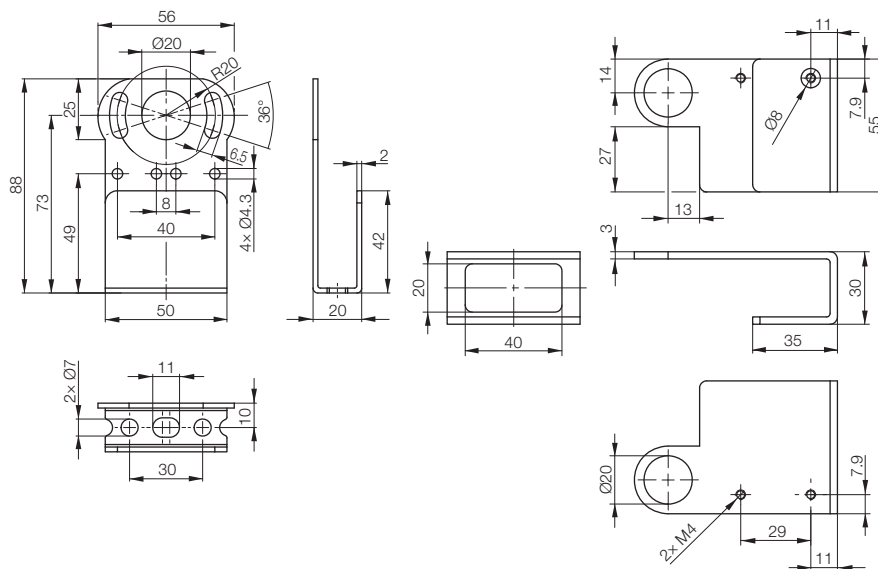


Stainless Steel



Stainless Steel

Description	<b>Sensor holders</b>	<b>Sensor holders</b>
Version	For clamping cylinders	For clamping cylinders
Use	For BOS 21M photoelectric sensors	For BOS 23K and BOS 26K photoelectric sensors
<b>Ordering code</b>	<b>BAM0043</b>	<b>BAM01AW</b>
Part number	BMS CS-M-D12-B21K-04	BMS CS-M-D12-B23K-05
Material	Stainless steel	Stainless steel



Mounting rods  $\varnothing$  12 mm,  
anodized aluminum or stainless steel  
see page 62



# Mounting System

Sensor holders,  
sensor and reflector holder



Stainless Steel



Stainless Steel



Stainless Steel

### Sensor and reflector holder

For clamping cylinders  
For BOS 50K photoelectric sensors and  
BOS R-11 reflectors

#### BAM01AY

BMS CS-M-D12-BX07-06

Stainless steel

### Sensor holders

For clamping cylinders  
For BOS 5K photoelectric sensors,  
BGL 30C, 50C through-beam fork sensors  
and BWL 40/40, 54/54 angle sensors

#### BAM01F3

BMS CS-M-D12-BX10-08

Stainless steel

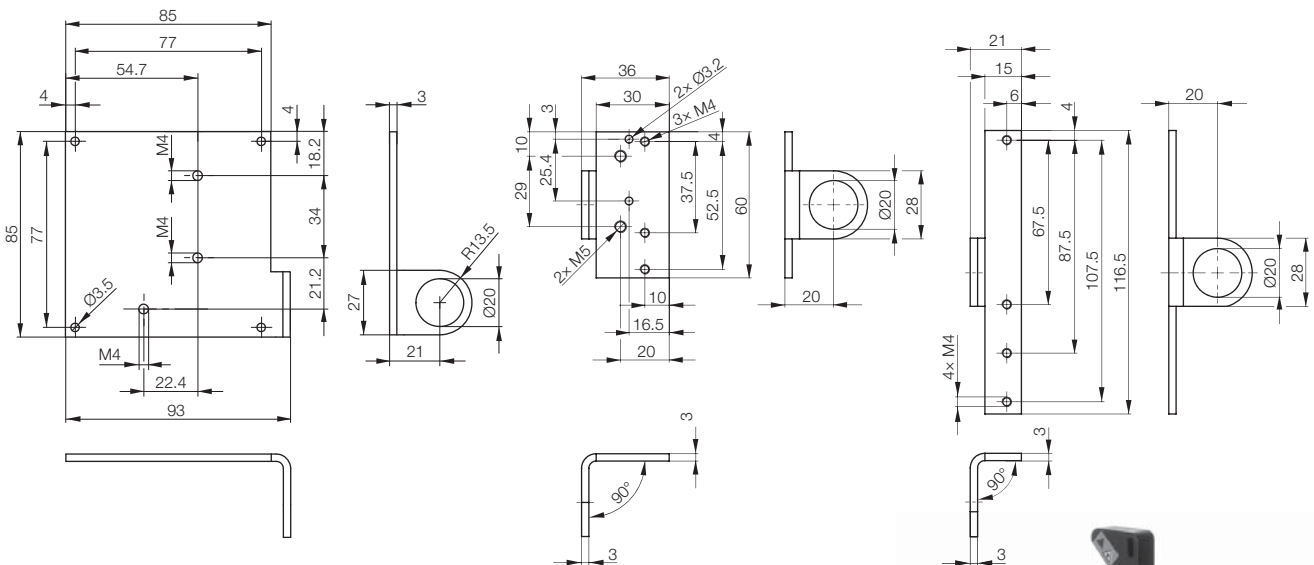
### Sensor holders

For clamping cylinders  
For BWL 68/68, 90/90, 110/110  
angle sensors

#### BAM01F2

BMS CS-M-D12-BX11-09

Stainless steel

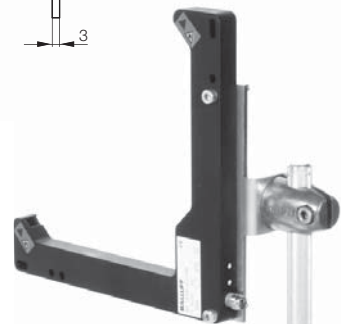
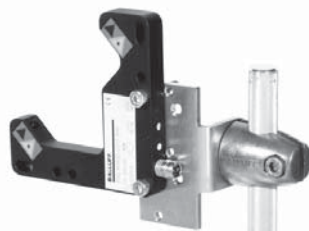


### Plastic Mounting System

- Base Holder
- Articulated Base Holder
- Sensor Holders
- Reflector Holder
- Cross-Connectors

### Metal Mounting System

- Cross-Connectors
- Clamping Cylinders
- Base Holders
- Sensor Holders
- Alignment Units
- Sensor and Reflector Holder
- Reflector Holders
- Cover Bracket
- Adapter Ring
- Air Blow
- Accessories for BVS Vision Sensors
- Mounting Rods
- Mounting Kit



# Mounting System

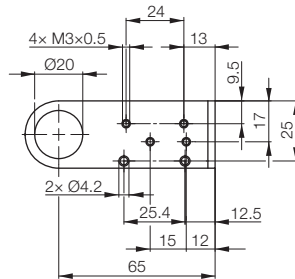
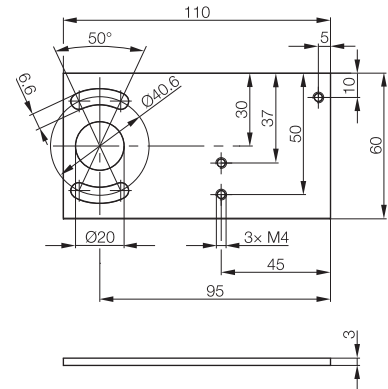
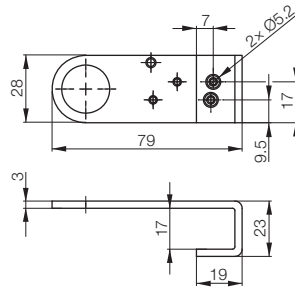
## Sensor holders



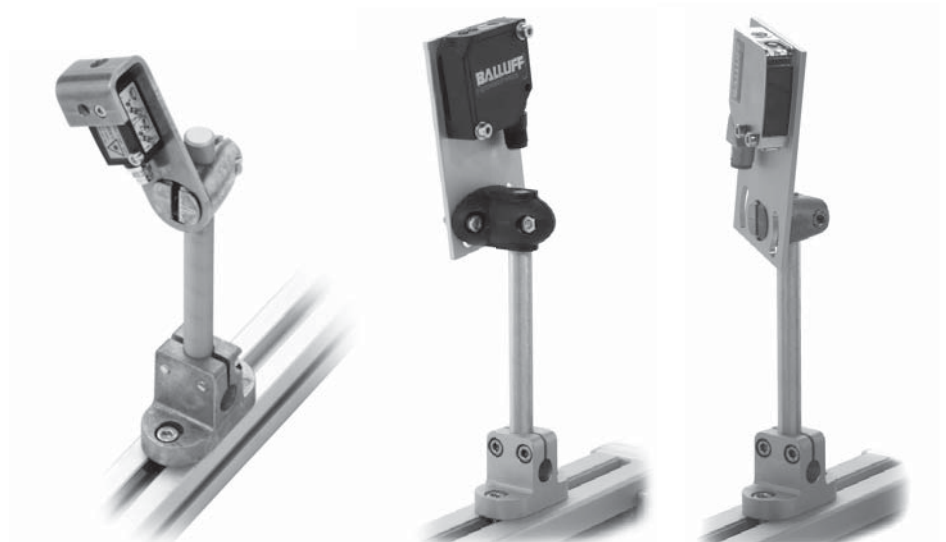
Stainless Steel



Description	<b>Sensor holders</b>	<b>Sensor holders</b>
Version	For clamping cylinders	For base holders or clamping cylinders
Use	For BOS 2K, 5K und 6K photoelectric sensors	For BOS 21M, 25K, 26K photoelectric sensors
<b>Ordering code</b>	<b>BAM0040</b>	<b>BAM0030</b>
Part number	BMS CS-M-D12-BX06-03	BMS CS-M-D12-BX01-01
Material	Stainless steel	Al anodized



Mounting rods  $\varnothing$  12 mm,  
anodized aluminum or stainless steel  
see page 62



# Mounting System

## Sensor holders



Stainless Steel



Stainless Steel

### Sensor holders

For base holders or clamping cylinders  
For BOS 21M, 25K, 26K photoelectric sensors and  
BOD 63M, 66M distance sensors

#### BAM003C

BMS CS-M-D12-BX05-02

Al anodized

### Sensor holders

For clamping cylinders  
For inductive sensors with size  
40x40 mm, Unicomact, Unisensor  
and BES IKU

#### BAM003R

BMS CS-M-D12-IQ40-03

Stainless steel

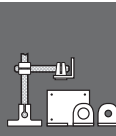
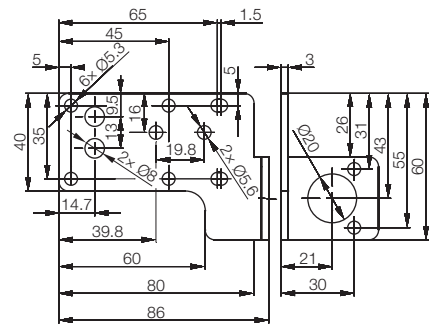
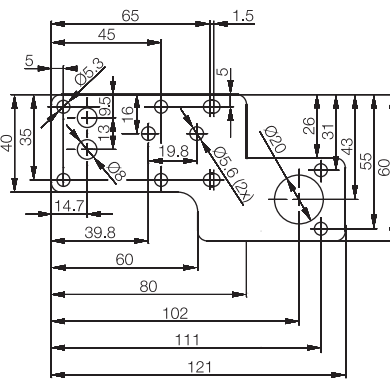
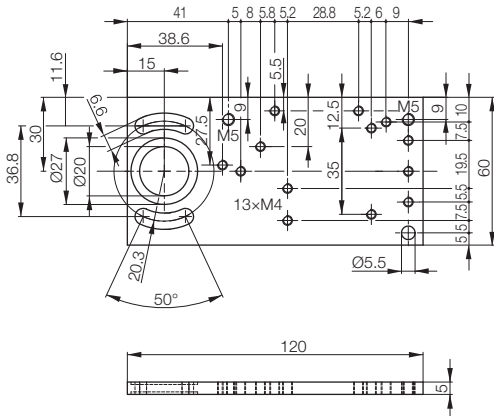
### Sensor holders

For clamping cylinders  
For inductive sensors with size  
40x40 mm, Unicomact, Unisensor  
and BES IKU

#### BAM003P

BMS CS-M-D12-IQ40-02

Stainless steel

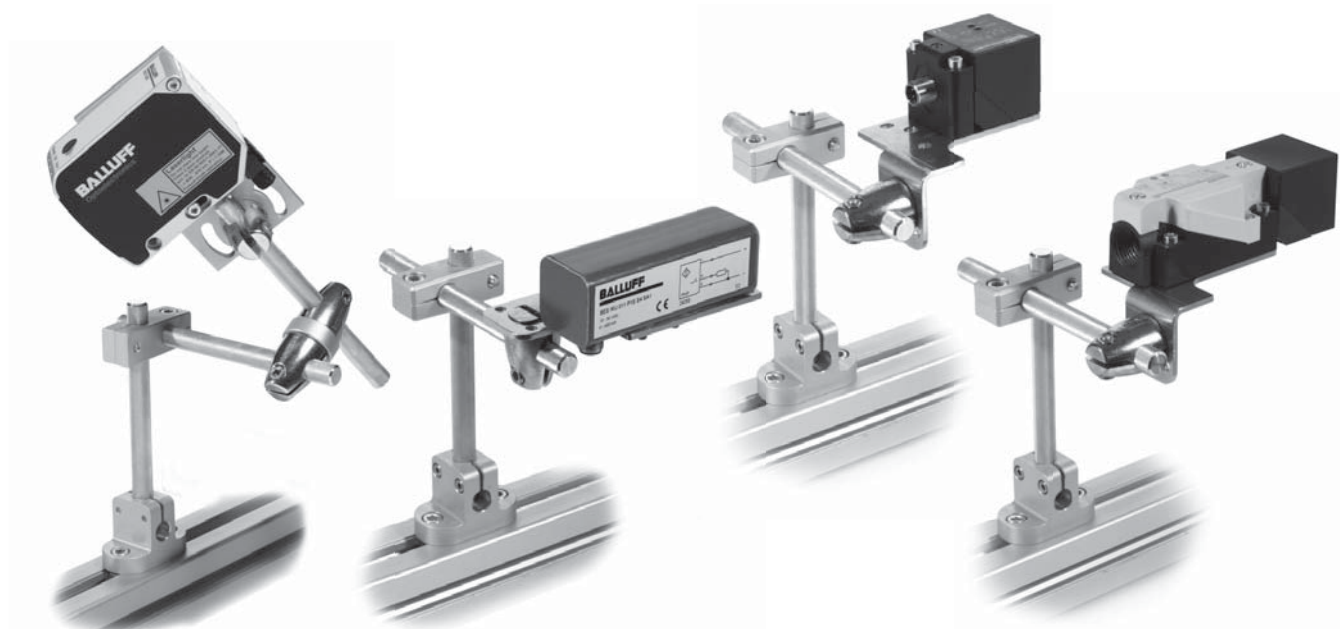


### Plastic Mounting System

- Base Holder
- Articulated Base Holder
- Sensor Holders
- Reflector Holder
- Cross-Connectors

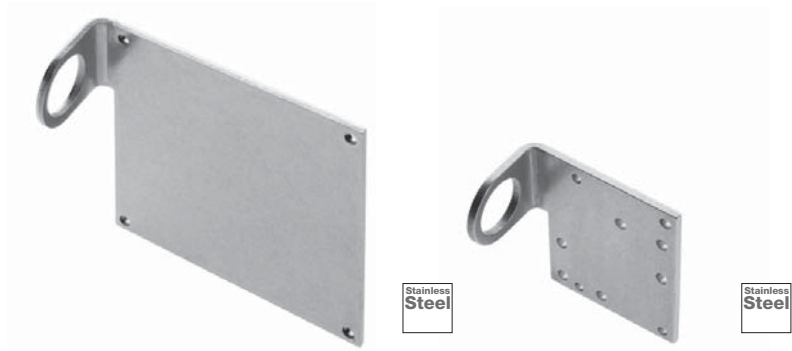
### Metal Mounting System

- Cross-Connectors
- Clamping Cylinders
- Base Holders
- Sensor Holders**
- Alignment Units
- Sensor and Reflector Holder
- Reflector Holders
- Cover Bracket
- Adapter Ring
- Air Blow
- Accessories for BVS Vision Sensors
- Mounting Rods
- Mounting Kit

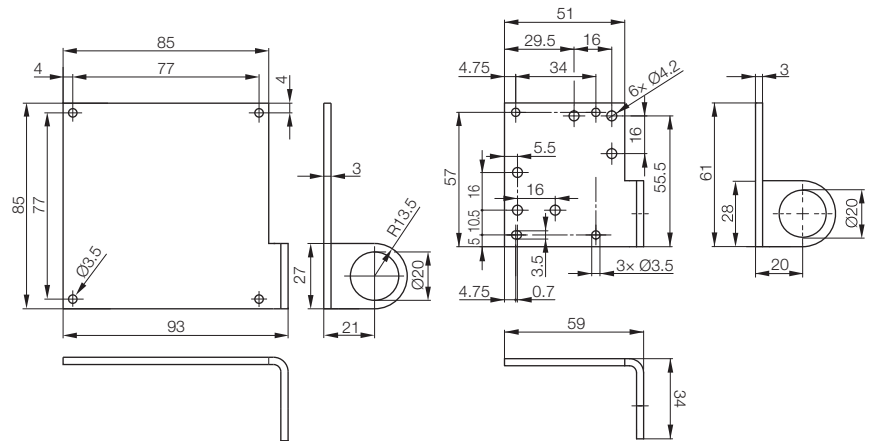


# Mounting System

## Reflector holders



Description	<b>Reflector holder</b>	<b>Reflector holder</b>	
Version	For clamping cylinders	For clamping cylinders	
Use	For BOS R-11 reflectors	For BOS R-9 reflectors	
<b>Ordering code</b>	<b>BAM0035</b>	<b>BAM0042</b>	
Part number	BMS CR-M-D12-IS-03	BMS CR-M-D12-IS-04	
Material	Stainless steel	Stainless steel	



Mounting rods  $\varnothing$  12 mm,  
anodized aluminum or stainless steel  
see page 62

# Mounting System

## Reflector holders



Stainless Steel



Stainless Steel

### Reflector holder

For clamping cylinders  
For BOS R-1 reflectors

#### BAM003N

BMS CR-M-D12-IU-05

Stainless steel

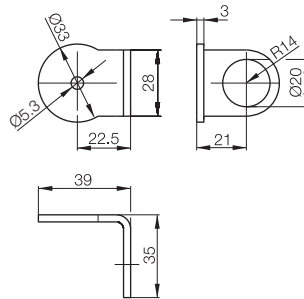
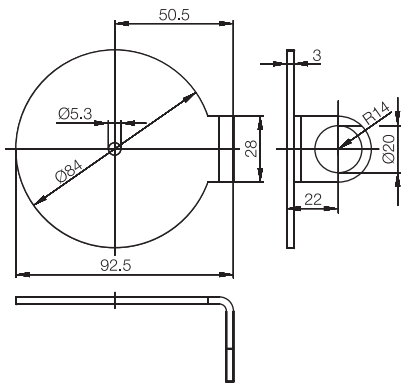
### Reflector holder

For clamping cylinders  
For BOS R-1, R-2, R-3 reflectors

#### BAM0034

BMS CR-M-D12-IU-02

Stainless steel



### Plastic Mounting System

- Base Holder
- Articulated Base Holder
- Sensor Holders
- Reflector Holder
- Cross-Connectors

### Metal Mounting System

- Cross-Connectors
- Clamping Cylinders
- Base Holders
- Sensor Holders
- Alignment Units
- Sensor and Reflector Holder

### Reflector Holders

- Cover Bracket
- Adapter Ring
- Air Blow
- Accessories for BVS Vision Sensors
- Mounting Rods
- Mounting Kit

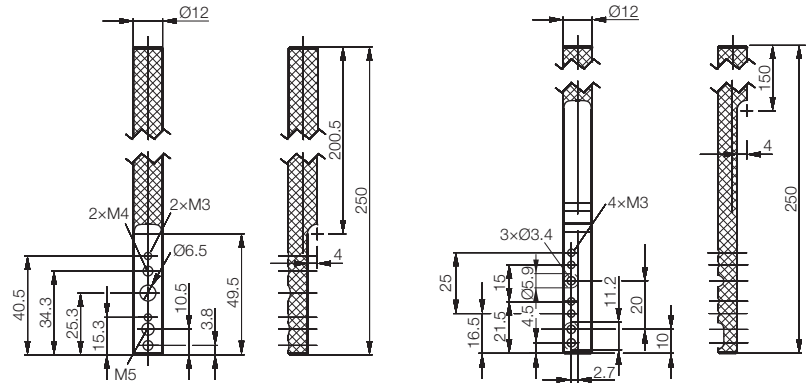


# Mounting System

Reflector holders, sensor holders



Description	<b>Reflector holder</b>	<b>Sensor holder</b>
Version	For base holders	For base holders
Use	For BOS R-1, R-9, R-14, R-22 and R-26 reflectors	For BOS 2K, 5K, 6K, Q08 photoelectric sensors and BES Q08 inductive sensors
<b>Ordering code</b>	<b>BAM003A</b>	<b>BAM0039</b>
Part number	BMS BS-M-D12-0250-01	BMS BS-M-D12-0250-02
Material	Al anodized	Al anodized



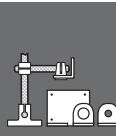
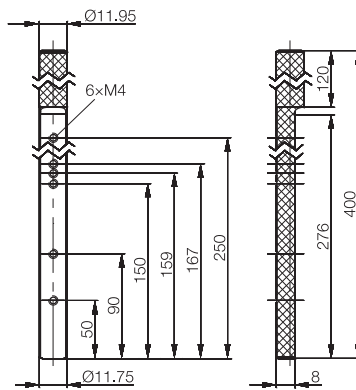
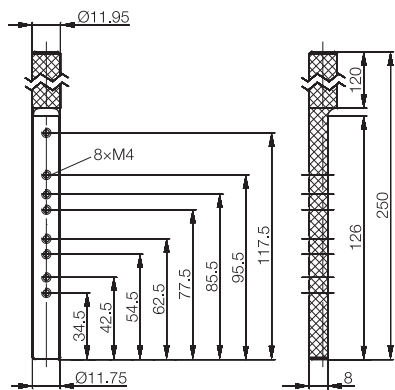


# Mounting System

## Sensor holders



<b>Sensor holder</b>	<b>Sensor holder</b>	
For base holders with/without cross-connectors For BGL 5A, 10A, 20A, 30A, 50A, 80A fork sensors	For base holders with/without cross-connectors For BGL 80A, 120A, 180A, 220A fork sensors	
<b>BAM003F</b>	<b>BAM003H</b>	
BMS BS-M-D12-0250-03	BMS BS-M-D12-0400-04	
Al anodized	Al anodized	



### Plastic Mounting System

- Base Holder
- Articulated Base Holder
- Sensor Holders
- Reflector Holder
- Cross-Connectors

### Metal Mounting System

- Cross-Connectors
- Clamping
- Cylinders
- Base Holders
- Sensor Holders**
- Alignment Units
- Sensor and Reflector Holder
- Reflector Holders**
- Cover Bracket
- Adapter Ring
- Air Blow
- Accessories for BVS Vision Sensors
- Mounting Rods
- Mounting Kit

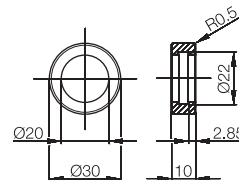
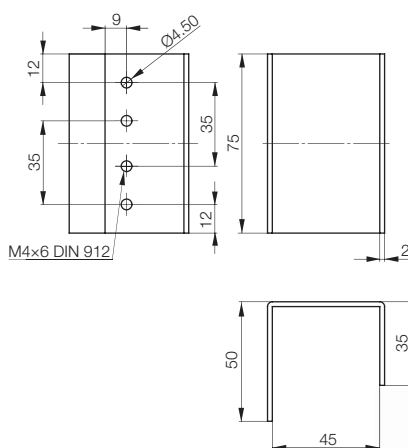


# Mounting System

## Adapter ring, cover bracket



Description	<b>Cover bracket</b>	<b>Adapter ring</b>
Version	For mounting with BAM003C sensor holder	For 2x BMS CS-M-D12-IZ clamping cylinders
Use	For BOD 63M and 66M photoelectric distance sensors for covering and for mechanical protection	As connecting element for 2x clamping cylinders
<b>Ordering code</b>	<b>BAM003Z</b>	<b>BAM003J</b>
Part number	BMS CZ-M-B-001	BMS AD-M-003-D12/IZ
Material	Al anodized	Al anodized



Mounting rods Ø 12 mm,  
anodized aluminum or stainless steel  
see page 62

# Mounting System

## Air blow



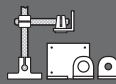
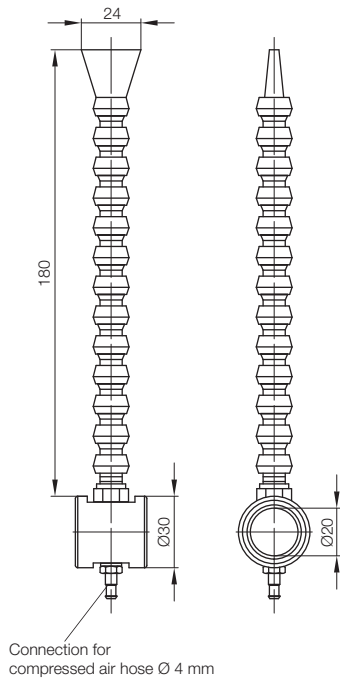
### Air blow

For clamping cylinders  
For blowing clear sensors and reflectors (minimum pressure 8 bar)

### BAM0041

BMS CZ-M-D12-I-001

Al anodized



### Plastic Mounting System

- Base Holder
- Articulated Base Holder
- Sensor Holders
- Reflector Holder
- Cross-Connectors

### Metal Mounting System

- Cross-Connectors
- Clamping Cylinders
- Base Holders
- Sensor Holders
- Alignment Units
- Sensor and Reflector Holder
- Reflector Holders

### Cover Bracket Adapter Ring Air Blow

- Accessories for BVS Vision Sensors
- Mounting Rods
- Mounting Kit



# Mounting System

Accessories for BVS vision sensors

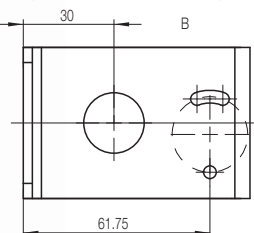
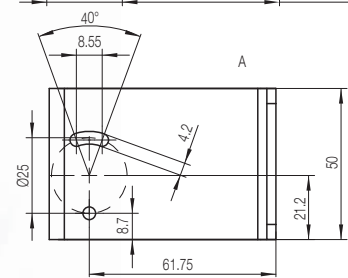
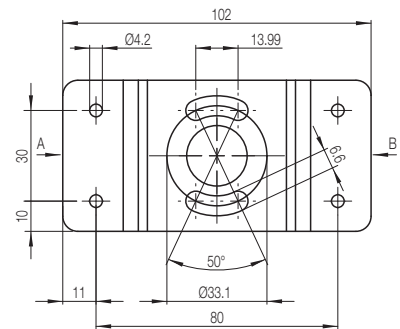
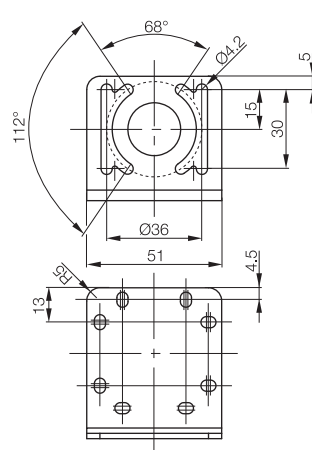
# VISIONSENSOR



Description	<b>Mounting bracket</b>	<b>Mounting bracket</b>
Version	For clamping cylinder or for mounting on base plate	For clamping cylinder or for mounting on base plate
Use	For BVS vision sensor	For BVS vision sensor and BAE ring lights
<b>Ordering code</b>	<b>BAM00WN</b>	<b>BAM01AC</b>
Part number	BVS Z-MB-01	BAM MB-XA-003-B03-1
Material	GD-Zn	Al anodized

Mounting is part of optimal integration of the BVS vision sensor. The variety of different mounting options allows you to integrate your BVS ideally into your equipment. Balluff accessories are perfectly matched to our sensors.

With flexible Balluff accessories, you can position the BVS quickly without elaborate preparatory work or time-consuming planning, even if space is limited. Through optimum adaptation, you save material and time.



# Mounting System

Accessories for BVS vision sensors



### Mounting bracket

For clamping cylinder or for mounting on base plate  
For strip and BAE background lights

#### BAM01AE

BAM MB-XA-002-B02-1

Al anodized

### Focus locking device

For locking the set focus

For BVS vision sensor focus ring

#### BAM01JH

BAM FK-VS-002-02-1

Al anodized

### Display housing

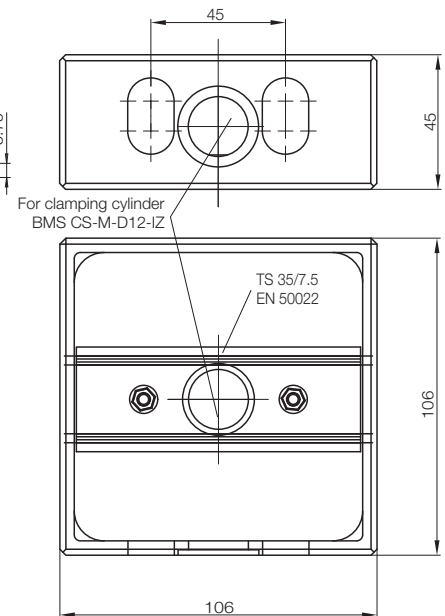
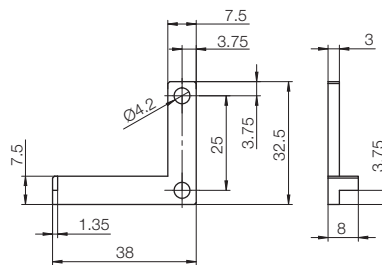
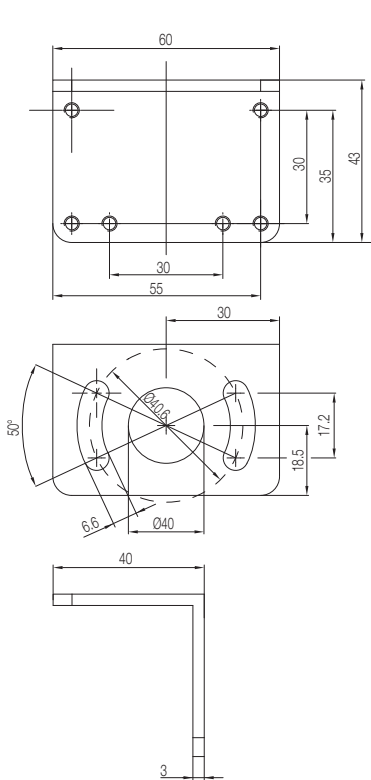
For clamping cylinder

For configurator with BAE PD-VS-001-C display

#### BAM01A8

BAM PC-AE-002-1

Al anodized



Description	Diffuser attachment
Use	For ring lights
<b>Ordering code</b>	<b>BAM01A7</b>
Part number	BAM OF-VS-001-D-RX100



### Plastic Mounting System

Base Holder  
Articulated Base Holder  
Sensor Holders  
Reflector Holder  
Cross-Connectors

### Metal Mounting System

Cross-Connectors  
Clamping Cylinders  
Base Holders  
Sensor Holders  
Alignment Units  
Sensor and Reflector Holder  
Reflector Holders  
Cover Bracket  
Adapter Ring  
Air Blow

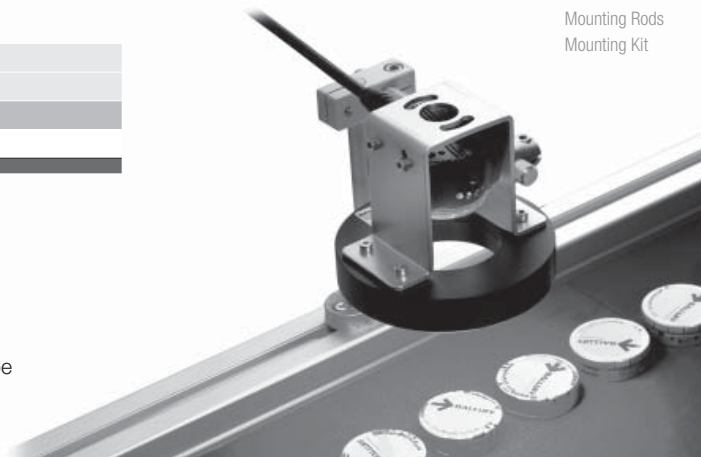
### Accessories for BVS Vision Sensors

Mounting Rods  
Mounting Kit



### Stop for focus ring BAM FK-VS-002-02-1

The preset focus is locked and cannot be adjusted. Errors caused by unintentional adjustment of the focus are therefore prevented. If the focus needs to be adjusted, the stop can be removed in seconds.



