

Accessories

Balluff supplies a wide variety of mounting and sensor protection accessories designed to decrease installation costs, prolong sensor life expectancy, reduce unplanned downtime, and increase the overall performance and utility of our sensors.

Balluff mounting hardware accomodates a wide variety of inductive and photoelectric sensors. These handy accessories are geared toward extending sensor performance in harsh industrial conditions involving chemical attack, debris accumulation, shock/vibration/impact, and high temperatures.

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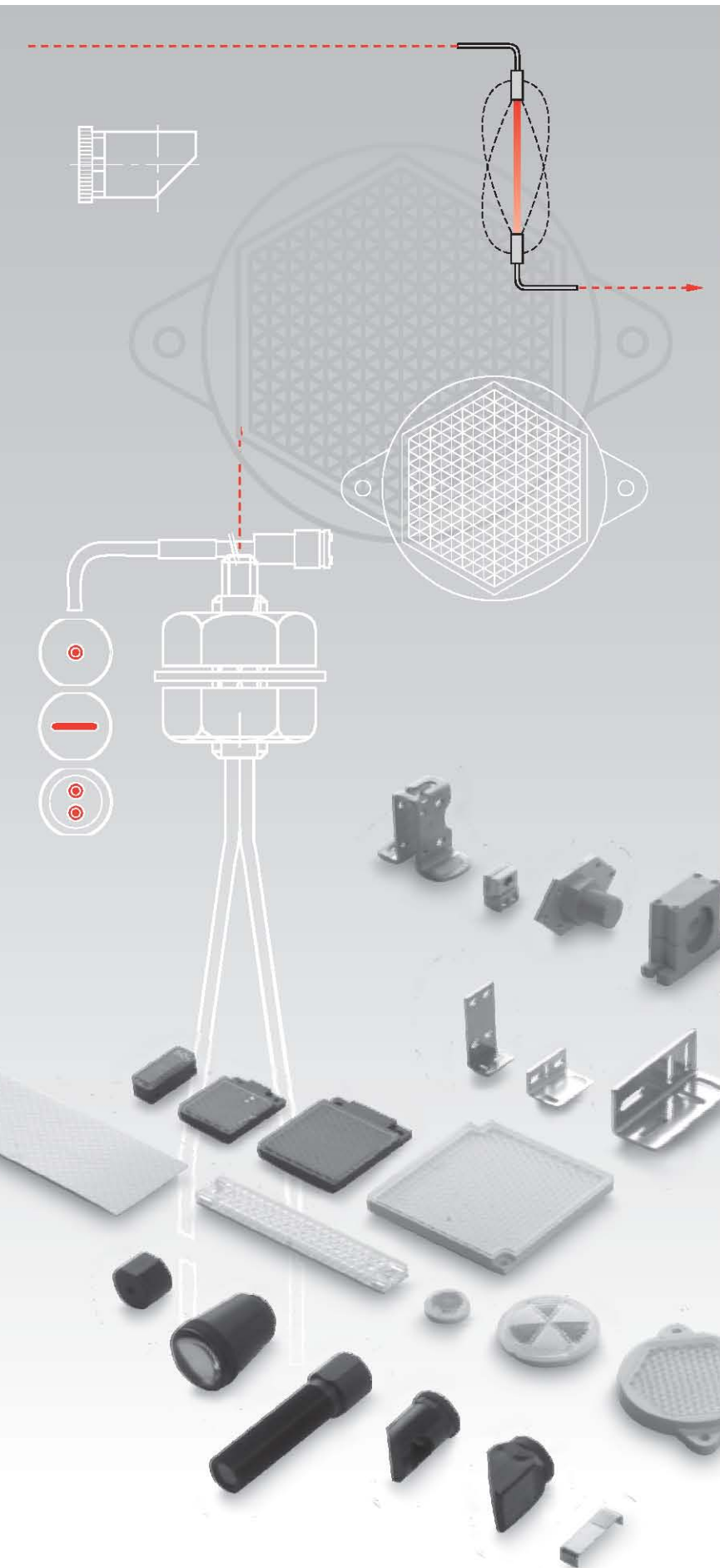
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Selection Guide

Universal



Universal



Universal



Universal



Accessory Type	Mounting Clamps & Brackets	Prox Mounts	Bunker Blocks® Mounting Brackets	Weld Repel™
For Use With:	Inductive, Capacitive, Photoelectric	Inductive, Capacitive, Photoelectric	Inductive, Capacitive, Photoelectric	Connectivity
Description	Allows quick installation of tubular sensors with universal mounting brackets. These brackets offer multiple mounting and sensor clamping options for a variety of applications.	Easy to install; for hassle-free sensor replacement or tooling modifications.	Provides extra protection for your sensors in abusive or welding environments.	Protect sensors, cables, hoses, and vital machine parts from heat and weld slag with Weld Repel™ wrap, tubing, and sheeting.
Features & Benefits	<ul style="list-style-type: none"> – Plastic and plated carbon steel versions available – Designed with slotted holes for easy installation and adjustment – 8, 12, 18, and 30 mm sizes available – Snap clamp with positive stop 	<ul style="list-style-type: none"> – Reduced downtime – Reduced setup costs – Secure and accurate sensor fastening – Acts as a heat barrier in welding applications – Available in nickel plated and PTFE coated brass or PTFE coated steel 	<ul style="list-style-type: none"> – Provide protection from side or frontal blows – Easy two bolt installation – Aluminum models accept Prox Mounts for precise installation – Solid steel models offer additional mass and adjustability – All models offer sensor protection to increase sensor life 	<ul style="list-style-type: none"> – Protective tubing extends life of cables or hydraulic hoses – Self-bonding wrap protects ends of cables/hoses, plus it can be used for tubing repair – Large sheeting adds protection to vital machine components and is easy to install
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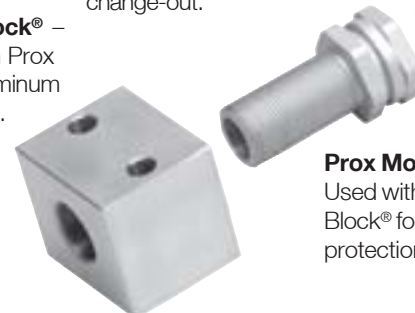
Bunker Block® & Bunker Block® II

Bunker Blocks® are specifically designed to protect flush mounted inductive proximity sensors from damage from side or frontal blows and abrasion.

Bunker Block® II – Without positive stop, copper plated steel to repel weld slag.



Bunker Block® – For use with Prox Mounts, aluminum to repel slag.



Prox Mount – Used with Bunker Block® for added protection.

Prox Mounts

Prox Mounts provide precise positioning of inductive proximity sensors plus rapid installation and change-out.

Selection Guide

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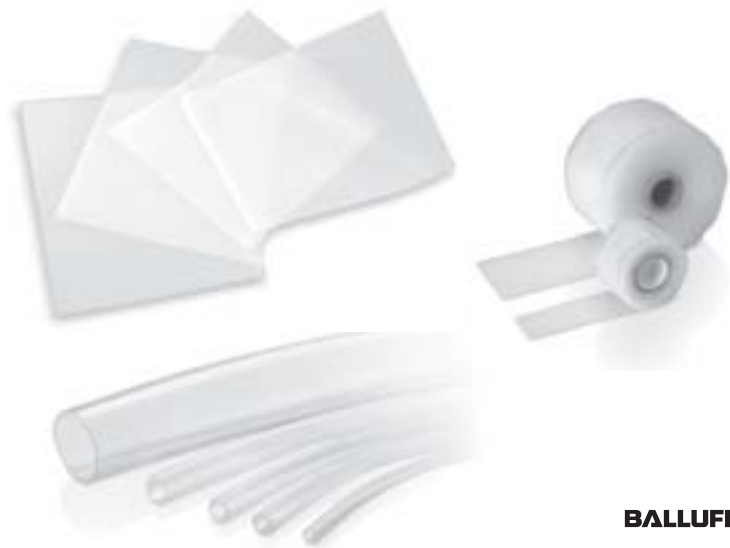
Selection Guide



Block Sensor Mounting Brackets	Sensor Protection Devices	Prox Actuators	Banking Screws	Capacitive Mounting Brackets
Inductive	Inductive	Inductive	Inductive	Capacitive
<p>Allows quick installation of block sensors with universal mounting brackets.</p>	<p>Increase sensor life with a PTFE, Delrin or ceramic cap to provide protection for the sensor face.</p>	<p>Prox actuators isolate sensors from mechanical contact and damage. Multiple sizes and configurations are available.</p>	<p>Eliminate all mechanical contact with the sensor by adding a banking screw actuator.</p>	<p>Widen your ability to use capacitive sensors with Balluff's mounting accessories. Switchwells and split mounting brackets expand the ways you can use the capacitive sensors.</p>
<ul style="list-style-type: none"> - Mounting plates and brackets for various housings - Made from corrosion resistant aluminum and AL/CuZn - Various adjustability for flexible mounting configurations 	<ul style="list-style-type: none"> - Increases sensor life - Withstands high temperatures, weld splatter and abrasives - Ideal for welding applications - Easy to install 	<ul style="list-style-type: none"> - Consist of mounting clamp and detent holder - Straight or right angle versions for 4 mm and 8 mm sensors - Detent holders available in 3 configurations: <ul style="list-style-type: none"> - M12x1, 70 mm long - M8x1, 49 mm long - M8x1, 89 mm long - Detent holders have 8 mm smooth bore end for insertion into the clamp - Any holder can be used with any clamp 	<ul style="list-style-type: none"> - Heat treated alloy steel to withstand heavy use - Accept any standard M8, M12 or M18 shielded sensor - Isolates sensor from impact - Multiple lengths in each size for varying needs 	<ul style="list-style-type: none"> - Switchwells for M18 and M30 sensors - PTFE and Lexan versions for various applications - Split mounting brackets for sight glass or tubing level detection - Split mounting brackets for M12, M18 and M30 sensors
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Weld Repel™

Heat and slag build-up cause sensors, cables, and connectors to prematurely fail in the weld cell environment. *Weld Repel™* silicone tubular jacketing, silicone sheets, and silicone self-bonding wrap sheds slag and protects from up to 500° F of ambient heat. *Weld Repel™* products increase control survivability to months rather than hours or days.



Selection Guide

Universal



Accessory Type	Mounting Brackets	Apertures	Lenses	Reflectors and Reflective Tape	BMS Mounting System
For Use With:	Photoelectric	Photoelectric	Photoelectric	Photoelectric	Inductive, Capacitive, Photoelectric
Description	Mounting brackets can quickly solve difficult applications and also replace form factors of other photoelectric sensors.	The environment can be a problem for a photoelectric sensor from the build up of debris on the lens or mechanical abuse. Air blow off shields, protective covers, and apertures will solve these issues and many more.	The most critical component of color mark and luminescence sensors can be the lens, since both types require precise sensing distances and spot sizes. Balluff offers a variety of lenses available with different focal lengths.	Balluff offers a range of reflectors and reflective tape to meet the needs of any retroreflective photoelectric sensor.	Balluff BMS universal mounting system provides a way to mount virtually any sensor for maximum utility.
Features & Benefits	<ul style="list-style-type: none"> – Swivel brackets allow tubular sensors to be mounted straight or 90 degree – Micro adjustment brackets allow for pin point adjustment of laser sensors – Joint brackets allow for long adjustments – EASYin snap-in mounting of the 18KF body style – Right angle allow for universal mounting to any sensor – Fixed brackets mount like other common sensors 	<ul style="list-style-type: none"> – Air blow shield prevents debris build-up on lens – Protective end cap stops mechanical abuse – Small beam apertures reduce the beam size for difficult applications – Slit apertures reduce beam size to a long thin slit to detect thin parts 	<ul style="list-style-type: none"> – Fine focusing lens detects marks as small as 1mm at 9mm sensing – Standard lens available: 9mm, 18mm, 28mm and 50mm sensing distances 	<ul style="list-style-type: none"> – Standard and custom sizes available – Mounting holes, tabs, adhesive, and snap-in – Standard and high efficiency factors – High temperature versions available – Laser versions – Reflective tapes 	<ul style="list-style-type: none"> – Simple installation – Easy adjustment – Flexible mounting configurations – Broad range of product for use with any manufacturer's sensors
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BMS Universal Mounting System

Balluff offers high quality mounting accessories for positioning sensors in systems and machines. The BMS mounting system can be attached to base plates or common extrusion rails.



Selection Guide

Universal

Universal

Universal

Universal

Universal



Signal Adapter	In-Line Analog Set Point Controller	Pulse Width Stretching Device	Sensor Testers & Controller	Digital Displays
Inductive, Capacitive, Photoelectric	Inductive, Photoelectric, Magneto-Inductive	Inductive, Capacitive, Photoelectric	Inductive, Capacitive, Photoelectric	Inductive, Capacitive, Photoelectric
<p>Replace your expensive signal converters and other control elements with a signal adapter. Ideal for sensors that must be retrofitted without change to the controller.</p>	<p>This device can be connected to any Balluff 0...10V analog sensor (inductive, photoelectric, BIL) and provide an analog output plus 3 integrated switching outputs.</p>	<p>Insure that your machine knows when switching has occurred by extending your sensor's output by up to one second.</p>	<p>Sensor testers are the quick and easy way to test and calibrate sensors in the field.</p>	<p>Low cost displays for use with analog sensors and provides measurement indication and position monitoring.</p>
<ul style="list-style-type: none"> Convert any sensor into a teach-in sensor and modify its output in various ways Four versions available: <ul style="list-style-type: none"> Timer PNP/NPN Converter Frequency Counter Eliminate relay timers 	<ul style="list-style-type: none"> Continuous 0-10V Analog signal Three teachable digital outputs Easily programmable teach function LEDs provided for each digital signal Analog and digital signals from one controller Eliminates need for analog card if only digital outputs are used 	<ul style="list-style-type: none"> Protected against overload (through PTC) and against polarity reversal On the input, a PNP NO or NC sensor may be used Both or only one of the outputs can be installed Adjustable from 2 milliseconds to 1 second 	<ul style="list-style-type: none"> Tests 3-wire and 2-wire DC sensors PNP or NPN output Audible sound Convenient size Higher current and voltage version available Operate two 24Vdc sensors from one portable source Powerd by two 9-volt batteries 	<ul style="list-style-type: none"> 6 digits displayed 16 bit resolution Models available with 2 or 4 discrete outputs Models available with a scalable analog output
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Signal Adapters

Balluff BOS S signal adapters provide quick-change options to convert PNP/NPN outputs, add delay timing and counting functions, or monitor frequency of machine speeds and motion.



Analog Set Point Controller

Balluff analog set point controller can be connected to any Balluff 0...10V analog sensor and provide an analog output plus 3 digital switching outputs.