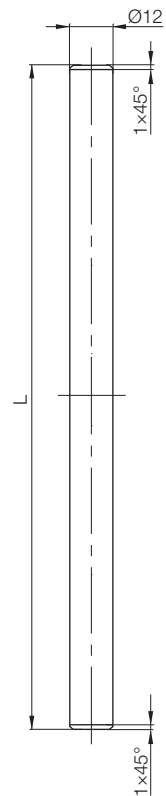
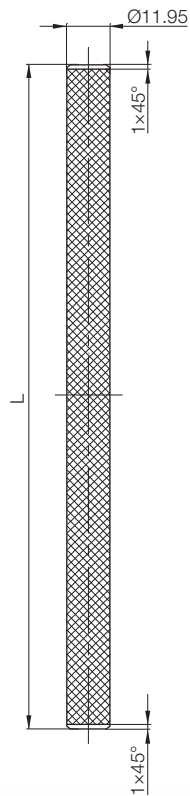
# Mounting System

## Mounting rods



Description		<b>Mounting rod Ø 12 mm</b>	<b>Mounting rod Ø 12 mm</b>
Version		Knurled, can be cut to required size	Smooth, can be cut to required size
<b>Length 150 mm</b>	<b>Ordering code</b>	<b>BAM002R</b>	<b>BAM0045</b>
	Part number	BMS RS-M-D12-0150-00	BMS RS-S-D12-0150-00
<b>Length 250 mm</b>	<b>Ordering code</b>	<b>BAM002T</b>	
	Part number	BMS RS-M-D12-0250-00	
<b>Length 300 mm</b>	<b>Ordering code</b>		<b>BAM0046</b>
	Part number		BMS RS-S-D12-0300-00
<b>Length 1000 mm</b>	<b>Ordering code</b>	<b>BAM002U</b>	
	Part number	BMS RS-M-D12-1000-00	
Material		Al anodized	Stainless steel

The mounting rods are knurled full-length.  
This prevents any position change.



# Mounting System


















## Mounting kit

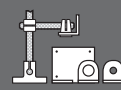
When installing sensors on machines and systems, fast solutions are often required for positioning the sensors. Installers need finished, compatible solutions for service work.

For such work, Balluff offers the BMS Kit-V1. From the base holder to rods and cross-connectors to the most commonly needed sensor holders, everything you need for establishing a secure sensor position is included in the mounting kit. Once parts have been used, an order form is included for simple reordering.

The tough aluminum case with additional, variable compartments is designed for tough industrial use.

**Ordering code**     **BAM003W**  
Part number         BMS KIT-V1

Item	Case contents Quantity	Description	Ordering code Part number
1. 	20	Base holder	<b>BAM002W</b> BMS CU-M-D12-A040-00
2. 	10	Cross-connector	<b>BAM002Z</b> BMS CC-M-D12-B-00
3. 	20	Clamping cylinder	<b>BAM0031</b> BMS CS-M-D12-IZ
4. 	5	M8 sensor holder	<b>BAM0036</b> BMS CS-M-D12-ID08-01
5. 	10	M12 sensor holder	<b>BAM0037</b> BMS CS-M-D12-ID12-01
6. 	10	M16 sensor holder	<b>BAM003K</b> BMS CS-M-D12-ID16-01
7. 	10	M18 sensor holder	<b>BAM0032</b> BMS CS-M-D12-ID18-01
8. 	10	M24 sensor holder	<b>BAM003L</b> BMS CS-M-D12-ID24-01
9. 	5	M30 sensor holder	<b>BAM0033</b> BMS CS-M-D12-ID30-01
10. 	5	40x40 mm sensor holder	<b>BAM003R</b> BMS CS-M-D12-IQ40-03
11. 	5	Sensor holder for BOS 21M, 25K, 26K	<b>BAM0030</b> BMS CS-M-D12-BX01-01
12. 	5	Reflector holder for BOS R-9	<b>BAM0042</b> BMS CR-M-D12-IS-04
13. 	5	Reflector holder for BOS R-1, R-9, R-14, R-22, R-26	<b>BAM003A</b> BMS BS-M-D12-0250-01
14. 	5	Reflector BOS R-9	<b>BAM00WL</b> BOS R-9
15. 	10	Mounting rod 150 mm	<b>BAM002R</b> BMS RS-M-D12-0150-00
16. 	10	Mounting rod 250 mm	<b>BAM002T</b> BMS RS-M-D12-0250-00
17. 		Empty case	<b>BAM003T</b> BMS Case-01



### Plastic Mounting System

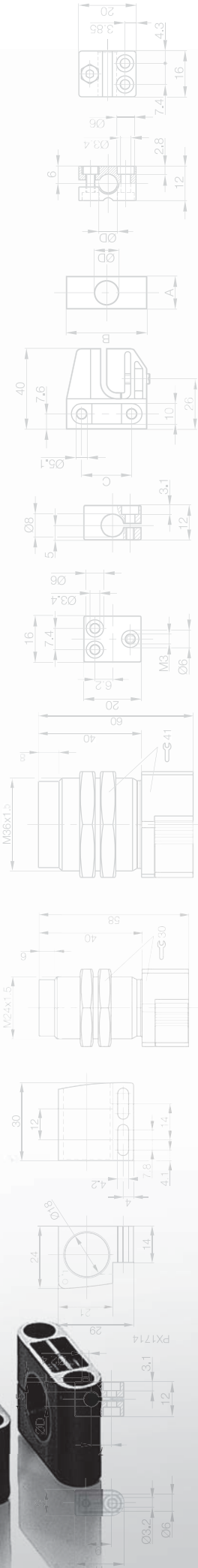
- Base Holder
- Articulated Base Holder
- Sensor Holders
- Reflector Holder
- Cross-Connectors

### Metal Mounting System

- Cross-Connectors
- Clamping Cylinders
- Base Holders
- Sensor Holders
- Alignment Units
- Sensor and Reflector Holder
- Reflector Holders
- Cover Bracket
- Adapter Ring
- Air Blow
- Accessories for BVS Vision Sensors

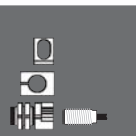
### Mounting Rods Mounting Kit



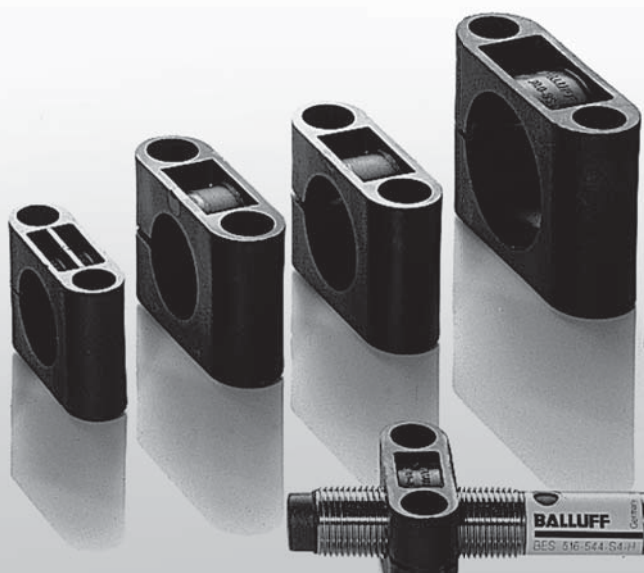




The numerous varieties of capacitive sensors for individual solutions are enhanced by custom matched accessories. Precisely matched mounting elements ensure exact positioning.




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<b>Clamps for air-tight installation in containers</b>	74
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# Fasteners for Flush Sensors

## Selection aid for clamps



Description		Clamp	
Version		<b>Standard</b>	<b>Standard</b>
Material		Nickel-plated brass	Stainless steel 1.4305
Recommendation		e.g. BES __,0-KH-2S (short version) e.g. BES __,0-KH-2L (long version) e.g. BES __,0-KH-9S (short version) e.g. BES __,0-KH-9L (long version)	e.g. BES __,0-KH-6S (short version) e.g. BES __,0-KH-7-F
Use		<ul style="list-style-type: none"> <li>- <b>GlobalProx</b></li> <li>- <b>Standard</b></li> <li>- <b>All sensors with single switching distance</b></li> </ul>	<ul style="list-style-type: none"> <li>- <b>GlobalProx</b></li> <li>- <b>Standard</b></li> <li>- <b>All sensors with single switching distance</b></li> </ul>

Sensor series	Switching distance	Size	Housing material					
<b>GlobalProx</b>	Single	M12	CuZn		■	■		
		M18	CuZn		■	■		
		M30	CuZn		■	■		
	Double	M12	CuZn		■	■		
		M18	CuZn		■	■		
		M30	CuZn		■	■		
<b>Standard</b>	Simple	M5	Stainless steel 1.4305			■		
		M8	Stainless steel 1.4305			■		
		M12	Stainless steel 1.4305		■	■		
		M18	CuZn		■	■		
		M30	CuZn		■	■		
	Double	M5	Stainless steel 1.4305			■		
		M8	Stainless steel 1.4305			■		
		M12	CuZn		■	■		
		M18	CuZn		■	■		
		M30	CuZn		■	■		
		<b>Proxinox</b>	Single	M12	Stainless steel 1.4571		■	■
				M12	Stainless steel 1.4305		■	■
M18	Stainless steel 1.4571				■	■		
M18	Stainless steel 1.4305				■	■		
M30	Stainless steel 1.4571				■	■		
M30	Stainless steel 1.4305				■	■		
Double	M12	Stainless steel 1.4404		■	■			
	M18	Stainless steel 1.4404						
<b>TripleProx</b>	Triple	M12	CuZn					
		M18	CuZn		■	■		
		M30	CuZn		■	■		
<b>SteelFace</b>	Double	M12	Stainless steel 1.4404					
		M18	Stainless steel 1.4404					

Preselection: Depending on the application, the switching distance can be reduced or increased.  
It is recommended that the switching response be checked with an application test.

# Fasteners for Flush Sensors

Selection aid for clamps



Clamp	Weld immune with latch	Stainless steel with latch
<b>Standard with latch</b>	<b>Weld immune with latch</b>	<b>Stainless steel with latch</b>
CuZn/white bronze with plastic stop e.g. BES __,0-KH-9ST (short version) e.g. BES __,0-KH-9LT (long version)	CuZn, PTFE-coated with plastic stop e.g. BES __,0-KH-9ST/W (short version) e.g. BES __,0-KH-9LT/W (long version)	Stainless steel 1.4404 e.g. BES __,0-KH-10S (short version) e.g. BES __,0-KH-10L (long version)
<ul style="list-style-type: none"> <li>- GlobalProx</li> <li>- Standard</li> <li>- Proxinox</li> <li>- TripleProx</li> <li>- SteelFace</li> </ul>	<ul style="list-style-type: none"> <li>- GlobalProx</li> <li>- Standard</li> <li>- Proxinox</li> <li>- TripleProx</li> <li>- SteelFace</li> </ul>	<ul style="list-style-type: none"> <li>- SteelFace</li> <li>- All sensors with single switching distance</li> </ul>



**Clamp**

- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs
- Mounting Clamps
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
- Fixing Nuts
- Positive Stops
- Contact Protectors
- Tube Switches
- Cover Nuts
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut

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# Fasteners

## Clamps

An old problem in installing proximity switches has now been solved. Balluff **clamps with positive stop** ensure the exact and correct position of the sensors.

Sensors can be quickly and easily changed even in difficult to access locations, and retain their position without readjustment thanks to a positive stop.

### Benefits

- Short downtimes
- Quickly replaced
- Once set, always in the right position
- No readjustment
- Easy installation and changing of proximity switches thanks to the positive stop
- Easy to attach the sensor using a compression screw

### Note regarding clamps with positive stop made of metal

The switching distance of the sensors may be reduced by using these clamps. Take note when using this clamping system.

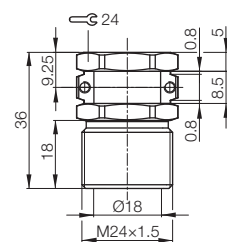
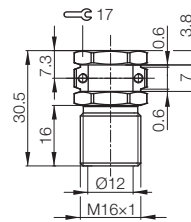
### Clamps without positive stop

can be used for nearly all inductive, capacitive or photoelectric sensors.

See selection aid on page 66.

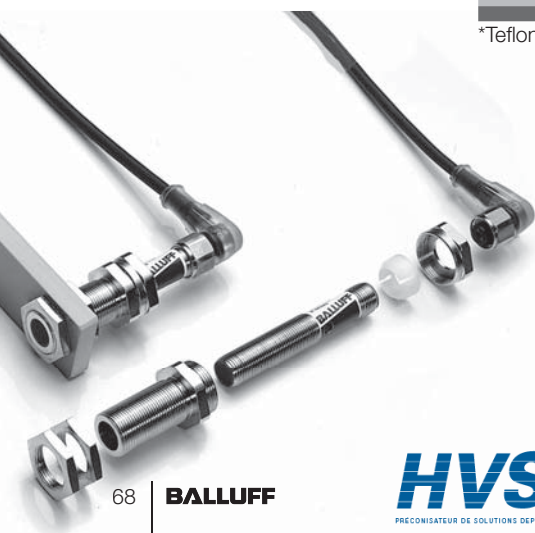
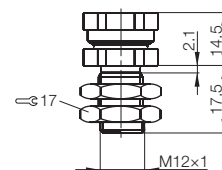
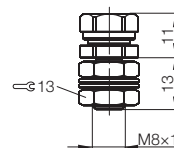


Description	<b>Clamp w/out positive stop</b>	<b>Clamp w/out positive stop</b>	
Use	For sensors <b>Ø 12 mm and M12</b>	For sensors <b>Ø 18 mm and M18</b>	
Nickel-plated brass	<b>Ordering code</b> Part number	<b>Ordering code</b> Part number	
	<b>BAM00E4</b> BES 12,0-KH-4	<b>BAM00FZ</b> BES 18,0-KH-4	



Description	<b>Clamp with positive stop</b>	<b>Clamp with positive stop</b>	
Use	For sensors <b>Ø 5 mm and M5</b> with thread length $\geq 30$ mm	For sensors <b>Ø 8 mm and M8</b> with thread length $\geq 30$ mm	
Nickel-plated brass	<b>Ordering code</b> Part number	<b>Ordering code</b> Part number	
PTFE coated*	<b>Ordering code</b> Part number	<b>Ordering code</b> Part number	
	<b>BAM0099</b> BES 05,0-KH-2S	<b>BAM00AH</b> BES 08,0-KH-2S	
		<b>BAM00AK</b> BES 08,0-KH-2S/W	

\*Teflon coated variants for welding systems



# Fasteners Clamps



### Clamp w/out positive stop

For sensors

Ø 30 mm and M30

**BAM00J8**

BES 30,0-KH-4

### Clamp with positive stop

For sensors

Ø 8 mm and M8

**BAM00AM**

BES 08,0-KH-4-F

### Clamp with positive stop

For sensors

Ø 12 mm and M12

**BAM00E5**

BES 12,0-KH-4-F

### Clamp with positive stop

For sensors

Ø 18 mm and M18

**BAM00H0**

BES 18,0-KH-4-F

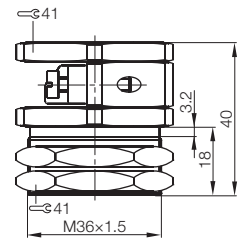
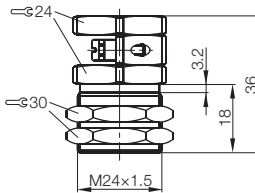
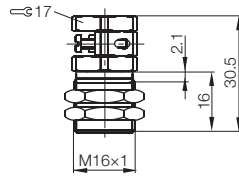
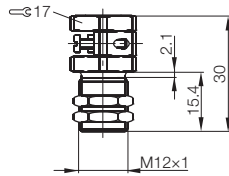
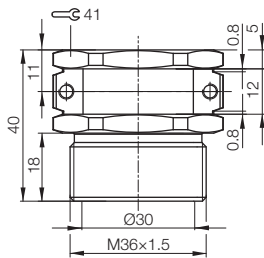
### Clamp with positive stop

For sensors

Ø 30 mm and M30

**BAM00J9**

BES 30,0-KH-4-F



### Clamps

- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs
- Mounting Clamps
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
- Fixing Nuts
- Positive Stops
- Contact Protectors
- Tube Switches
- Cover Nuts
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut



### Clamp with positive stop

For sensors

Ø 12 mm and M12

with thread length ≥ 30 mm

**BAM00E0**

BES 12,0-KH-2S

**BAM00E1**

BES 12,0-KH-2S/W

### Clamp with positive stop

For sensors

Ø 18 mm and M18

with thread length ≥ 30 mm

**BAM00FT**

BES 18,0-KH-2S

**BAM00FW**

BES 18,0-KH-2S/W

### Clamp with positive stop

For sensors

Ø 30 mm and M30

with thread length ≥ 30 mm

**BAM00J6**

BES 30,0-KH-2S

**BAM00J7**

BES 30,0-KH-2S/W

### Clamp with positive stop

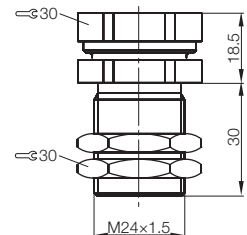
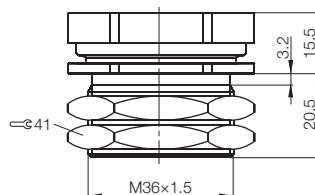
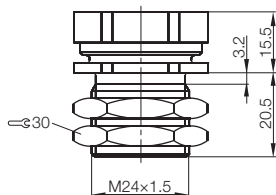
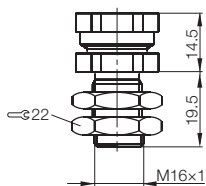
For sensors

Ø 18 mm and M18

with thread length ≥ 48 mm

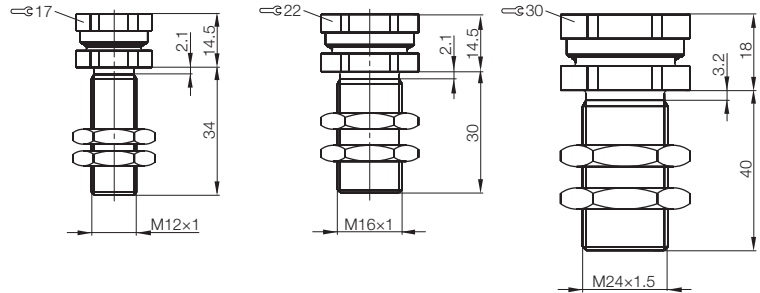
**BAM00FR**

BES 18,0-KH-2M

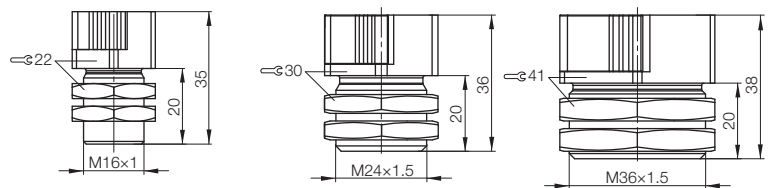




Description		<b>Clamp with positive stop</b>	<b>Clamp with positive stop</b>	<b>Clamp with positive stop</b>	
Use		For sensors <b>Ø 8 mm and M8</b> with thread length $\geq 48.5$ mm	For sensors <b>Ø 12 mm and M12</b> with thread length $\geq 40$ mm	For sensors <b>Ø 18 mm and M18</b> with thread length $\geq 50$ mm	
Nickel-plated brass	<b>Ordering code</b>	<b>BAM00AE</b>	<b>BAM00CY</b>	<b>BAM00FN</b>	
	Part number	BES 08,0-KH-2L	BES 12,0-KH-2L	BES 18,0-KH-2L	
Stainless steel	<b>Ordering code</b>				
	Part number				
PTFE coated	<b>Ordering code</b>	<b>BAM00AF</b>	<b>BAM00CZ</b>	<b>BAM00FP</b>	
Weld immune	Part number	BES 08,0-KH-2L/W	BES 12,0-KH-2L/W	BES 18,0-KH-2L/W	



Description		<b>Clamp with positive stop</b>	<b>Clamp with positive stop</b>	<b>Clamp with positive stop</b>	
Use		For sensors <b>M12</b> with thread length $\geq 32$ mm	For sensors <b>M18</b> with thread length $\geq 33$ mm	For sensors <b>M30</b> with thread length $\geq 35$ mm	
Stainless steel	<b>Ordering code</b>	<b>BAM00CT</b>	<b>BAM00FK</b>	<b>BAM00J2</b>	
	Part number	BES 12,0-KH-10S	BES 18,0-KH-10S	BES 30,0-KH-10S	
Stainless steel, PTFE coated, weld immune	<b>Ordering code</b>	<b>BAM00CU</b>	<b>BAM00FL</b>	<b>BAM00J3</b>	
	Part number	BES 12,0-KH-10S/W	BES 18,0-KH-10S/W	BES 30,0-KH-10S/W	

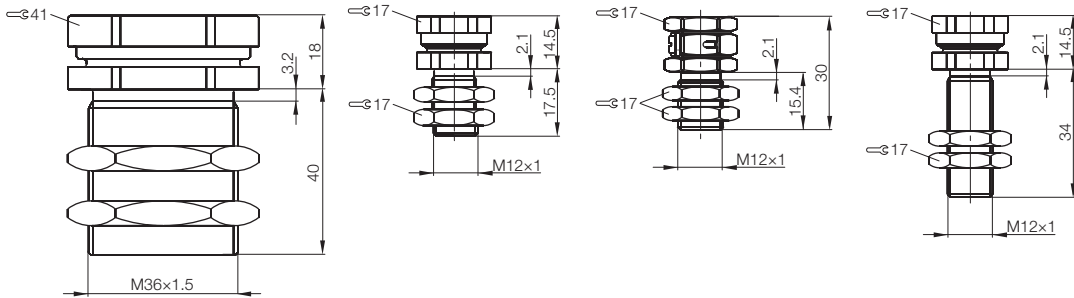


# Fasteners

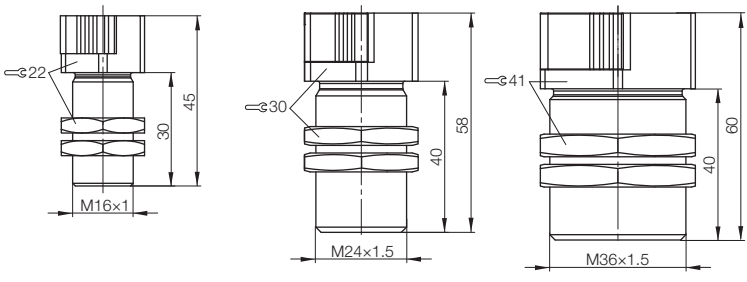
## Clamps



<b>Clamp with positive stop</b> For sensors <b>Ø 30 mm</b> and <b>M30</b> with thread length $\geq 50$ mm <b>BAM00J4</b> BES 30,0-KH-2L	<b>Clamp with positive stop</b> For sensors <b>Ø 8 mm</b> and <b>M8</b> <b>BAM00AR</b> BES 08,0-KH-6S	<b>Clamp with positive stop</b> For sensors <b>Ø 8 mm</b> and <b>M8</b> <b>BAM00AU</b> BES 08,0-KH-7-F	<b>Clamp with positive stop</b> For sensors <b>Ø 8 mm</b> and <b>M8</b> with thread length $\geq 30$ mm <b>BAM00AN</b> BES 08,0-KH-6L
<b>BAM00J5</b> BES 30,0-KH-2L/W	<b>BAM00AT</b> BES 08,0-KH-6S/W		<b>BAM00AP</b> BES 08,0-KH-6L/W



<b>Clamp with positive stop</b> For sensors <b>M12</b> with thread length $\geq 42$ mm <b>BAM00CP</b> BES 12,0-KH-10L	<b>Clamp with positive stop</b> For sensors <b>M18</b> with thread length $\geq 55$ mm <b>BAM00FH</b> BES 18,0-KH-10L	<b>Clamp with positive stop</b> For sensors <b>M30</b> with thread length $\geq 57$ mm <b>BAM00JO</b> BES 30,0-KH-10L	
<b>BAM00CR</b> BES 12,0-KH-10L/W	<b>BAM00FJ</b> BES 18,0-KH-10L/W	<b>BAM00J1</b> BES 30,0-KH-10L/W	



### Clamps

- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs
- Mounting Clamps
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
- Fixing Nuts
- Positive Stops
- Contact Protectors
- Tube Switches
- Cover Nuts
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut

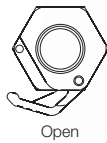
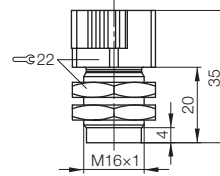
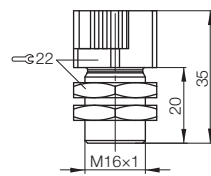
**more added value**

- Precision positioning
- No tools required
- Sensors easy to change

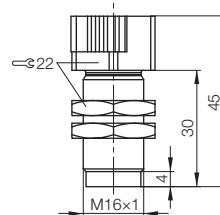
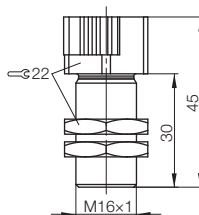


Description		<b>Clamp with positive stop</b>	<b>Clamp with positive stop</b>		
Use		For sensors <b>M12</b> with thread length $\geq 32$ mm	For sensors <b>M12</b> with thread length $\geq 32$ mm		
Nickel-plated brass	<b>Ordering code</b>	<b>BAM00EE</b>	<b>BAM00EF</b>		
	Part number	BES 12,0-KH-9S	BES 12,0-KH-9ST		
PTFE coated Weld immune	<b>Ordering code</b>		<b>BAM00EH</b>		
	Part number		BES 12,0-KH-9ST/W		

Balluff has revolutionized methods for attaching sensors with the new latch clamping principle. The sensor is inserted into the clamps and secured in position by folding over the latch. The latch can secure any sensor in all areas of the automation sector without the use of tools.



Description		<b>Clamp with positive stop</b>	<b>Clamp with positive stop</b>		
Use		For <b>M12</b> sensors with thread length $\geq 42$ mm	For <b>M12</b> sensors with thread length $\geq 42$ mm		
Nickel-plated brass	<b>Ordering code</b>	<b>BAM00E9</b>	<b>BAM00EA</b>		
	Part number	BES 12,0-KH-9L	BES 12,0-KH-9LT		
PTFE coated Weld immune	<b>Ordering code</b>		<b>BAM00EC</b>		
	Part number		BES 12,0-KH-9LT/W		



For information on use, see selection aid, page 66.





### Clamp with positive stop

For sensors **M18** with thread length  $\geq 33$  mm

**BAM00H4**

BES 18,0-KH-9S

### Clamp with positive stop

For sensors **M18** with thread length  $\geq 33$  mm

**BAM00H5**

BES 18,0-KH-9ST

### Clamp with positive stop

For sensors **M30** with thread length  $\geq 35$  mm

**BAM00JF**

BES 30,0-KH-9S

### Clamp with positive stop

For sensors **M30** with thread length  $\geq 35$  mm

**BAM00JH**

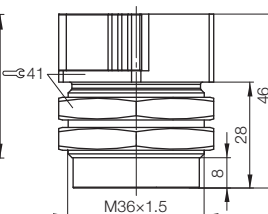
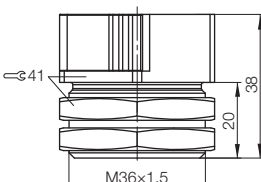
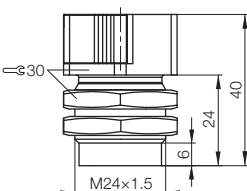
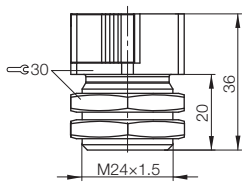
BES 30,0-KH-9ST

**BAM00H6**

BES 18,0-KH-9ST/W

**BAM00JJ**

BES 30,0-KH-9ST/W



### Clamp with positive stop

For **M18** sensors with thread length  $\geq 55$  mm

**BAM00H1**

BES 18,0-KH-9L

### Clamp with positive stop

For **M18** sensors with thread length  $\geq 55$  mm

**BAM00H2**

BES 18,0-KH-9LT

### Clamp with positive stop

For **M30** sensors with thread length  $\geq 57$  mm

**BAM00JA**

BES 30,0-KH-9L

### Clamp with positive stop

For **M30** sensors with thread length  $\geq 57$  mm

**BAM00JC**

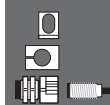
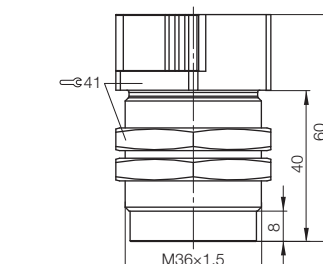
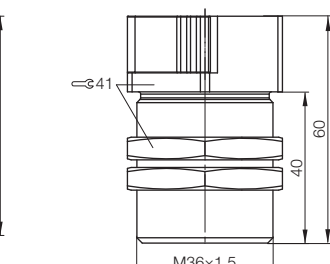
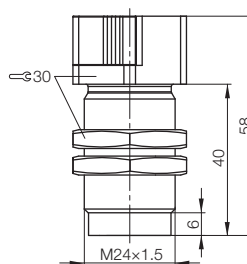
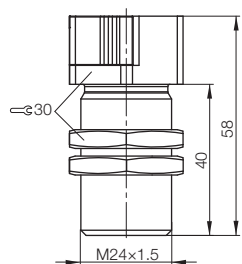
BES 30,0-KH-9LT

**BAM00H3**

BES 18,0-KH-9LT/W

**BAM00JE**

BES 30,0-KH-9LT/W



### Clamps

Clamps for Air-Tight Installation in Containers  
 Sensor Holders  
 Mounting Cuffs  
 Mounting Clamps  
 Reducing Sleeve  
 Mounting Brackets  
 Accessories for Unicomact Sensors and Unisensors  
 Fixing Nuts  
 Positive Stops  
 Contact Protectors  
 Tube Switches  
 Cover Nuts  
 Terminal Blocks for Row Mounting  
 Nuts  
 Sealing Nut

# Fasteners

## Clamps for air-tight installation in containers

### Advantages of positive stop

- Once set, always in the right position
- No readjustment
- Short downtimes

### Disadvantage of positive stop

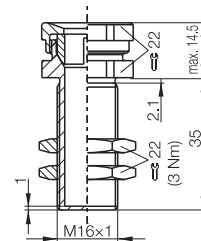
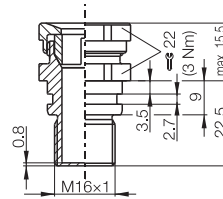
- Switching distance may be reduced (dependent on material)



Description	<b>Clamp with positive stop</b>	<b>Clamp with positive stop</b>	
Use	For <b>M12</b> sensors for air-tight installation	For <b>M12</b> sensors for air-tight installation	
<b>Ordering code</b>	<b>BAM00E8</b>	<b>BAM00E3</b>	
Part number	BES 12,0-KH-5F	BES 12,0-KH-3X	
Pressure rated	≤ 0.5 bar	≤ 0.5 bar	
Material	PBT fiberglass reinforced	PBT fiberglass reinforced	

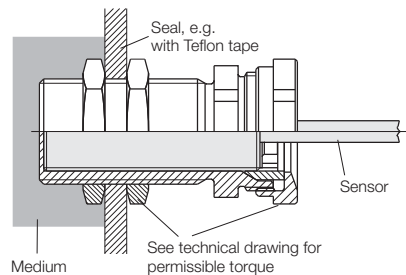
For all sensors with simple switching distance and appropriate diameter.

The switching distance of the sensors may be reduced by the clamps when using for air-tight installation.



### Installation example using BES ...-KH-3L

Particularly well suited for detecting liquid media



## Fasteners

Clamps for air-tight installation in containers



### Clamp with positive stop

For **M8** sensors for air-tight installation

#### **BAM00AL**

BES 08,0-KH-3L

≤ 0.5 bar

PBT fiberglass reinforced

### Clamp with positive stop

For **M12** sensors for air-tight installation

#### **BAM00E2**

BES 12,0-KH-3L

≤ 0.5 bar

PBT fiberglass reinforced

### Clamp with positive stop

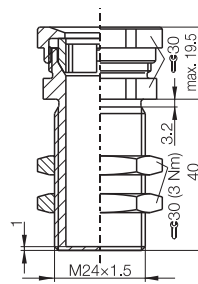
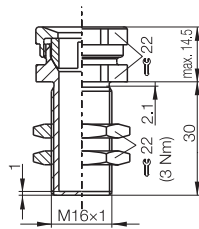
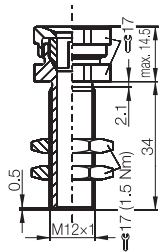
For **M18** sensors for air-tight installation

#### **BAM00FY**

BES 18,0-KH-3L

≤ 0.5 bar

PBT fiberglass reinforced



Clamps

### Clamps for Air-Tight Installation in Containers

- Sensor Holders
- Mounting Cuffs
- Mounting Clamps
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
- Fixing Nuts
- Positive Stops
- Contact Protectors
- Tube Switches
- Cover Nuts
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut

# Fasteners

## Sensor holders

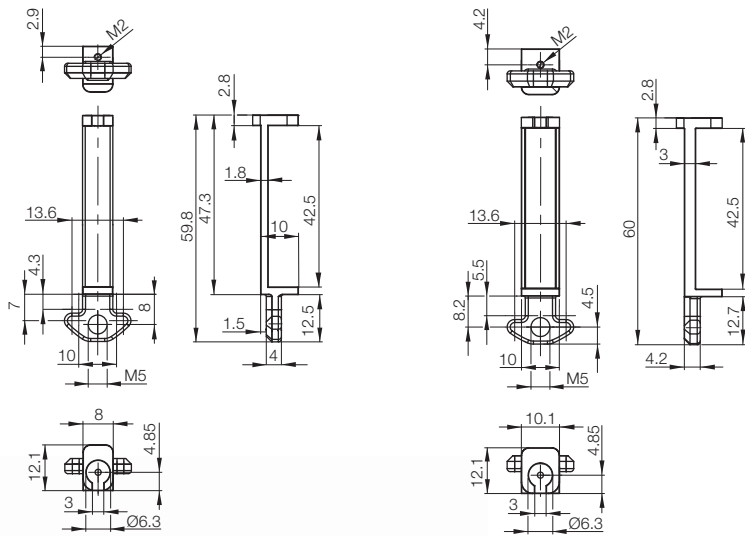


Description	<b>8×8 mm sensor holder</b>	<b>8×8 mm sensor holder</b>
Use	For BOS and BES Q08 sensors in ITEM profiles with 8 mm groove	For BOS and BES Q08 sensors in Bosch profiles with 10 mm groove
<b>Ordering code</b>	<b>BAM00NJ</b>	<b>BAM01AU</b>
Part number	BES Q08-KH-2	BES Q08-KH-3
Material	CuBe 2	CuBe 2

### World first!

With their new sensor holder, Balluff has introduced a global innovation on the 8×8 sensor market. The sensor is placed in the holder and, using a set screw, securely screwed into the holder. Regardless of how the profile is positioned, the sensor can then be guided into the profile groove from above.

The holder accepts all inductive and optical 8×8 cable sensors. Sensors of this size are using in materials handling technology.



### Your added bonus

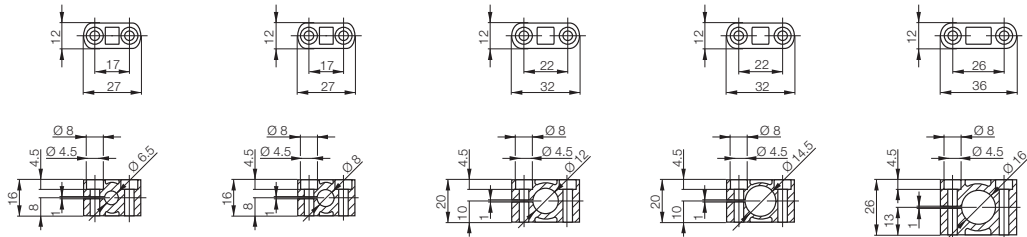
A patented mounting concept ensures flush installation in aluminum profiles.

# Fasteners

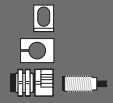
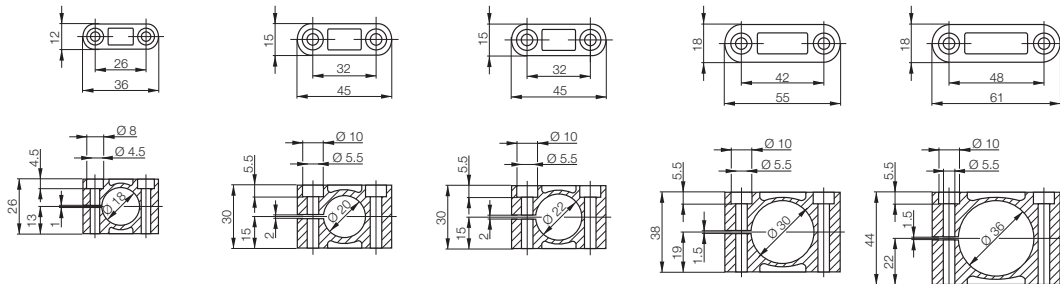
## Mounting cuffs



Description	Mounting cuff	Mounting cuff	Mounting cuff	Mounting cuff	Mounting cuff
Hole diameter	Ø 6.5 mm	Ø 8 mm	Ø 12 mm	Ø 14.5 mm	Ø 16 mm
<b>Ordering code</b>	<b>BAM009A</b>	<b>BAM00A2</b>	<b>BAM00C4</b>	<b>BAM00EM</b>	<b>BAM00ET</b>
Part number	BES 06,5-BS-1	BES 08,0-BS-1	BES 12,0-BS-1	BES 14,5-BS-1	BES 16,0-BS-1
Material	PA 6	PA 6	PA 6	PA 6	PA 6



Description	Mounting cuff	Mounting cuff	Mounting cuff	Mounting cuff	Mounting cuff
Hole diameter	Ø 18 mm	Ø 20 mm	Ø 22 mm	Ø 30 mm	Ø 36 mm
<b>Ordering code</b>	<b>BAM00F2</b>	<b>BAM00H7</b>	<b>BAM00H9</b>	<b>BAM00HN</b>	<b>BAM00JN</b>
Part number	BES 18,0-BS-1	BES 20,0-BS-1	BES 22,0-BS-1	BES 30,0-BS-1	BES 36,0-BS-1
Material	PA 6	PA 6	PA 6	PA 6	PA 6



- Clamps
- Clamps for Air-Tight Installation in Containers
- Sensor Holders**
- Mounting Cuffs**
- Mounting Clamps
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
- Fixing Nuts
- Positive Stops
- Contact Protectors
- Tube Switches
- Cover Nuts
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut

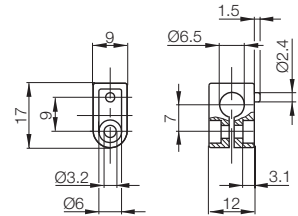
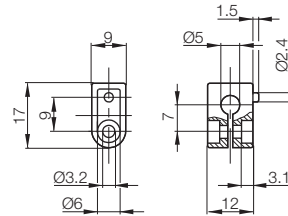
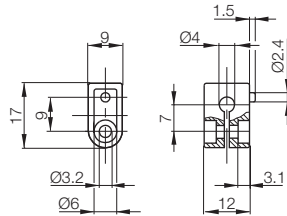
**Note:** For all sensors with appropriate diameter. Mounting cuffs can be used in nearly all inductive, capacitive, photoelectric and ultrasonic sensors.

# Fasteners

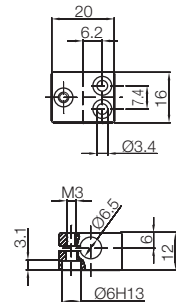
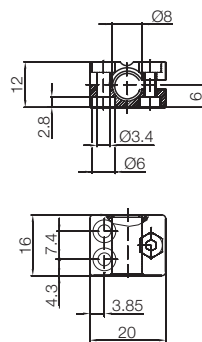
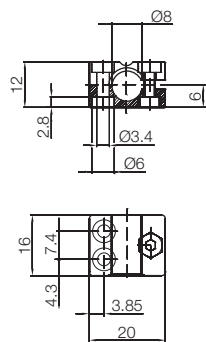
## Mounting clamps



Description	<b>Mounting clamp w/out positive stop</b>	<b>Mounting clamp w/out positive stop</b>	<b>Mounting clamp w/out positive stop</b>
Use	For sensors and fiber optics $\varnothing$ 4 mm	For sensors $\varnothing$ 5 mm and M5	For sensors $\varnothing$ 6.5 mm
<b>Ordering code</b>	<b>BAM0094</b>	<b>BAM0097</b>	<b>BAM009C</b>
Part number	BES 04,0-KB-1	BES 05,0-KB-1	BES 06,5-KB-1
Material	PA 6	PA 6	PA 6



Description	<b>Mounting clamp w/out positive stop</b>	<b>Mounting clamp with positive stop</b>	<b>Mounting clamp w/out positive stop</b>
Use	For sensors $\varnothing$ 8 mm and M8	For sensors $\varnothing$ 8 mm and M8	For sensors $\varnothing$ 6.5 mm
<b>Ordering code</b>	<b>BAM00A5</b>	<b>BAM00A6</b>	<b>BAM009F</b>
Part number	BES 08,0-KB-3	BES 08,0-KB-3-F	BES 06,5-KB-7
Material	PA 6	PA 6	Al anodized



**Note:** For all sensors with appropriate diameter. Mounting clamps can be used in nearly all inductive, capacitive, photoelectric and ultrasonic sensors. These mounting clamps made of PA 6 are ideal for on-location installation of sensors in the vertical or horizontal direction in the materials handling industry.

# Fasteners

## Mounting clamps



**Mounting clamp  
w/out positive stop**

For sensors and  
fiber optics  $\varnothing$  3 mm

**BAM0092**

BES 03,0-KB-3

PA 6

**Mounting clamp  
w/out positive stop**

For sensors and  
fiber optics  $\varnothing$  4 mm

**BAM0095**

BES 04,0-KB-3

PA 6

**Mounting clamp  
w/out positive stop**

For sensors  $\varnothing$  5 mm and M5

**BAM0098**

BES 05,0-KB-3

PA 6

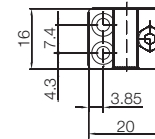
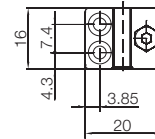
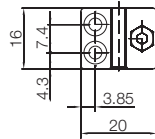
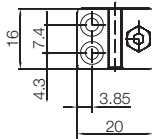
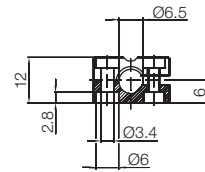
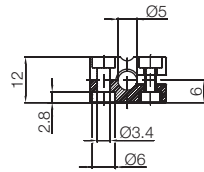
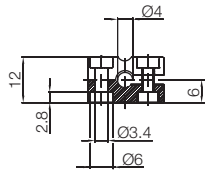
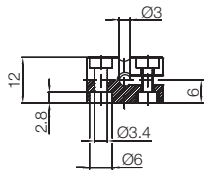
**Mounting clamp  
w/out positive stop**

For sensors  $\varnothing$  6.5 mm

**BAM009E**

BES 06,5-KB-3

PA 6



Stackable  
Row mounting



Stackable  
Row mounting



Stackable  
Row mounting

**Mounting clamp  
w/out positive stop**

For sensors  $\varnothing$  8 mm and M8

**BAM00AA**

BES 08,0-KB-7

Al anodized

**Mounting clamp  
w/out positive stop**

For sensors  $\varnothing$  12 mm and M12

**BAM00C7**

BES 12,0-KB-2

PA 6

**Mounting clamp  
with positive stop**

For sensors  $\varnothing$  12 mm and M12

**BAM00C8**

BES 12,0-KB-2-F

PA 6

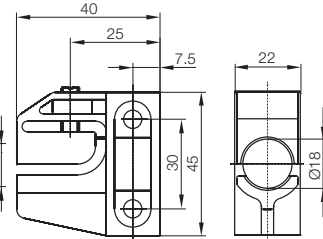
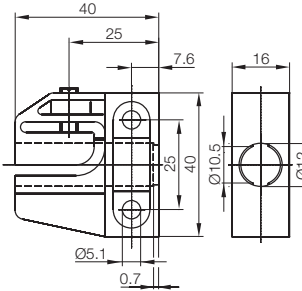
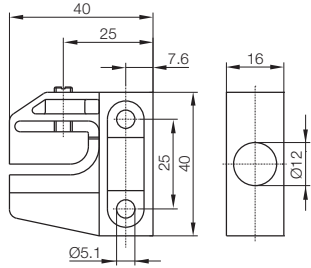
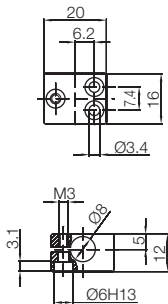
**Mounting clamp  
w/out positive stop**

For sensors  $\varnothing$  18 mm and M18

**BAM00F6**

BES 18,0-KB-2

PA 6



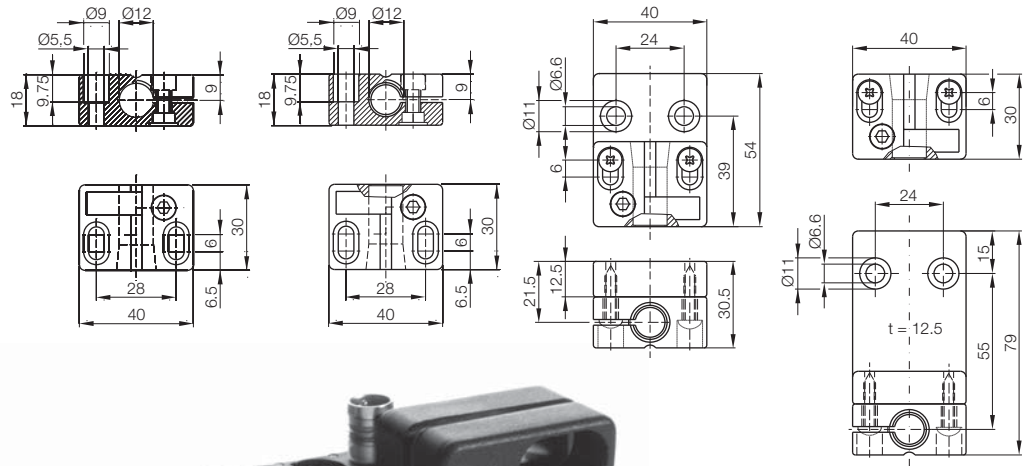
- Clamps
- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs
- Mounting Clamps**
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
- Fixing Nuts
- Positive Stops
- Contact Protectors
- Tube Switches
- Cover Nuts
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut

# Fasteners

## Mounting clamps



Description	<b>Mounting clamp w/out positive stop</b>	<b>Mounting clamp with positive stop</b>	<b>Mounting clamp with positive stop</b>	<b>Mounting clamp with positive stop</b>
Use	For sensors $\varnothing$ 12 mm and M12	For sensors $\varnothing$ 12 mm and M12	For sensors $\varnothing$ 12 mm and M12 with mounting plate for vertical seating	For sensors $\varnothing$ 12 mm and M12 with mounting bracket for horizontal seating
<b>Ordering code</b>	<b>BAM00C9</b>	<b>BAM00CA</b>	<b>BAM00CC</b>	<b>BAM00CE</b>
Part number	BES 12,0-KB-3	BES 12,0-KB-3-F	BES 12,0-KB-3-F-SA1	BES 12,0-KB-3-F-SA2
Material	PA 6	PA 6	PA 6	PA 6



Description	
Use	
<b>Ordering code</b>	
Part number	
Material	

**Mounting clamps with positive stop made of aluminum:** The switching distance of the sensors may be reduced by mounting clamps with positive stop. Take note when using this clamping system.

**Note:** For all sensors with appropriate diameter. Mounting clamps can be used in nearly all inductive, capacitive, photoelectric and ultrasonic sensors. These mounting clamps made of PA 6 are ideal for on-location installation of sensors in the vertical or horizontal direction in the materials handling industry.

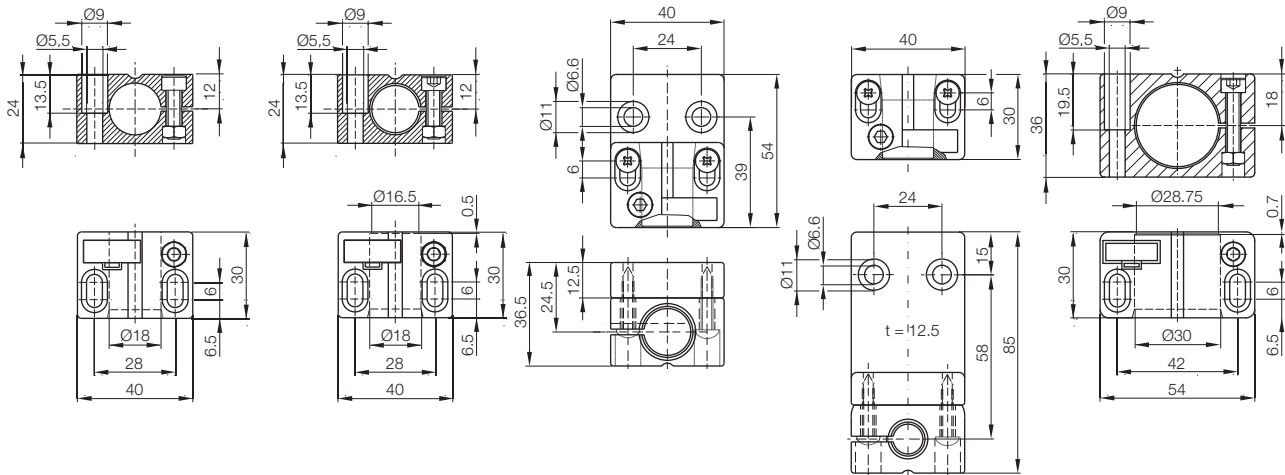


# Fasteners

## Mounting clamps



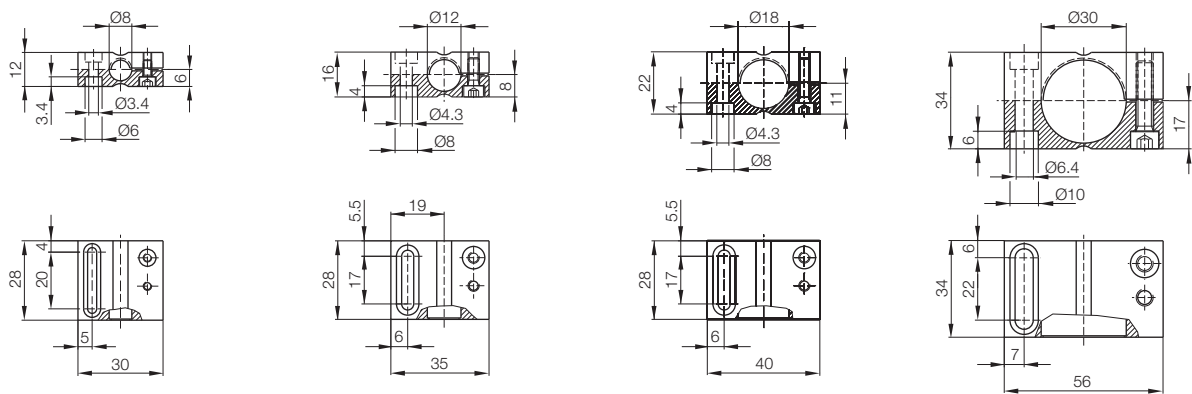
<b>Mounting clamp w/out positive stop</b> For sensors $\varnothing$ 18 mm and M18	<b>Mounting clamp with positive stop</b> For sensors $\varnothing$ 18 mm and M18	<b>Mounting clamp with positive stop</b> For sensors $\varnothing$ 18 mm and M18 with mounting plate for vertical seating	<b>Mounting clamp with positive stop</b> For sensors $\varnothing$ 18 mm and M18 with mounting bracket for horizontal seating	<b>Mounting clamp with positive stop</b> For sensors $\varnothing$ 30 mm and M30
<b>BAM00F7</b>	<b>BAM00F8</b>	<b>BAM00F9</b>	<b>BAM00FA</b>	<b>BAM00HU</b>
BES 18,0-KB-3	BES 18,0-KB-3-F	BES 18,0-KB-3-F-SA1	BES 18,0-KB-3-F-SA2	BES 30,0-KB-3-F
PA 6	PA 6	PA 6	PA 6	PA 6



- Clamps
- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs
- Mounting Clamps**
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
- Fixing Nuts
- Positive Stops
- Contact Protectors
- Tube Switches
- Cover Nuts
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut



<b>Mounting clamp with positive stop</b> For M8 and $\varnothing$ 8 mm sensors	<b>Mounting clamp with positive stop</b> For M12 sensors	<b>Mounting clamp with positive stop</b> For M18 sensors	<b>Mounting clamp with positive stop</b> For M30 sensors
<b>BAM00A7</b>	<b>BAM00CF</b>	<b>BAM00FC</b>	<b>BAM00HW</b>
BES 08,0-KB-4-F	BES 12,0-KB-4-F	BES 18,0-KB-4-F	BES 30,0-KB-4-F
Al anodized	Al anodized	Al anodized	Al anodized

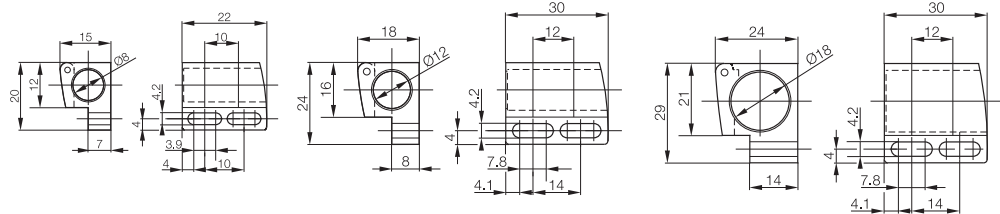


# Fasteners

## Mounting clamps



Description	<b>Mounting clamp with positive stop</b>	<b>Mounting clamp with positive stop</b>	<b>Mounting clamp with positive stop</b>
Use	For sensors $\varnothing$ 8 mm or <b>M8</b>	For sensors $\varnothing$ 12 mm or <b>M12</b>	For sensors $\varnothing$ 18 mm or <b>M18</b>
Ordering code	<b>BAM00A8</b>	<b>BAM00CH</b>	<b>BAM00FE</b>
Part number	BES 08,0-KB-5-F	BES 12,0-KB-5-F	BES 18,0-KB-5-F
Material	PC	PC	PC



**Note:** For all sensors with appropriate diameter. Mounting clamps can be used in nearly all inductive, capacitive, photoelectric and ultrasonic sensors. These mounting clamps made of PC are ideal for on-location installation of sensors in the vertical or horizontal direction in the materials handling industry.



# Fasteners

## Mounting clamps, reducing sleeve



### Mounting clamp with positive stop

For sensors  $\varnothing 30$  mm or M30

**BAM00HY**

BES 30,0-KB-5-F

PC

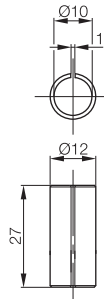
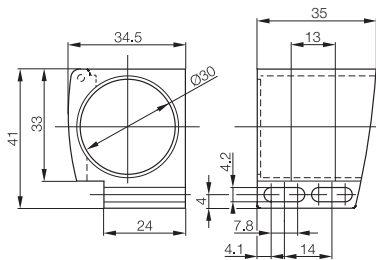
### Reducing sleeve for reducing from 12 mm to 10 mm

For sensors  $\varnothing 10$  mm for installation in mounting clamps and clamps  $\varnothing 12$  mm

**BAM002H**

BMS AD-P-001-12/10

PC



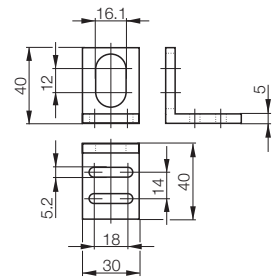
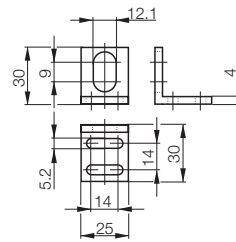
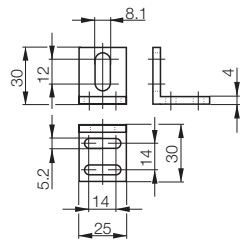
- Clamps
- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs
- Mounting Clamps**
- Reducing Sleeve**
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
- Fixing Nuts
- Positive Stops
- Contact Protectors
- Tube Switches
- Cover Nuts
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut

# Fasteners

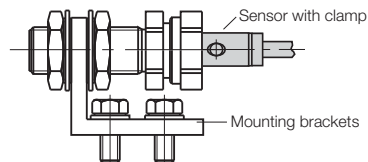
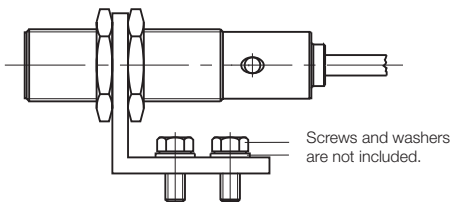
## Mounting brackets



Description	Mounting bracket	Mounting bracket	Mounting bracket
Use	For <b>M8</b> sensors and clamps	For <b>M12</b> sensors and clamps	For <b>M16</b> sensors and clamps
<b>Ordering code</b>	<b>BAM009U</b>	<b>BAM00C0</b>	<b>BAM00EN</b>
Part number	BES 08,0-HW-1	BES 12,0-HW-1	BES 16,0-HW-1
Material	Al anodized	Al anodized	Al anodized



These aluminum mounting brackets provide a way of easily and quickly attaching sensors to the machine. For tubular sensors, we recommend the additional use of clamps (see information beginning on page 66).



# Fasteners

Mounting brackets, sensor holder



### Mounting bracket

For **M18** sensors

**BAM00EY**

BES 18,0-HW-1

Al anodized

### Mounting bracket

For **M24** sensors and clamps

**BAM00HA**

BES 24,0-HW-1

Al anodized

### Mounting bracket

For **M30** sensors

**BAM00HH**

BES 30,0-HW-1

Al anodized

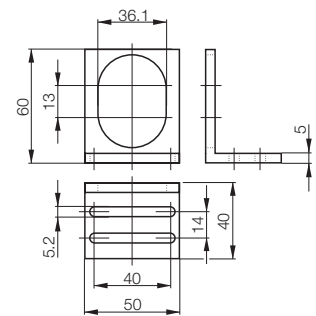
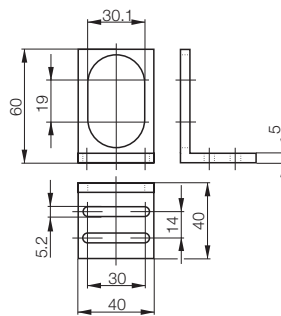
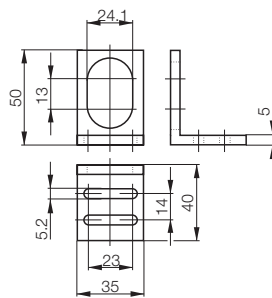
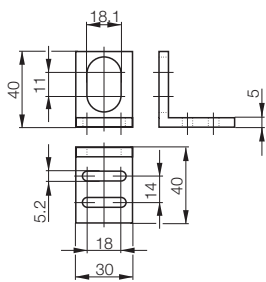
### Mounting bracket

For **M36** sensors and clamps

**BAM00JK**

BES 36,0-HW-1

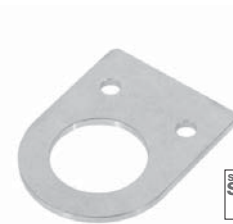
Al anodized



Stainless Steel



Stainless Steel



Stainless Steel

Description

Use

Ordering code

Part number

Material

### Mounting bracket

For **M8x1** sensors

**BAM009W**

BES 08-HW-4

Stainless steel

### Mounting bracket

For **M8x1** sensors

**BAM009Y**

BES 08-HW-5

Stainless steel

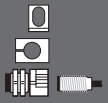
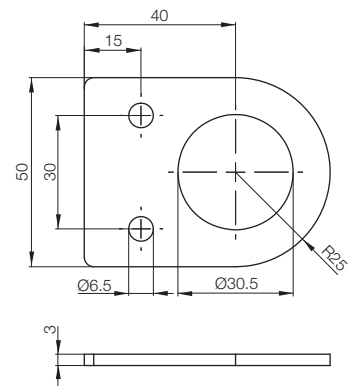
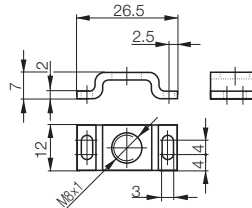
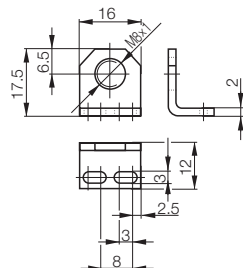
### Sensor holder

For **M30** sensors

**BAM01E0**

BAM MB-XA-004-M30-5

Stainless steel



Clamps

Clamps for Air-Tight Installation in Containers

Sensor Holders

Mounting Cuffs

Mounting Clamps

Reducing Sleeve

Mounting Brackets

Accessories for Unicomact Sensors and Unisensors

Fixing Nuts

Positive Stops

Contact Protectors

Tube Switches

Cover Nuts

Mounting Clamps for Row Mounting

Nuts

Sealing Nut

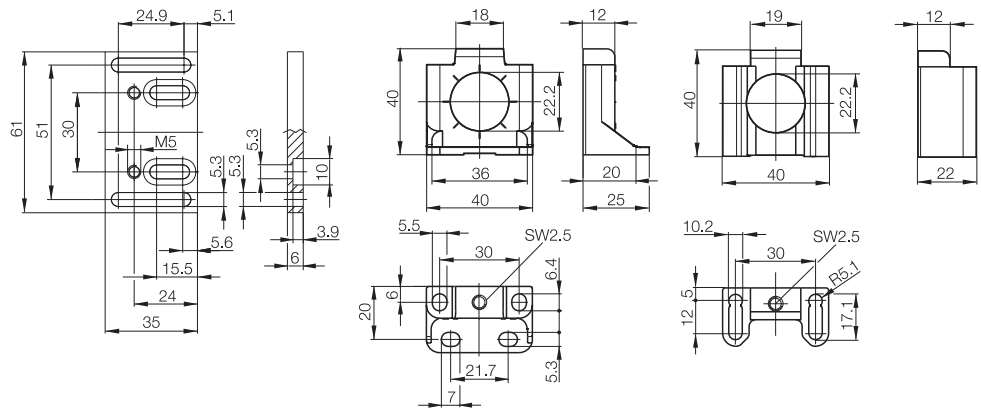
# Fasteners

Accessories for Unicomcompact sensors and Unisensors (40x40 mm)

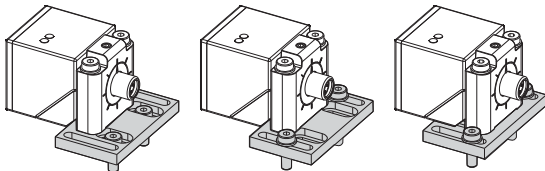


Description	Unicomcompact mounting bracket	Unicomcompact mounting base	Unicomcompact mounting base
Use	For BES Q40KFU-... Unicomcompact sensors (40x40 mm)	For BES Q40KFU-... Unicomcompact sensors (40x40 mm)	For BES Q40KFU-... Unicomcompact sensors (40x40 mm)
<b>Ordering code</b>	<b>BAM00JW</b>	<b>BAM00JY</b>	<b>BAM00JZ</b>
Part number	BES Q40-HW-1	BES Q40-HW-2	BES Q40-HW-3
Material	Al anodized	Al anodized	Al anodized

Please note permissible installation options!