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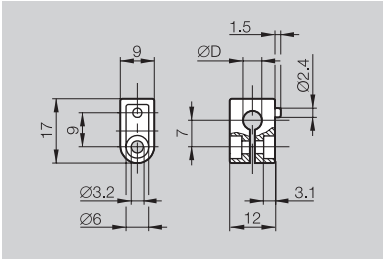
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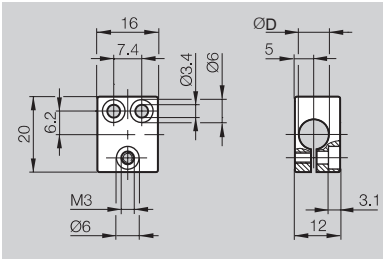
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Clamp for tubular sensors \varnothing 4 mm and 5 mm

	$\varnothing D$
BES 04-KB-1	4
BES 05-KB-1	5
BES 06.5-KB-1	6.5

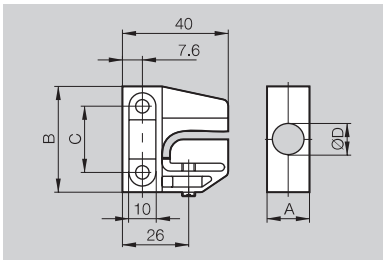
Material: PA6



Clamp for tubular sensors \varnothing 8 mm or M8

	$\varnothing D$
BES 08-KB-1	8

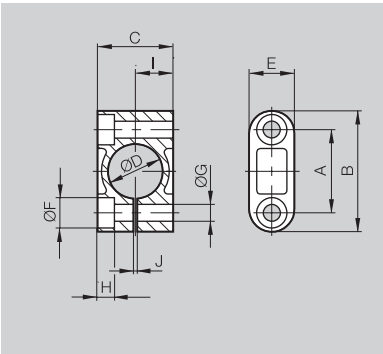
Material: PA6



Clamp for tubular sensors M12 and M18 (stackable)

	A	B	C	$\varnothing D$
BES 12-KB-2	16	40	25	12
BES 18-KB-2	22	45	30	18

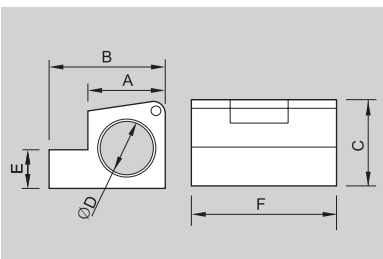
Material: PA6



Clamping cuff

	A	B	C	$\varnothing D$	E	F	G	H	I	J
BES 06.5-BS-1	17	27	16	6.4	12	8	4.5	4.5	8	1
BES 08.0-BS-1	17	27	16	7.9	12	8	4.5	4.5	8	1
BES 12.0-BS-1	22	32	20	11.9	12	8	4.5	4.5	10	1
BES 14.5-BS-1	22	32	20	14.5	12	8	4.5	4.5	10	1
BES 16.0-BS-1	26	36	26	16	12	8	4.5	4.5	13	1
BES 18.0-BS-1	26	36	26	17.9	12	8	4.5	4.5	13	1
BES 20.0-BS-1	32	45	30	20	15	10	5.5	5.5	15	2
BES 22.0-BS-1	32	45	30	21.9	15	10	5.5	5.5	15	2
BES 30.0-BS-1	42	55	38	30	18	10	5.5	5.5	19	1.5
BES 36.0-BS-1	48	61	44	35.9	18	10	5.5	5.5	22	1.5

Material: PA6



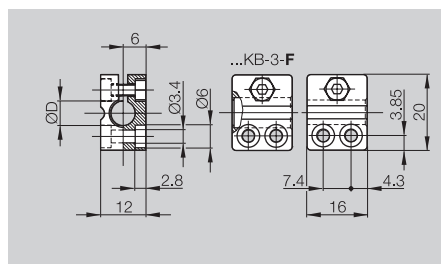
Snap clamp with positive stop

	A	B	C	$\varnothing D$	E	F
BES 08.0-KB-5-F	12	20	15	8	7	22
BES 12.0-KB-5-F	16	24	18	12	8	30
BES 18.0-KB-5-F	21	29	24	18	14	30
BES 30.0-KR-5-F	33	41	34.5	30	24	35

Material: Plastic PC

Note: All units are in mm





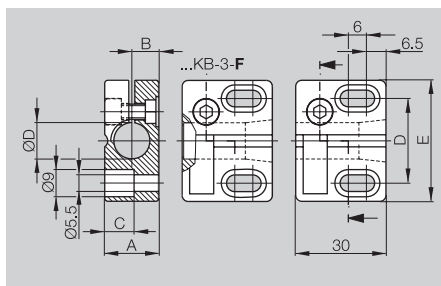
Clamp without positive stop for sensors Ø 3 mm to M8

	Ø D
BES 03.0-KB-3	3
BES 04.0-KB-3	4
BES 05.0-KB-3	5
BES 06.5-KB-3	6.5
BES 08.0-KB-3	8

Clamp with positive stop for sensors Ø 3 mm to M8

BES 08.0-KB-3-F	8
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Material: PA6



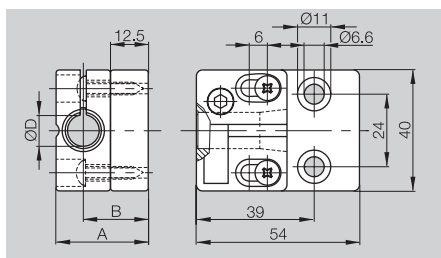
Clamp without positive stop for sensors M12 or M18 non-flush

	Ø D	A	B	C	D	E
BES 12.0-KB-3	12	18	9	9.7	28	40
BES 18.0-KB-3	18	24	12	13.5	28	40

Clamp with positive stop for sensors M12, M18 or M30 flush

BES 12.0-KB-3-F	12	18	9	9.7	28	40
BES 18.0-KB-3-F	18	24	12	13.5	28	40
BES 30.0-KB-3-F	30	36	18	19.5	42	54

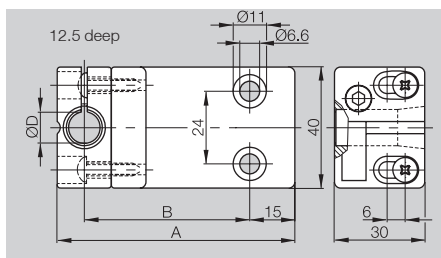
Material: PA6



Clamp with positive stop for vertical insertion of sensors for M12 or M18 flush, with mounting plate

	Ø D	A	B
BES 12.0-KB-3-F-SA 1	12	30.5	21.5
BES 18.0-KB-3-F-SA 1	18	36.5	24.5

Material: PA6

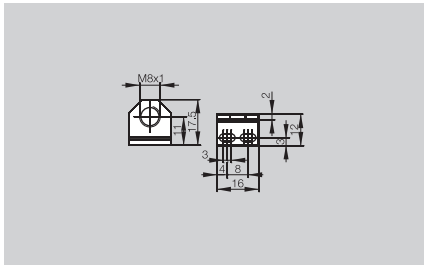


Clamp with positive stop for horizontal insertion of sensors for M12 or M18 flush, with mounting plate

	Ø D	A	B
BES 12.0-KB-3-F-SA 2	12	79	55
BES 18.0-KB-3-F-SA 2	18	85	58

Material: PA6

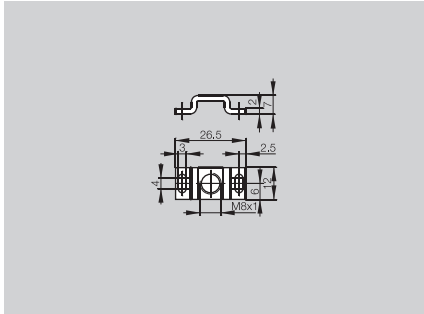




SuperShorties™ "L" mounting bracket

BES 08-HW-4 12x17.5x16 mm

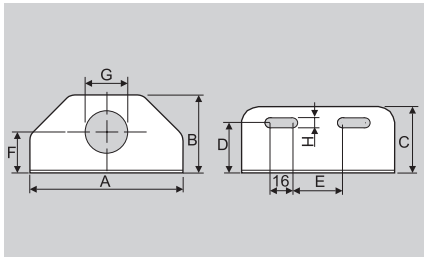
Material: Stainless steel



SuperShorties™ offset mounting bracket

BES 08-HW-5 26.5x7x12 mm

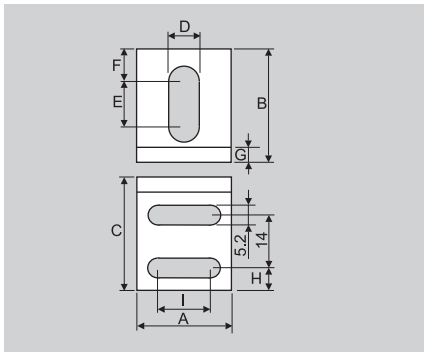
Material: Stainless steel



Universal "L" mounting bracket

	A	B	C	D	E	F	G	H
BES 516-MB-08	76	34	29	17	31	19	8	6
BES 516-MB-12	76	34	29	17	31	19	12	6
BES 516-MB-18	76	34	29	17	31	19	18	6
BES 516-MB-30	108	55	45	25	51	29	30	7

Material: Carbon steel



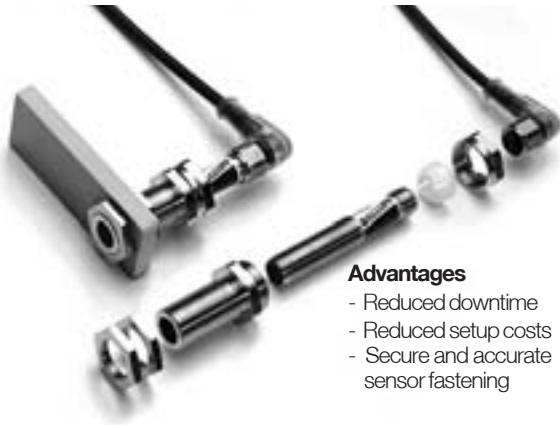
Slotted angle bracket (screws and washers included)

	A	B	C	D	E	F	G	H	I
BES 08-HW-1	25	30	30	8.1	12	7	4	6	14
BES 12-HW-1	25	30	30	12.1	9	8.5	4	6	14
BES 16-HW-1	30	40	40	16.1	12	12	5	10	18
BES 18-HW-1	30	40	40	18.1	11	12	5	10	18
BES 24-HW-1	35	50	40	24.1	13	16	5	10	23
BES 30-HW-1	40	60	40	30.1	18	19	5	10	30
BES 36-HW-1	50	60	40	36.1	13	21	5	10	40

Material: Aluminum

Note: All units are in mm





Advantages

- Reduced downtime
- Reduced setup costs
- Secure and accurate sensor fastening

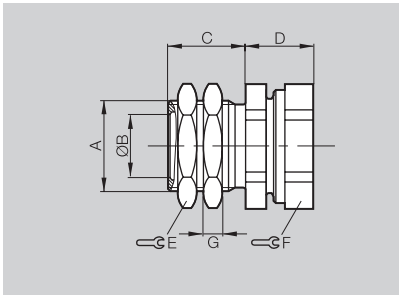
Balluff provides a range of mounting solutions to decrease the need to adjust sensors for correct sensing range to reduce downtime and setup costs when sensors are replaced.

Initial Sensor Installation

Sensor is assembled into the Prox Mount tube and locked into place with a plastic compression ring and metal nut. The Prox Mount and sensor assembly is then mounted and adjusted as with any tubular sensor, but the Prox Mount will remain in place on future sensor replacement tasks.

Quick Sensor Replacement

Simply loosen the metal nut, allowing the sensor to be quickly removed. Install the new sensor into the Prox Mount mounting tube and lock into place with the compression ring and nut. A positive stop designed into the Prox Mount tube ensures effortless repeatable sensor positioning.



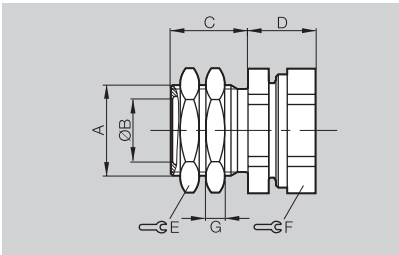
Prox Mounts with positive stop for sensors with thread length 30 mm

	A	ØB	C	D max.	E	F	G
BES 05.0-KH-2S*	M5x0.5	5	13	11	13	13	4
BES 08.0-KH-2S*	M12x1 [†]	8	17.5	14.5	17	17	4
BES 12.0-KH-2S*	M16x1	12	19.5	14.5	22	22	4
BES 12.0-KH-2S*-M18	M18x1 [†]	12	19.5	14.5	22	22	4
BES 18.0-KH-2S*	M24x1.5	18	20.5	15.5	30	30	5
BES 30.0-KH-2S*	M36x1.5	30	20.5	15.5	41	41	6

Material: CuZn, nickel plated

* Also available for welding environments (PTFE coated). Add /W to ordering code.
Ordering example: BES 12.0-KH-2S/W or BES 12.0-KH-2S/W-M18

[†] Allows smaller diameter sensor to replace larger when installed in this prox mount.

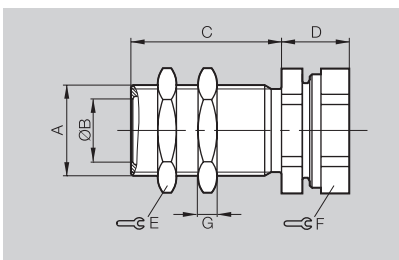


Prox Mounts with positive stop for sensors with thread length 30 mm

	A	ØB	C	D max.	E	F	G
BES 08.0-KH-11SW	M12x1 [†]	8	17.5	15.5	17	17	4
BES 12.0-KH-11SW	M16x1	12	21	15.5	22	22	4
BES 12.0-KH-11SW-M18	M18x1 [†]	12	21	15.5	22	22	4
BES 18.0-KH-11SW	M24x1.5	18	21.5	15.5	30	30	5

Material: Steel, black PTFE coated

[†] Allows smaller diameter sensor to replace larger when installed in this prox mount.

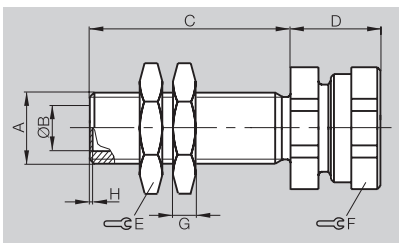


Prox Mounts with positive stop for sensors with thread length 40 mm or longer

	A	ØB	C	D max.	E	F	G
BES 08.0-KH-2L*	M12x1	8	34	14.5	17	17	4
BES 12.0-KH-2L*	M16x1	12	30	14.5	22	22	4
BES 18.0-KH-2L*	M24x1.5	18	40	18	30	30	5
BES 30.0-KH-2L*	M36x1.5	30	40	18	41	41	6

Material: CuZn, nickel plated

* Also available for welding environments (PTFE coated). Add /W to end of ordering code.
Ordering example: BES 12.0-KH-2L/W



Prox Mounts with enclosed end for sensors in sealed installation

	A	ØB	C	D max.	E	F	G	H
BES 08.0-KH-3L	M12x1	8	34	14.5	17	17	4	0.5
BES 12.0-KH-3L	M16x1	12	30	14.5	22	22	4	1
BES 18.0-KH-3L	M24x1.5	18	40	19.5	30	30	5	1

Material: PBT fiberglass reinforced



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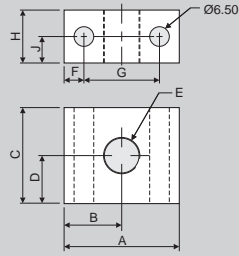
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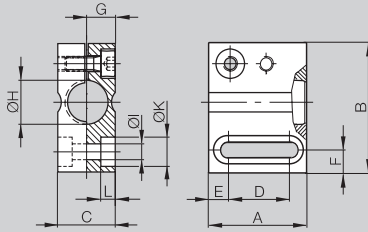
Bunker Block®



Bunker Block®	Prox Mount Required	A	B	C	D	E	F	G	H	J
BES 12.0-KB-9L	BES 08,0-KH-2L/W	38.1	19.05	31.75	15.88	M12	6.55	25	34	17
BES 16.0-KB-9L	BES 12,0-KH-2L/W	38.1	19.05	31.75	15.88	M16	6.55	25	30	15
BES 24.0-KB-9L	BES 18,0-KH-2L/W	50.8	25.4	38.1	19.05	M24	7.9	35	40	20
BES 36.0-KB-9L	BES 30,0-KH-2L/W	63.5	31.75	50.8	25.4	M36	7.75	48	40	20
BES 12.0-KB-9S	BES 08,0-KH-2S/W	38.1	19.05	31.75	15.88	M12	6.55	25	17.5	8.75
BES 16.0-KB-9S	BES 12,0-KH-2S/W	38.1	19.05	31.75	15.88	M16	6.55	25	19.5	9.75
BES 24.0-KB-9S	BES 18,0-KH-2S/W	50.8	25.4	38.1	19.05	M24	7.9	35	20.5	10.25
BES 36.0-KB-9S	BES 30,0-KH-2S/W	63.5	31.75	50.8	25.4	M36	7.75	48	20.5	10.25

Material: Aluminum

Sensor clamp with positive stop



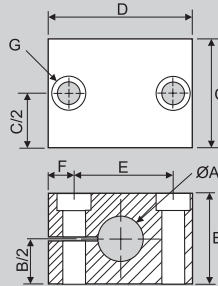
	A	B	C	D	E	F	G	ØH	ØI	ØK	L
BES 08.0-KB-4-F	28	30	12	20	4	5	6	8	3.4	6	3.4
BES 12.0-KB-4-F	28	35	16	17	5.5	6	8	12	4.3	8	4
BES 18.0-KB-4-F	28	40	22	17	5.5	6	11	18	4.3	8	4
BES 30.0-KB-4-F	34	56	34	22	6	7	17	30	6.4	10	6

Material: Aluminum

Note for aluminum clamps with positive stop:

The switching distance of the proximity sensor may be reduced by use of these clamps. Note this when using this clamping system.

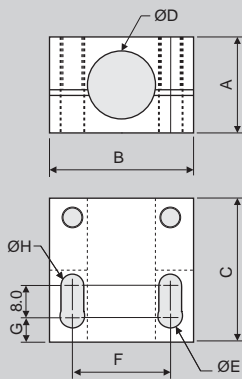
Slotted clamp mount without positive stop



	A	B	C	D	E	F	G
BES 08.0-KB-6	8	16.0	19.2	25.4	18.4	3.5	4-40 SHCS
BES 12.0-KB-6	12	25.4	19.2	38.1	25.0	6.6	10-32 SHCS
BES 18.0-KB-6	18	31.8	25.4	38.1	30.7	3.7	8-32 SHCS
BES 30.0-KB-6	30	50.8	33.1	63.5	51.6	6.0	1/4 SHCS

Material: Aluminum

Bunker Block®II without positive stop



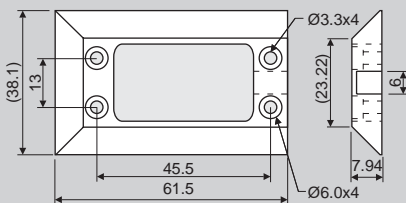
	A	B	C	ØD	ØE	F	G	ØH
BES 08.0-KB-10*	12.7	28.58	35	8	5.5	17	6.45	4.5
BES 12.0-KB-10*	19.05	34.92	38.1	12	5.5	22	7	4.5
BES 18.0-KB-10*	25.4	38.1	38.1	18	6.5	26	7	5.5
BES 30.0-KB-10*	38.1	60	44.45	30	8.5	42	6.45	6.5

Material: Steel, black zinc chromate coated

* Also available for welding environments (copper plated steel). Add /W to end of ordering code. Ordering example: BES 12.0-KB-10/W.