### 3 different mounting options:



## Fasteners

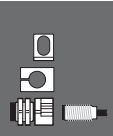
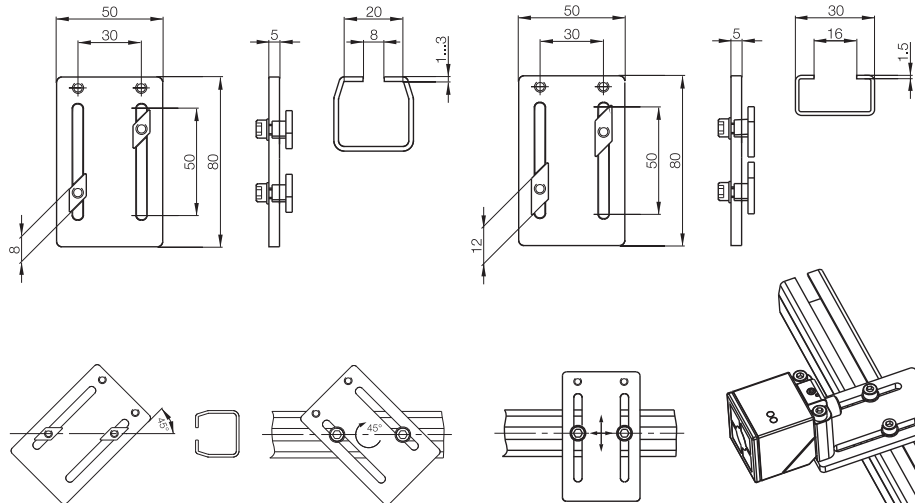
Accessories for Unicomcompact sensors and Unisensors (40×40 mm)



Description	<b>Unicomcompact holding system</b>	<b>Unicomcompact holding system</b>
Use	Unicomcompact sensors for fastening to profile rails (groove width: 8 mm)	Unicomcompact sensors for fastening to profile rails (groove width: 16 mm)
<b>Ordering code</b>	<b>BAM00JU</b>	<b>BAM00JT</b>
Part number	BES HS-01-P1-C8/Q40	BES HS-01-P1-C16/Q40
Material	Al anodized, CuZn	Al anodized, CuZn

### The fastener set consists of:

- 1 mounting plate
- 2 slot nuts
- 2 cheese head screws  
M5×10 DIN 912
- 2 washers Ø 5.3 DIN 533
- 2 cheese head screws  
M5×40 ISO 4762

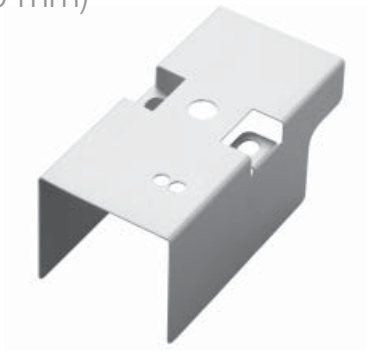


- Clamps
- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs
- Mounting Clamps
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomcompact Sensors and Unisensors**
- Fixing Nuts
- Positive Stops
- Contact Protectors
- Tube Switches
- Cover Nuts
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut

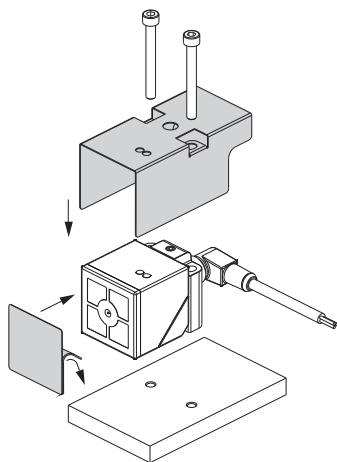
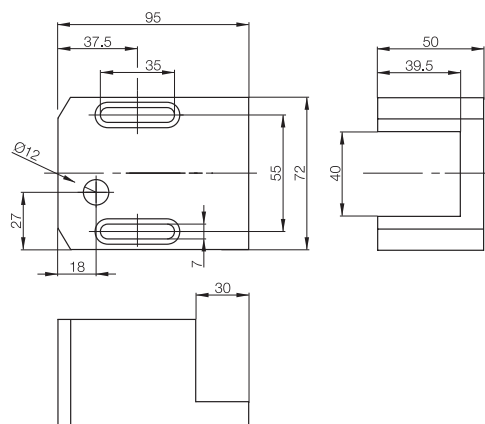
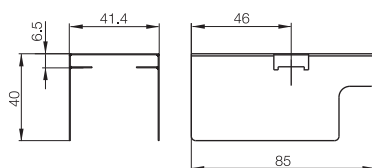


## Fasteners

Accessories for Unicomcompact sensors and Unisensors (40×40 mm)



Description	<b>Weld protection - Unicomcompact</b>	<b>Protective cover - Unicomcompact</b>
Use	For BES Q40KFU-... magnetic field resistant Unicomcompact sensors (40×40 mm)	for BES Q40KFU-... Unicomcompact sensors (40×40 mm)
<b>Ordering code</b>	<b>BAM00K0</b>	<b>BAM00K1</b>
Part number	BES Q40-SH-1	BES Q40-SH-2
Material	Al anodized	PA 6



The weld protection consists of a protective cover and a self-adhering PTFE film for protecting the active surface. When replacing the sensor head, it is not necessary to remove the weld protection.



## Fasteners

Accessories for Unicomcompact sensors and Unisensors (40×40 mm)

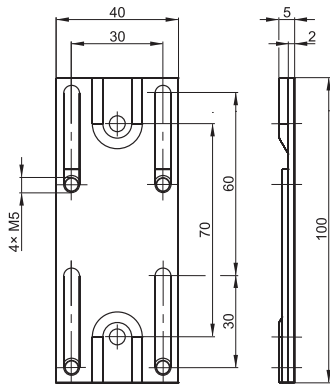


### Mounting plate - Unisensor and Unicomcompact

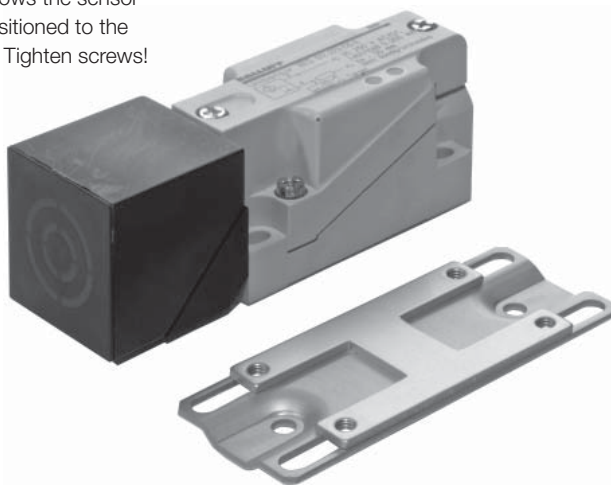
For Unisensor and Unicomcompact sensors (40×40 mm)

Montageplatte B 4 - 2057

Al anodized



Wired Unisensors attached to this mounting plate can be displaced up to 30 mm. Loosening the sensor mounting screws (M5×25; included in scope of delivery) allows the sensor to be easily repositioned to the desired location. Tighten screws!



#### Clamps

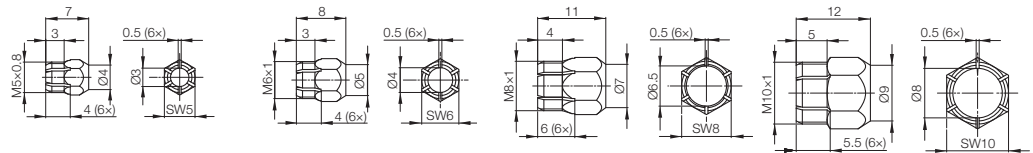
Clamps for Air-Tight Installation in Containers  
Sensor Holders  
Mounting Cuffs  
Mounting Clamps  
Reducing Sleeve  
Mounting Brackets

#### Accessories for Unicomcompact Sensors and Unisensors

Fixing Nuts  
Positive Stops  
Contact Protectors  
Tube Switches  
Cover Nuts  
Mounting Clamps for Row Mounting  
Nuts  
Sealing Nut

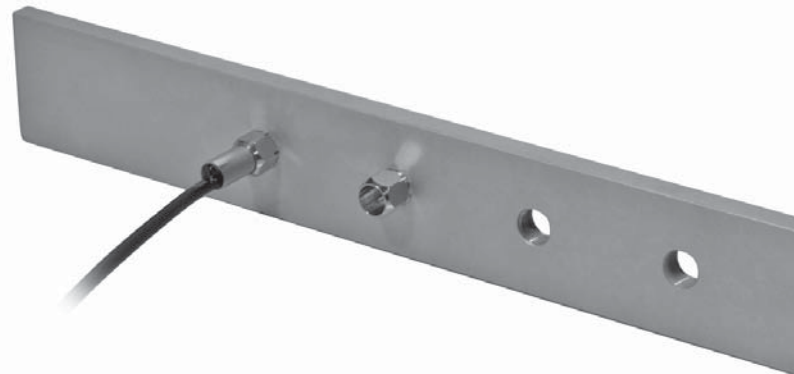


Description	<b>Fixing nut</b>	<b>Fixing nut</b>	<b>Fixing nut</b>	<b>Fixing nut</b>
Use	For sensors and fiber optics $\varnothing$ 3 mm with fastening thread M5x0.8	For sensors and fiber optics $\varnothing$ 4 mm with fastening thread M6x1	For sensors $\varnothing$ 6.5 mm with fastening thread M8x1	For sensors $\varnothing$ 8 mm with fastening thread M10x1
<b>Ordering code</b>	<b>BAM000T</b>	<b>BAM000U</b>	<b>BAM000W</b>	<b>BAM000Y</b>
Part number	BAM MC-XA-002-D03,0-2	BAM MC-XA-002-D04,0-2	BAM MC-XA-002-D06,5-2	BAM MC-XA-002-D08,0-2
WAF	5	6	8	10
Material	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass



Small sensors or fiber optics are used in compact systems. In some situations, they are the only option. Tight spaces under demanding conditions often make positioning of the miniature sensors difficult. The mounting clamps demonstrate their diversity by holding a range of different sensors and fiber optics. They are extremely stable, variable and flexible. With just a few work steps, sensors and fiber optics can be mounted on housings or base plates.

- Mounting clamps for smooth sensors and fiber optics:  
 $\varnothing$  3 mm,  $\varnothing$  4 mm,  $\varnothing$  6.5 mm,  $\varnothing$  8 mm
- Simple and economical mounting
- Minimal wall thickness for internal threaded bore: 2 mm



## Fasteners

Overview of positive stops, contact protector and tube switches

**more added value**

- For all areas in the automation and materials handling industry
- Protects your sensors
- Increases system reliability

### → Positive stops

The positive stop combined with the corresponding mounting cuff secures inductive sensors in position. The switching point between the sensor and the trigger pin can be set wherever needed. The positive stops are wear-free, able to withstand powerful forces and are typically characterized by a large number of switching operations.

### → Contact protector

The contact protector absorbs any contact with the sensor while preventing damage, max. stroke 15 mm. The object runs up against an attached protective cap and pushes the sensor back, preventing damage to the sensor or the coil as a result. The contact protector ensures 100 percent reliability and the previously stored sensor position is retained.

### → Tube switch

The tube switch combines the advantages offered by mechanical position switches and inductive sensors. Manufactured from stainless steel, it is extremely robust, very reliable even under difficult conditions and can be used immediately in any application in combination with the relevant inductive sensor.



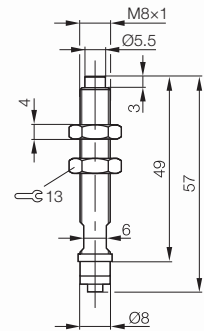
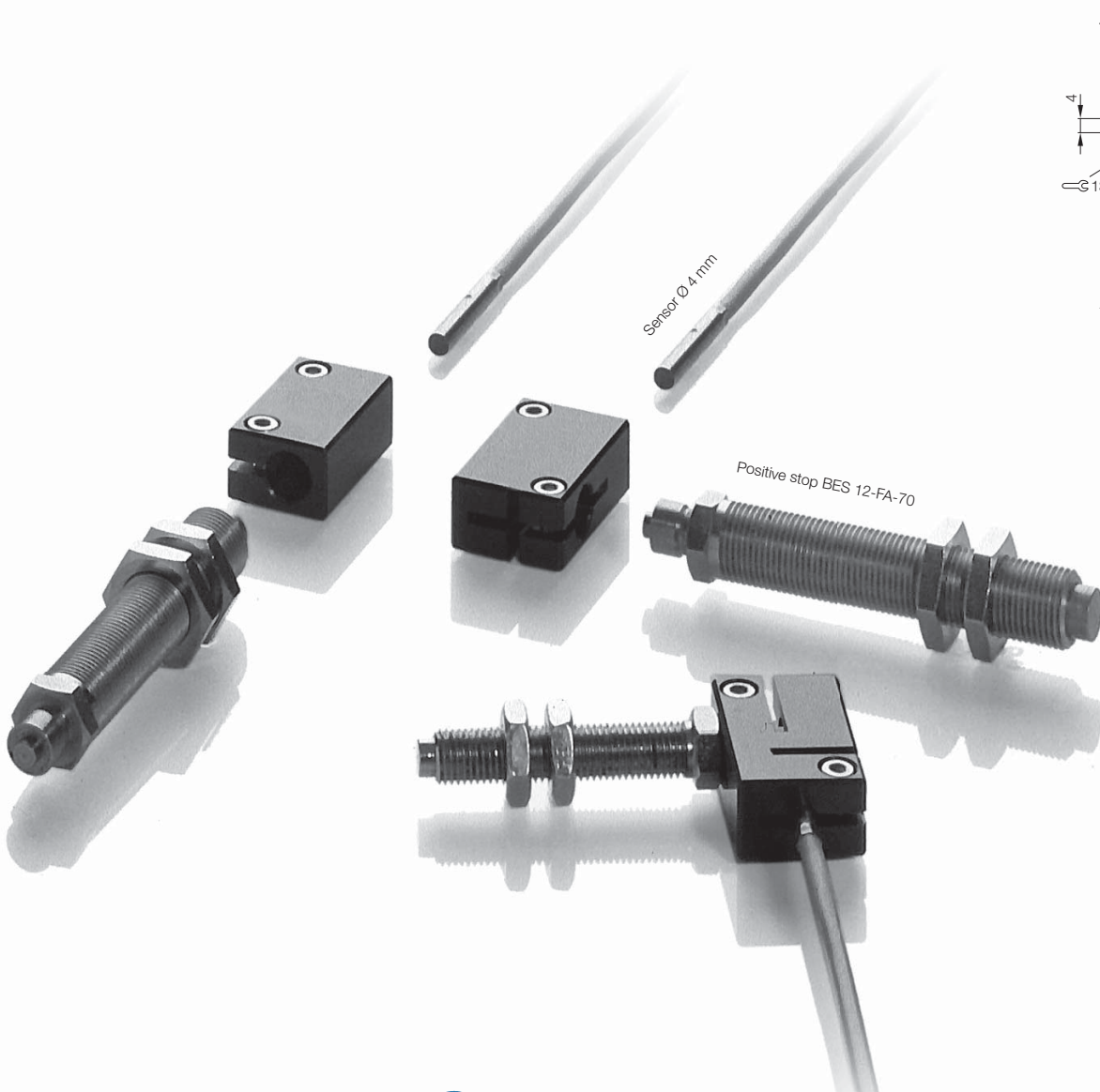
Clamps  
Clamps for Air-Tight Installation in Containers  
Sensor Holders  
Mounting Cuffs  
Mounting Clamps  
Reducing Sleeve  
Mounting Brackets  
Accessories for Unicomact Sensors and Unisensors  
**Fixing Nuts**  
**Positive Stops**  
**Contact Protectors**  
**Tube Switches**  
Cover Nuts  
Mounting Clamps for Row Mounting  
Nuts  
Sealing Nut

### Positive stops for sensors with diameters of 4 mm or 8 mm

A positive stop combined with the corresponding mounting cuff is used to hold inductive sensors with housing diameters of 4 mm or 8 mm. The desired switching point between the proximity switch and the trigger pin can be set wherever needed.



Description	<b>Positive stop</b>
Use	For inductive sensors for mechanical protection
<b>Ordering code</b>	<b>BAM009L</b>
Part number	BES 08-FA-49
<b>Ordering code</b>	
Part number	
Temperature resistance	-25...+100 °C
Spring force	3 N
Impact force $F_{max}$ (N)	100
Spring deflection	2 mm
Permissible torque	15 Nm
Material	Stainless steel

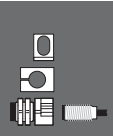
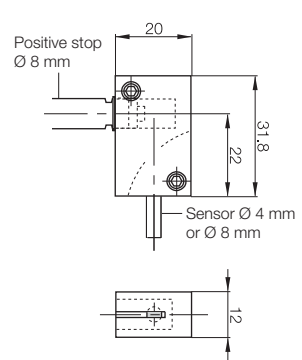
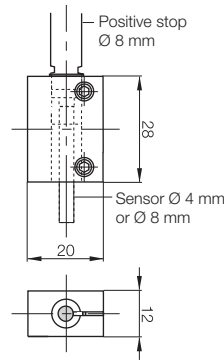
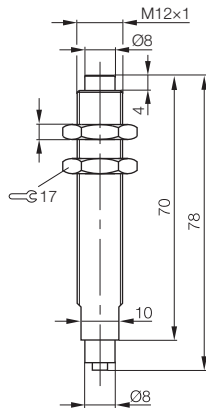
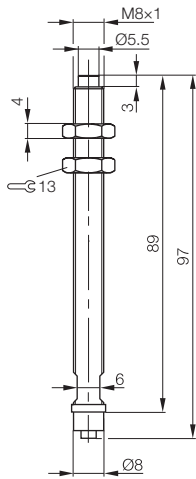


# Fasteners

## Positive stops, mounting cuffs



Positive stop	Positive stop	Mounting cuff - straight for positive stop	Mounting cuff - angled for positive stop
For inductive sensors for mechanical protection	For inductive sensors for mechanical protection	For sensors with $\varnothing$ 4 mm or $\varnothing$ 8 mm	For sensors with $\varnothing$ 4 mm or $\varnothing$ 8 mm
<b>BAM009M</b>	<b>BAM00AZ</b>	<b>BAM009N</b>	<b>BAM009P</b>
BES 08-FA-89	BES 12-FA-70	BES 08-FA-BS-4,0-G	BES 08-FA-BS-4,0-W
		<b>BAM009R</b>	<b>BAM009T</b>
		BES 08-FA-BS-8,0-G	BES 08-FA-BS-8,0-W
-25...+100 °C	-25...+100 °C	-25...+100 °C	-25...+100 °C
3 N	4 N		
100	100		
2 mm	32 mm		
15 Nm	25 Nm	15 Nm	15 Nm
Stainless steel	Stainless steel	Anodized Al	Anodized Al



- Clamps
- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs**
- Mounting Clamps
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
- Fixing Nuts
- Positive Stops**
- Contact Protectors
- Tube Switches
- Cover Nuts
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- Nuts
- Sealing Nut

# Fasteners

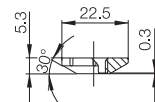
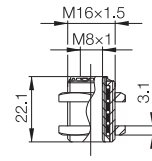
## Contact protectors

### Contact protector for sensors

The contact protector absorbs contacts with displacement of up to 15 mm without the sensor being damaged. The object is incident against an attached protective cap and then pushes the sensor back. Damage to the sensor or coil is thereby prevented.



Description	<b>Contact protector</b>
Use	For <b>M8</b> sensors for mechanical protection
<b>Ordering code</b>	<b>BAM015U</b>
Part number	BESA 08-CM
WAF	22
Ambient temperature	-45...+85 °C
Material	Anodized Al, POM

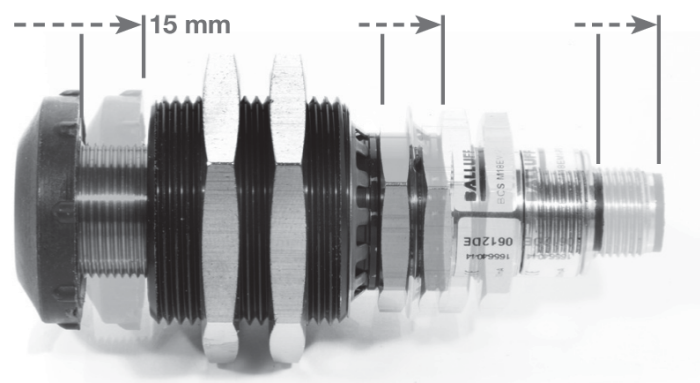
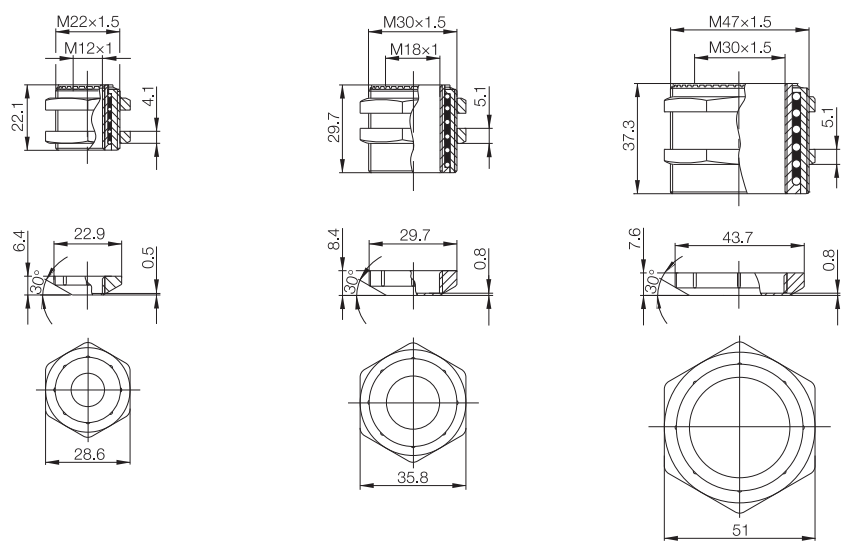


# Fasteners

## Contact protectors



Contact protector	Contact protector	Contact protector	
For M12 sensors for mechanical protection	For M18 sensors for mechanical protection	For M30 sensors for mechanical protection	
<b>BAM015W</b>	<b>BAM015Y</b>	<b>BAM015Z</b>	
BESA 12-CM	BESA 18-CM	BESA 30-CM	
29	35	51	
-45...+85 °C	-45...+85 °C	-45...+85 °C	
Anodized Al, POM	Anodized Al, POM	Anodized Al, POM	



- Clamps
- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs
- Mounting Clamps
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
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- Contact Protectors**
- Tube Switches
- Cover Nuts
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- Nuts
- Sealing Nut

# Fasteners

## Tube switches

### Rapid application – high reliability

The set includes a pre-assembled tube switch, which means you only need to set up the sensor. The tube switch also combines the advantages offered by mechanical and inductive switches.

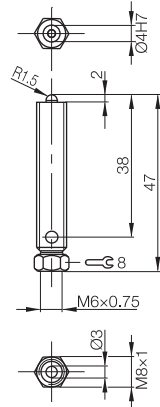
Manufactured from stainless steel, it is extremely robust and very reliable, even under difficult conditions.

**more added value**

- Mechanical actuation – non-contact switching
- Protects the sensor from mechanical damage
- Plug and safe



Description	<b>Tube switch</b>
Use	For sensors $\varnothing$ 4 mm for mechanical protection
<b>Ordering code</b>	<b>BAM01C0</b>
Part number	BAM FS-XE-002-D4-4
Spring force F (N)	3
Impact force $F_{max}$ (N)	400
Switching operations min. (with $F_{max}$ )	500000
Housing material	Stainless steel



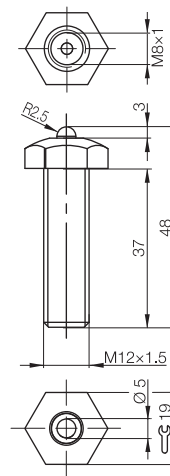
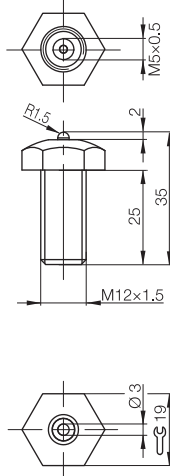
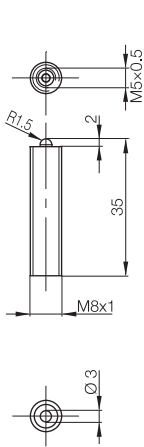


# Fasteners

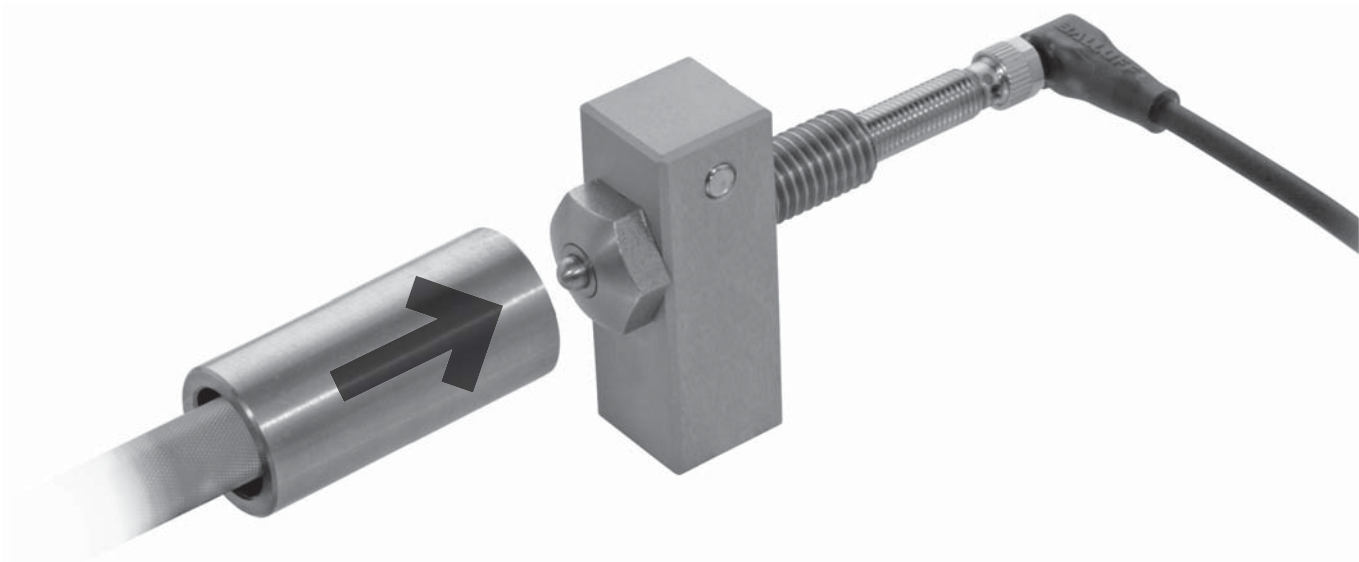
## Tube switches



Tube switch	Tube switch	Tube switch	
For M5 sensors for mechanical protection	For M5 sensors for mechanical protection	For M8 sensors for mechanical protection	
<b>BAM01AZ</b>	<b>BAM019Y</b>	<b>BAM019W</b>	
BAM FS-XE-001-M5-4	BAM FS-XE-003-M5-4	BAM FS-XE-004-M8-4	
3	3	4	
400	400	400	
500000	500000	500000	
Stainless steel	Stainless steel	Stainless steel	

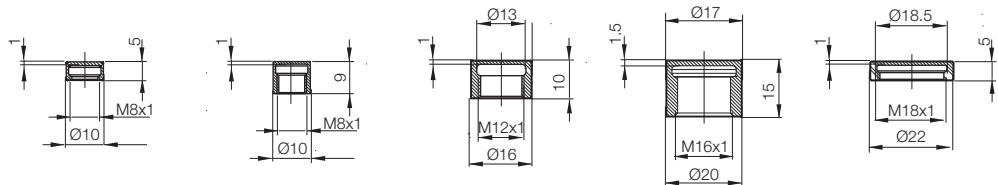


- Clamps
- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs
- Mounting Clamps
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
- Fixing Nuts
- Positive Stops
- Contact Protectors
- Tube Switches**
- Cover Nuts
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut





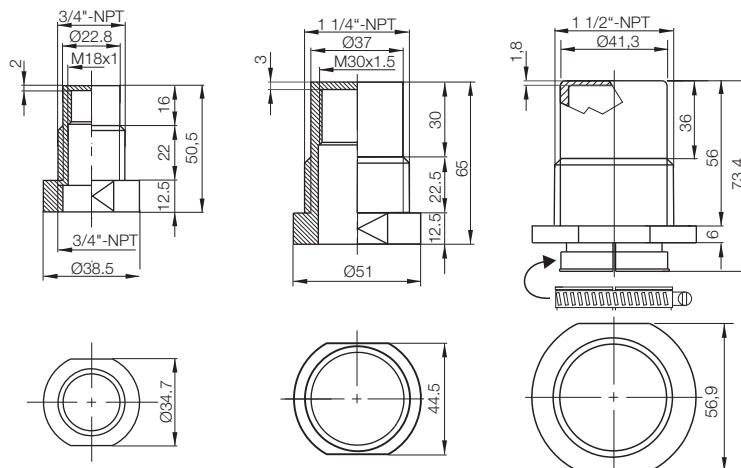
Description	<b>Cover nut</b>	<b>Cover nut</b>	<b>Cover nut</b>	<b>Cover nut</b>	<b>Cover nut</b>
Use	For M8 sensors	For M8 sensors	For M12 sensors	For M16 sensors	For M18 sensors
<b>Ordering code</b>	<b>BAM009Z</b>	<b>BAM00A0</b>	<b>BAM00C2</b>	<b>BAM00EP</b>	<b>BAM00EZ</b>
Part number	BES 08-SM-1	BES 08-SM-1F	BES 12-SM-2	BES 16-SM-2	BES 18-SM-1
Reduction of the nominal switching distance	1 mm	1 mm	1 mm	1.5 mm	1 mm
Material	PTFE	PTFE	POM	PTFE	PTFE



### Protective cap nuts for installing in containers for level detection

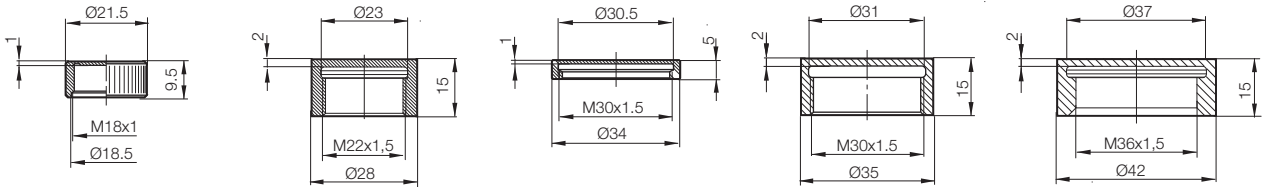


Description	<b>Cover nut</b>	<b>Cover nut</b>	<b>Cover nut</b>
Use	For M18 sensors	For M30 sensors	For M30 sensors
<b>Ordering code</b>	<b>BAM00F1</b>	<b>BAM00HL</b>	<b>BAM00HM</b>
Part number	BES 18-SM-3	BES 30-SM-3	BES 30-SM-5
Reduction of the nominal switching distance	2 mm	2 mm	2 mm
Material	PTFE	PTFE	PTFE





Cover nut	Cover nut	Cover nut	Cover nut	Cover nut
For M18 sensors	For M18 sensors	For M30 sensors	For M30 sensors	For M36 sensors
<b>BAM00FO</b>	<b>BAM00H8</b>	<b>BAM00HJ</b>	<b>BAM00HK</b>	<b>BAM00JL</b>
BES 18-SM-2	BES 22-SM-2	BES 30-SM-1	BES 30-SM-2	BES 36-SM-2
1 mm	2 mm	1 mm	2 mm	2 mm
POM	PTFE	POM	POM	POM



These cover nuts are screwed onto sensors. They are made of POM and are used when there is increased mechanical stress.

The cover nuts are also used to protect the sensing surface from weld splatter. They can also be used at high temperatures and are particularly resistant against chemical influences.

Material	POM	PTFE
Ambient temperature $T_a$	-20...+90 °C	-20...+100 °C

#### Please note!

The nominal switching distance of the sensors is reduced by 1 mm when the cover nut is installed.

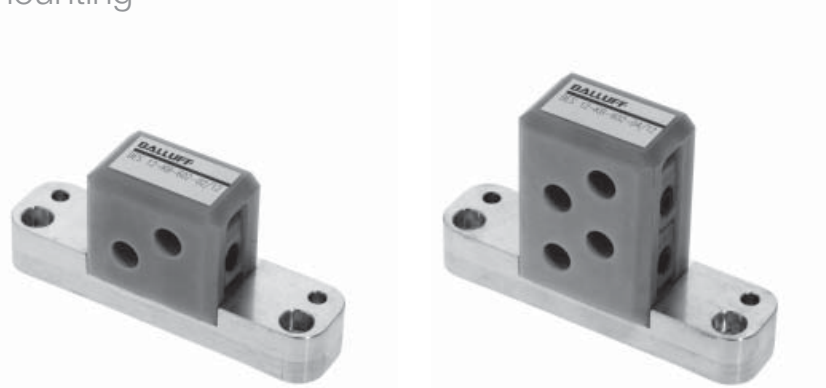


#### Clamps

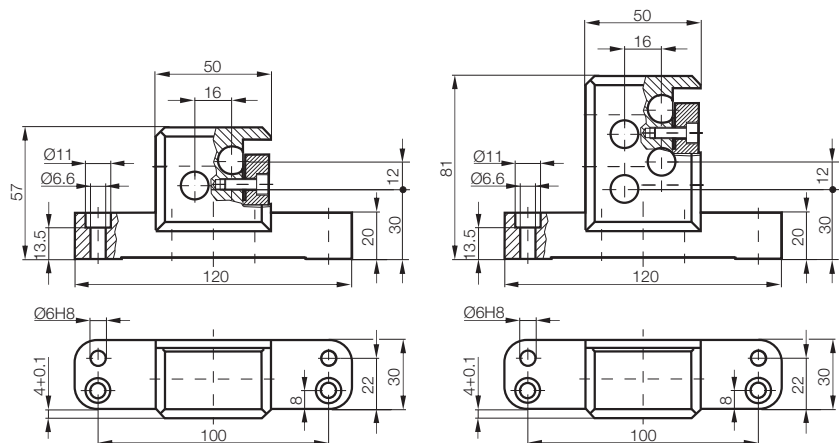
- Clamps for Air-Tight Installation in Containers
- Sensor Holders
- Mounting Cuffs
- Mounting Clamps
- Reducing Sleeve
- Mounting Brackets
- Accessories for Unicomact Sensors and Unisensors
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- Tube Switches
- Cover Nuts**
- Mounting Clamps for Row Mounting
- Nuts
- Sealing Nut

# Fasteners

## Mounting clamps for row mounting



Description	<b>Clamp for M12 sensors</b>	<b>Clamp for M12 sensors</b>
Use	Flush mountable with 12 mm spacing, for cam tray with 12 mm spacing	Flush mountable with 12 mm spacing, for cam tray with 12 mm spacing
<b>Ordering code</b>	<b>BAM00CK</b>	<b>BAM00CL</b>
Part number	BES 12-KB-602-02/12	BES 12-KB-602-04/12
Switch positions	2	4
Clamping	M5 screw, galvanized, DIN 912	M5 screw, galvanized, DIN 912
Ambient temperature	-25...+70 °C	-25...+70 °C
Material	Fastening plate: Al Mounting clamp and fastening bracket: EP (fiberglass reinforced)	Al EP (fiberglass reinforced)



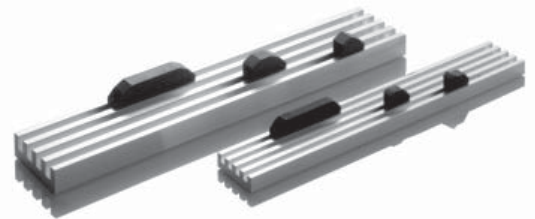
These mounting clamps allow you to arrange switch inserts in a pattern to be used in conjunction with Balluff cam trays as switching indicators for controllers.

The configuration corresponds to the switch positions of our inductive multiple position switches. The flange is constructed so that the entire mounting clamp is interchangeable with our multiple position switches in housing series 602 as per DIN 43697.

- Mounting clamp with positive stop for inductive sensors
- Accepts standard M12 sensors
- Use of connector-type sensors is recommended for ease of installation
- Mounting clamp made of fiberglass reinforced epoxy, making it resistant to most coolants and lubricants



For **cams and cam trays**, please request our catalog "Object Detection – Mechanical Single and Multiple Position Switches".



## Fasteners

### Mounting clamps for row mounting



#### Clamp for M12 sensors

Flush mountable with 12 mm spacing,  
for cam tray with 12 mm spacing

#### BAM00CM

BES 12-KB-602-06/12

6

M5 screw, galvanized, DIN 912

-25...+70 °C

Al

EP (fiberglass reinforced)

#### Clamp for M12 sensors

Flush mountable with 16 mm spacing,  
for cam tray with 16 mm spacing

#### BAM00CN

BES 12-KB-602-06/16

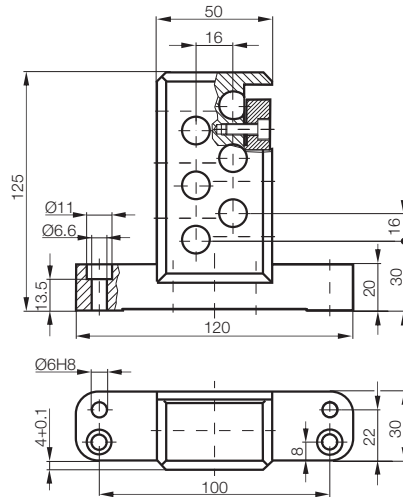
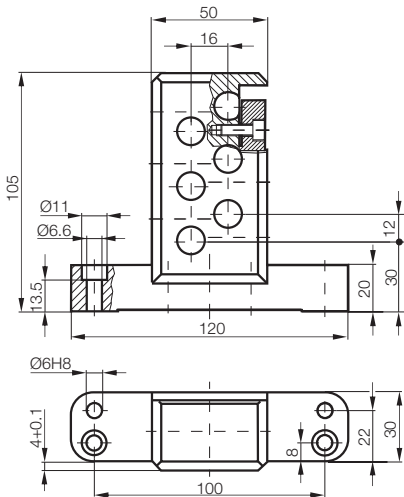
6

M5 screw, galvanized, DIN 912

-25...+70 °C

Al

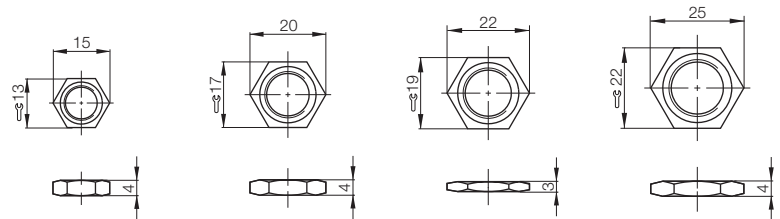
EP (fiberglass reinforced)



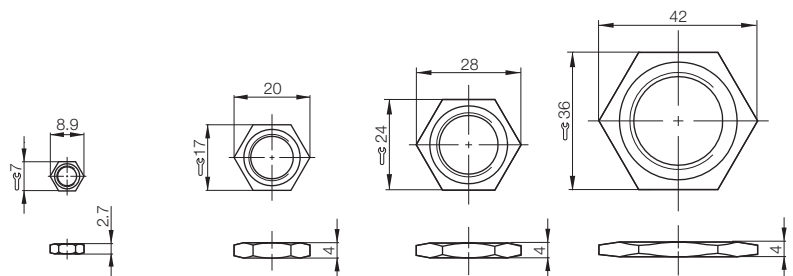
- Clamps
- Clamps for Air-Tight Installation in Containers
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Description		<b>Nut M8×1</b>	<b>Nut M12×1</b>	<b>Nut M16×1</b>	<b>Nut M16×1</b>
Steel galvanized	<b>Ordering code</b>	<b>500557</b>			
Nickel-plated brass	<b>Ordering code</b>		<b>500462</b>	<b>142060</b>	<b>500030</b>
Plastic	<b>Ordering code</b>				



Description		<b>Nut M5×1</b>	<b>Nut M12×1</b>	<b>Nut M18×1</b>	<b>Nut M30×1.5</b>
Stainless steel	<b>Ordering code</b>	<b>605313</b>	<b>636981</b>	<b>636982</b>	<b>636983</b>



Galvanized spring washer for M5 sensors:

**Ordering code 710256**

Galvanized toothed lock washer for M8 sensors:

**Ordering code 500558**

Galvanized toothed lock washer for M12 sensors:

**Ordering code 500552**

Galvanized toothed lock washer for M18 sensors:

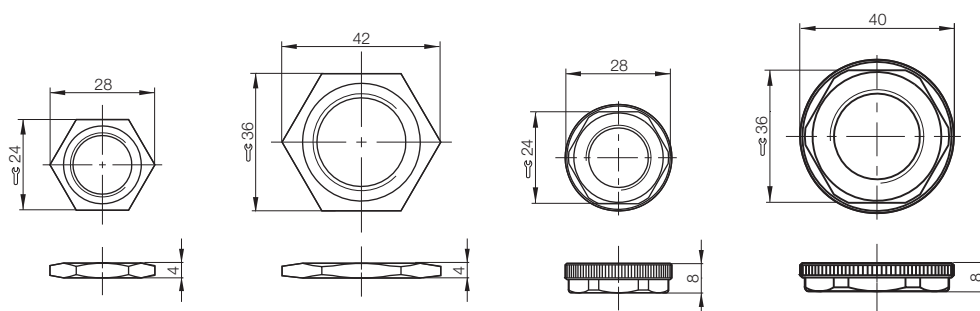
**Ordering code 117684**

# Fasteners

## Nuts, sealing nut



Nut M18x1	Nut M30x1.5	Nut M18x1	Nut M30x1.5
500152	500252		
		606841	610292

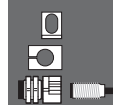
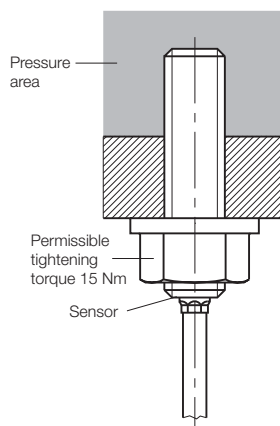
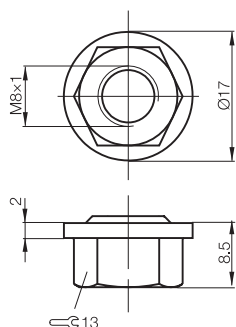


Description	<b>Sealing nut</b>
Use	For pressure-rated M8 sensors up to max. <b>100 bar</b>
<b>Ordering code</b>	<b>BAM009K</b>
Part number	BES 08-DM-1
Material	Steel, PA

This is used to seal pressure rated sensors.

### Please note!

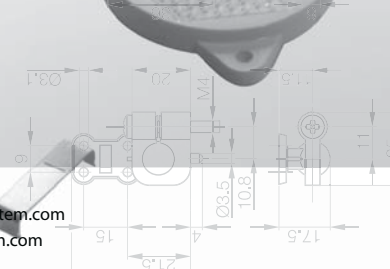
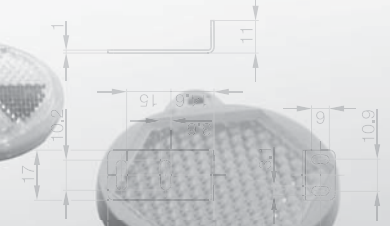
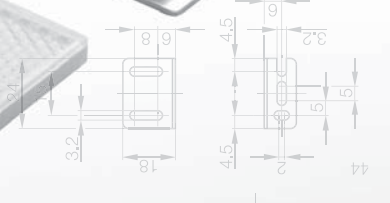
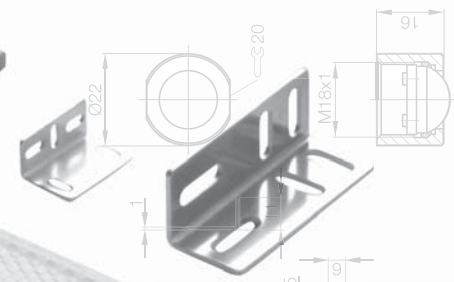
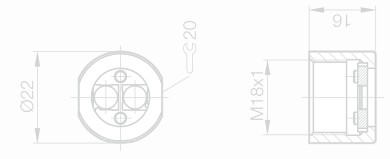
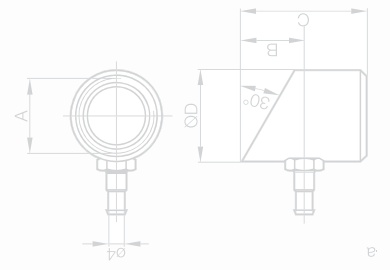
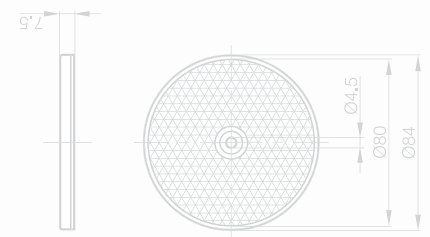
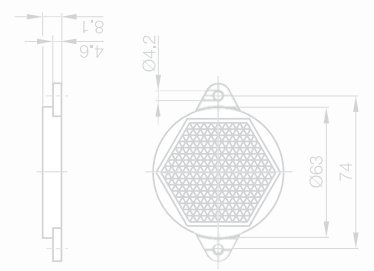
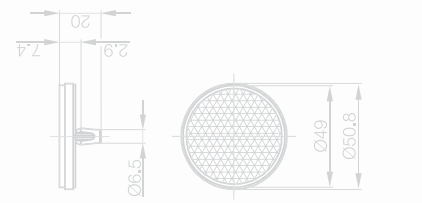
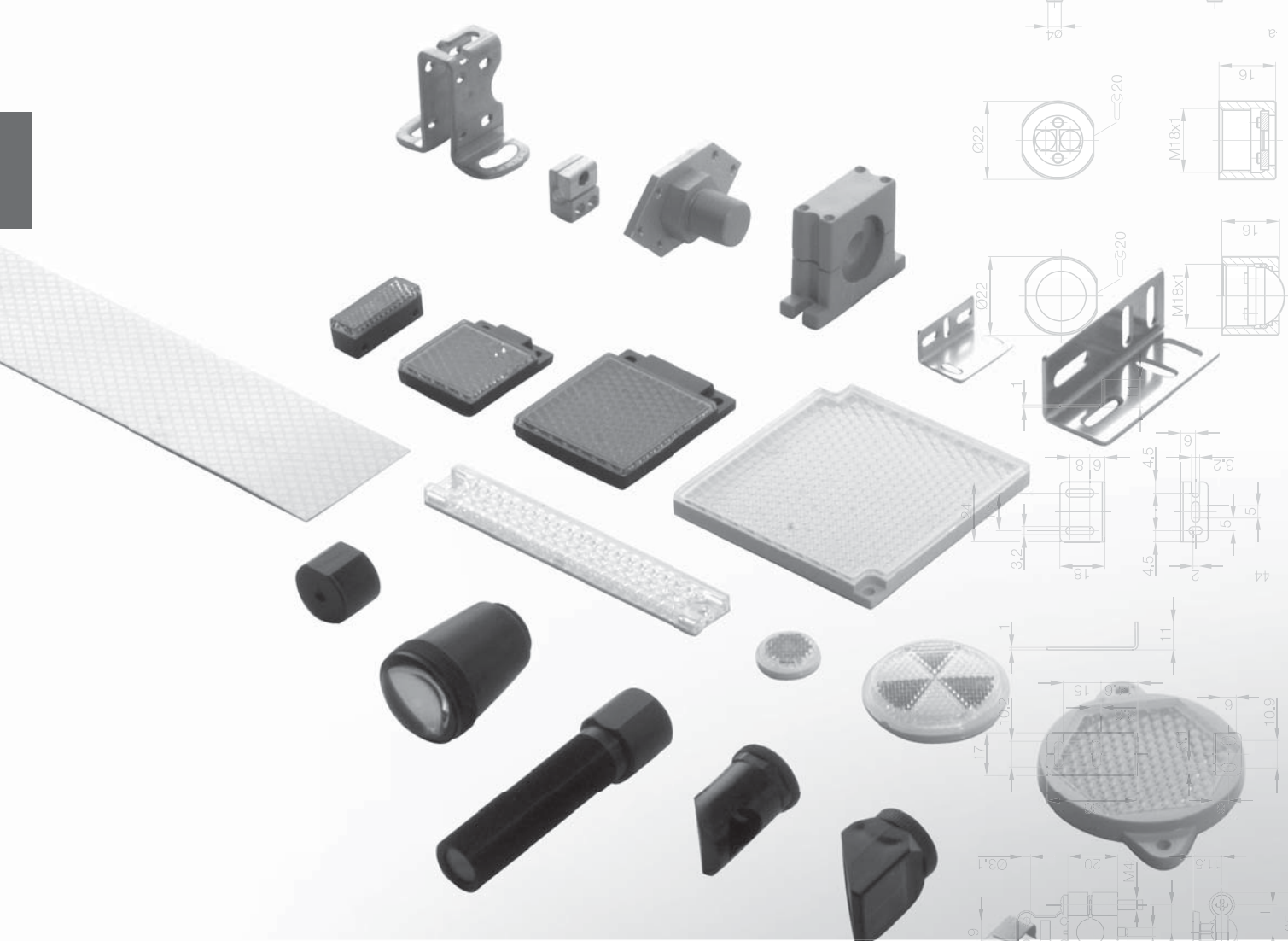
Can be removed and tightened again up to five times.



- Clamps
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- Contact Protectors
- Tube Switches
- Cover Nuts
- Mounting Clamps for Row Mounting

### Nuts

#### Sealing Nut





# Accessories

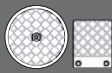
## Photoelectric Sensors

### Contents



Full range of optical accessories – including mounting brackets, reflector, lenses, holding systems, etc. for standard applications and those under demanding environmental conditions.

<b>Reflectors</b>	Round	106
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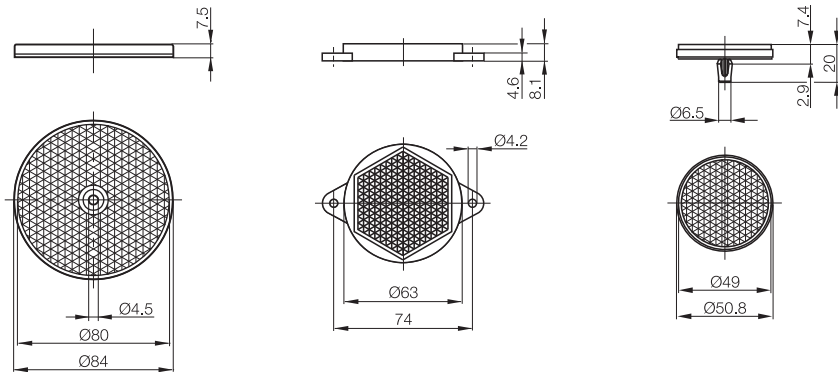
# Accessories

## Photoelectric Sensors

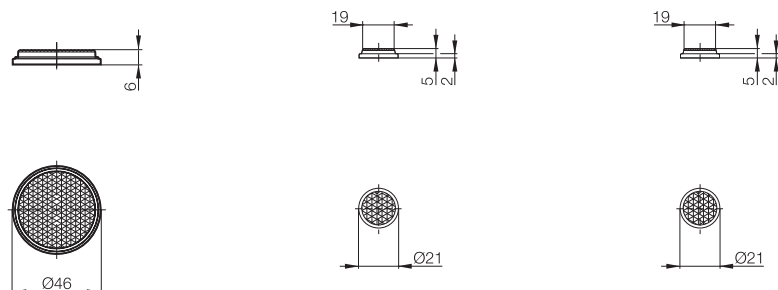
### Round reflectors



Size	Reflector Ø 84 mm	Reflector Ø 62 mm	Reflector Ø 51 mm
Mounting	M4 screw	Two M4 screws	Rivet with mounting tabs
<b>Ordering code</b>	<b>BAM00UK</b>	<b>BAM0126</b>	<b>BAM00UP</b>
Part number	BOS R-1	BOS R-10	BOS R-14
Material	PMMA/ABS	PMMA/ABS	PC
Mounting accessories	BOS 21-AD-1		
Special features			Chemical resistant
Temperature range	-20...+60 °C	-20...+60 °C	0...+100 °C



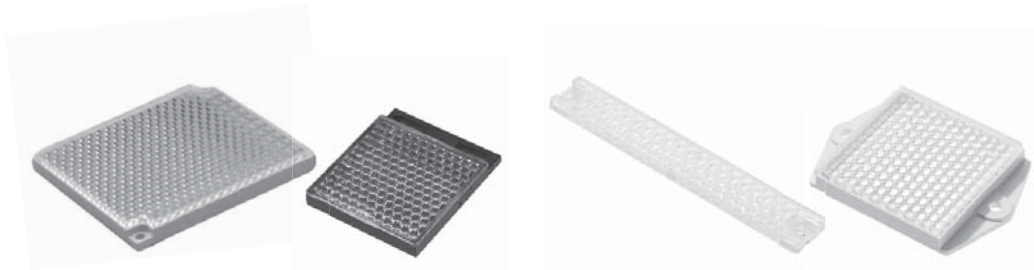
Size	Reflector Ø 46 mm	Reflector Ø 21 mm	Reflector Ø 21 mm
Mounting	Glue	Glue	Glue
<b>Ordering code</b>	<b>BAM00UW</b>	<b>BAM00W4</b>	<b>BAM00UR</b>
Part number	BOS R-2	BOS R-3	BOS R-15
Material	PMMA/ABS	PMMA/ABS	PC
Special features			Chemical resistant
Temperature range	-20...+60 °C	-20...+60 °C	-20...+99 °C



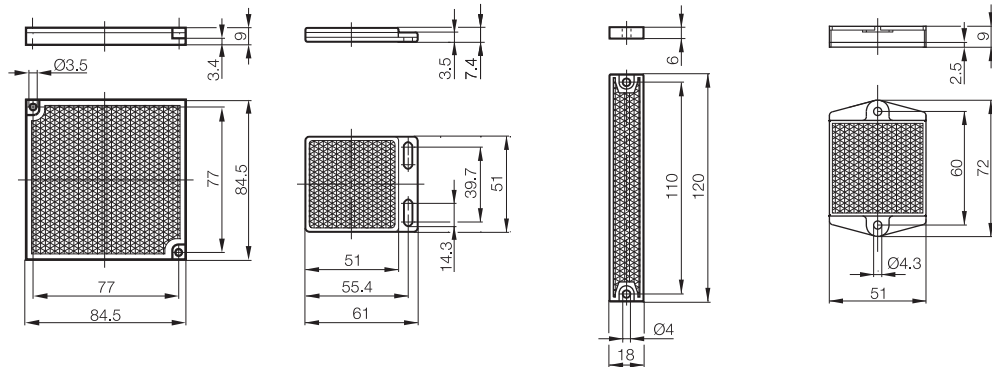
# Accessories

## Photoelectric Sensors

### Rectangular reflectors



Size	Reflector 84x84 mm	Reflector 51x61 mm	Reflector 18x120 mm	Reflector 51x72 mm
Mounting	Two M3 screws	Two M4 screws	Two M4 screws	Two M4 screws
<b>Ordering code</b>	<b>BAM00UL</b>	<b>BAM00WL</b>	<b>BAM00WA</b>	<b>BAM00UZ</b>
Part number	BOS R-11	BOS R-9	BOS R-5	BOS R-25
Material	PMMA/ABS	PMMA/ABS	PMMA/ABS	PMMA
Temperature range	-20...+60 °C	-20...+60 °C	-20...+60 °C	0...+50 °C



Size	Reflector 35x42 mm	Reflector 18x60 mm
Mounting	Two M3 screws	Two M4 screws
<b>Ordering code</b>	<b>BAM00W0</b>	<b>BAM00W7</b>
Part number	BOS R-26	BOS R-33
Material	PMMA	PMMA/ABS
Mounting accessories	BOS 5-HW-5	
Temperature range	0...+50 °C	-20...+60 °C



#### Reflectors

##### Round

##### Rectangular

Special Applications  
Laser Retroreflective Sensors  
Reflective Foils

##### Fasteners

Mounting Brackets  
Holding Systems  
Mounting Cuff  
Mounting Clamps

##### Clamps

##### Adapter Plate

##### Sensor Accessories

Apertures  
Plano-Convex Lens  
Polarizing Filter  
Air Shields  
Lenses

##### Intermediate Ring

##### Neutral Density

##### Filters

##### Cover Nuts

##### Rotatable Heads

##### Diagonal Mirrors

##### Accessories for

##### Fiber Optics

##### Adapters

##### Holder

##### Cutting Tool

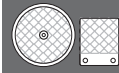
##### Lens

##### Rotatable Head

##### Focusing Lenses

##### Metal Corrugated

##### Tubes



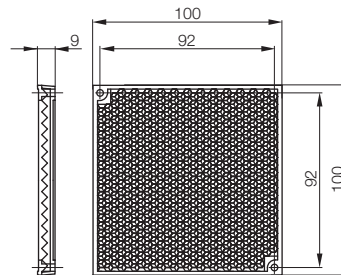
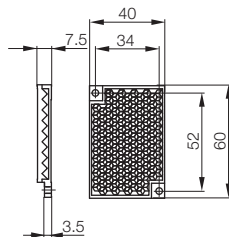
# Accessories

## Photoelectric Sensors

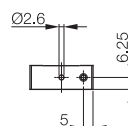
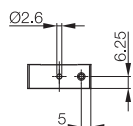
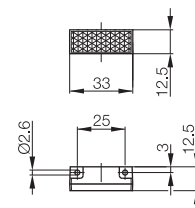
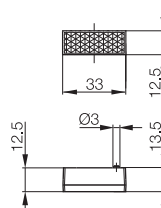
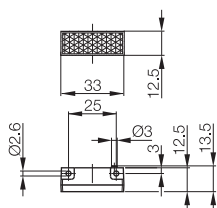
### Rectangular reflectors



Size	Reflector 60×40 mm	Reflector 100×100 mm
Mounting	Two M3 screws	Two M3 screws
<b>Ordering code</b>	<b>BAM01JP</b>	<b>BAM01JN</b>
Part number	BOS R-46	BOS R-47
Material	PMMA/ABS	PMMA/ABS
Temperature range	-20...+60 °C	-20...+60 °C



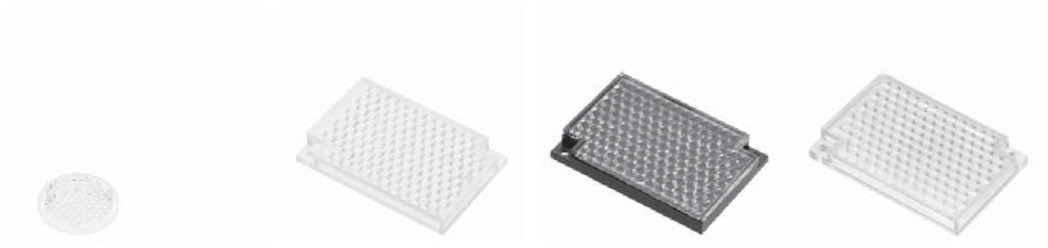
Size	Reflector 33×12 mm	Reflector 33×12 mm	Reflector 33×12 mm
Mounting	Rear and side screws	Rear screws	Side screws
<b>Ordering code</b>	<b>BAM00W1</b>	<b>BAM00W2</b>	<b>BAM00W3</b>
Part number	BOS R-27	BOS R-28	BOS R-29
Material	PMMA	PMMA	PMMA
Mounting accessories	BOS 5-HW-1/2		BOS 5-HW-1/2
Temperature range	0...+50 °C	0...+50 °C	0...+50 °C



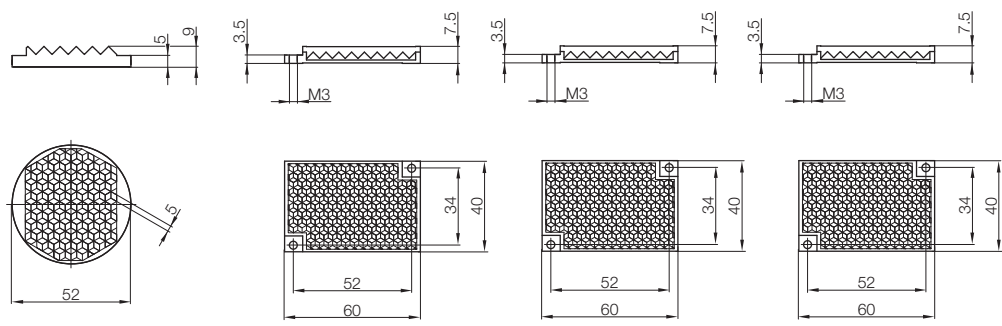
# Accessories

## Photoelectric Sensors

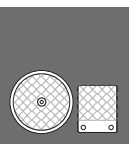
Reflectors for special applications



Size	Reflector Ø 52 mm	Reflector 60x40 mm	Reflector 60x40 mm	Reflector 60x40 mm
Mounting		Two M3 screws	Two M3 screws	Two M3 screws
<b>Ordering code</b>	<b>BAM01H6</b>	<b>BAM00W8</b>	<b>BAM01CM</b>	<b>BAM01HE</b>
Part number	BOS R-31	BOS R-34	BOS R-36	BOS R-44
Material	Borosilicate	Hot thermoplastic	PMMA/ABS	Solidchem
Special features	Glass reflector	Heat resistant	Anti-fogging	Chemical resistant
Temperature range	-20...+500 °C	-20...+150 °C	-20...+60 °C	-20...+140 °C



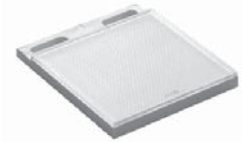
- Reflectors**
- Round
- Rectangular**
- Special Applications**
- Laser Retroreflective Sensors
- Reflective Foils
- Fasteners**
- Mounting Brackets
- Holding Systems
- Mounting Cuff
- Mounting Clamps
- Clamps
- Adapter Plate
- Sensor Accessories**
- Apertures
- Plano-Convex Lens
- Polarizing Filter
- Air Shields
- Lenses
- Intermediate Ring
- Neutral Density Filters
- Cover Nuts
- Rotatable Heads
- Diagonal Mirrors
- Accessories for Fiber Optics**
- Adapters
- Holder
- Cutting Tool
- Lens
- Rotatable Head
- Focusing Lenses
- Metal Corrugated Tubes



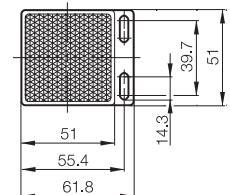
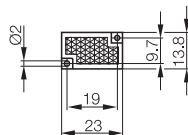
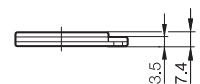
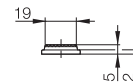
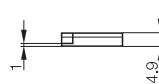
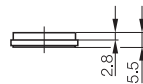
# Accessories