Note: No Prox Mount is required. Sensor mounts directly in Bunker Block®II.

Bunker Block® for R01Z block sensors



BES R01-SH-4-A

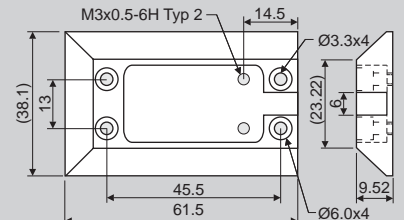
Material: Aluminum

Overtop for retro-fit installations

BES R01-SH-4-B

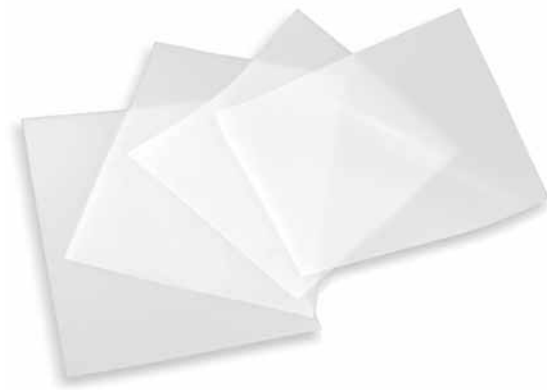
Material: Aluminum

Socket-style for new installations



Weld Repe^l™

Weld cells are a hot and abusive environment where sensor cable failure can be a daily occurrence. Extend the life of your sensor cables and other equipment by using Balluff's Weld Repe^l™ line of accessories. Weld Repe^l™ Jacket, Wrap and Sheets will provide comprehensive protection for your vulnerable weld cell components.



Weld Repe^l™ Sheets

Part Number	BKS-PS-914/16-SI	BKS-PS-914/16-SI-00,91
Length Info.	3 ft x custom length in ft	3 ft x ft sheet
Thickness	1.58 mm	1.58 mm
Max. Length	165 ft per roll	165 ft per roll
Elongation	600%	600%
Tear Strength	150 PSI	150 PSI
Temperature	-65°C to 233°C (-80°F to 450°F)	-65°C to 233°C (-80°F to 450°F)



WELD Jacket

WELD-JACKET-1/2"	Silicone & fiberglass 1/2" diameter (by the foot)
WELD-JACKET-3/4"	Silicone & fiberglass 3/4" diameter (by the foot)



Weld Repe^l™ Wrap

BKS PW-26/20-SI-TR-03,5	1" wide x 12 ft clear silicone wrap
BKS PW-51/30-SI-TR-11	2" wide x 36 ft clear silicone wrap



Weld Repe^l™ Jacket (order by the meter)

	ID	ID	Rollsize
BKS-PT-7/16-SI	1/4" dia.	7 mm	15 m
BKS-PT-10/16-SI	3/8" dia.†	10 mm†	15 m†
BKS-PT-13/16-SI	1/2" dia.††	13 mm††	15 m††
BKS-PT-16/16-SI	5/8" dia.**	16 mm**	15 m**
BKS-PT-19/16-SI	3/4" dia.	19 mm	15 m
BKS-PT-38/16-SI	1.5" dia.	38 mm	7.5 m
BKS-PT-50/16-SI	2" dia.	50 mm	7.5 m

- * Recommended for use with M12 (micro) single ended cables
- ** Recommended for use with M12 (micro) double ended cables
- † Recommended for use with M8 (nano) single ended cables
- †† Recommended for use with M8 (nano) double ended cables

Specifications

Temperature Rating	-85°F to 500°F
Electrical Insulation Rating	400 Volts/mil thickness (wrap only)
Tensile Strength	700 PSI (wrap only)
Elongation	300% (wrap only)
Material	Clear Silicone

Contents

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Universal Mounting Accessories

Inductive

- Accessories
- Mounting Brackets
- Protection Devices
- Prox. Actuator
- Banking Screws

Capacitive Accessories

Photoelectric

- Accessories
- Brackets
- Apertures
- Lenses
- Reflectors

BMS

Signal Conditioning

- Power Supplies
- Sensor Testers
- Controllers

Digital Displays

6

Connectors

7

Accessories

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Product Overview

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Technical Reference

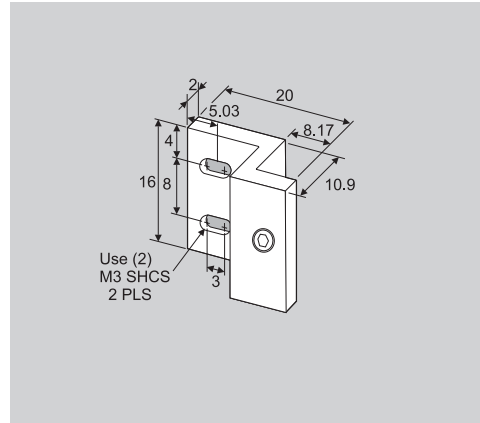
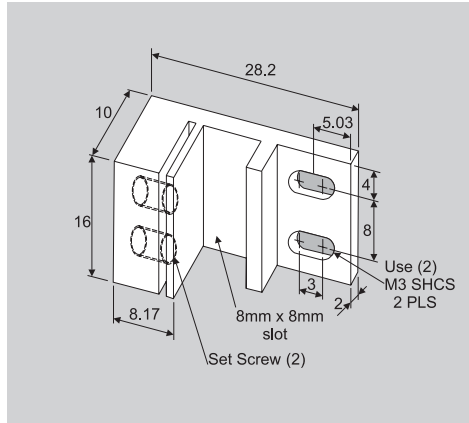
p

Part Number Index

Description

**Compression Block Mount for
8mm x 8mm Sensors**

**Set Screw Block Mount for
8mm x 8mm Sensors**



Ordering Code

BES Q08-KH-1

BES Q08-HW-4

Material

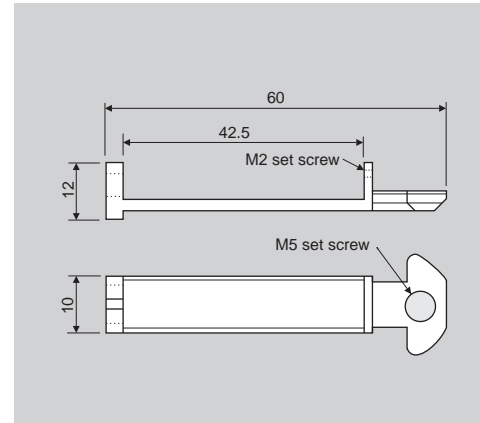
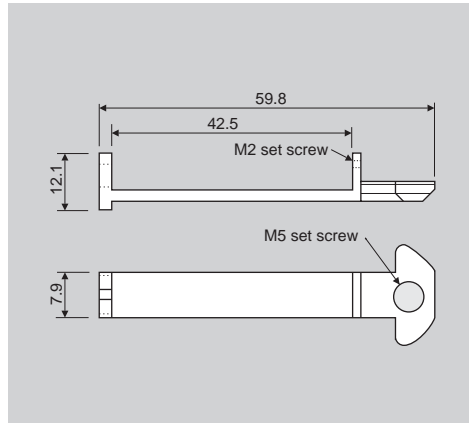
Anodized Aluminum

Anodized Aluminum

Description

**8mm Channel Extruded Rail Mount for
8mm x 8mm Cable-out Sensors**

**10mm Channel Extruded Rail Mount for
8mm x 8mm Cable-out Sensors**



Ordering Code

BES Q08-KH-2

BES Q08-KH-3

Material

Plated Copper Alloy

Plated Copper Alloy



- Contents
- Selection Guide
- Universal Mounting Accessories**
- Inductive Accessories
 - Mounting Brackets
 - Protection Devices
 - Prox Actuator
 - Banking Screws
- Capacitive Accessories
- Photoelectric Accessories
 - Brackets
 - Apertures
 - Lenses
 - Reflectors

- BMS
- Signal Conditioning
- Power Supplies
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- Digital Displays

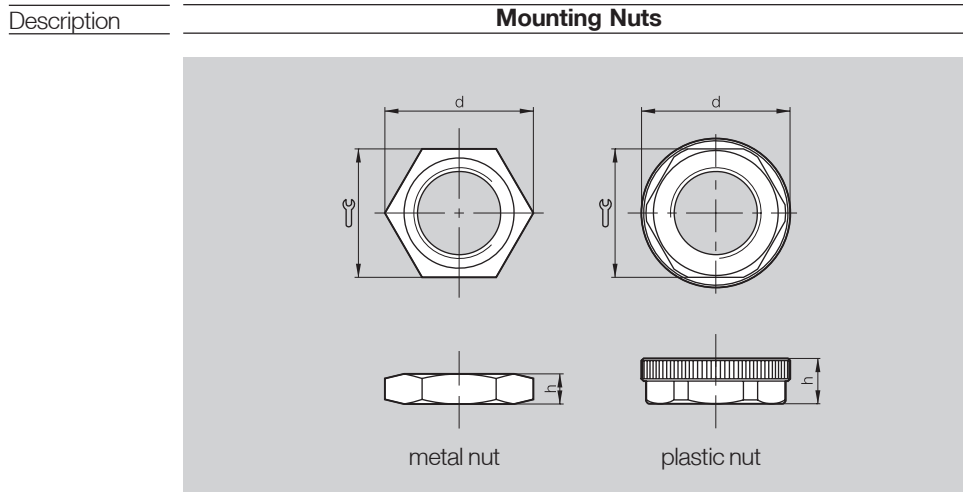
6 Connectors

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t Technical Reference

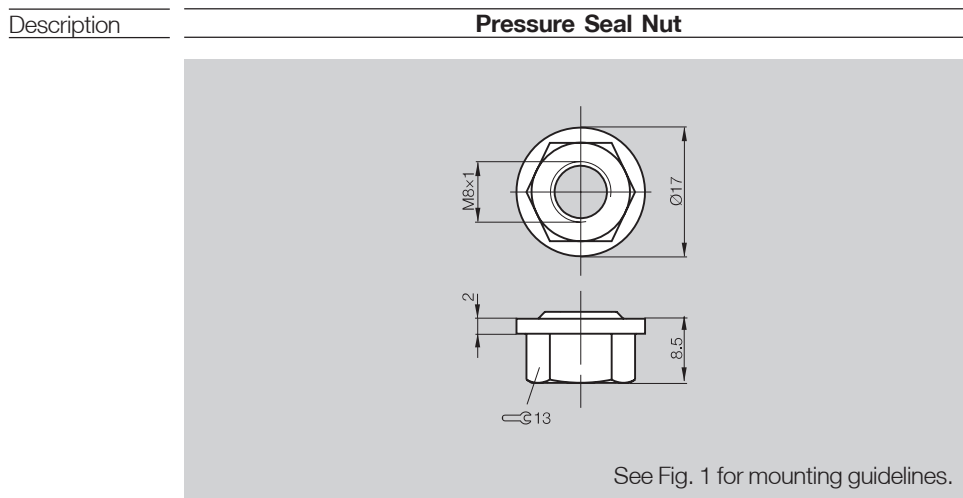
p Part Number Index



Ordering Code Ordering code = Part no.

Material	Part no.	Material	d	wrench	h
Metal nuts					
M8x1	500557	steel galvanized	15	13	4
M12x1	500462	Ms nickel plated	20	17	4
M18x1	500152	Ms nickel plated	28	24	4
M30x1.5	500252	Ms nickel plated	42	36	5
Stainless steel nuts					
M5x0.5	008607	1.4305 (303)	8.3	7	2.1
M5x0.5	605313	1.4305 (303)	8.9	8	2.7
M12x1	636981	1.4305 (303)	20	17	4
M18x1	636982	1.4301 (304)	28	24	4
M30x1.5	636983	1.4401 (304)	42	36	5
Plastic nuts					
M12x1	507936	PA 6.6	19.7	17	6
M18x1	606841	PA 6.6	28	24	8
M30x1.5	610292	PA 6.6	40	36	8

Spring type lockwasher for M5 sensors: part no. 710256
 Toothed lockwasher for M8 sensors: part no. 500558
 Toothed lockwasher for M12 sensors: part no. 500552



Ordering Code BES 08-DM-1

Material This is used to seal pressure rated proximity switches. It seals against both liquids and gases, and can be removed and tightened again up to five times. For use with BES 516-300-S289-B0-D-PU- (page 5.46)

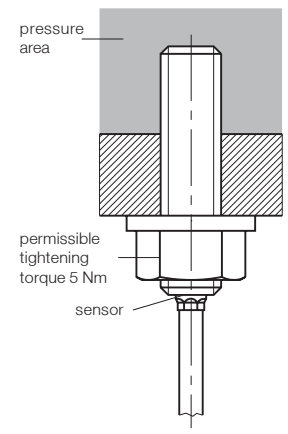


Fig. 1

Description
Ordering Code

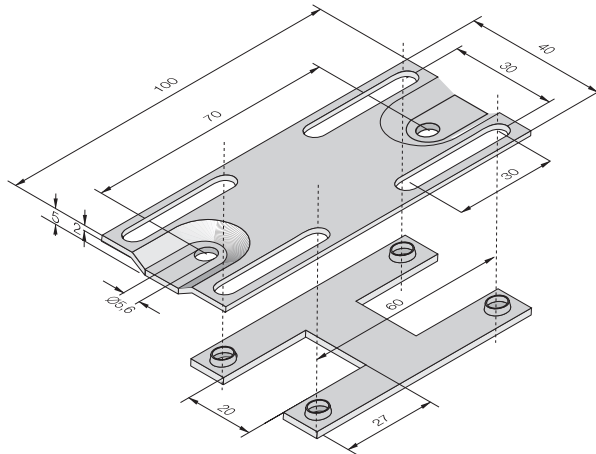
Mounting Plate for Unisensor

Z/B4 - 2057

Unisensors can be adjusted up to 30 mm on this mounting plate while wired.

Loosening the sensor mounting screws (M5×25; included in set) allows the Unisensor to be easily repositioned to the desired location. Then simply tighten the screws.

Material: Corrosion-resistant aluminum



Description
Ordering Code

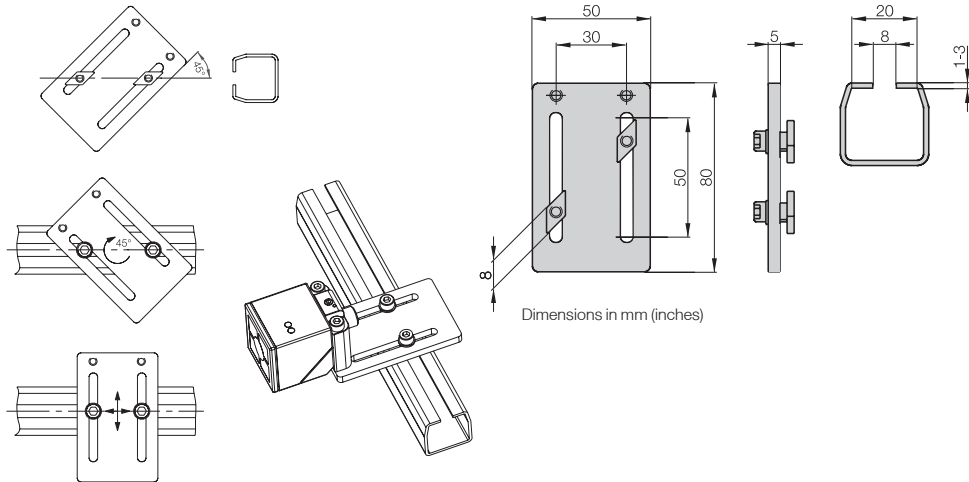
Extruded Rail Mounting System for Unicomact

BES HS-01-P1-C8/Q40

This holding system is used to attach Unicomact sensors to extruded rails. The mounting set consists of:

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

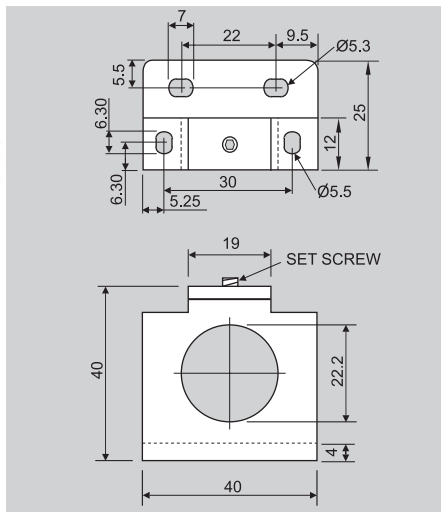
Material: Al/CuZn



Description
Ordering Code

Q40 Optional Metal Mounting Bracket

BES Q40-HW-2



Slotted Mounting Bracket
BES Q40-HW-1*
Material: Aluminum



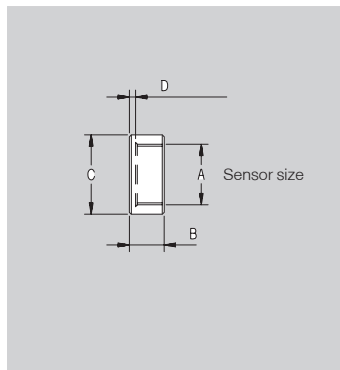
Protection Cap
BES Q40-SH-2*
Material: PA 6



Protective Cover
BES Q40-SH-1*
For use with
BES Q40KFU-...A-...
Material: Coated brass

*Consult factory for dimensions

Protective Caps



	A	B	C	D	Material
BES 08-SM-1	8	5	10	1	PTFE
BES 18-SM-1	18	5	22	1	PTFE
BES 30-SM-1	30	5	30.5	1	PTFE
BES 08-SM-2	8	5	12	1	PTFE
BES 12-SM-2	12	10	16	1	Delrin
BES 16-SM-2	16	15	20	1.5	Delrin
BES 18-SM-2	18	9.2	21.2	1	Delrin
BES 22-SM-2	22	15.2	28	1	Delrin
BES 30-SM-2	30	15	36	2	Delrin
BES 36-SM-2	36	15	42	2	Delrin
BES 12-CERAMIC-CAP-1	12	16	18	1	Ceramic
BES 18-CERAMIC-CAP-1	18	16	25	1	Ceramic
BES 30-CERAMIC-CAP-1	30	18.7	40	1	Ceramic

NOTE: Using protective caps will reduce the sensing distance by the thickness of the cap (dimension D above)!