## Photoelectric Sensors

Reflectors for  
laser retroreflective sensors



Size	Reflector Ø 25 mm	Reflector 14x23 mm	Reflector Ø 21 mm	Reflector 51x62 mm
Mounting	Glue	Two M2 screws	Glue	Two M4 screws
<b>Ordering code</b>	<b>BAM00UN</b>	<b>BAM00UM</b>	<b>BAM00UT</b>	<b>BAM00UY</b>
Part number	BOS R-13	BOS R-12	BOS R-16	BOS R-22
Material	PMMA/ABS	PMMA/ABS	PMMA/ABS	PMMA/ABS
Mounting accessories				BOS 5-HW-6
Special features		For laser retroreflective sensors	For laser retroreflective sensors	
Temperature range	-20...+60 °C	-20...+60 °C	-20...+60 °C	-20...+60 °C
<b>Range when used with laser through-beam sensors BOS 6K/BOS 18K_/BOS 26K/BOS 21M</b>				
BOS 6K-PU-1LQA-...	2 m	2 m	2 m	2 m
BOS 18KF-PA-1LQP-...	16 m	10 m	11 m	16 m
BOS 18KW-PA-1LQH-...	9 m	6 m	7 m	9 m
BOS 26K-PA-1LQK-...	16 m	7 m	7 m	25 m
BOS 21M-PA-LR10-...	15 m	7 m	7 m	20 m



# Accessories Photoelectric Sensors

Reflectors for  
laser retroreflective sensors



Reflector Ø 10 mm	Reflector Ø 19 mm	Reflector Ø 25 mm	Reflector 11×11 mm	Reflector 40×10 mm
M3 screw	M3 screw	M4 screw	M3 screw	Two M3 screws
<b>BAM01H7</b>	<b>BAM01HA</b>	<b>BAM01HC</b>	<b>BAM01H8</b>	<b>BAM01H9</b>
BOS R-38	BOS R-42	BOS R-43	BOS R-39	BOS R-41
PMMA/ABS	PMMA/ABS	PMMA/ABS	PMMA/ABS	PMMA/ABS
-20...+60 °C	-20...+60 °C	-20...+60 °C	-20...+60 °C	

## Reflectors

Round  
Rectangular  
Special Applications

## Laser Retroreflective Sensors

## Reflective Foils

## Fasteners

Mounting Brackets  
Holding Systems  
Mounting Cuff  
Mounting Clamps

## Clamps

Adapter Plate

## Sensor Accessories

Apertures  
Plano-Convex Lens

Polarizing Filter

Air Shields

Lenses

Intermediate Ring

Neutral Density

Filters

Cover Nuts

Rotatable Heads

Diagonal Mirrors

## Accessories for Fiber Optics

Adapters

Holder

Cutting Tool

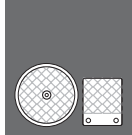
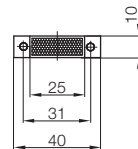
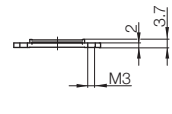
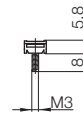
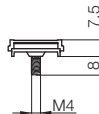
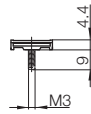
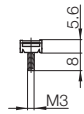
Lens

Rotatable Head

Focusing Lenses

Metal Corrugated

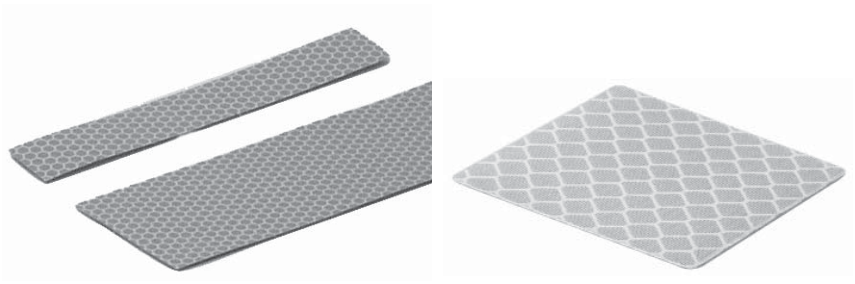
Tubes



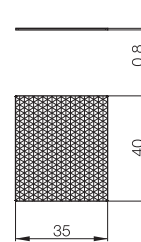
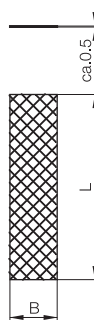
# Accessories

## Photoelectric Sensors

### Reflective foils



Size	Mounting	Reflective tape	Reflective tape 40x35 mm
		Self-adhesive	Self-adhesive
	<b>Ordering code</b>		<b>BAM00W5</b>
	Part number		BOS R-30 (standard)
250 mmx50 mm	<b>Ordering code</b>	<b>BAM00WC</b>	
	Part number	BOS R-6-0,25 (not for polarized light)	
45 mx50 mm	<b>Ordering code</b>	<b>BAM00WE</b>	
	Part number	BOS R-6-45 (not for polarized light)	
250 mmx50 mm	<b>Ordering code</b>	<b>BAM00WF</b>	
	Part number	BOS R-7-0,25 (standard)	
22 mx50 mm	<b>Ordering code</b>	<b>BAM00WH</b>	
	Part number	BOS R-7-22 (standard)	
250 mmx25 mm	<b>Ordering code</b>	<b>BAM00WJ</b>	
	Part number	BOS R-8-0,25 (standard)	
22 mx25 mm	<b>Ordering code</b>	<b>BAM00WK</b>	
	Part number	BOS R-8-22 (standard)	





# Accessories

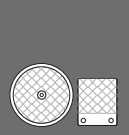
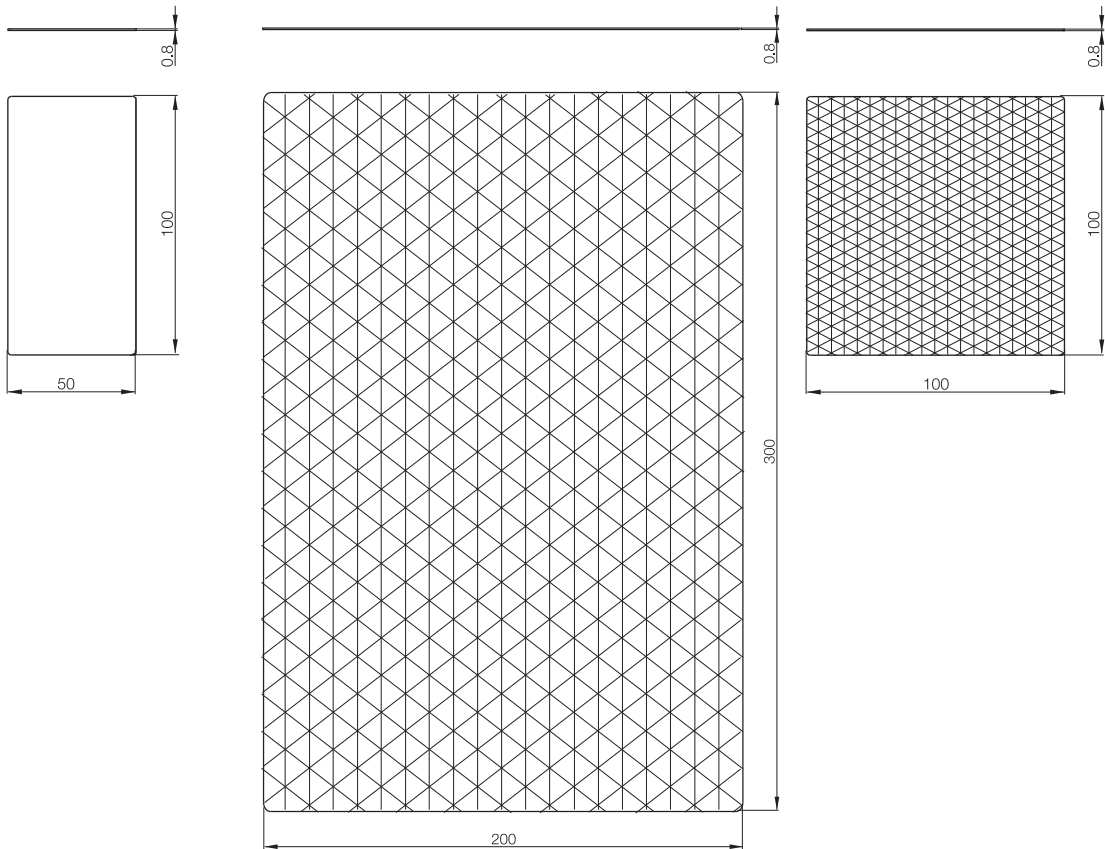
## Photoelectric Sensors

### Reflective Foils



Reflective tape 100×50 mm	Reflective tape 300×200 mm	Reflective tape 100×100 mm
Self-adhesive	Self-adhesive	Self-adhesive
<b>BAM01CF</b>	<b>BAM01HF</b>	<b>BAM01JM</b>
BOS R-40 (specifically for laser sensors)	BOS R-45 (standard and laser sensors for large areas)	BOS R-50 (standard)

- Reflectors**
- Round
- Rectangular
- Special Applications
- Laser Retroreflective Sensors
- Reflective Foils**
- Fasteners**
- Mounting Brackets
- Holding Systems
- Mounting Cuff
- Mounting Clamps
- Clamps
- Adapter Plate
- Sensor Accessories**
- Apertures
- Plano-Convex Lens
- Polarizing Filter
- Air Shields
- Lenses
- Intermediate Ring
- Neutral Density Filters
- Cover Nuts
- Rotatable Heads
- Diagonal Mirrors
- Accessories for Fiber Optics**
- Adapters
- Holder
- Cutting Tool
- Lens
- Rotatable Head
- Focusing Lenses
- Metal Corrugated Tubes



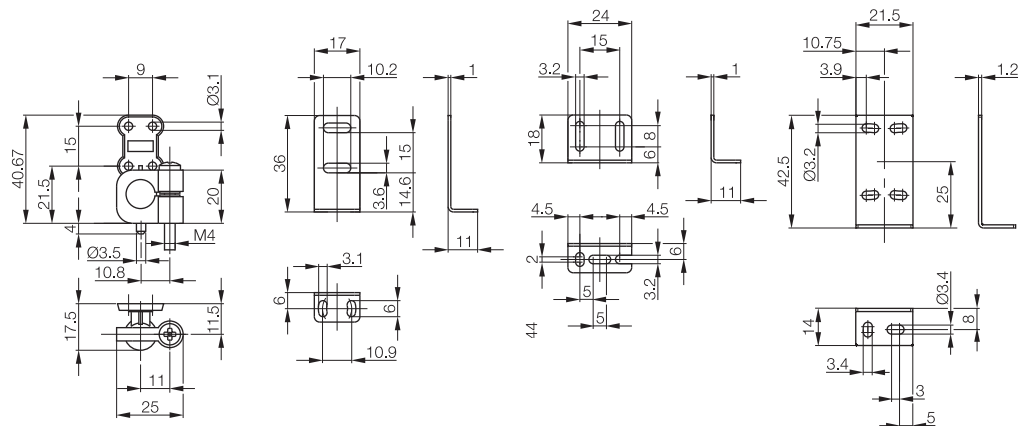
# Accessories

## Photoelectric Sensors

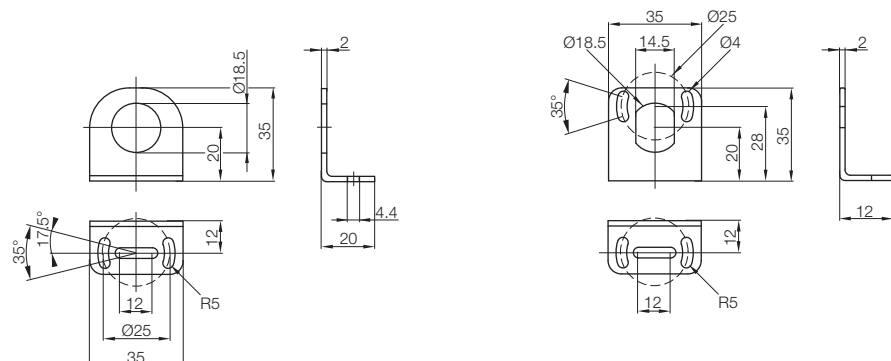
### Mounting brackets



Description	<b>Mounting bracket</b>	<b>Mounting bracket</b>	<b>Mounting bracket</b>	<b>Mounting bracket</b>
Use	For BOS 2K	For BOS 2K	For BOS 2K	For BOS 5K
Ordering code	<b>BAM00T4</b>	<b>BAM00T6</b>	<b>BAM00T5</b>	<b>BAM00U5</b>
Part number	BOS 2-HW-1	BOS 2-HW-2	BOS 2-HW-3	BOS 5-HW-1



Description	<b>Mounting bracket</b>	<b>Mounting bracket</b>
Use	For BOS 18	For BOS 18F/BOS 18KW
Ordering code	<b>BAM00RY</b>	<b>BAM00RZ</b>
Part number	BOS 18,0-HW-1	BOS 18,0-HW-2



# Accessories

## Photoelectric Sensors

### Mounting brackets

#### Reflectors

Round  
Rectangular  
Special Applications  
Laser Retroreflective Sensors  
Reflective Foils

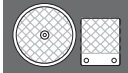
#### Fasteners

#### Mounting Brackets

Holding Systems  
Mounting Cuff  
Mounting Clamps  
Clamps  
Adapter Plate

#### Sensor Accessories

Apertures  
Plano-Convex Lens  
Polarizing Filter  
Air Shields  
Lenses  
Intermediate Ring  
Neutral Density Filters  
Cover Nuts  
Rotatable Heads  
Diagonal Mirrors  
**Accessories for Fiber Optics**  
Adapters  
Holder  
Cutting Tool  
Lens  
Rotatable Head  
Focusing Lenses  
Metal Corrugated Tubes



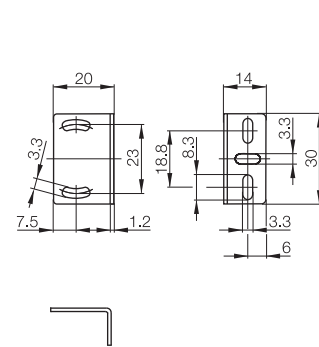
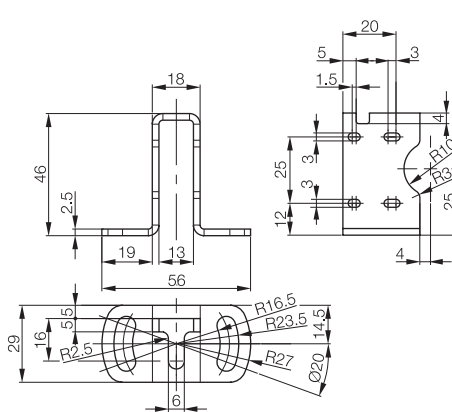
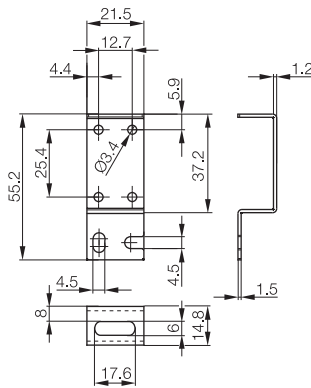
**Mounting bracket**  
For BOS 5K  
**BAM00U6**  
BOS 5-HW-2



**Mounting bracket**  
For BOS 5K  
**BAM00U7**  
BOS 5-HW-3



**Mounting bracket**  
For BOS 6K and BOS 21M  
**BAM00UH**  
BOS 6-HW-1

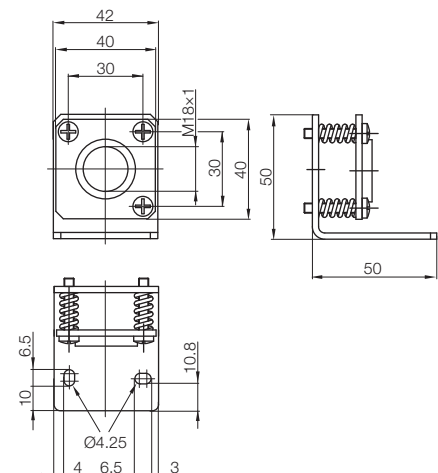
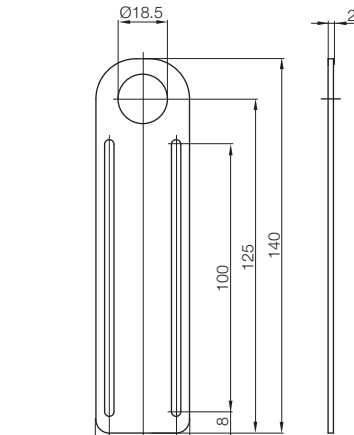
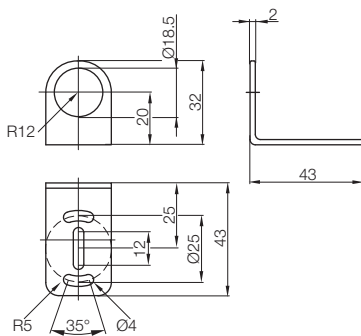


**Mounting bracket**  
For BOS 18  
**BAM00T0**  
BOS 18,0-HW-3

**Mounting bracket**  
For BOS 18  
**BAM00T1**  
BOS 18,0-HW-4



**Mounting bracket**  
For BOS 18 laser sensors  
**BAM00T2**  
BOS 18,0-HW-6



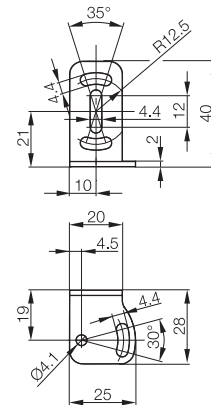
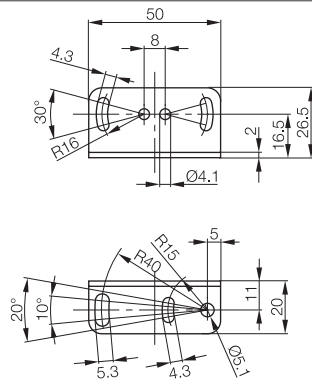
# Accessories

## Photoelectric Sensors

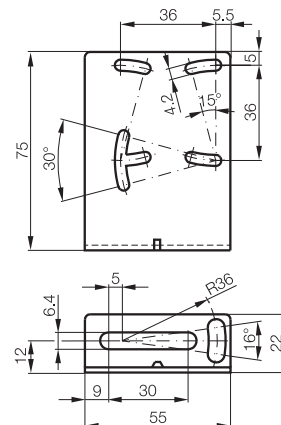
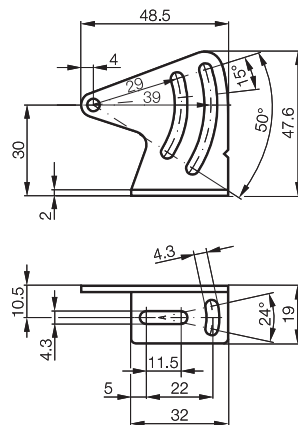
### Mounting brackets



Description	<b>Mounting bracket</b>	<b>Mounting bracket</b>
Use	For BOS 21K	For BOS 21K
Ordering code	<b>BAM00T9</b>	<b>BAM00TA</b>
Part number	BOS 21-HW-1	BOS 21-HW-2



Description	<b>Mounting bracket</b>	<b>Mounting bracket</b>
Use	For BOS 25K, BOS 26K, BOS 21M	For BOS 36K
Ordering code	<b>BAM00TK</b>	<b>BAM0124</b>
Part number	BOS 26-HW-1	BOS 36-HW-1



# Accessories

## Photoelectric Sensors

### Mounting brackets

#### Reflectors

- Round
- Rectangular
- Special Applications
- Laser Retroreflective Sensors
- Reflective Foils

#### Fasteners

#### Mounting Brackets

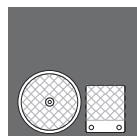
- Holding Systems
- Mounting Cuff
- Mounting Clamps
- Clamps
- Adapter Plate

#### Sensor Accessories

- Apertures
- Plano-Convex Lens
- Polarizing Filter
- Air Shields
- Lenses
- Intermediate Ring
- Neutral Density Filters
- Cover Nuts
- Rotatable Heads
- Diagonal Mirrors

#### Accessories for Fiber Optics

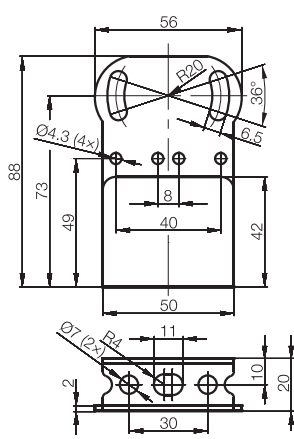
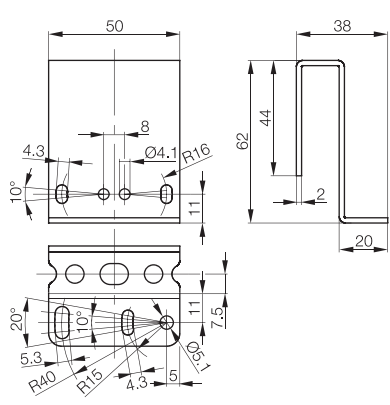
- Adapters
- Holder
- Cutting Tool
- Lens
- Rotatable Head
- Focusing Lenses
- Metal Corrugated Tubes



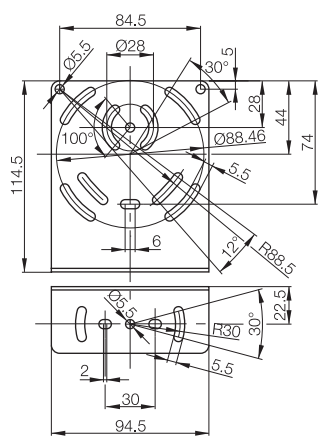
**Mounting bracket**  
For BOS 21K  
**BAM00TC**  
BOS 21-HW-3



**Mounting bracket**  
For BOS 21K  
**BAM00TE**  
BOS 21-HW-4



**Mounting bracket**  
For BOS 63M, BOD 63M  
**BAM00P6**  
BOS 63-HW-1



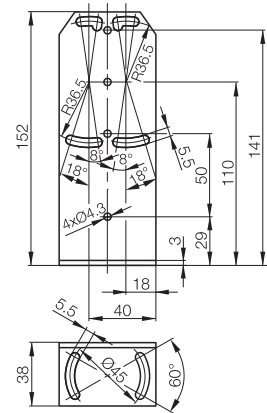
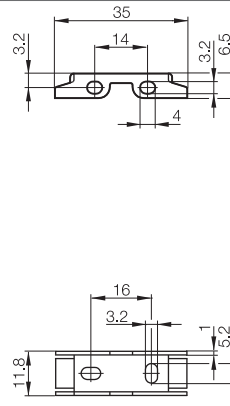
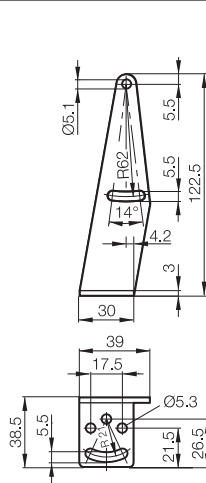
# Accessories

## Photoelectric Sensors

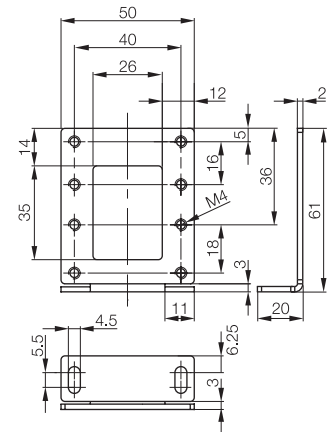
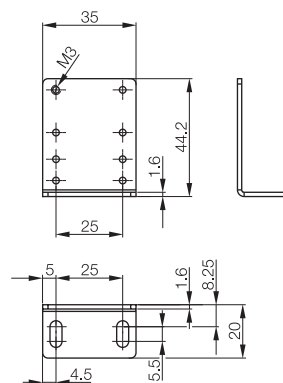
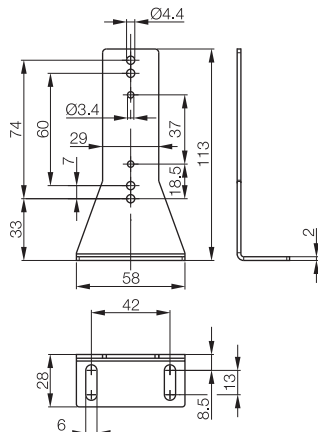
### Mounting brackets



Description	<b>Mounting bracket</b>	<b>Mounting bracket</b>	<b>Mounting bracket</b>
Use	For BOS 65K	For BOS 74K	For BOD 66M
<b>Ordering code</b>	<b>BAM0125</b>	<b>BAM00UJ</b>	<b>BAM00P9</b>
Part number	BOS 65-HW-1	BOS 74-HW-1	BOD 66-HW-1



Description	<b>Mounting bracket</b>	<b>Mounting bracket</b>	<b>Mounting bracket</b>
Use	For BOS R-10 and BOS R-25 reflectors	For BOS R-26 reflectors	For BOS R-9 and BOS R-22 reflectors
<b>Ordering code</b>	<b>BAM00U8</b>	<b>BAM00U9</b>	<b>BAM00UA</b>
Part number	BOS 5-HW-4	BOS 5-HW-5	BOS 5-HW-6



# Accessories

## Photoelectric Sensors

### Mounting brackets

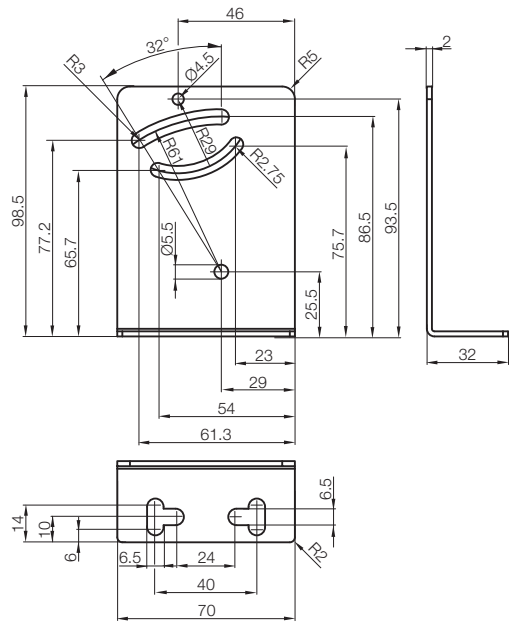
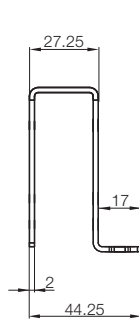
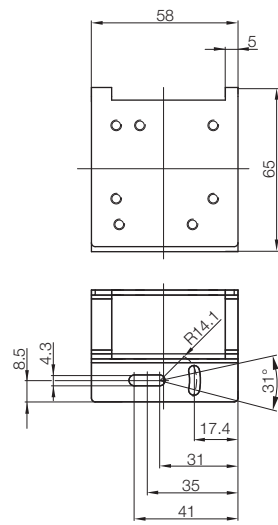


Stainless Steel



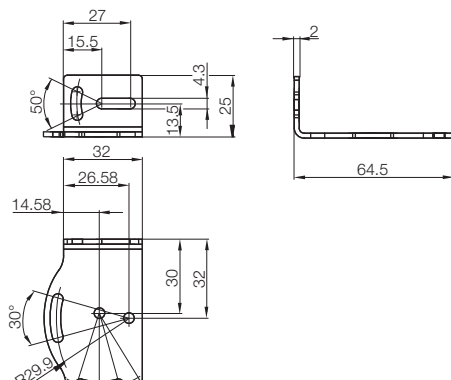
Stainless Steel

Description	<b>Mounting bracket</b>	<b>Mounting bracket</b>
Use	For BOS 23	For BOS 50K/23K
<b>Ordering code</b>	<b>BAM01FM</b>	<b>BAM01E8</b>
Part number	BAM MB-X0-007-B05-4	BAM MB-X0-005-B04-4
Material	Stainless steel	Stainless steel

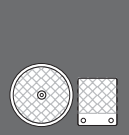


Stainless Steel

Description	<b>Mounting bracket</b>	
Use	For BOS 23K	
<b>Ordering code</b>	<b>BAM01FK</b>	
Part number	BAM MB-X0-006-B05-4	
Material	Stainless steel	



- Reflectors**
- Round
- Rectangular
- Special Applications
- Laser Retroreflective Sensors
- Reflective Foils
- Fasteners**
- Mounting Brackets**
- Holding Systems
- Mounting Cuff
- Mounting Clamps
- Clamps
- Adapter Plate
- Sensor Accessories**
- Apertures
- Plano-Convex Lens
- Polarizing Filter
- Air Shields
- Lenses
- Intermediate Ring
- Neutral Density Filters
- Cover Nuts
- Rotatable Heads
- Diagonal Mirrors
- Accessories for Fiber Optics**
- Adapters
- Holder
- Cutting Tool
- Lens
- Rotatable Head
- Focusing Lenses
- Metal Corrugated Tubes



# Accessories

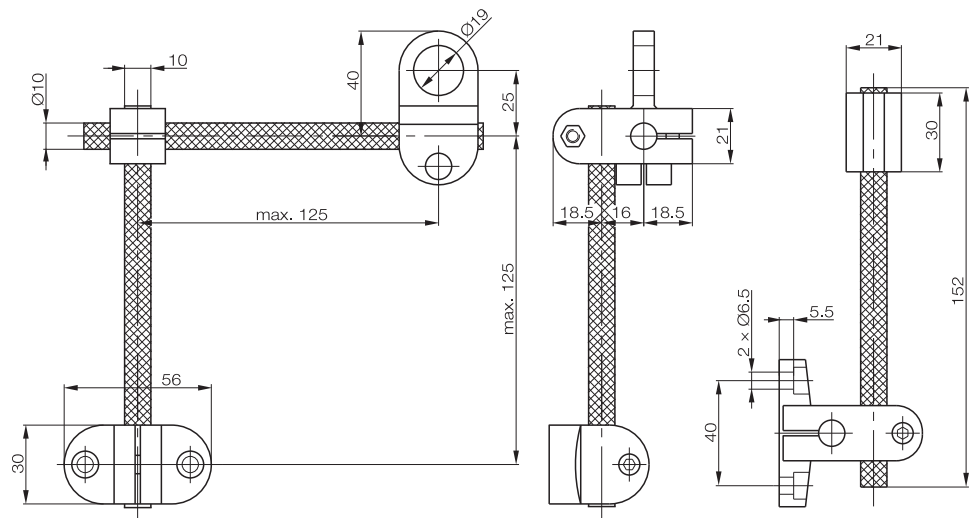
## Photoelectric Sensors

Holding system



Mounting rods are knurled all the way around.  
This prevents any position change.