Increase the life of a sensor with a PTFE, Delrin or ceramic screw on cap.

- Increases life of the sensor by protecting sensor face
- Withstands high temperatures
- Used in welding applications
- Easy installation

Ceramic Faces



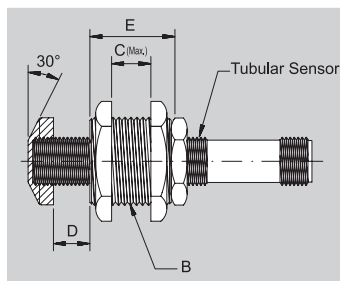
		Diameter (mm)	Thickness (mm)
604094	M8x1	5.8	0.3
619341	M12x1	10.4	0.3
505933	M18x1	15.2	0.5
634036	M30x1.5	27.9	0.5

* An epoxy similar to Loctite 480-40 is recommended.

Protects sensor face from weld spatter and abrasives.

- Minimal sensing distance affect (0.3-0.5 mm)
- Held in place with epoxy*
- Extends life of sensor
- Provides physical and thermal protection to sensor face

Cushioned Prox Mount



		Nut Flats	B	C	D	E
BESA 08-CM*	M8x1	22	M16x1.5	11	10	19
BESA 12-CM*	M12x1	29	M22x1.5	15	10	19
BESA 18-CM*	M18x1	35	M30x1.5	15	10	25
BESA 30-CM*	M30x1.5	51	M47x1.5	25	15	25

*Above part numbers are for shielded sensors. For unshielded sensors, alter part number in the following manner: BESA ...-N-CM.

For applications where impact to the sensor by the target is inevitable, cushioned Prox Mounts extend the life of the sensor by allowing up to 15mm of target overtravel. D = travel distance. Sensor returns to original location after intrusion is removed.



Prox Actuator

To avoid sensor damage, Balluff's prox actuators isolate inductive proximity sensors from mechanical contact with targets. They consist of a mounting clamp and a detent holder and are used with either a 4mm or 8mm smooth bore sensor.

When a target contacts the plunger, the rod moves the detent into the sensing range of the switch, thus activating its output. When the target is removed, the plunger springs back into place and the detent is moved out of the sensing range.

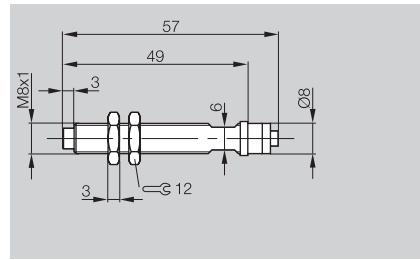
Each prox actuator consists of a threaded barrel, a plunger and rod with spring return and a detent, which is detected by the sensor. The sensor is inserted into one end of the mounting clamp and the detent holder is inserted into the other end. Mounting clamps are available in four configurations:

- Straight and right angle for use with 4mm sensors
- Straight and right angle for 8mm sensors

Detent holders come in three configurations:

- M12 x 1, 70mm long
- M08 x 1, 49mm long
- M08 x 1, 89mm long

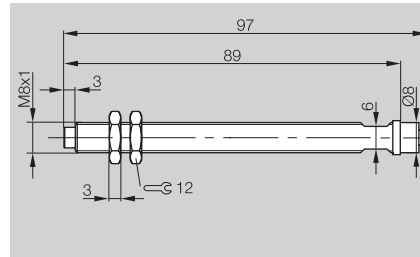
All have a 8mm smooth bore end for insertion into the clamp. Any holder can be used with any clamp. Once the sensor and holder are installed, two allen screws are tightened to hold them in place.



Detent Holder M8x1x49

BES 08-FA-49

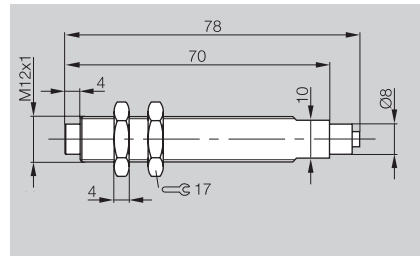
Material: stainless steel
Temperature range: -25...100 °C
Spring force: 3 N
Permissible tightening torque: 15 Nm



Detent Holder M8x1x89

BES 08-FA-89

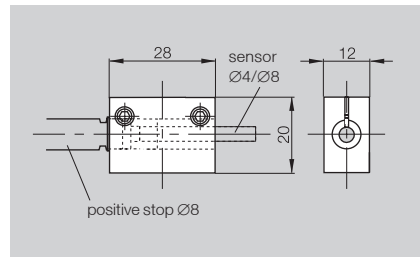
Material: stainless steel
Temperature range: -25...100 °C
Spring force: 4 N
Permissible tightening torque: 15 Nm



Detent Holder M12x1x70

BES 12-FA-70

Material: stainless steel
Temperature range: -25...100 °C
Spring force: 10 N
Permissible tightening torque: 25 Nm

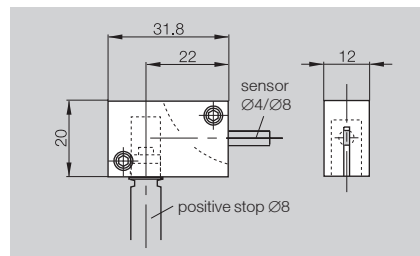


Mounting Clamp - Straight for sensors with Ø 4 mm or Ø 8 mm

BES 08-FA-BS-4.0-G

BES 08-FA-BS-8.0-G

Material: Aluminum
Temperature range: -25...100 °C
Permissible tightening torque: 15 Nm



Mounting Clamp - Right angle for sensors with Ø 4 mm or Ø 8 mm

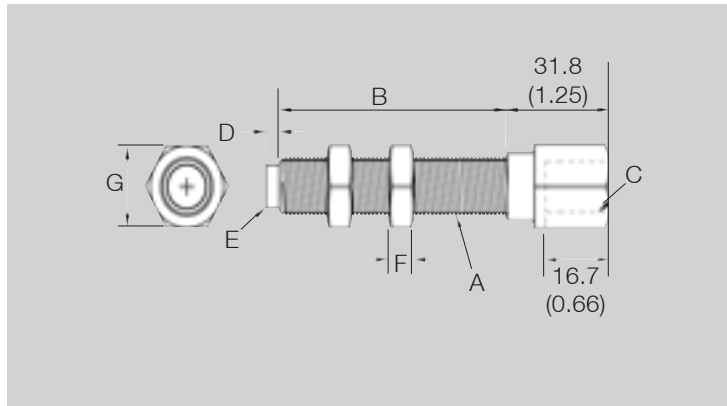
BES 08-FA-BS-4.0-W

BES 08-FA-BS-8.0-W

Material: Aluminum
Temperature range: -25...100 °C
Permissible tightening torque: 15 Nm



Cushioned Prox Mount Banking Screw Actuator



Ordering Code	A	B	C	D	E	G
BESA 08-25-08-BANKING-SCREW	M8 X 1	25 mm	M8 X 1	3.16 mm	5.84 mm	11.0 mm
BESA 08-50-08-BANKING-SCREW	M8 X 1	50 mm	M8 X 1	3.16 mm	5.84 mm	11.0 mm
BESA 12-25-12-BANKING-SCREW	M12 X 1	25 mm	M12 X 1	4.32 mm	9.40 mm	15.7 mm
BESA 12-50-12-BANKING-SCREW	M12 X 1	50 mm	M12 X 1	4.32 mm	9.40 mm	15.7 mm
BESA 12-75-12-BANKING-SCREW	M12 X 1	75 mm	M12 X 1	4.32 mm	9.40 mm	15.7 mm
BESA 12-100-12-BANKING-SCREW	M12 X 1	100 mm	M12 X 1	4.32 mm	9.40 mm	15.7 mm
BESA 18-50-18-BANKING-SCREW	M18 X 1	50 mm	M18 X 1	4.32 mm	14.2 mm	22.1 mm
BESA 18-75-18-BANKING-SCREW	M18 X 1	75 mm	M18 X 1	4.32 mm	14.2 mm	22.1 mm
BESA 18-100-18-BANKING-SCREW	M18 X 1	100 mm	M18 X 1	4.32 mm	14.2 mm	22.1 mm

Features:

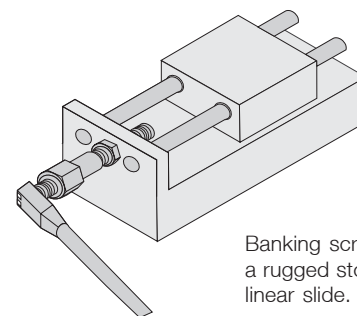
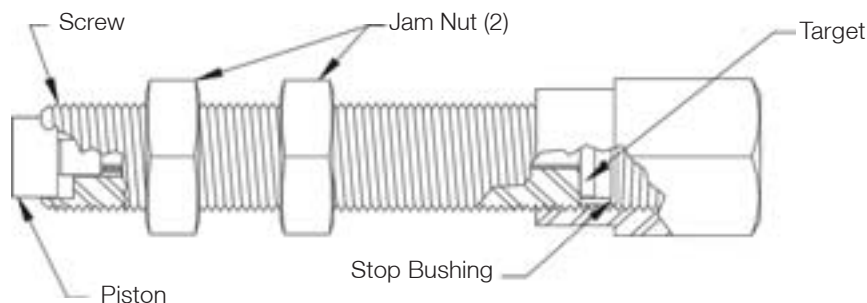
Banking screw actuators are heat treated alloy steel that will accept any standard (1x) M8, M12 or M18 shielded sensor. **Not intended for use with extended range models.**

Benefits:

- Solid state output with no mechanical contact with sensor.
- Isolates sensor from impact.
- Allows for positive mechanical contact to plunge without physical contact to sensor.

Construction & Operation

Both the screw and piston are heat-treated to withstand heavy use. A connecting rod ties the spring-loaded piston to the target, which triggers the sensor when the piston is displaced. The sensor is isolated from impact and separated from the target with a plastic bushing.

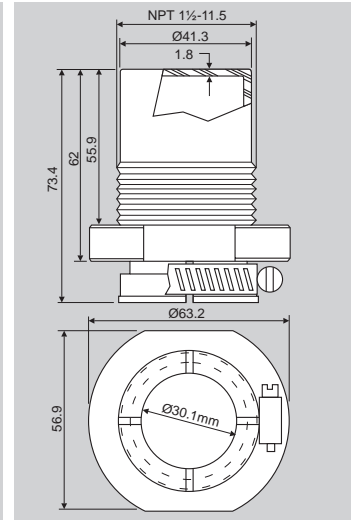
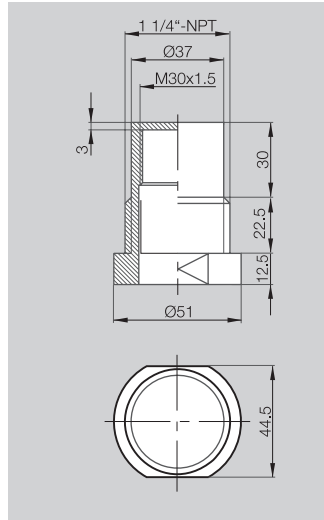
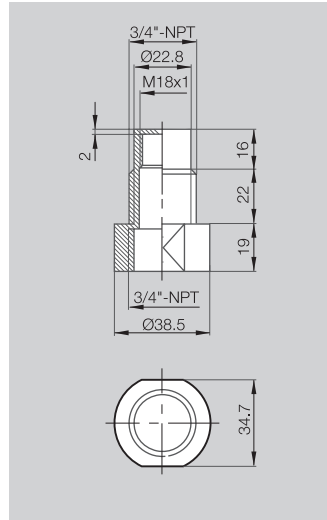


Banking screw used as a rugged stop for a linear slide.

Capacitive Accessories

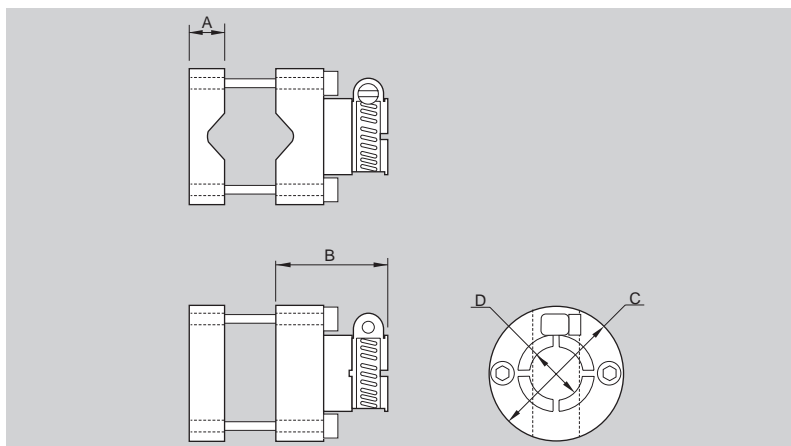
Fits	M18	M30	M30
Mounting - Switchwell	3/4" NPT with wrench flats	1-1/4" NPT with wrench flats	1-1/2" NPT with wrench flats
Mounting - Sensor	M18 inside threaded	M30 inside threaded	Oversized M30, held with band clamp
Material	PTFE	PTFE	Lexan

Protective switchwells available for bulk and liquid level detection applications. Mounting through the container wall means quick adjustment or replacement of the sensor without having to empty the tank.



Ordering Code	BES 18-SM-3	BES 30-SM-3	BES 30-SM-5
Sensing Distance	Reduced by the thickness of the switchwell	Reduced by the thickness of the switchwell	Reduced by the thickness of the switchwell
Thickness in Front of Sensor	2.0 mm	3.0 mm	1.8 mm
Pressure Rating	200 psi (13 bar)	200 psi (13 bar)	200 psi (13 bar)
Mounting Through Metal Wall	Maintain 2xSr minimum from inside wall surface to face of sensor	Maintain 2xSr minimum from inside wall surface to face of sensor	Maintain 2xSr minimum from inside wall surface to face of sensor

Fits	M12	M18	M30	Ø 34 mm
Mounting - Bracket	Split halves clamped with screws			
Mounting - Sensor	Hose clamp			
Material	Plastic and stainless steel			



For mounting to sight glass or tubing for level detection

Ordering Code	BCSA-SG-12-D	BCSA-SG-18-D	BCSA-SG-30-D	BCSA-SG-34-D
Dimensions (mm)				
A	10.5	11.7	19.1	19.1
B	29.5	38.1	67.8	67.8
C	38.1	45.0	69.9	69.9
D	12.1	18.1	30.1	34.1
Tube Diameter (mm)	9.4-20.6	9.4-20.6	25.4-44.5	25.4-44.5
Tube Diameter (inches)	0.37-0.81	0.37-0.81	1.0-1.75	1.0-1.75

Series	18 mm Tubular	Small Block/Combination	18 mm Tubular
Ordering Code	BOS 18.0-HW-1	BOS 18.0-HW-2	BOS 18.0-HW-3
Description	Small L bracket short foot	Dual axis adjustable	Small L bracket long foot
Suitable Product	18 mm tubular	BOS 18KF, BOS 18 KW	18 mm tubular
Material	Aluminum	Aluminum	Aluminum

Series	Mounting Adapter	Small Block	Right Angle
Ordering Code	BOS 18.0-BS-3	BOS 16-HW-1	BOS 16-HW-2
Description	Adapter bracket	Dual axis adjustable	Single axis adj., 18 mm tubular mount
Suitable Product	BOS 18KF, BOS 18KW	BOS 6K, BOS 11K, BOS 16K	18 mm tubular
Material	Durethan	Aluminum	Aluminum

Converts BOS 18KF or 18KW sensor mounting to that of BOS 16K.