Description	<b>Holding system</b>
Use	For flexible mounting; for all tubular sensors with M18 outside thread and 8x8 sensors. May be combined with other Balluff accessories.
<b>Ordering code</b>	<b>BAM00R8</b>
Part number	BOS 18-HS-1



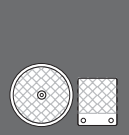


# Accessories Photoelectric Sensors

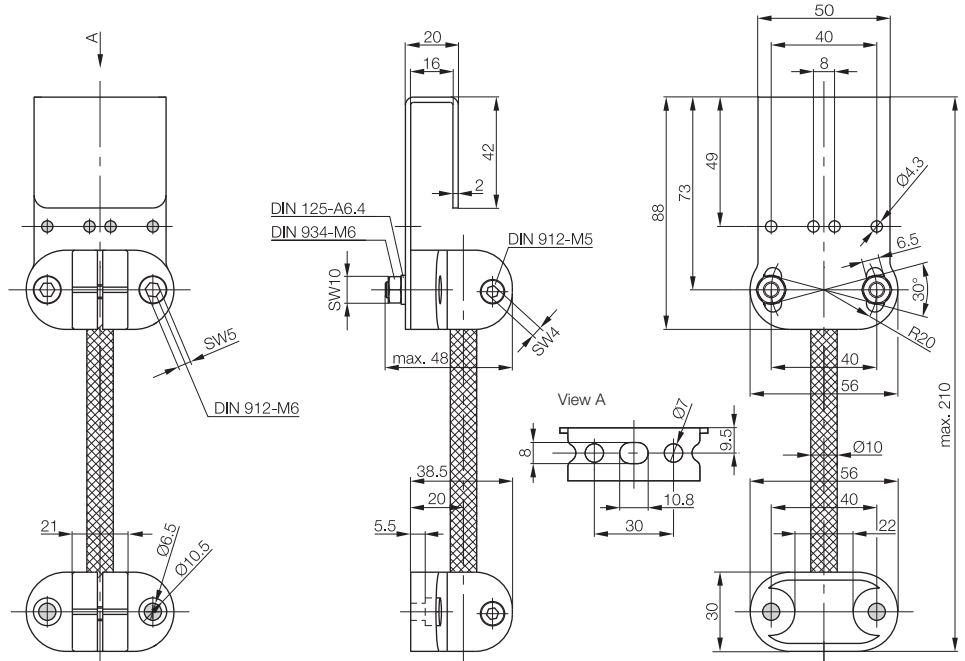
## Holding systems



- Reflectors**
- Round
- Rectangular
- Special Applications
- Laser Retroreflective Sensors
- Reflective Foils
- Fasteners**
- Mounting Brackets
- Holding Systems**
- Mounting Cuff
- Mounting Clamps
- Clamps
- Adapter Plate
- Sensor Accessories**
- Apertures
- Plano-Convex Lens
- Polarizing Filter
- Air Shields
- Lenses
- Intermediate Ring
- Neutral Density Filters
- Cover Nuts
- Rotatable Heads
- Diagonal Mirrors
- Accessories for Fiber Optics**
- Adapters
- Holder
- Cutting Tool
- Lens
- Rotatable Head
- Focusing Lenses
- Metal Corrugated Tubes



Description	<b>Holding system</b>
Use	For sensors in series BOS 21M May be combined with other Balluff accessories.
<b>Ordering code</b>	<b>BAM00T8</b>
Part number	BOS 21-HS-1



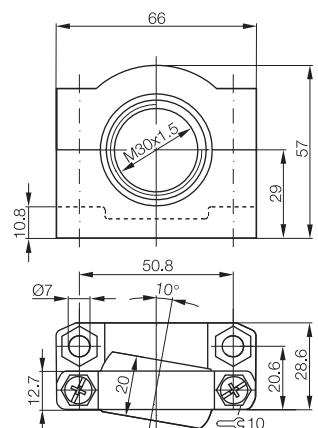
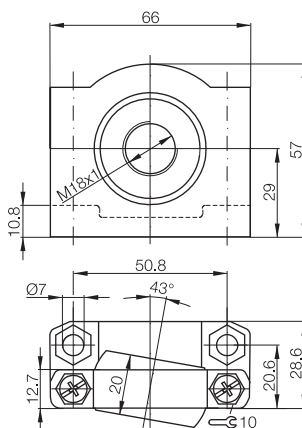
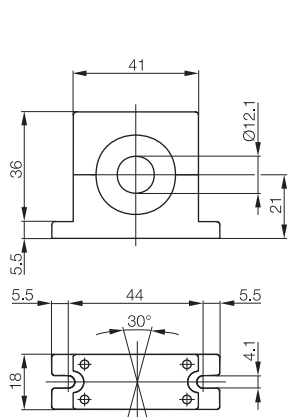
# Accessories

## Photoelectric Sensors

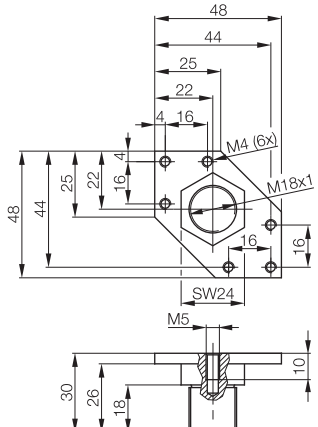
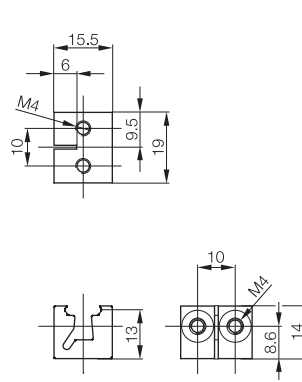
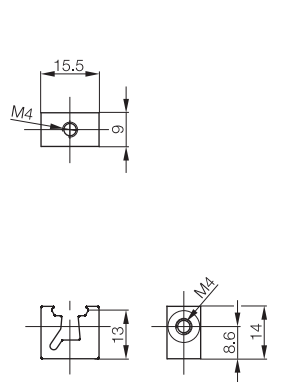
Mounting cuff, mounting clamps, clamps, adapter plate



Description	<b>Mounting cuff</b>	<b>Mounting clamp with ball joint</b>	<b>Mounting clamp with ball joint</b>
Use	For tubular sensors with M12 outside thread	For tubular sensors with M18 outside thread	For tubular sensors with M30 outside thread
<b>Ordering code</b>	<b>BAM00R2</b>	<b>BAM00T3</b>	<b>BAM00TN</b>
Part number	BOS 12,0-BS-1	BOS 18,0-KB-1	BOS 30,0-KB-1



Description	<b>Clamp holder</b>	<b>Clamp holder</b>	<b>Adapter plate</b>
Use	Sensors with dovetail for BOS 21M	Sensors with dovetail for BOS 21M	For BOS 21M, BOS 25K, BOS 26K and BOS R-1
<b>Ordering code</b>	<b>BAM00TF</b>	<b>BAM00TH</b>	<b>BAM00T7</b>
Part number	BOS 21-KH-1	BOS 21-KH-2	BOS 21-AD-1



# Accessories

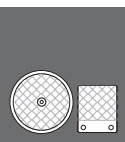
## Photoelectric Sensors

### Apertures

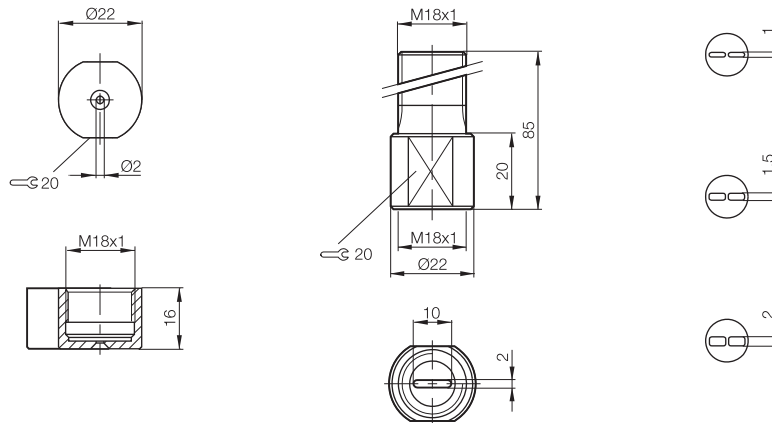


- Reflectors**
- Round
- Rectangular
- Special Applications
- Laser Retroreflective Sensors
- Reflective Foils
- Fasteners**
- Mounting Brackets
- Holding Systems
- Mounting Cuff**
- Mounting Clamps**
- Clamps**
- Adapter Plate**
- Sensor Accessories**
- Apertures**
- Plano-Convex Lens
- Polarizing Filter
- Air Shields
- Lenses
- Intermediate Ring
- Neutral Density Filters
- Cover Nuts
- Rotatable Heads
- Diagonal Mirrors

- Accessories for Fiber Optics**
- Adapters
- Holder
- Cutting Tool
- Lens
- Rotatable Head
- Focusing Lenses
- Metal Corrugated Tubes



Description	Round aperture			Double slit aperture			Slit aperture		
Use	For BLE/BLS 18			For BLE/BLS 18			For BLE/BLS 12M		
<b>Ordering code</b>	<b>BAM00R6</b>			<b>BAM00R7</b>			<b>BAM00PW</b>		
Part number	BOS 18-BL-1			BOS 18-BL-2			BOS 12-BL-1		
	Aper- ture on emitter	Aper- ture on receiver	Range	Aper- ture on emitter	Aper- ture on receiver	Range	Slit width	Range	Object size
	○	○	8 mm	∩	∩	3 mm	1 mm	0.5 mm	> 1 mm
		○	8 mm	∩	∩	2 mm	1.5 mm	1 mm	> 1.5 mm
	○	○	2 mm	∩	∩	2 mm	2 mm	2 mm	> 2 mm



The round and slit apertures restrict the beam diameter. This allows you to detect small parts over a large range. The emitter and receiver must be exactly aligned with each other.

Advantages:

- Small parts detection, i.e. 1 mm drill, aperture on emitter only
- Through-beams may be mounted close to one another
- Highly reflective parts directly next to the light path do not interfere

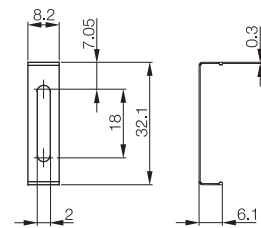
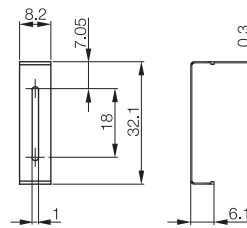
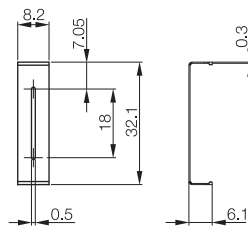
# Accessories

## Photoelectric Sensors

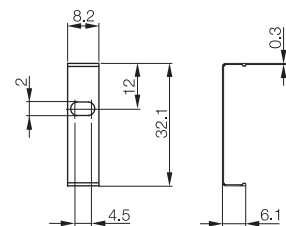
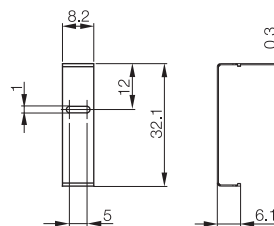
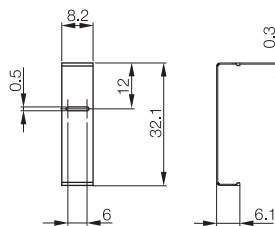
### Apertures



Description	<b>Slit aperture, vertical, 0.5 mm</b>	<b>Slit aperture, vertical, 1 mm</b>	<b>Slit aperture, vertical, 2 mm</b>
Use	For BOS 5K through-beam sensors	For BOS 5K through-beam sensors	For BOS 5K through-beam sensors
<b>Ordering code</b>	<b>BAM00TU</b>	<b>BAM00TW</b>	<b>BAM00TY</b>
Part number	BOS 5-BL-1	BOS 5-BL-2	BOS 5-BL-3



Description	<b>Slit aperture, horizontal, 0.5 mm</b>	<b>Slit aperture, horizontal, 1 mm</b>	<b>Slit aperture, horizontal, 2 mm</b>
Use	For BOS 5K through-beam sensors	For BOS 5K through-beam sensors	For BOS 5K through-beam sensors
<b>Ordering code</b>	<b>BAM00TZ</b>	<b>BAM00U0</b>	<b>BAM00U1</b>
Part number	BOS 5-BL-4	BOS 5-BL-5	BOS 5-BL-6



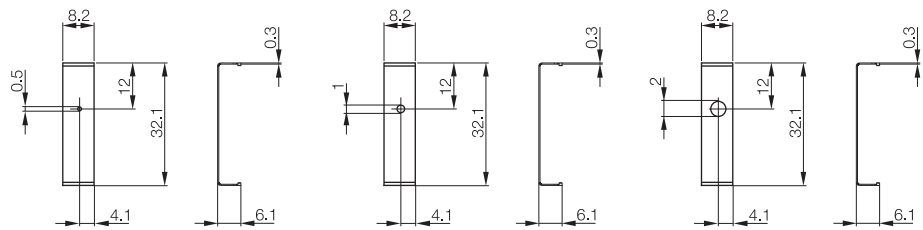
# Accessories

## Photoelectric Sensors

### Apertures



Description	<b>Round aperture 0.5 mm</b>	<b>Round aperture 1 mm</b>	<b>Round aperture 2 mm</b>
Use	For BOS 5K through-beam sensors	For BOS 5K through-beam sensors	For BOS 5K through-beam sensors
<b>Ordering code</b>	<b>BAM00U2</b>	<b>BAM00U3</b>	<b>BAM00U4</b>
Part number	BOS 5-BL-7	BOS 5-BL-8	BOS 5-BL-9



#### Reflectors

- Round
- Rectangular
- Special Applications
- Laser Retroreflective Sensors
- Reflective Foils

#### Fasteners

- Mounting Brackets
- Holding Systems
- Mounting Cuff
- Mounting Clamps

#### Clamps

- Adapter Plate

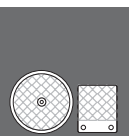
#### Sensor Accessories

#### Apertures

- Plano-Convex Lens
- Polarizing Filter
- Air Shields
- Lenses
- Intermediate Ring
- Neutral Density Filters
- Cover Nuts
- Rotatable Heads
- Diagonal Mirrors

#### Accessories for Fiber Optics

- Adapters
- Holder
- Cutting Tool
- Lens
- Rotatable Head
- Focusing Lenses
- Metal Corrugated Tubes

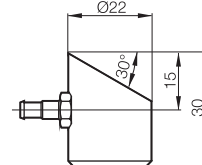
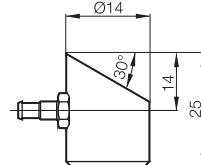
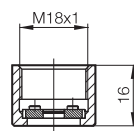
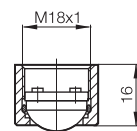
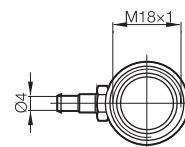
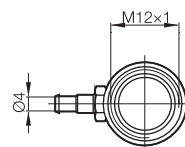
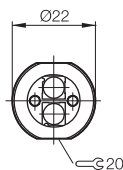
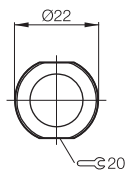


# Accessories Photoelectric Sensors

Plano-convex lens, polarizing filters, air shields



Description	<b>Plano-convex lens</b>	<b>Polarizing filter</b>	<b>Air shield</b>	<b>Air shield</b>
Use	For all BOS 18 diffuse sensors for background suppression and small parts detection	Only for BOS 18M-...-1RD...	For BOS 12 and tube with 4 mm inner diameter	For BOS 18 and tube with 4 mm inner diameter
Focal length/focus				
<b>Ordering code</b>	<b>BAM00RF</b>	<b>BAM00RE</b>	<b>BAM00PY</b>	<b>BAM00R9</b>
Part number	BOS 18-PK-1	BOS 18-PF-1	BOS 12-LT-1	BOS 18-LT-1
Material	Housing: PA6 Plano-convex lens: glass	Housing: PA6 Polarization filter: IR polarization		



Advantages:

- Sensing range adjustable 0...40 mm
- Low switching point shift, e.g. for different colors or surface properties
- Background suppression facilitates detection of objects on reflective background
- Small parts detection down to 0.05 mm through focusing plano-convex lens with a working range of approx. 0...13 mm

Polarizing filters are used for reliably sensing highly reflective objects. They prevent faulty switching.

Reflecting or shiny parts will then not cause faulty switching. The polarizing filters guarantee that only the light reflected back by the reflector is detected. They reduce the sensing range by 50%.

The air shield with a compressed air source prevents premature contamination of the optics.

The air shield with a compressed air source prevents premature contamination of the optics.

# Accessories

## Photoelectric Sensors

Lenses, intermediate ring

### Reflectors

- Round
- Rectangular
- Special Applications
- Laser Retroreflective Sensors
- Reflective Foils

### Fasteners

- Mounting Brackets
- Holding Systems
- Mounting Cuff
- Mounting Clamps
- Clamps

### Adapter Plate

### Sensor Accessories

- Apertures
- Plano-Convex Lens
- Polarizing Filter
- Air Shields

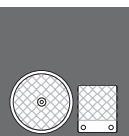
### Lenses

### Intermediate Ring

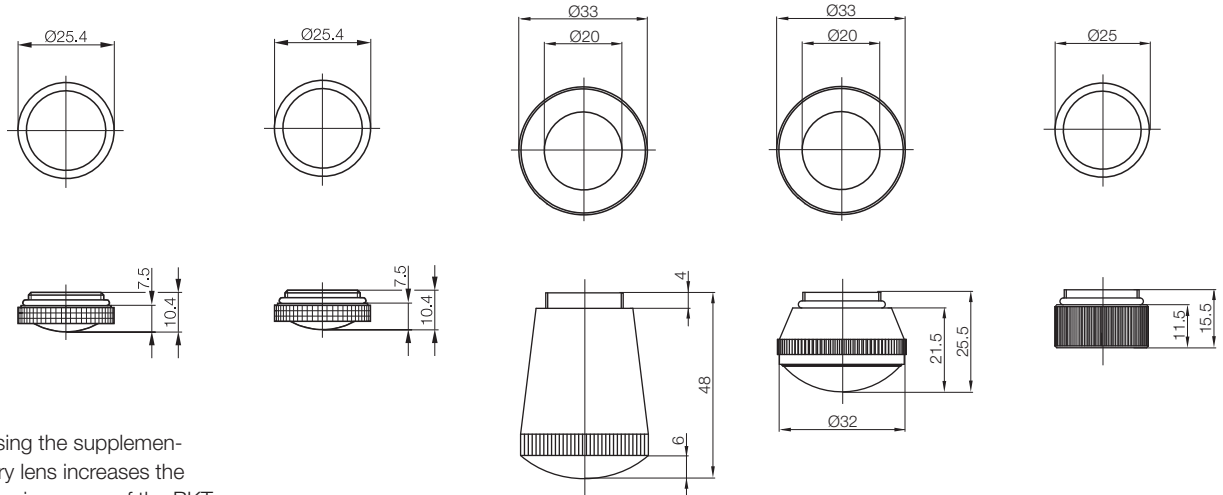
- Neutral Density Filters
- Cover Nuts
- Rotatable Heads
- Diagonal Mirrors

### Accessories for Fiber Optics

- Adapters
- Holder
- Cutting Tool
- Lens
- Rotatable Head
- Focusing Lenses
- Metal Corrugated Tubes



				
<b>Lens</b> For BKT 67 for increasing the sensing range	<b>Lens</b> For BKT 67 for increasing the sensing range	<b>Lens</b> For BKT 67 for increasing the sensing range	<b>Lens</b> For BKT 67 for increasing the sensing range	<b>Intermediate ring</b> Intermediate ring with lens for increased resolution in combination with BKT M-PK-2. It is screwed in between the sensor and the 9 mm lens.
18 mm	9 mm	28 mm	50 mm	
<b>BAM0120</b>	<b>BAM0121</b>	<b>BAM0122</b>	<b>BAM00P3</b>	<b>BAM00P2</b>
BKT M-PK-1	BKT M-PK-2	BKT M-PK-3	BKT M-PK-5	BKT M-PK-4



Using the supplementary lens increases the sensing range of the BKT from 9 mm to 18 mm. This corresponds to a working range of 15...30 mm when using with the BLT.

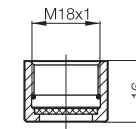
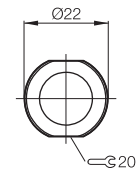
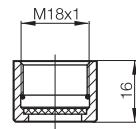
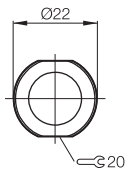
# Accessories

## Photoelectric Sensors

### Neutral density filters



Description	<b>Neutral density filter</b>	<b>Neutral density filter</b>	
Use	For BOS 18	For BOS 18	
Transmission	50 %	75 %	
<b>Ordering code</b>	<b>BAM00RA</b>	<b>BAM00RC</b>	
Part number	BOS 18-NF-1	BOS 18-NF-2	



Neutral density filters weaken the infalling light, without changing its spectral characteristics. The neutral filter is made of glass with a vacuum-coated metal layer. This is hard, non-peeling and resistant to aging. Clean the filter using standard commercial optical cleaners.



# Accessories

## Photoelectric Sensors

### Cover nuts



**Cover nut**  
For BOS 12

**BAM00PZ**  
BOS 12-SM-1



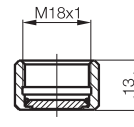
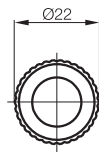
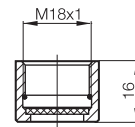
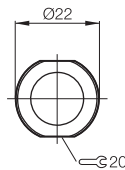
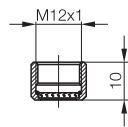
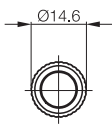
**Cover nut**  
For BOS 18

**BAM00RL**  
BOS 18-SM-1



**Cover nut**  
For BOS 18 with flat front surface

**BAM0123**  
BOS 18-SM-2

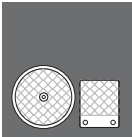


The protective end cap is made with tempered glass and can be used with all M12 photoelectric sensors. These caps are used to protect the optics from mechanical or thermal damage. Sparks from welding will not damage the hardened glass lens.

The protective end cap is made with tempered glass and can be used with all M18 photoelectric sensors. These caps are used to protect the optics from mechanical or thermal damage. Sparks from welding will not damage the hardened glass lens.

The protective cap can be used in combination with all BOS 18M and BOS 18K sensors. It protects the optics from the effects of welding splatter, for example. For increased protection, the BOS 18-SM-2 is made of metal, providing even better protection for the sensor optics. The heat-protecting glass closes off flush with the front surface of the cover nut. This prevents dust deposits from forming, which can impact the range. A ring between the sensor and protective glass makes sure the system is sealed.

- Reflectors**
- Round
- Rectangular
- Special Applications
- Laser Retroreflective Sensors
- Reflective Foils
- Fasteners**
- Mounting Brackets
- Holding Systems
- Mounting Cuff
- Mounting Clamps
- Clamps
- Adapter Plate
- Sensor Accessories**
- Apertures
- Plano-Convex Lens
- Polarizing Filter
- Air Shields
- Lenses
- Intermediate Ring
- Neutral Density Filters**
- Cover Nuts**
- Rotatable Heads
- Diagonal Mirrors
- Accessories for Fiber Optics**
- Adapters
- Holder
- Cutting Tool
- Lens
- Rotatable Head
- Focusing Lenses
- Metal Corrugated Tubes



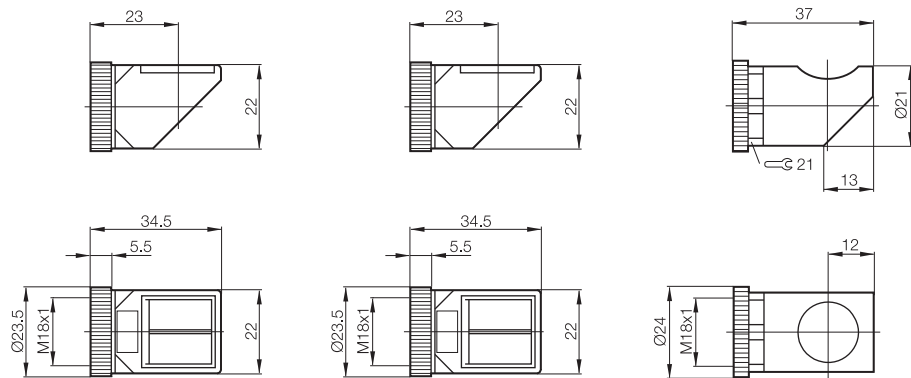
# Accessories

## Photoelectric Sensors

### Rotatable heads



Description	<b>90° rotatable head</b>	<b>90° rotatable head</b>	<b>90°rotatable head</b>
Use	For diffuse, retroreflective and through-beam sensors BOS 18 (except laser)	For diffuse, retroreflective and through-beam sensors BOS 18 (except laser)	For diffuse, retroreflective and through-beam sensors BOS 18
<b>Ordering code</b>	<b>BAM00RP</b>	<b>BAM00RT</b>	<b>BAM00RR</b>
Part number	BOS 18-UK-1	BOS 18-UK-2	BOS 18-UK-10

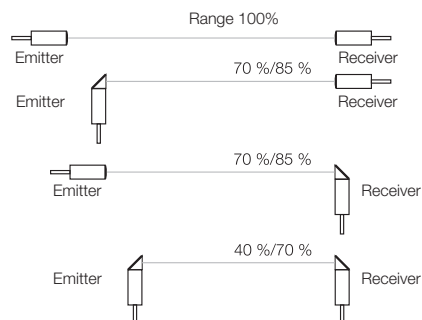


	<b>BOS 18-UK-1</b>	<b>BOS 18-UK-2</b>	<b>BOS 18-UK-10</b>
<b>Diffuse sensor</b>			
BOS 18...-XA-...100 mm	RF = 45 %		RF = 50 %
BOS 18...-XB-...200 mm	RF = 25 %		RF = 50 %
BOS 18...-PB-...200 mm	RF = 25 %		RF = 50 %
BOS 18...-XD-...400 mm		RF = 25 %	RF = 30 %
BOS 18...-PD-...400 mm		RF = 25 %	RF = 30 %
<b>Retroreflective sensor</b>			
BOS 18...-RB-...2 m		RF = 20 %	RF = 20 %
BOS 18...-RD-...4 m		RF = 20 %	RF = 20 %
<b>Through-beam sensor</b>			
BLE 18...-P-...16 m		RF = 15 %	RF = 30 %
BLS 18...-XX-...16 m		RF = 15 %	RF = 30 %

#### Rotatable heads, suitable combinations

All BOS 18 photoelectric sensors can be equipped with a 90° rotatable head.

The table shows the appropriate rotatable head for each switch type and indicates the corresponding reduction factor (RF) to apply to the range. In the case of a through-beam sensor, both the emitter and receiver can be fitted with a 90° rotatable head. Each rotatable head reduces the range by approx. 15 % ... 50 %.



# Accessories

## Photoelectric Sensors

### Diagonal mirrors



#### Diagonal mirror

For diffuse and through-beam sensors BOS 12

#### BAM00R0

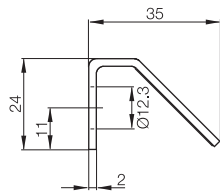
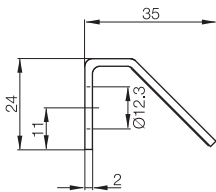
BOS 12-WS-1

#### Diagonal mirror

For laser through-beam sensors BOS 12

#### BAM00R1

BOS 12-WS-2



When using the diagonal mirror, the sensing range is reduced by 30 % for the M12 diffuse and M12 through-beam sensors. Not suitable for retroreflective sensors.

#### Reflectors

- Round
- Rectangular
- Special Applications
- Laser Retroreflective Sensors
- Reflective Foils

#### Fasteners

- Mounting Brackets
- Holding Systems
- Mounting Cuff
- Mounting Clamps

#### Clamps

- Adapter Plate

#### Sensor Accessories

- Apertures
- Plano-Convex Lens
- Polarizing Filter
- Air Shields
- Lenses

- Intermediate Ring
- Neutral Density Filters

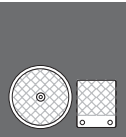
#### Cover Nuts

#### Rotatable Heads

#### Diagonal Mirrors

#### Accessories for Fiber Optics

- Adapters
- Holder
- Cutting Tool
- Lens
- Rotatable Head
- Focusing Lenses
- Metal Corrugated Tubes

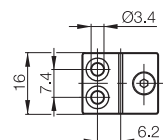
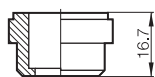
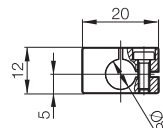
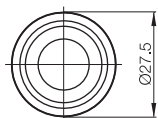


# Accessories Photoelectric Sensors

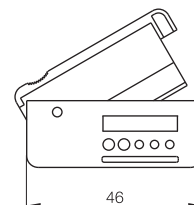
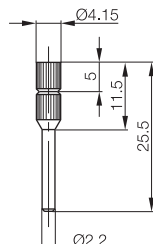
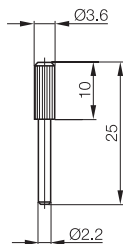
Adapters, holders, cutting tool for plastic fiber optics



Description	<b>Adapters</b>	<b>Holder</b>	
Use	For BFO 18V glass fiber optics for connecting to BOS 30M	For glass fiber optics and sensors with a corresponding diameter	
<b>Ordering code</b>	<b>BAM00NM</b>	<b>BAM00PO</b>	
Part number	BFO 30-A1	BFO 08,0-KB-1	



Description	<b>Adapters</b>	<b>Adapters</b>	<b>Cutting Tool</b>
Use	For plastic fiber optics Ø 1 mm for connecting to fiber optic base units	For plastic fiber optics Ø 1.3 mm for connecting to fiber optic base units	For trimming plastic fiber optics Ø 1 mm or Ø 2.2 mm
<b>Ordering code</b>	<b>BAM0003</b>	<b>BAM00P1</b>	<b>BAM000E</b>
Part number	BFO D10-LA-DC-10	BFO D13-LA-EC-10	BFO CT

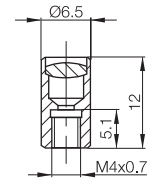
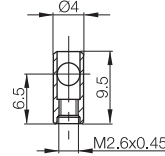
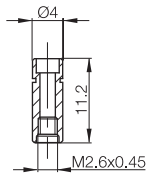


# Accessories Photoelectric Sensors

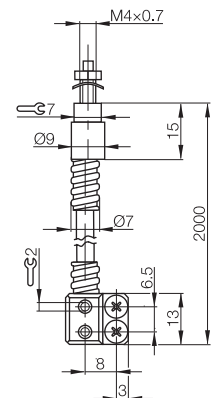
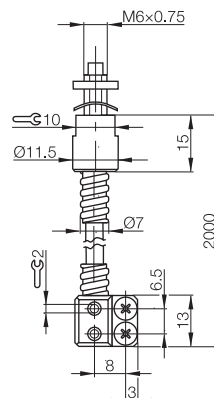
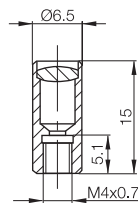
Lens, rotatable head, focusing lenses, metal corrugated tubes



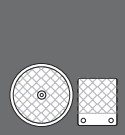
Description	Lens	90° rotatable head	Focusing lens
Use	For through-beam fiber optics M2.6x0.45	For through-beam fiber optics M2.6x0.45	For coaxial diffuse fiber optics M4x0.7
<b>Ordering code</b>	<b>BAM00NN</b>	<b>BAM00NP</b>	<b>BAM00NR</b>
Part number	BFO 02-PK-1	BFO 02-UK-1	BFO 04-FL-1
Range/sensing distance with corresponding fiber optics	x10	x0.7	19 mm±2 mm
Packaging unit	2 pcs.	2 pcs.	1 pc.

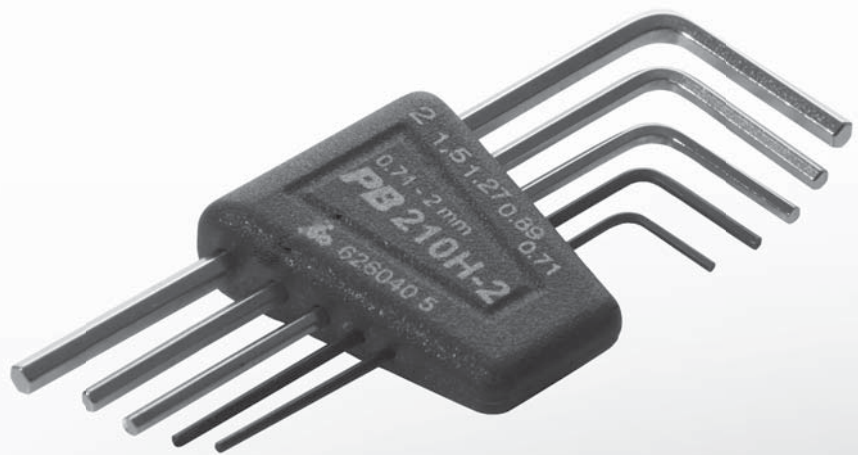
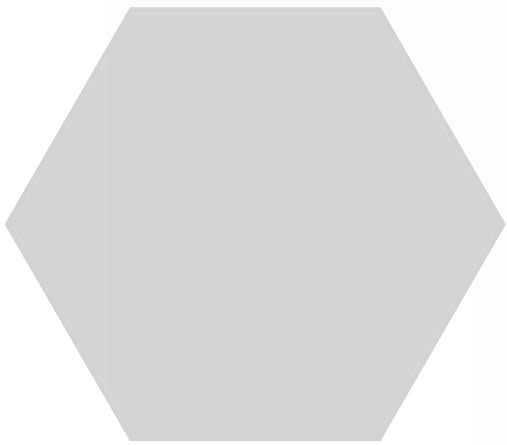


Description	Focusing lens	Metal corrugated tube (stainless steel)	Metal corrugated tube (stainless steel)
Use	For coaxial diffuse fiber optics M4x0.7	For fiber optics M6x0.75	For fiber optics M4x0.7
<b>Ordering code</b>	<b>BAM00NT</b>	<b>BAM00NY</b>	<b>BAM00NU</b>
Part number	BFO 04-FL-2	BFO 06-FS-1	BFO 04-FS-1
Range/sensing distance with corresponding fiber optics	7 mm±2 mm		
Packaging unit	1 pc.	1 pc.	1 pc.