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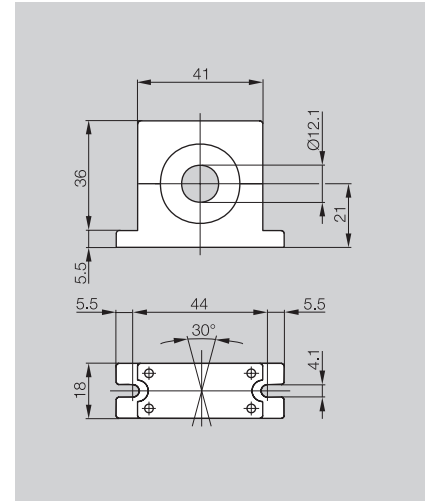
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Series

12 mm Tubular



Ordering Code

BOS 12.0-BS-1

Description

Swivel adjustable mounting bracket

Suitable Product

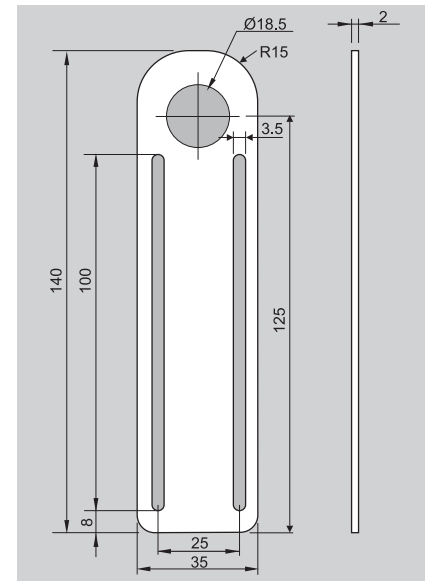
12 mm tubular

Material

ABS

Series

Straight Bracket



Ordering Code

BOS 18.0-HW-4

Description

Straight bracket long foot

Suitable Product

18 mm tubular

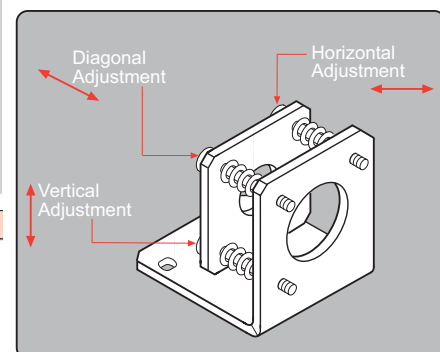
Material

Aluminum

18 mm Tubular	30 mm Tubular
BOS 18.0-KB-1	BOS 30.0-KB-1
Swivel adjustable mounting bracket 18 mm tubular ABS	Swivel adjustable mounting bracket 30 mm tubular ABS

Mounting Bracket with Micro Adjustment
BOS 18.0-HW-6

Micro adjustable brackets allow precision beam placement by simply turning a screw. Three individual screws allow for horizontal, vertical and diagonal adjustment. These precision mounts are ideal for long or short range targeting of small parts.



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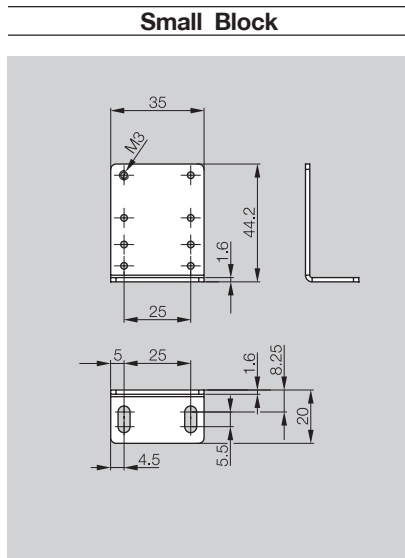
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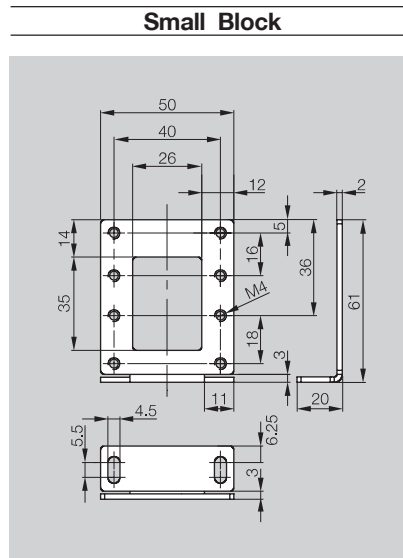
Series	Small Block	Small Block	Small Block	Small Block
Ordering Code	BOS 2-HW-1	BOS 2-HW-2	BOS 2-HW-3	BOS 5-HW-1
Description	Ball clamp	Dual axis adjustable	Dual axis adjustable	Dual axis adjustable
Suitable Product	BOS 2K	BOS 2K	BOS 2K	BOS 5K
Material	ABS	Zinc-plated steel	Zinc-plated steel	Stainless steel

Series	Small Block	Small Block	Small Block
Ordering Code	BOS 5-HW-2	BOS 5-HW-3	BOS 5-HW-4
Description	Protective mount	Protective mount	Single axis adjustable
Suitable Product	BOS 5K	BOS 5K	Reflector BOS R-10 or R-25
Material	Stainless steel	Stainless steel	Zinc-plated steel



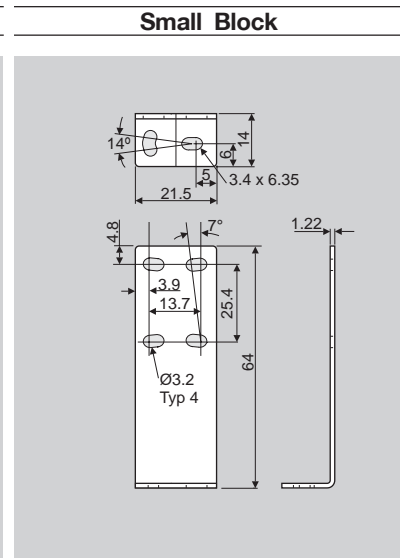
BOS 5-HW-5

Single axis adjustable
Reflector BOS R-26
Zinc-plated steel



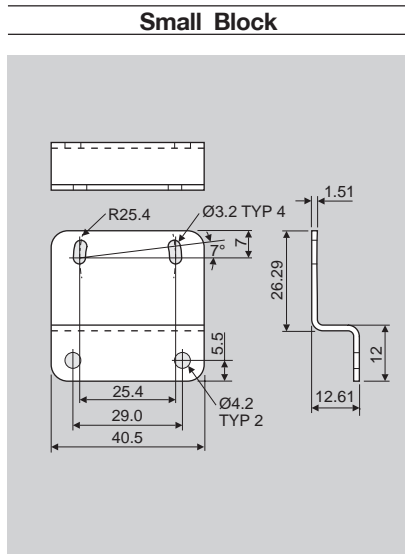
BOS 5-HW-6

Single axis adjustable
Reflector BOS R-9 or R-22
Zinc-plated steel



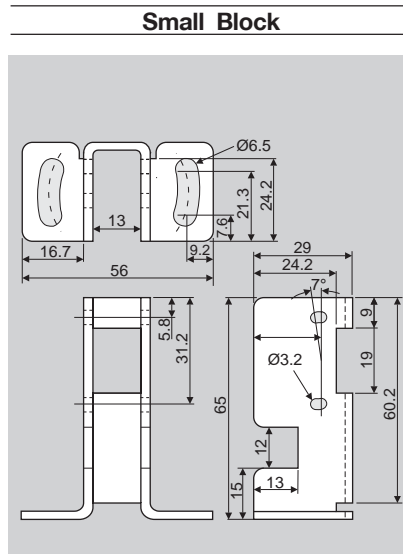
BOS 5-HW-7

Dual axis adjustable
BOS 5K
Stainless steel



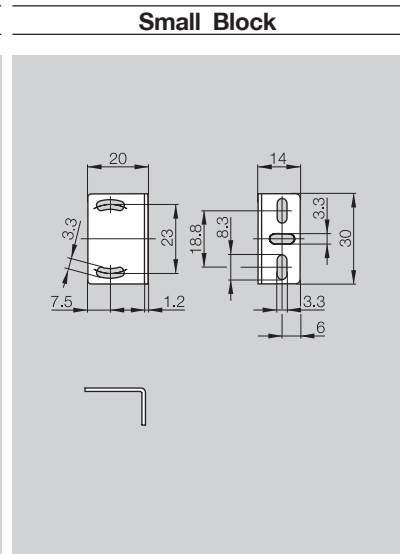
BOS 5-HW-8

Dual axis adjustable
BOS 5K
Zinc-plated steel



BOS 5-HW-9

Dual axis adjustable
BOS 5K
Zinc-plated steel



BOS 6-HW-1

Dual axis adjustable
BOS 6K, 21M
Stainless steel

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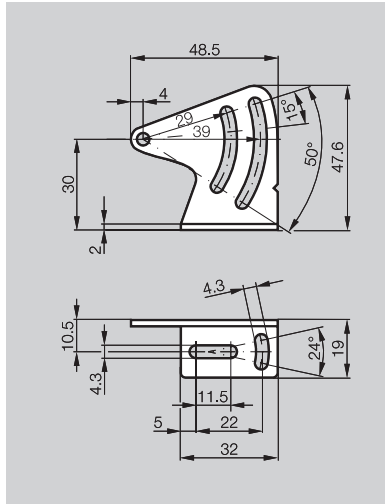
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Series	Mid-size Block	Mid-size Block	Mid-size Block
Ordering Code	BOS 21-HW-1	BOS 21-HW-2	BOS 21-HW-3
Description	Dual axis adjustable	Dual axis adjustable	Protective mount
Suitable Product	BOS 6K, BOS 21M	BOS 6K, BOS 21M	BOS 21M
Material	Zinc-plated steel	Zinc-plated steel	Zinc-plated steel

Series	Mid-size Block	Mid-size Block	Mid-size Block	Mid-size Block
Ordering Code	BOS 21-HW-4	BOS 21-KH-1	BOS 21-KH-2	BOS 21-AD-1
Description	Protective mount	Dove tail clamp	Dove tail clamp	Universal mount
Suitable Product	BOS 21M	BOS 21M	BOS 21M	BOS 21M
Material	Zinc-plated steel	Aluminum	Aluminum	Aluminum

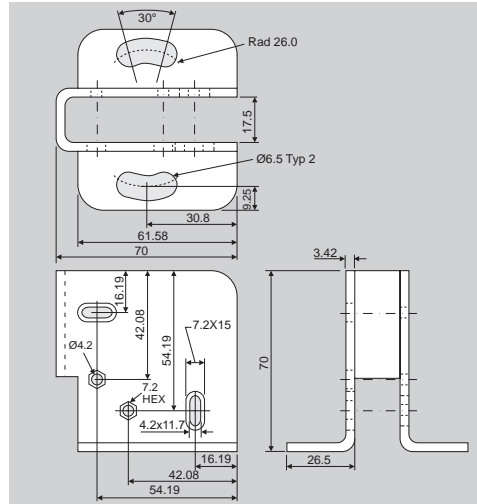
Mid-size Block



BOS 26-HW-1

Dual axis adjustable
BOS 21M, BOS 25K, BOS 26K
Stainless steel

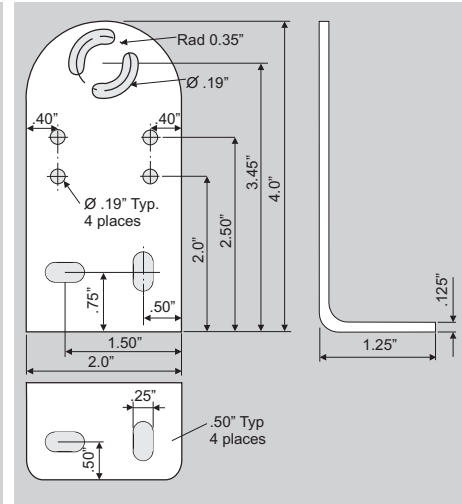
Mid-size Block



BOS 26-HW-7

Protective mount
BOS 26K
Painted steel

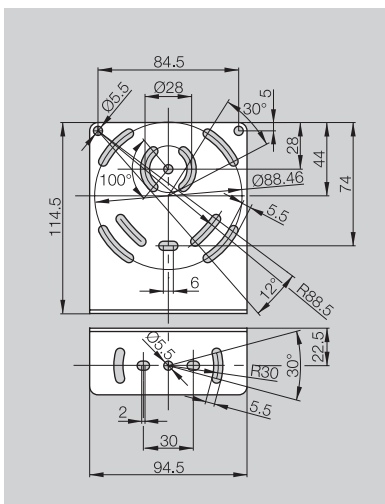
Mid-size Block



BLT 31M-HW-1

Dual axis adjustable
BLT 31M
Anodized Aluminum

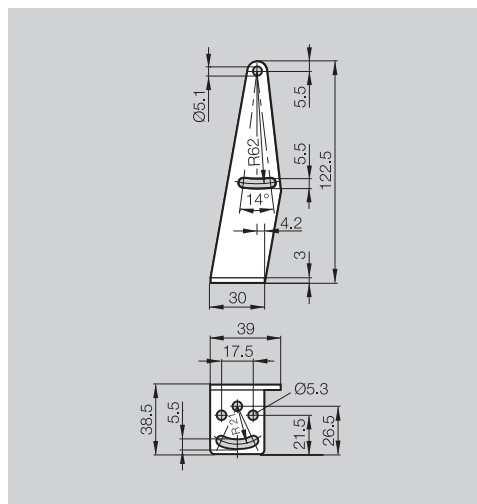
Large Block



BOD 63-HW-1

Dual axis adjustable
BOD 63M
Zinc-plated steel

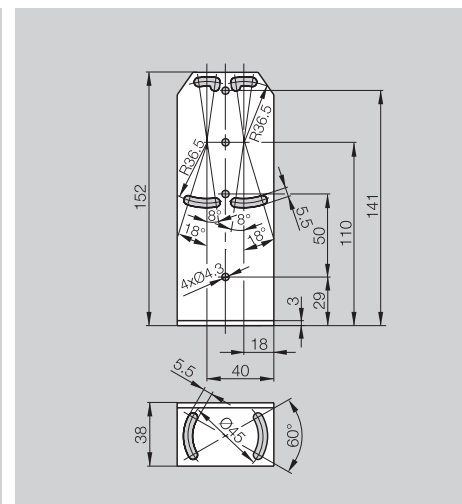
Large Block



BOS 65-HW-1

Dual axis adjustable
BOS 65K
Zinc-plated steel

Large Block



BOD 66-HW-1

Dual axis adjustable
BOD 66M
Zinc-plated steel

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Series	Aperture, round hole for BOS/BLE/BLS 18 Thru-beam	Aperture, double-slit for BOS/BLE/BLS 18 Thru-beam	Aperture, double-slit for BOS/BLE/BLS 12 Thru-beam
Ordering Code	BOS 18-BL-1	BOS 18-BL-2	BOS 12-BL-1

Circular aperture designed to limit the effective beam for a thru-beam sensor.

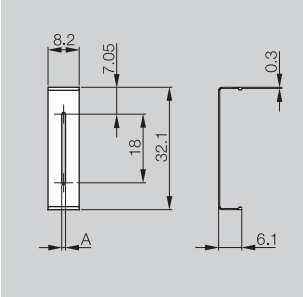
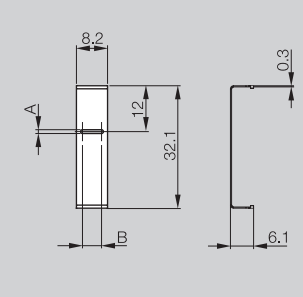
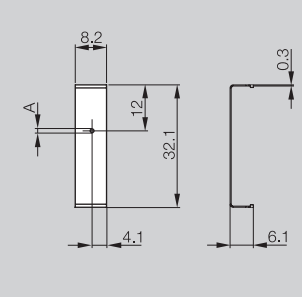
Double-slit type aperture designed to limit the effective beam for a thru-beam sensor.

Aperture on Emitter	Aperture on Receiver	Effective range in meters
○	○	∞
○	○	2

Aperture position Emitter	Aperture position Receiver	Effective range in meters
⏏	⏏	∞
⏏	⏏	2
⏏	⏏	2

Slit size in mm	Effective range in m	Min. object size in mm
1	0.5	> 1
1.5	1	> 1.5
2	2	> 2



Series	Aperture, vertical for BOS 5K	Aperture, horizontal for BOS 5K Thru-beam	Aperture, round hole for BOS 5K Thru-beam																												
	 <table border="1" data-bbox="560 588 755 672"> <thead> <tr> <th></th> <th>A</th> </tr> </thead> <tbody> <tr> <td>BOS 5-BL-1</td> <td>0.5 mm</td> </tr> <tr> <td>BOS 5-BL-2</td> <td>1 mm</td> </tr> <tr> <td>BOS 5-BL-3</td> <td>2 mm</td> </tr> </tbody> </table>		A	BOS 5-BL-1	0.5 mm	BOS 5-BL-2	1 mm	BOS 5-BL-3	2 mm	 <table border="1" data-bbox="868 588 1096 672"> <thead> <tr> <th></th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <tr> <td>BOS 5-BL-4</td> <td>0.5 mm</td> <td>6 mm</td> </tr> <tr> <td>BOS 5-BL-5</td> <td>1 mm</td> <td>5 mm</td> </tr> <tr> <td>BOS 5-BL-6</td> <td>2 mm</td> <td>4.5 mm</td> </tr> </tbody> </table>		A	B	BOS 5-BL-4	0.5 mm	6 mm	BOS 5-BL-5	1 mm	5 mm	BOS 5-BL-6	2 mm	4.5 mm	 <table border="1" data-bbox="1209 588 1404 672"> <thead> <tr> <th></th> <th>A</th> </tr> </thead> <tbody> <tr> <td>BOS 5-BL-7</td> <td>0.5 mm</td> </tr> <tr> <td>BOS 5-BL-8</td> <td>1 mm</td> </tr> <tr> <td>BOS 5-BL-9</td> <td>2 mm</td> </tr> </tbody> </table>		A	BOS 5-BL-7	0.5 mm	BOS 5-BL-8	1 mm	BOS 5-BL-9	2 mm
	A																														
BOS 5-BL-1	0.5 mm																														
BOS 5-BL-2	1 mm																														
BOS 5-BL-3	2 mm																														
	A	B																													
BOS 5-BL-4	0.5 mm	6 mm																													
BOS 5-BL-5	1 mm	5 mm																													
BOS 5-BL-6	2 mm	4.5 mm																													
	A																														
BOS 5-BL-7	0.5 mm																														
BOS 5-BL-8	1 mm																														
BOS 5-BL-9	2 mm																														
Ordering Code	BOS 5-BL-1 BOS 5-BL-2 BOS 5-BL-3	BOS 5-BL-4 BOS 5-BL-5 BOS 5-BL-6	BOS 5-BL-7 BOS 5-BL-8 BOS 5-BL-9																												
Material	Stainless steel	Stainless steel	Stainless steel																												



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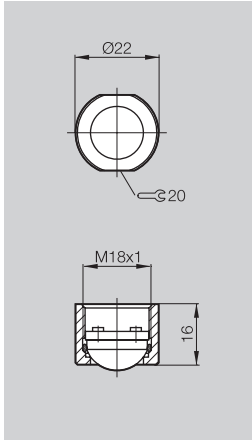
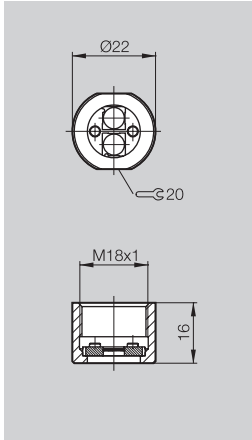
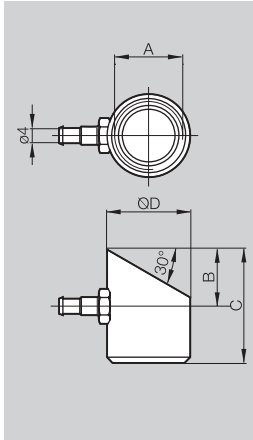
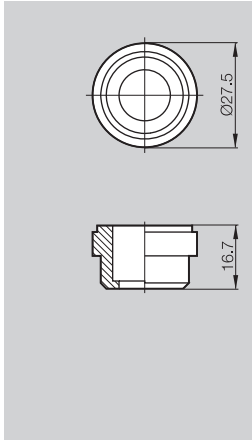
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Series	Convex Lens for all BOS 18M diffuse and BGS sensors	Polarizing Filterall non-polarized BOS18M retro-reflective sensors	Air Blow-off for BOS 12M BOS 18M	Adapter allows BFO 18V fiber optic cables to fit BOS 30m
				
Ordering Code	BOS 18-PK-1	BOS 18-PF-1	BOS 1_-LT-1	BFO 30-A1

Convex lens designed to spread out diffuse sensor light beam. Useful in applications where the field-of-view of a sensor needs to be expanded.

Used in retro-reflective applications where the targets are shiny, this filter can convert a standard non-polarized retro-reflective sensor to a polarized type. In this type of installation, the normal amount of sensing range reduction by adding this filter is 50%.

Air blow-off shields help prevent accumulation of dirt and debris on the sensors lens. Units come with a 4mm air fitting and are typically connected to the air source available in a factory.

	BOS 12-LT-1	BOS 18-LT-1
A	M12x1	M18x1
B	14	15
C	25	30
D	14	22



Neutral Filter for BOS 18M	Protective Lens Cap for BOS 12M	Protective Lens Cap for BOS 18M	Protective Lens Cap for BOS 18M
BOS 18-NF-_*	BOS 12-SM-1	BOS 18-SM-1	BOS 18-SM-2

* 1 = 50 % Transmission, 2 = 75 % Transmission

Neutral filters reduce the amount of light transmitted (or received) by a photoelectric sensor. The lens material is made of a specialized glass that works effectively with all wavelengths of light. Typical applications include sensor testing, where a specific excess gain level is required or specialized configurations, where an emitter needs to be dampened to reduce the amount of light as to not "burn-thru" an object.

Protective cap with plastic lens suitable for all BOS 12M sensors. Adds a layer of protection from mechanical damage as well as heat.

Protective cap with plastic lens suitable for all BOS 18M sensors. Adds a layer of protection from mechanical damage as well as heat.

Protective cap with glass lens suitable for all BOS 18M sensors. Adds a layer of protection from mechanical damage as well as heat.



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Series	90° Rotatable Head	90° Rotatable Head	45° Angle Mirror
	BOS/BLS/BLE 18	BOS/BLS/BLE 18	BOS/BLS/BLE 12
Ordering Code	BOS 18-UK-_*	BOS 18-UK-10	BOS 12-WS-1

*=1 or 2; see table below

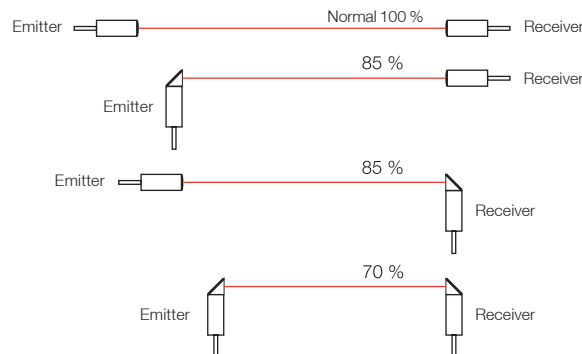
Using 90° or 45° heads reduce the effective sensing of the sensors they are mounted to.


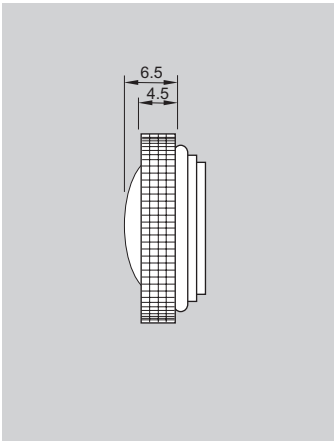
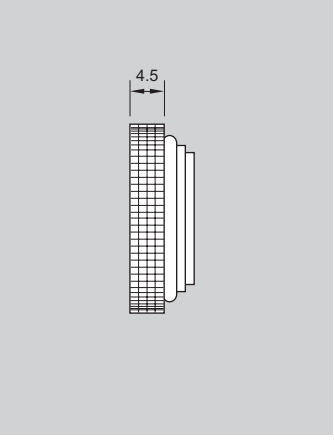
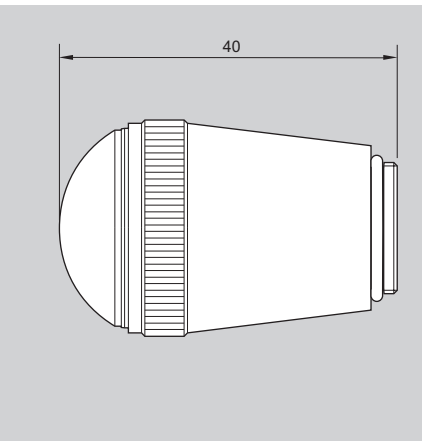
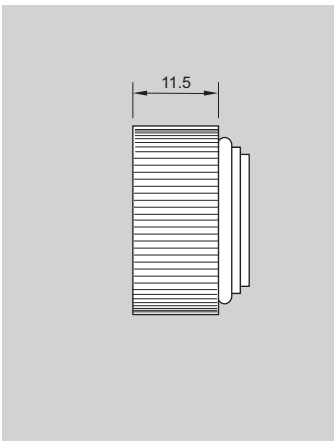
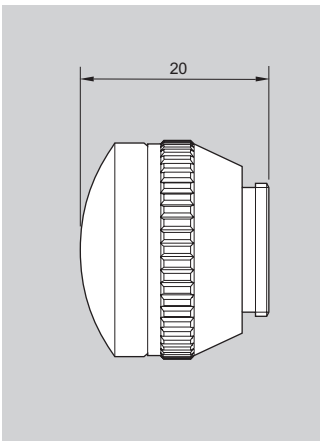
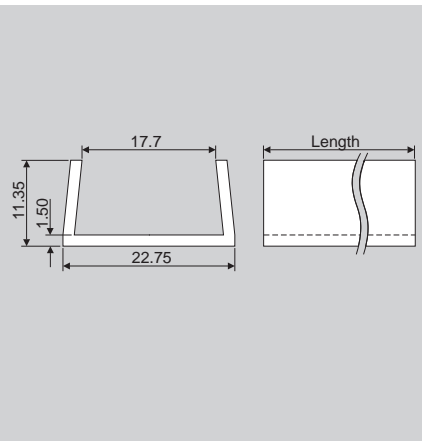


Reaction Factors

	BOS 18-UK-1	BOS 18-UK-2	BOS 18-UK-10	BOS 12-WS-1
Diffuse				
Up to 100mm	RF = 45%	Not recommended	RF = 50%	RF = 30%
100-200mm	RF = 25%	Not recommended	RF = 50%	RF = 30%
200mm or More	Not recommended	RF = 25%	RF = 30%	RF = 30%
Retro-reflective				
All Ranges	Not recommended	RF = 20%	RF = 20%	Not recommended
Thru-beam				
All Ranges	Not recommended	RF = 15%	RF = 30%	RF = 30%

BOS 18-UK-2 example:
In the diagrams to the right, several different configurations of thru-beam sensors are shown. The effective sensing range would be equal to the normal sensing range times the reduction factor.



Series	Object Lens for BKT, BLT Complete lens for 18mm fixed distance with 7mm spot size	Object Lens for BKT, BLT Complete lens for 9mm fixed distance with 7mm spot size	Object Lens for BKT, BLT Complete lens for 28mm fixed distance with 10mm spot size
			
Ordering Code	BKT M-PK-1	BKT M-PK-2	BKT M-PK-3
Series	Fine Focusing Lens for BKT, BLT Detect small marks (1mm) with low UV intensity at a distance of 9mm	Object Lens for BKT, BLT Complete lens for 50mm fixed distance with 12mm spot size	Protective Cover for BOWA; Sensing windows, cut-to-length plastic U-channel that protects lenses from damage
			
Ordering Code	BKT M-PK-4	BKT M-PK-5	BOWA Z-SH-1
Material	Aluminum/Glass	Aluminum/Glass	Aluminum/Glass

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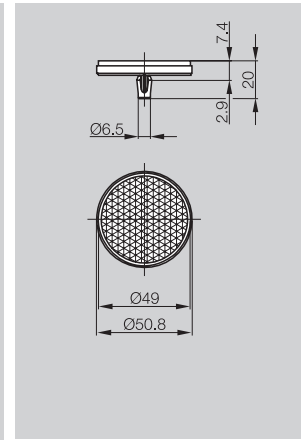
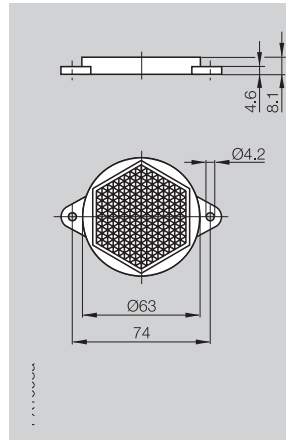
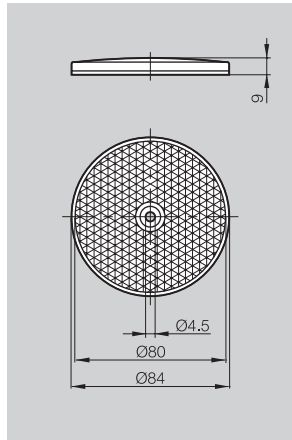
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Size
Mounting

Reflector Ø 84 mm
one M5 screw

Reflector Ø 63
two M4 screws

Reflector Ø 51 mm
plastic rivot



Ordering Code

BOS R-1

BOS R-10

BOS R-14

Material
Recommended Bracket

PMMA
BOS 21-AD-1

PMMA
BOS 5-HW-4

PC

Application
Temperature Range
Reflectivity Rating

Standard
0...+65 °C
100 %

Standard
0...+65 °C
60 %

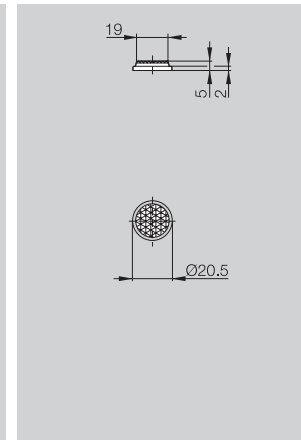
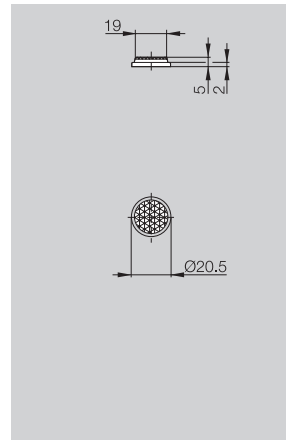
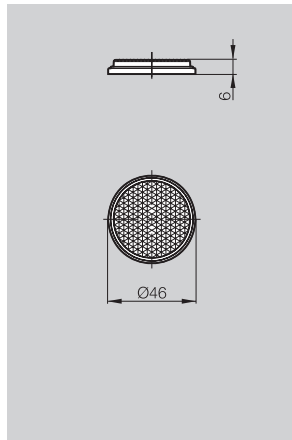
Chemical Resistance
0...+100 °C
60 %

Size
Mounting

Reflector Ø 46 mm
self-adhesive

Reflector Ø 20 mm
self-adhesive

Reflector Ø 20 mm
self-adhesive



Ordering Code

BOS R-2

BOS R-3

BOS R-15

Material
Recommended Bracket

PMMA
Standard

PMMA
Standard

ABS/PMMA

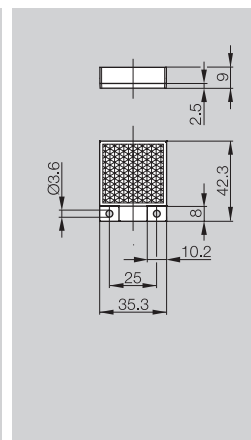
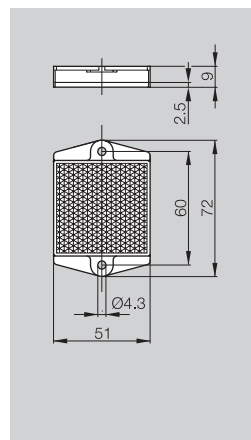
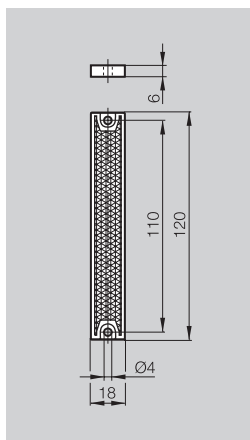
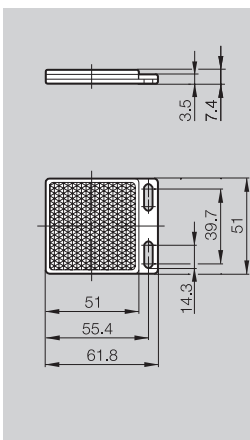
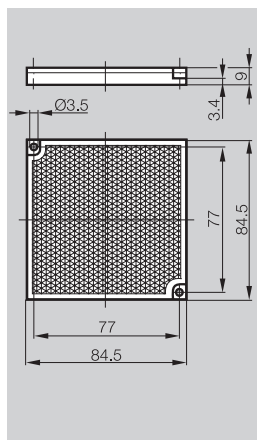
Application
Temperature Range
Reflectivity Rating