- Reflectors**
- Round
- Rectangular
- Special Applications
- Laser Retroreflective Sensors
- Reflective Foils
- Fasteners**
- Mounting Brackets
- Holding Systems
- Mounting Cuff
- Mounting Clamps
- Clamps
- Adapter Plate
- Sensor Accessories**
- Apertures
- Plano-Convex Lens
- Polarizing Filter
- Air Shields
- Lenses
- Intermediate Ring
- Neutral Density Filters
- Cover Nuts
- Rotatable Heads
- Diagonal Mirrors
- Accessories for Fiber Optics**
- Adapters**
- Holder**
- Cutting Tool**
- Lens**
- Rotatable Head**
- Focusing Lenses**
- Metal Corrugated Tubes**







In order to adjust sensors precisely, you need the right tool. Designed for mounting Balluff sensors, we offer you practical tool sets.

<b>Tools</b>	BMF hex key	136
	Hex key set 0.7-2.0	136





Part number	<b>BMF hex key</b>	<b>Hex key set 0.7-2.0</b>
Version	Folding Allen key set, with additional blades, 8-piece	
Use	Tool set for all BMF sensors and BMF angle brackets as well as for sensors having a potentiometer, e.g. BOS, BCS ...	Tool set for BMF sensors and BMF angle brackets
<b>Ordering code</b>	<b>139870</b>	<b>123264</b>
Material	Blade: chrome vanadium steel, fully hardened, galvanically treated. Grip: ergonomic, fiberglass reinforced housing, 55 mm long.	

		mm
0.7		
0.9		
1.3		
1.5		
2.0		
2.5		
		3.0
	PH00	

0.71
0.89
1.27
1.5
2.0

**Application**

Practical folding holder for Allen keys to prevent them from getting lost. Especially good for turning very small screws, .e.g. tightening down or precise setting of sensors.

Tough housing with release button for easily selecting the right blade. Eyelet with matching carabiner hook. Self-service packaging for Euro hole display.



Lanyard is included in the scope of delivery.



# Alphanumerical Directory

from Hex key set 0.7-2.0  
to BES 18.0-KH-4-F

Part number	Ordering code	Page	Part number	Ordering code	Page
Hex key set 0.7-2.0	<b>123264</b>	136	BES 08-HW-4	<b>BAM009W</b>	85
BAE-PS-XA-1W-24-007-001	<b>BAE0001</b>	38	BES 08-HW-5	<b>BAM009Y</b>	85
BAE-PS-XA-1W-24-012-002	<b>BAE0004</b>	38	BES 08-SM-1	<b>BAM009Z</b>	98
BAE-PS-XA-1W-24-025-002	<b>BAE0005</b>	38	BES 08-SM-1F	<b>BAM00A0</b>	98
BAE-PS-XA-1W-24-038-003	<b>BAE003J</b>	38	BES 113-FD-1	<b>BAE006W</b>	29
BAE-PS-XA-1W-24-050-003	<b>BAE0006</b>	38	BES 12,0-BS-1	<b>BAM00C4</b>	77
BAE-PS-XA-1W-24-100-004	<b>BAE0002</b>	38	BES 12,0-HW-1	<b>BAM00C0</b>	84
BAE-PS-XA-1W-24-200-005	<b>BAE0003</b>	38	BES 12,0-KB-2	<b>BAM00C7</b>	79
BAE-PS-XA-3Y-24-050-009	<b>BAE0007</b>	38	BES 12,0-KB-2-F	<b>BAM00C8</b>	79
BAE-PS-XA-3Y-24-100-006	<b>BAE0008</b>	38	BES 12,0-KB-3	<b>BAM00C9</b>	80
BAE-PS-XA-3Y-24-200-007	<b>BAE0009</b>	38	BES 12,0-KB-3-F	<b>BAM00CA</b>	80
BAE-PS-XA-3Y-24-400-008	<b>BAE000A</b>	38	BES 12,0-KB-3-F-SA1	<b>BAM00CC</b>	80
BAM FK-VS-002-02-1	<b>BAM01JH</b>	61	BES 12,0-KB-3-F-SA2	<b>BAM00CE</b>	80
BAM FS-XE-001-M5-4	<b>BAM01AZ</b>	97	BES 12,0-KB-4-F	<b>BAM00CF</b>	81
BAM FS-XE-002-D4-4	<b>BAM01C0</b>	96	BES 12,0-KB-5-F	<b>BAM00CH</b>	82
BAM FS-XE-003-M5-4	<b>BAM019Y</b>	97	BES 12,0-KH-10L	<b>BAM00CP</b>	71
BAM FS-XE-004-M8-4	<b>BAM019W</b>	97	BES 12,0-KH-10L/W	<b>BAM00CR</b>	71
BAM MB-X0-005-B04-4	<b>BAM01E8</b>	119	BES 12,0-KH-10S	<b>BAM00CT</b>	70
BAM MB-X0-006-B05-4	<b>BAM01FK</b>	119	BES 12,0-KH-10S/W	<b>BAM00CU</b>	70
BAM MB-X0-007-B05-4	<b>BAM01FM</b>	119	BES 12,0-KH-2L	<b>BAM00CY</b>	70
BAM MB-XA-002-B02-1	<b>BAM01AE</b>	61	BES 12,0-KH-2L/W	<b>BAM00CZ</b>	70
BAM MB-XA-003-B03-1	<b>BAM01AC</b>	60	BES 12,0-KH-2S	<b>BAM00E0</b>	69
BAM MB-XA-004-M30-5	<b>BAM01E0</b>	85	BES 12,0-KH-2S/W	<b>BAM00E1</b>	69
BAM MC-XA-002-D03,0-2	<b>BAM000T</b>	90	BES 12,0-KH-3L	<b>BAM00E2</b>	75
BAM MC-XA-002-D04,0-2	<b>BAM000U</b>	90	BES 12,0-KH-3X	<b>BAM00E3</b>	74
BAM MC-XA-002-D06,5-2	<b>BAM000W</b>	90	BES 12,0-KH-4	<b>BAM00E4</b>	68
BAM MC-XA-002-D08,0-2	<b>BAM000Y</b>	90	BES 12,0-KH-4-F	<b>BAM00E5</b>	69
BAM OF-VS-001-D-RX100	<b>BAM01A7</b>	61	BES 12,0-KH-5F	<b>BAM00E8</b>	74
BAM PC-AE-002-1	<b>BAM01A8</b>	61	BES 12,0-KH-9L	<b>BAM00E9</b>	72
BDD-UM 3023	<b>BAE006K</b>	37	BES 12,0-KH-9LT	<b>BAM00EA</b>	72
BES 03,0-KB-3	<b>BAM0092</b>	79	BES 12,0-KH-9LT/W	<b>BAM00EC</b>	72
BES 04,0-KB-1	<b>BAM0094</b>	78	BES 12,0-KH-9S	<b>BAM00EE</b>	72
BES 04,0-KB-3	<b>BAM0095</b>	79	BES 12,0-KH-9ST	<b>BAM00EF</b>	72
BES 05,0-KB-1	<b>BAM0097</b>	78	BES 12,0-KH-9ST/W	<b>BAM00EH</b>	72
BES 05,0-KB-3	<b>BAM0098</b>	79	BES 12-FA-70	<b>BAM00AZ</b>	93
BES 05,0-KH-2S	<b>BAM0099</b>	68	BES 12-KB-602-02/12	<b>BAM00CK</b>	100
BES 06,5-BS-1	<b>BAM009A</b>	77	BES 12-KB-602-04/12	<b>BAM00CL</b>	100
BES 06,5-KB-1	<b>BAM009C</b>	78	BES 12-KB-602-06/12	<b>BAM00CM</b>	101
BES 06,5-KB-3	<b>BAM009E</b>	79	BES 12-KB-602-06/16	<b>BAM00CN</b>	101
BES 06,5-KB-7	<b>BAM009F</b>	78	BES 12-SM-2	<b>BAM00C2</b>	98
BES 08,0-BS-1	<b>BAM00A2</b>	77	BES 14,5-BS-1	<b>BAM00EM</b>	77
BES 08,0-HW-1	<b>BAM009U</b>	84	BES 16,0-BS-1	<b>BAM00ET</b>	77
BES 08,0-KB-3	<b>BAM00A5</b>	78	BES 16,0-HW-1	<b>BAM00EN</b>	84
BES 08,0-KB-3-F	<b>BAM00A6</b>	78	BES 16-SM-2	<b>BAM00EP</b>	98
BES 08,0-KB-4-F	<b>BAM00A7</b>	81	BES 18,0-BS-1	<b>BAM00F2</b>	77
BES 08,0-KB-5-F	<b>BAM00A8</b>	82	BES 18,0-HW-1	<b>BAM00EY</b>	85
BES 08,0-KB-7	<b>BAM00AA</b>	79	BES 18,0-KB-2	<b>BAM00F6</b>	79
BES 08,0-KH-2L	<b>BAM00AE</b>	70	BES 18,0-KB-3	<b>BAM00F7</b>	81
BES 08,0-KH-2L/W	<b>BAM00AF</b>	70	BES 18,0-KB-3-F	<b>BAM00F8</b>	81
BES 08,0-KH-2S	<b>BAM00AH</b>	68	BES 18,0-KB-3-F-SA1	<b>BAM00F9</b>	81
BES 08,0-KH-2S/W	<b>BAM00AK</b>	68	BES 18,0-KB-3-F-SA2	<b>BAM00FA</b>	81
BES 08,0-KH-3L	<b>BAM00AL</b>	75	BES 18,0-KB-4-F	<b>BAM00FC</b>	81
BES 08,0-KH-4-F	<b>BAM00AM</b>	69	BES 18,0-KB-5-F	<b>BAM00FE</b>	82
BES 08,0-KH-6L	<b>BAM00AN</b>	71	BES 18,0-KH-10L	<b>BAM00FH</b>	71
BES 08,0-KH-6L/W	<b>BAM00AP</b>	71	BES 18,0-KH-10L/W	<b>BAM00FJ</b>	71
BES 08,0-KH-6S	<b>BAM00AR</b>	71	BES 18,0-KH-10S	<b>BAM00FK</b>	70
BES 08,0-KH-6S/W	<b>BAM00AT</b>	71	BES 18,0-KH-10S/W	<b>BAM00FL</b>	70
BES 08,0-KH-7-F	<b>BAM00AU</b>	71	BES 18,0-KH-2L	<b>BAM00FN</b>	70
BES 08-DM-1	<b>BAM009K</b>	103	BES 18,0-KH-2L/W	<b>BAM00FP</b>	70
BES 08-FA-49	<b>BAM009L</b>	92	BES 18,0-KH-2M	<b>BAM00FR</b>	69
BES 08-FA-89	<b>BAM009M</b>	93	BES 18,0-KH-2S	<b>BAM00FT</b>	69
BES 08-FA-BS-4,0-G	<b>BAM009N</b>	93	BES 18,0-KH-2S/W	<b>BAM00FW</b>	69
BES 08-FA-BS-4,0-W	<b>BAM009P</b>	93	BES 18,0-KH-3L	<b>BAM00FY</b>	75
BES 08-FA-BS-8,0-G	<b>BAM009R</b>	93	BES 18,0-KH-4	<b>BAM00FZ</b>	68
BES 08-FA-BS-8,0-W	<b>BAM009T</b>	93	BES 18,0-KH-4-F	<b>BAM00H0</b>	69

# Alphanumerical Directory

from BES 18.0-KH-9L  
to BMS RS-S-D12-0150-00

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BES 18,0-KH-9L	BAM00H1	73	BFO 06-FS-1	BAM00NY	133
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BES 18,0-KH-9LT/W	BAM00H3	73	BFO 30-A1	BAM00NM	131
BES 18,0-KH-9S	BAM00H4	73	BFO CT	BAM00OE	132
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BES 18-SM-1	BAM00EZ	98	BKT M-PK-1	BAM0120	127
BES 18-SM-2	AM00F0	99	BKT M-PK-2	BAM0121	127
BES 18-SM-3	BAM00F1	98	BKT M-PK-3	BAM0122	127
BES 20,0-BS-1	BAM00H7	77	BKT M-PK-4	BAM00P2	127
BES 22,0-BS-1	BAM00H9	77	BKT M-PK-5	BAM00P3	127
BES 22-SM-2	BAM00H8	99	BMF Hex Key	139870	136
BES 24,0-HW-1	BAM00HA	85	BMS AD-M-002-D12/D12	BAM003E	49
BES 30,0-BS-1	BAM00HN	77	BMS AD-M-002-D12/D18	BAM0038	49
BES 30,0-HW-1	BAM00HH	85	BMS AD-M-003-D12/IZ	BAM003J	58
BES 30,0-KB-3-F	BAM00HU	81	BMS AD-P-001-12/10	BAM002H	83
BES 30,0-KB-4-F	BAM00HW	81	BMS BS-M-D12-0250-01	BAM003A	56
BES 30,0-KB-5-F	BAM00HY	83	BMS BS-M-D12-0250-02	BAM0039	56
BES 30,0-KH-10L	BAM00J0	71	BMS BS-M-D12-0250-03	BAM003F	57
BES 30,0-KH-10L/W	BAM00J1	71	BMS BS-M-D12-0400-04	BAM003H	57
BES 30,0-KH-10S	BAM00J2	70	BMS Case-01	BAM003T	63
BES 30,0-KH-10S/W	BAM00J3	70	BMS CS-M-D12-B-00*	BAM002Z	45
BES 30,0-KH-2L	BAM00J4	71	BMS CC-P-D10-A-00	BAM003U	44
BES 30,0-KH-2L/W	BAM00J5	71	BMS CC-P-D12-A-00	BAM002M	44
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BES 30,0-KH-9LT	BAM00JC	73	BMS CS-M-D12-B21K-04	BAM0043	50
BES 30,0-KH-9LT/W	BAM00JE	73	BMS CS-M-D12-B23K-05	BAM01AW	50
BES 30,0-KH-9S	BAM00JF	73	BMS CS-M-D12-BX01-01	BAM0030	52
BES 30,0-KH-9ST	BAM00JH	73	BMS CS-M-D12-BX05-02	BAM003C	53
BES 30,0-KH-9ST/W	BAM00JJ	73	BMS CS-M-D12-BX06-03	BAM0040	52
BES 30-SM-1	BAM00HJ	99	BMS CS-M-D12-BX07-06	BAM01AY	51
BES 30-SM-2	BAM00HK	99	BMS CS-M-D12-BX08-07	BAM01CW	45
BES 30-SM-3	BAM00HL	98	BMS CS-M-D12-BX10-08	BCS01F3	51
BES 30-SM-5	BAM00HM	98	BMS CS-M-D12-BX11-09	BCS01F2	51
BES 36,0-BS-1	BAM00JN	77	BMS CS-M-D12-ID08-01	BAM0036	47
BES 36,0-HW-1	BAM00JK	85	BMS CS-M-D12-ID12-01	BAM0037	47
BES 36-SM-2	BAM00JL	99	BMS CS-M-D12-ID16-01	BAM003K	47
BES 516-4	BAE0029	33	BMS CS-M-D12-ID18-01	BAM0032	47
BES 516-611-A-1	BAE006Y	31	BMS CS-M-D12-ID24-01	BAM003L	47
BES 516-615-NS-1-PU-05	BAE006Z	30	BMS CS-M-D12-ID30-01	BAM0033	48
BES 516-615-PS-1-PU-05	BAE0070	30	BMS CS-M-D12-ID36-01	BAM003M	48
BES 516-7	BAE002C	33	BMS CS-M-D12-IQ40-02	BAM003P	53
BES 516-IV 2	BAE0073	28	BMS CS-M-D12-IQ40-03	BAM003R	53
BES HS-01-P1-C16/Q40	BAM00JT	87	BMS CS-M-D12-IX09-01	BAM01J2	48
BES HS-01-P1-C8/Q40	BAM00JU	87	BMS CS-M-D12-IZ	BAM0031	45
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BES Q08-KH-3	BAM01AU	76	BMS CS-P-D12-AD08-00	BAM002K	43
BES Q40-HW-1	BAM00JW	86	BMS CS-P-D12-AD12-00	BAM002N	43
BES Q40-HW-2	BAM00JY	86	BMS CS-P-D12-AD18-00	BAM002P	43
BES Q40-HW-3	BAM00JZ	86	BMS CUJ-P-D12-R040-00	BAM002Y	43
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BES Q40-SH-2	BAM00K1	88	BMS CU-M-D12-IO60-01	BAM0044	46
BESA 08-CM	BAM015U	94	BMS CU-M-D12-IO60-02	BAM01CH	46
BESA 12-CM	BAM015W	95	BMS CU-P-D12-A040-00	BAM002J	42
BESA 18-CM	BAM015Y	95	BMS CZ-M-B-001	BAM003Z	58
BESA 30-CM	BAM015Z	95	BMS CZ-M-D12-I-001	BAM0041	59
BFO 02-PK-1	BAM00NN	133	BMS KIT-V1	BAM003W	63
BFO 02-UK-1	BAM00NP	133	BMS RS-M-D12-0150-00	BAM002R	62
BFO 04-FL-1	BAM00NR	133	BMS RS-M-D12-0250-00	BAM002T	62
BFO 04-FL-2	BAM00NT	133	BMS RS-M-D12-1000-00	BAM002U	62
BFO 04-FS-1	BAM00NU	133	BMS RS-S-D12-0150-00	BAM0045	62

# Alphanumerical Directory

from BMS RS-S-D12-0300-00 to  
nut M8x1 sensors

Part number	Ordering code	Page	Part number	Ordering code	Page
BMS RS-S-D12-0300-00	<b>BAM0046</b>	62	BOS R-14	<b>BAM00UP</b>	106
BOD 66-HW-1	<b>BAM00P9</b>	118	BOS R-15	<b>BAM00UR</b>	106
BOS 12,0-BS-1	<b>BAM00R2</b>	122	BOS R-16	<b>BAM00UT</b>	110
BOS 12-BL-1	<b>BAM00PW</b>	123	BOS R-2	<b>BAM00UW</b>	106
BOS 12-LT-1	<b>BAM00PY</b>	126	BOS R-22	<b>BAM00UY</b>	110
BOS 12-SM-1	<b>BAM00PZ</b>	128	BOS R-25	<b>BAM00UZ</b>	107
BOS 12-WS-1	<b>BAM00R0</b>	131	BOS R-26	<b>BAM00W0</b>	107
BOS 12-WS-2	<b>BAM00R1</b>	131	BOS R-27	<b>BAM00W1</b>	108
BOS 18,0-HW-1	<b>BAM00RY</b>	114	BOS R-28	<b>BAM00W2</b>	108
BOS 18,0-HW-2	<b>BAM00RZ</b>	114	BOS R-29	<b>BAM00W3</b>	108
BOS 18,0-HW-3	<b>BAM00T0</b>	115	BOS R-3	<b>BAM00W4</b>	106
BOS 18,0-HW-4	<b>BAM00T1</b>	115	BOS R-30 (also for polarized light)	<b>BAM00W5</b>	112
BOS 18,0-HW-6	<b>BAM00T2</b>	115	BOS R-31	<b>BAM01H6</b>	109
BOS 18,0-KB-1	<b>BAM00T3</b>	122	BOS R-33	<b>BAM00W7</b>	107
BOS 18-BL-1	<b>BAM00R6</b>	123	BOS R-34	<b>BAM00W8</b>	109
BOS 18-BL-2	<b>BAM00R7</b>	123	BOS R-36	<b>BAM01CM</b>	109
BOS 18-HS-1	<b>BAM00R8</b>	120	BOS R-38	<b>BAM01H7</b>	111
BOS 18-LT-1	<b>BAM00R9</b>	126	BOS R-39	<b>BAM01H8</b>	111
BOS 18-NF-1	<b>BAM00RA</b>	128	BOS R-40	<b>BAM01CF</b>	113
BOS 18-NF-2	<b>BAM00RC</b>	128	BOS R-41	<b>BAM01H9</b>	111
BOS 18-PF-1	<b>BAM00RE</b>	126	BOS R-42	<b>BAM01HA</b>	111
BOS 18-PK-1	<b>BAM00RF</b>	126	BOS R-43	<b>BAM01HC</b>	111
BOS 18-SM-1	<b>BAM00RL</b>	129	BOS R-44	<b>BAM01HE</b>	109
BOS 18-SM-2	<b>BAM0123</b>	129	BOS R-45	<b>BAM01HF</b>	113
BOS 18-UK-1	<b>BAM00RP</b>	130	BOS R-46	<b>BAM01JP</b>	108
BOS 18-UK-10	<b>BAM00RR</b>	130	BOS R-47	<b>BAM01JN</b>	108
BOS 18-UK-2	<b>BAM00RT</b>	130	BOS R-5	<b>BAM00WA</b>	107
BOS 21-AD-1	<b>BAM00T7</b>	122	BOS R-50	<b>BAM01JM</b>	113
BOS 21-HS-1	<b>BAM00T8</b>	121	BOS R-6-0,25 (not for polarized light)	<b>BAM00WC</b>	112
BOS 21-HW-1	<b>BAM00T9</b>	116	BOS R-6-45 (not for polarized light)	<b>BAM00WE</b>	112
BOS 21-HW-2	<b>BAM00TA</b>	116	BOS R-7-0,25 (also for polarized light)	<b>BAM00WF</b>	112
BOS 21-HW-3	<b>BAM00TC</b>	117	BOS R-7-22 (also for polarized light)	<b>BAM00WH</b>	112
BOS 21-HW-4	<b>BAM00TE</b>	117	BOS R-8-0,25 (also for polarized light)	<b>BAM00WJ</b>	112
BOS 21-KH-1	<b>BAM00TF</b>	122	BOS R-8-22 (also for polarized light)	<b>BAM00WK</b>	112
BOS 21-KH-2	<b>BAM00TH</b>	122	BOS R-9	<b>BAM00WL</b>	107
BOS 26-HW-1	<b>BAM00TK</b>	116	BOS S-C01	<b>BAE002E</b>	35
BOS 2-HW-1	<b>BAM00T4</b>	114	BOS S-C02	<b>BAE002F</b>	35
BOS 2-HW-2	<b>BAM00T5</b>	114	BOS S-F01	<b>BAE002H</b>	35
BOS 2-HW-3	<b>BAM00T5</b>	114	BOS S-F02	<b>BAE002J</b>	35
BOS 30,0-KB-1	<b>BAM00TN</b>	122	BOS S-M01	<b>BAE002K</b>	35
BOS 36-HW-1	<b>BAM0124</b>	116	BOS S-M02	<b>BAE002L</b>	35
BOS 5-BL-1	<b>BAM00TU</b>	124	BOS S-T01	<b>BAE002M</b>	35
BOS 5-BL-2	<b>BAM00TW</b>	124	BOS S-T02	<b>BAE002N</b>	35
BOS 5-BL-3	<b>BAM00TY</b>	124	BVS Z-MB-01	<b>BAM00WN</b>	60
BOS 5-BL-4	<b>BAM00TZ</b>	124	Galvanized toothed lock washer for M12 sensors	<b>500552</b>	102
BOS 5-BL-5	<b>BAM00U0</b>	124	Galvanized toothed lock washer for M18 sensors	<b>117684</b>	102
BOS 5-BL-6	<b>BAM00U1</b>	124	Galvanized toothed lock washer for M8 sensors	<b>500558</b>	102
BOS 5-BL-7	<b>BAM00U2</b>	125	Galvanized spring washer for M5 sensors	<b>710256</b>	102
BOS 5-BL-8	<b>BAM00U3</b>	125	Montageplatte B 4 - 2057 (Mounting plate)		89
BOS 5-BL-9	<b>BAM00U4</b>	125	Nut M12x1, stainless steel	<b>636981</b>	102
BOS 5-HW-1	<b>BAM00U5</b>	114	Nut M12x1, nickel plated brass	<b>500462</b>	102
BOS 5-HW-2	<b>BAM00U6</b>	115	Nut M16x1, nickel plated brass	<b>142060</b>	102
BOS 5-HW-3	<b>BAM00U7</b>	115	Nut M16x1, nickel plated brass	<b>500030</b>	102
BOS 5-HW-4	<b>BAM00U8</b>	118	Nut M18x1, stainless steel	<b>636982</b>	102
BOS 5-HW-5	<b>BAM00U9</b>	118	Nut M18x1, plastic	<b>606841</b>	103
BOS 5-HW-6	<b>BAM00UA</b>	118	Nut M18x1, nickel plated brass	<b>500152</b>	103
BOS 63-HW-1	<b>BAM00P6</b>	117	Nut M30x1.5, stainless steel	<b>636983</b>	102
BOS 65-HW-1	<b>BAM0125</b>	118	Nut M30x1.5, plastic	<b>610292</b>	103
BOS 6-HW-1	<b>BAM00UH</b>	115	Nut M30x1.5, nickel plated brass	<b>500252</b>	103
BOS 74-HW-1	<b>BAM00UJ</b>	118	Nut M5x1, stainless steel	<b>605313</b>	102
BOS R-1	<b>BAM00UK</b>	106	Nut M8x1, galvanized steel	<b>500557</b>	102
BOS R-10	<b>BAM0126</b>	106			
BOS R-11	<b>BAM00UL</b>	107			
BOS R-12	<b>BAM00UM</b>	110			
BOS R-13	<b>BAM00UN</b>	110			

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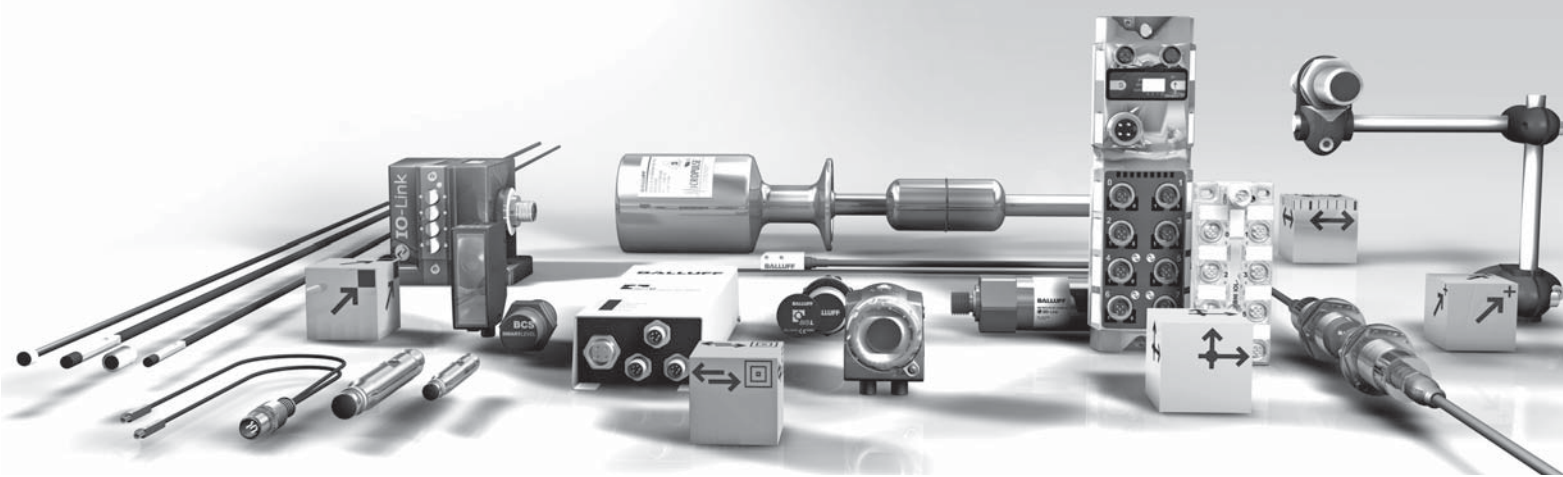
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## Object Detection

- Inductive Sensors BES
- Sensors for Pneumatic Cylinders BMF
- Magnetic Field Sensors BMF
- Capacitive Sensors BCS
- Ultrasonic Sensors BUS
- Pressure Sensors BSP
- Photoelectric Sensors BOS
- Fiber Optic Amplifier BFB
- Fork Sensors BGL
- Dynamic Optical Windows BOWA
- Light Grids BLG
- Contrast Sensors BKT
- Luminescence Sensors BLT
- Color Sensors BFS
- Mechanical Single and Multiple Position Switches BNS
- Inductive Single and Multiple Position Switches BNS



## Linear Position Sensing

- Micropulse Transducers BTL
- Magnetic Linear Encoder Systems BML
- Incremental Encoders BDG
- Absolute Encoders BRG
- Inductive Linear Position Sensor BIW
- Inductive Distance Sensors BAW
- Magneto-inductive Position Sensors BIL
- Photoelectric Distance Sensors BOD
- Ultrasonic Sensors BUS



## Industrial Identification

- Industrial RFID Systems BIS
- Vision Sensors BVS



## Industrial Networking and Connectivity

- Connectors and Connection Cables BCC
- Passive Splitter Boxes BPI
- Expansion Modules BNI
- IO-Link
- Inductive Couplers BIC
- BUS Systems
- Wireless
- Electrical Devices



## Mechanical Accessories

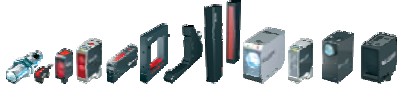
- Holders and Fasteners
- Mounting System BMS

## Object Detection



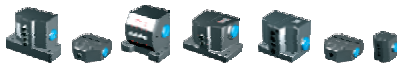
### Sensor Product Line

Inductive sensors BES DC 3-/4-wire  
Inductive sensors BES DC 2-wire  
Inductive sensors BES AC/DC  
Inductive sensors BES with special properties  
Sensors for pneumatic cylinders BMF  
Magnetic field sensors BMF  
Capacitive sensors BCS  
Ultrasonic sensors BUS  
Pressure sensors BSP



### Photoelectric Product Line

Diffuse energetic BOS with fore- and background suppression  
Retro-reflective sensors BOS  
Through-beam sensors BOS (emitter/receiver)  
Fiber optic devices BFB  
Through-beam fork sensors BGL  
Dynamic optical windows BOWA  
Light grids BLG  
Contrast sensors BKT  
Luminescence sensors BLT  
Color sensors BFS  
Photoelectric distance sensors BOD



### Mechanical Product Line

Mechanical multiple and single position switches  
Mechanical multiple and single position switches to DIN EN 60204-1/VDE 0113  
Mechanical multiple and single position switches with forced opening  
Mechanical multiple and single position switches with quick-change plunger unit  
Inductive multiple and single position switches  
Inductive multiple and single position switches with extended switching distance  
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Mixed assembly multiple position switches

## Linear Position Sensing



### Linear Position Sensing Product Line

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Inductive linear position sensor BIW  
Inductive distance sensors BAW  
Magneto-inductive position sensors BIL  
Photoelectric distance sensors BOD  
Ultrasonic sensors BUS

## Industrial Identification



### Industrial Identification

Industrial RFID systems BIS C  
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Industrial RFID systems BIS M  
Industrial RFID systems BIS S  
Vision sensor BVS

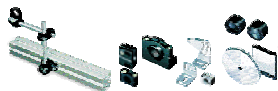
## Industrial Networking and Connectivity



### Industrial Networking and Connectivity

Connectors and cables BCC  
Passive splitter boxes BPI  
Active splitter boxes BNI  
IO-Link  
Remote inductive transmission systems  
Inductive couplers BIC  
BUS systems  
Wireless  
Electrical devices

## Mechanical Accessories



### Mechanical Accessories

Holders and fastening systems  
Mounting system BMS

Please check and send fax!

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sensors worldwide

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Company

Name,  
Department

Street

Postal Code/City

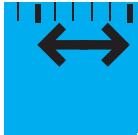
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**Object Detection**



**Linear Position Sensing**



**Industrial Identification**



**Industrial Networking and Connectivity**



**Mechanical Accessories**



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