Standard
0...+65 °C
60 %

Standard
0...+65 °C
25 %

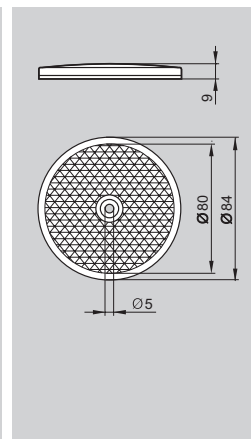
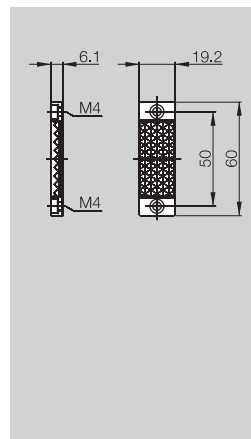
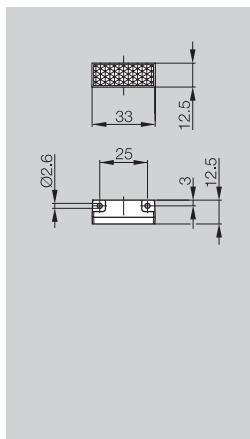
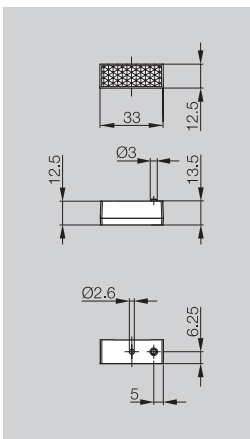
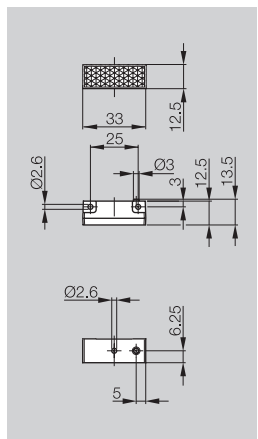
Chemical Resistance
0...+110 °C
25 %

Reflector 84×84 mm two M3 screws	Reflector 51×62 mm two M4 screws	Reflector 18×120 mm two M4 screws	Reflector 51×72 mm two M4 screws	Reflector 35×42 mm two M3 screws
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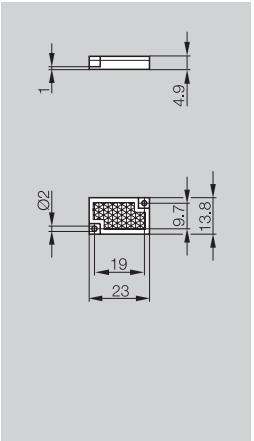
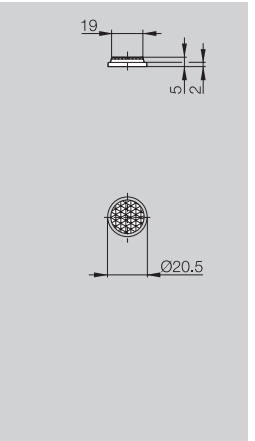
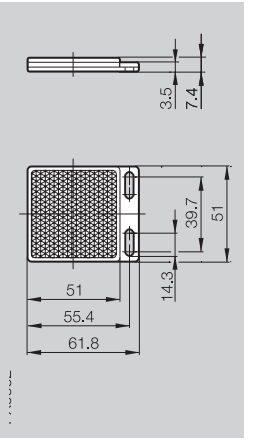
BOS R-11	BOS R-9	BOS R-5	BOS R-25	BOS R-26
PMMA	PMMA	PMMA	PMMA	PMMA
Extended Range	BOS 5-HW-6	Standard	BOS 5-HW-4	BOS 5-HW-5
0...+50 °C	Standard	0...+50 °C	Standard	Standard
125 %	0...+50 °C	40 %	0...+50 °C	0...+50 °C
	100 %			

Reflector 33×12 mm one M3 screw	Reflector 33×12 mm self-adhesive	Reflector 33×12 mm one M3 screw	Reflector 19×60 mm two M4 screw	Reflector Ø 84 mm one M5 screw
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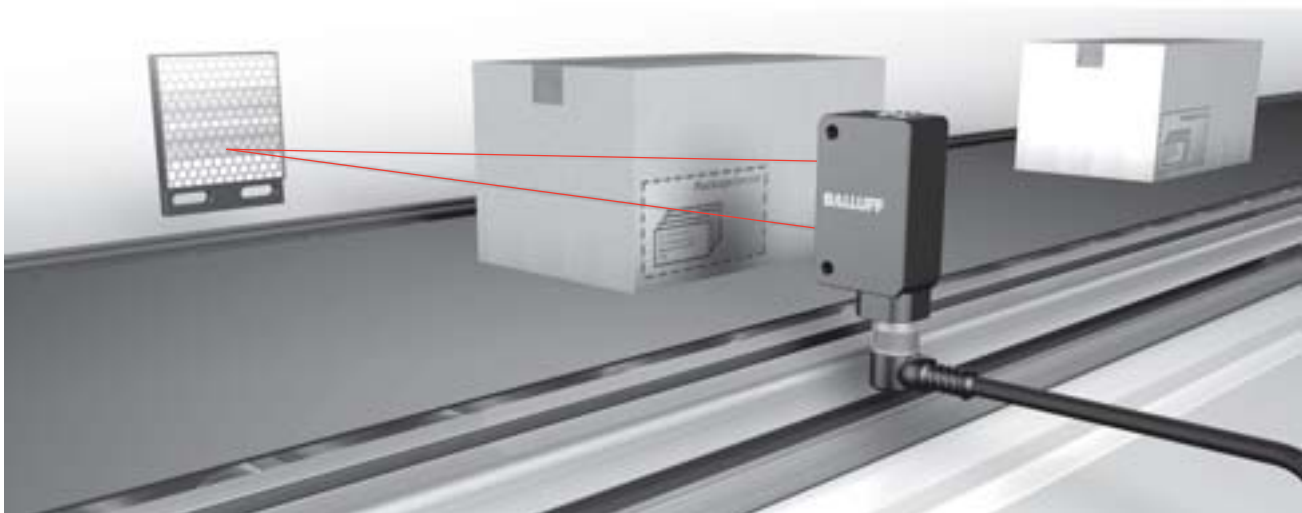


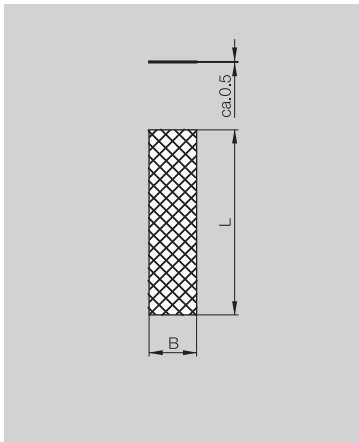
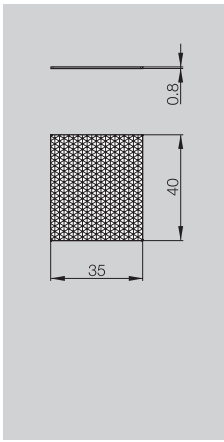
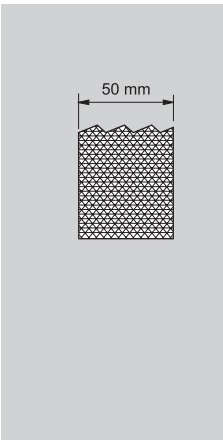
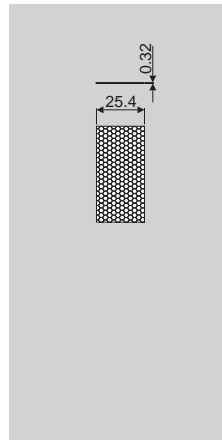
BOS R-27	BOS R-28	BOS R-29	BOS R-33	BOS 18-R
PMMA	PMMA	PMMA	PMMA	PMMA
BOS 5-HW-1 or 2	Standard	BOS 5-HW-1 or 2	Standard	Economy
Standard	0...+50 °C	Standard	Standard	0...+65 °C
0...+50 °C		0...+50 °C	-20...+85 °C	85 %



Size	Reflector \varnothing 25 mm	Reflector 14x23 mm	Reflector \varnothing 20 mm	Reflector 51x62 mm
Mounting	self-adhesive	two M2 screws	self-adhesive	two M4 screws
				
Ordering Code	BOS R-13	BOS R-12	BOS R-16	BOS R-22
Material	PMMA	ABS/PMMA	ABS/PMMA	ABS/PMMA
Recommended Bracket				BOS 5-HW-6
Application	Laser	Laser	Laser	Laser
Temperature Range	0...+55 °C	0...+55 °C	-20...+60 °C	-10...+60 °C
Reflectivity Rating	100% (Laser) 40% (Non-Laser)	100% (Laser) 30% (Non-Laser)	100% (Laser) 40% (Non-Laser)	100% (Laser) 40% (Non-Laser)

Retro-reflective sensors are ideal for applications where space constraints prohibit the mounting of a second sensor.



Size	Reflective Tape	Reflective Tape	Reflective Tape	Reflective Tape
Mounting	self-adhesive	self-adhesive	self-adhesive	self-adhesive
				
Ordering Code	BOS R-6-... for non-polarized light BOS R-7-... for non-polarized light BOS R-8-... for non-polarized light	BOS R-30 for polarized light	BOS R-17-22	BOL 27K-TAPE-01*
Reflectivity Rating	40 %	40 %	50%	

Tape Dimensions (LxB)	Ordering code
45 m×50 mm	BOS R-6-45
250 mm×50 mm	BOS R-6-0,25
22 m×50 mm	BOS R-7-22
250 mm×50 mm	BOS R-7-0,25
22 m×25 mm	BOS R-8-22
250 mm×25 mm	BOS R-8-0,25

* for use with BOL 27K only

- Contents
- Selection Guide
- Universal Mounting Accessories
- Inductive Accessories
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 - Protection Devices
 - Prox Actuator
 - Banking Screws
- Capacitive Accessories
- Photoelectric Accessories**
 - Brackets
 - Apertures
 - Lenses
 - **Reflectors**
- BMS
- Signal Conditioning
- Power Supplies
 - Sensor Testers
 - Controllers
- Digital Displays

6 Connectors

7 Accessories

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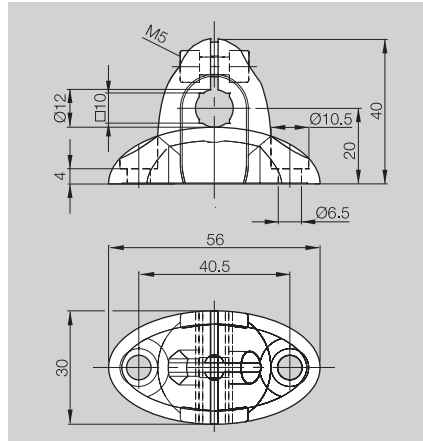
p Part Number Index



BMS Mounting Systems

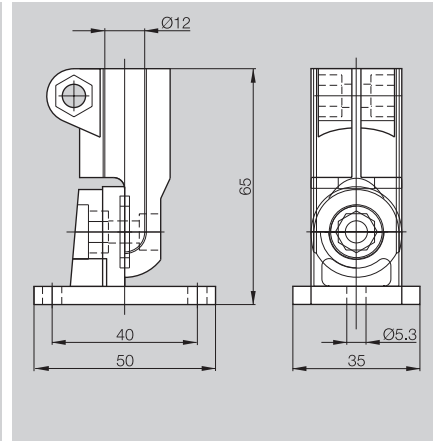
Balluff offers high-quality mounting accessories for optimally positioning the sensors in systems and machines. The mounting system can be attached to base plates or on all common extrusion rails. The kit design means that virtually any required solid angle can be accommodated. Additional accessories such as reflector holders and adapter plates, usable for tubular and block-style sensors, complete the accessories kit.

Description	Base Holder
Type	for 1 rod \varnothing 12 mm or 10x10 mm
Application	for mounting on base plates or rails



Ordering Code	BMS CU-P-D12-A040-00
Material	POM plastic

Description	Articulated Base Holder
Type	for 1 rod \varnothing 12 mm
Application	for mounting on base plates or rails



Ordering Code	BMS CUJ-P-D12-R040-00
Material	POM plastic

Note: Stainless steel screws included.

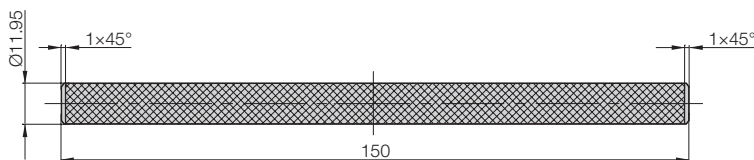


Mounting rods \varnothing 12 mm, anodized Al

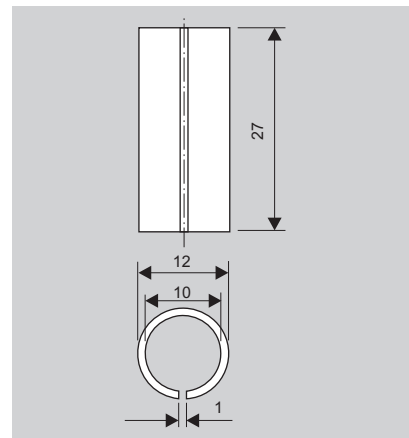
- BMS RS-M-D12-0150-00 = 150 mm
- BMS RS-M-D12-0250-00 = 250 mm
- BMS RS-M-D12-1000-00 = 1000 mm



The mounting rods are knurled over the full length. This prevents slipping and position shifting.



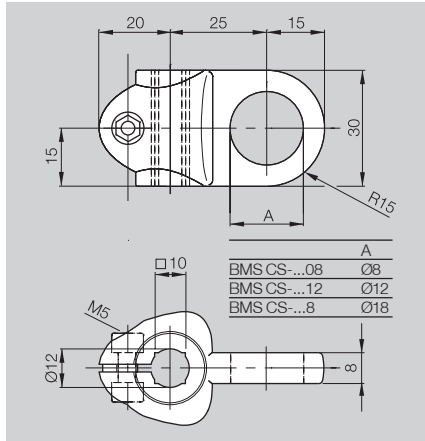
Description	Rod Adapter
Type	for 1 rod \varnothing 10 mm
Application	converts a \varnothing 10 mm rod to a \varnothing 12 mm rod



Ordering Code	BMS AD-P-001-12/10
Material	POM plastic

Sensor Holder

for 1 rod \varnothing 12 mm or 10x10 mm
for cylindrical sensors

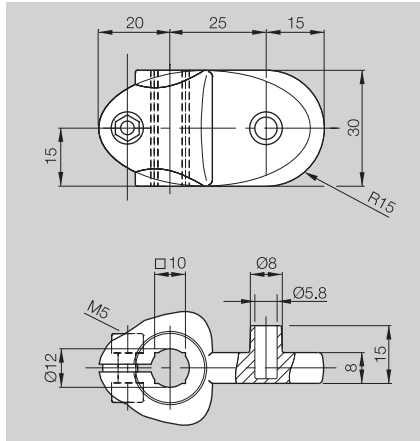


BMS CS-P-D12-AD08-00 for M8 sensors
BMS CS-P-D12-AD12-00 for M12 sensors
BMS CS-P-D12-AD18-00 for M18 sensors

POM plastic

Reflector Holder

for 1 rod \varnothing 12 mm or 10x10 mm
for all reflectors with \varnothing 20 mm (glue) and
BOS R-14 \varnothing 51 mm (pluggable)

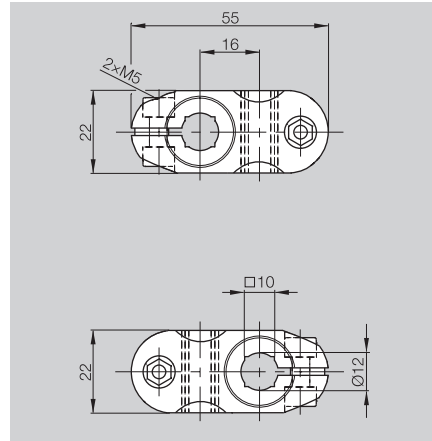


BMS CR-P-D12-AU-00

POM plastic

Cross-Connector

for 2 rods \varnothing 12 mm or 10x10 mm
connecting element for 2 rods
 \varnothing 12 mm or 10x10 mm

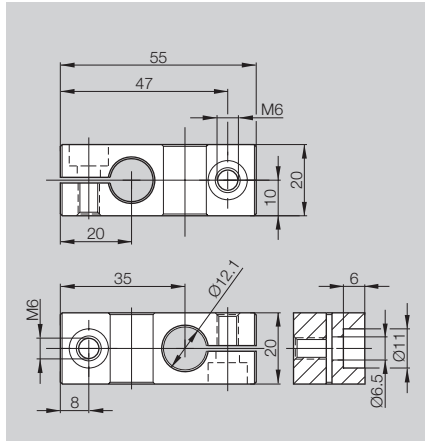


BMS CC-P-D12-A-00

POM plastic



Description	Cross-Connectors
Type	for 2 rods \varnothing 12 mm
Application	connecting element for 2 rods \varnothing 12 mm

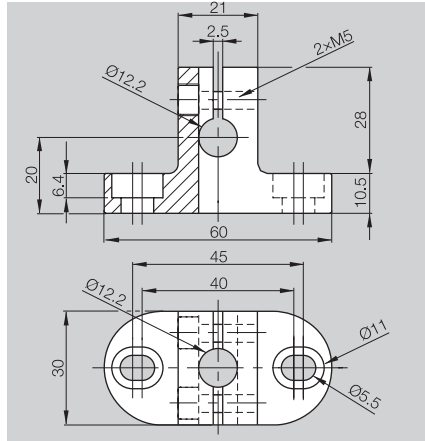


Ordering Code	BMS CC-M-D12-B-00
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Material	Al anodized
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Description	Base Holder
Type	for 1 rod \varnothing 12 mm (vertical or horizontal)
Application	for mounting on base plates or rails

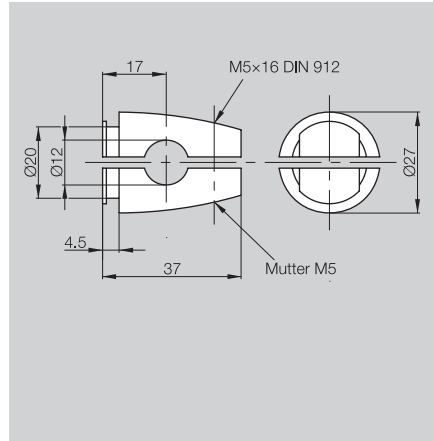


Ordering Code	BMS CU-M-D12-A040-00
---------------	----------------------

Material	Al anodized
----------	-------------



Description	Clamping Cylinder
Type	for mounting all holders, sensors and reflectors

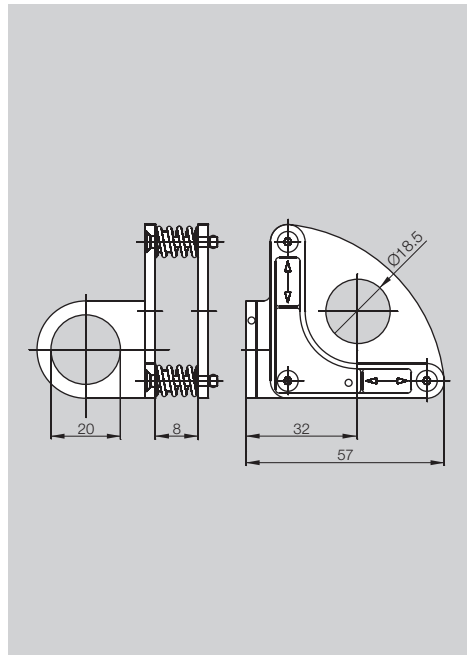


Ordering Code	BMS CS-M-D12-IZ
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Material	GD-Zn
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Description	Adjusting Unit
Type	for clamping cylinder
Application	for adjusting M18 laser sensors



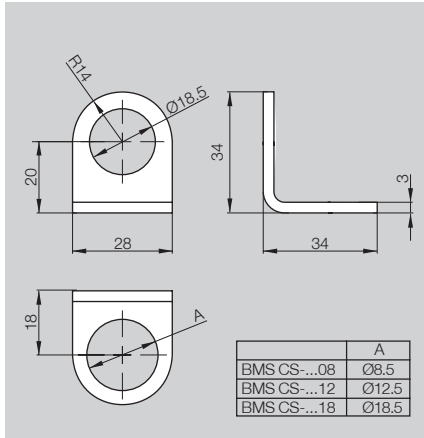
Ordering Code	BMS AD-M-002-D12/D18
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Material	V4A
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Note: Stainless steel screws included with connectors, holders, and clamping cylinders.

Sensor Mount

for clamping cylinder
for cylindrical sensors M8, M12, M18

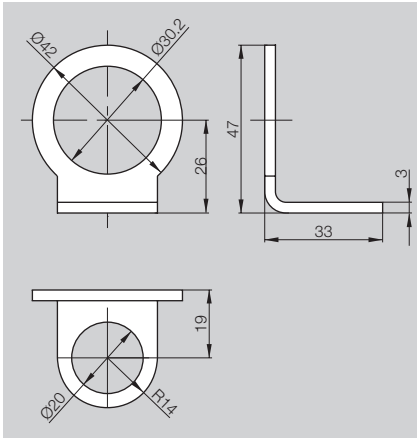


BMS CS-M-D12-ID08-01 for M8 sensors
BMS CS-M-D12-ID12-01 for M12 sensors
BMS CS-M-D12-ID18-01 for M18 sensors

V4A

Sensor Mount

for clamping cylinder
for cylindrical sensors M30

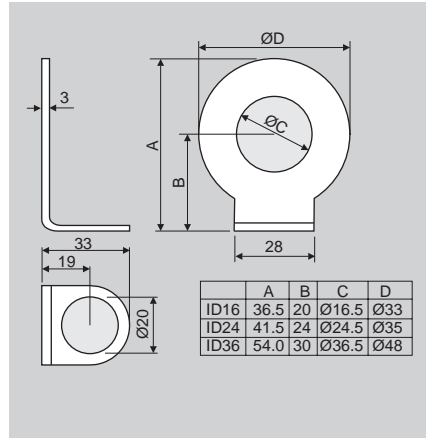


BMS CS-M-D12-ID30-01

V4A

Sensor Mount

for clamping cylinder
for use with prox mounts



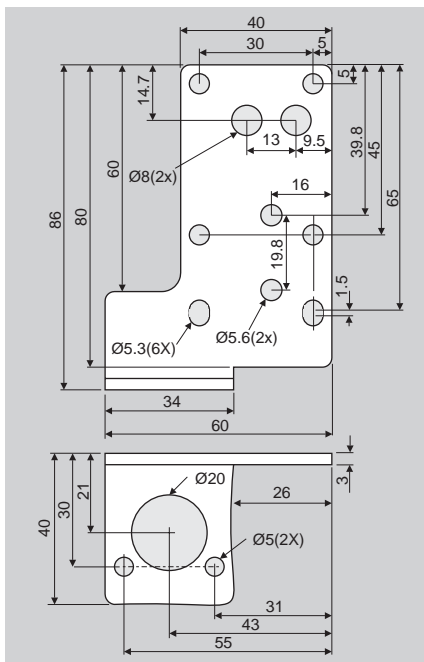
CS-M-D12-ID16-01
CS-M-D12-ID24-01
CS-M-D12-ID36-01

V4A



Mounting Bracket

for clamping cylinder
for UniCompact sensors

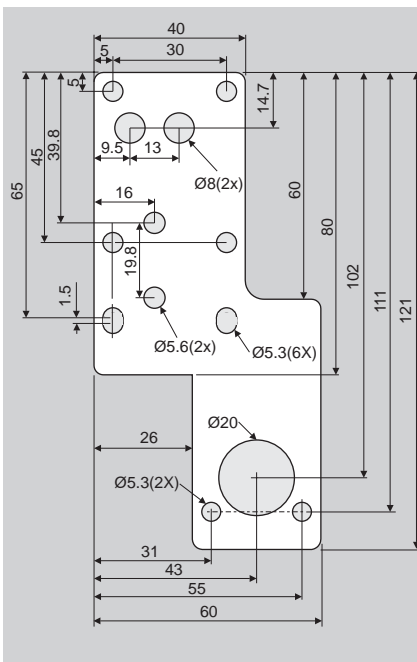


BMS CS-M-D12-IQ40-02

V4A

Mounting Bracket

for clamping cylinder
for UniCompact sensors

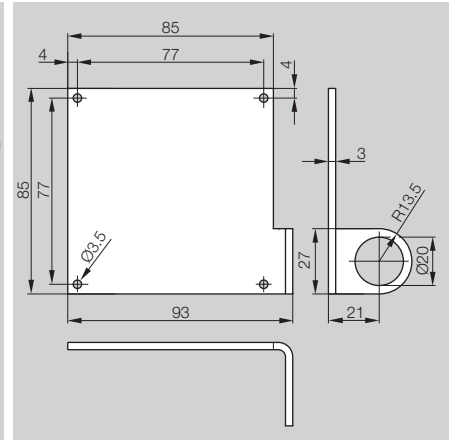
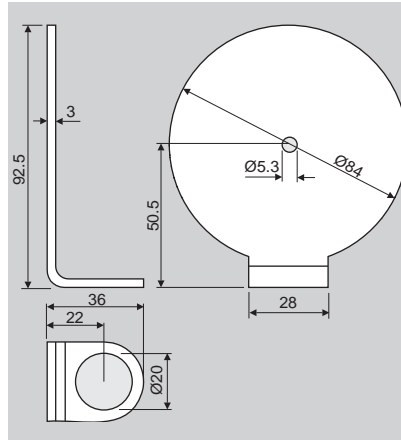
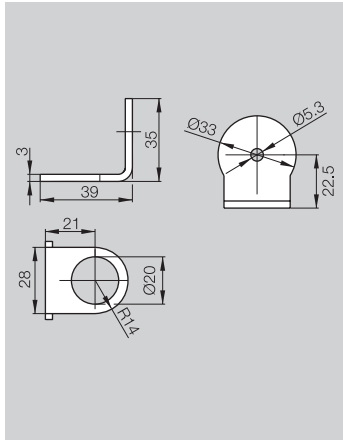


BMS-M-D12-IQ40-03

V4A



Description	Reflector Mount	Reflector Mount	Reflector Mount
Type	for BOS R1 + R2 + R3	for BOS R1 + R2 + R3	for BOS R11
Application	for clamping cylinders	for clamping cylinders	for clamping cylinders

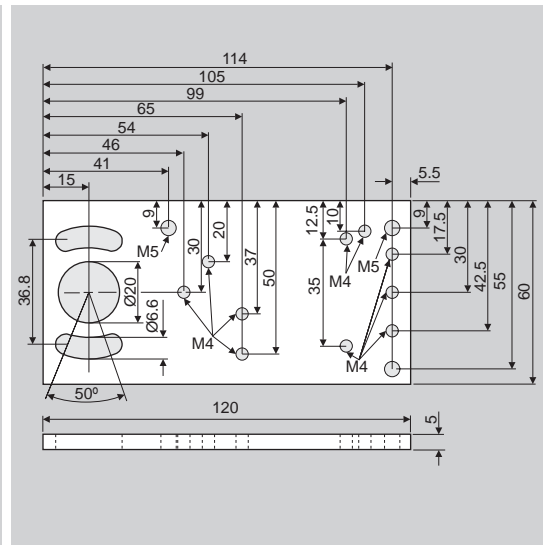
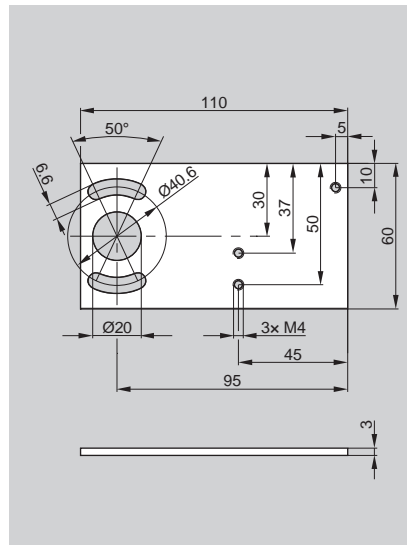


Ordering Code	BMS CR-M-D12-IU-02	BMS CR-M-D12-IU-05	BMS CR-M-D12-IS-03
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Material	V4A	V4A	V4A
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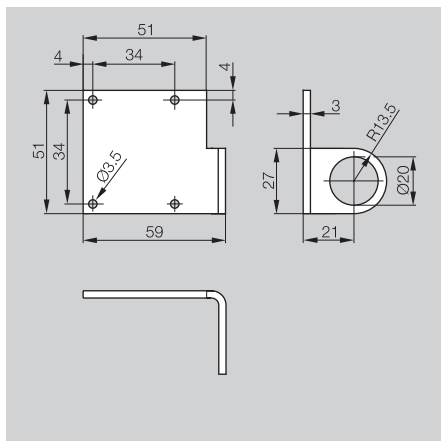
Description	Sensor Adapter Plate	Sensor Adapter Plate
Type	for BOS 21/25/26	for BOS 21/25/26
Application	for base holder with 40 mm hole spacing or clamping cylinders	for base holder with 40 mm hole spacing or clamping cylinders



Ordering Code	BMS CS-M-D12-BX01-01	BMS CS-M-D12-BX05-02
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Material	Al anodized	Al anodized
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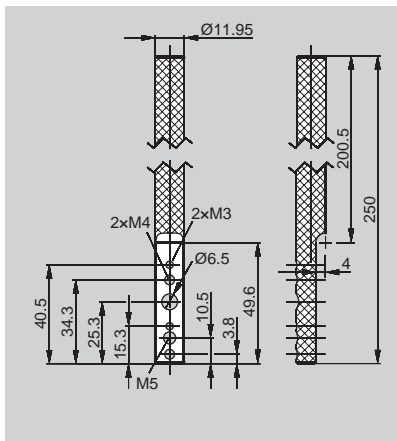
Reflector mount
for BOS R9
for clamping cylinders



BMS CR-M-D12-IS-04

V4A

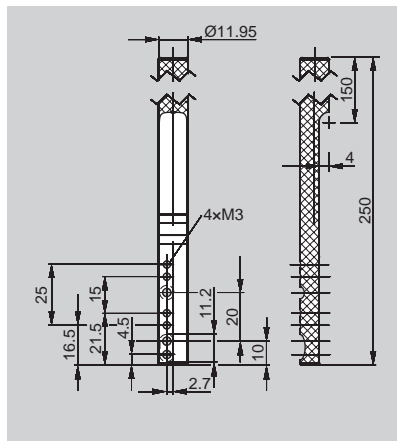
Mounting Rod
for reflectors R1, R9, R14, R22, R26
for base holder Ø 12 mm



BMS BS-M-D12-0250-01

Al anodized

Mounting Rod
for BOS 2K, BOS 5K, BOS 6K, BES/BOS Q08
for base holder Ø 12 mm

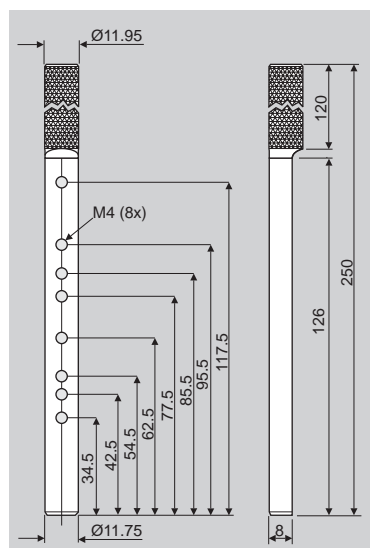


BMS BS-M-D12-0250-02

Al anodized



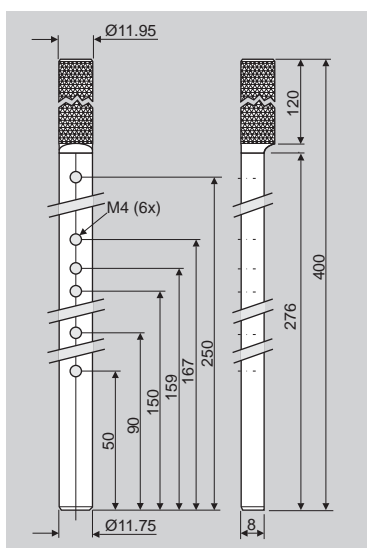
Mounting Rod
for BGL 5A...80A
for base holder Ø 12mm



BMS BS-M-D12-0250-03

Al anodized

Mounting Rod
for BGL 80A...220A
for base holder Ø 12mm



BMS BS-M-D12-0400-04

Al anodized



Mounting rods Ø 12 mm, anodized Al
BMS RS-M-D12-0150-00 = 150 mm
BMS RS-M-D12-0250-00 = 250 mm
BMS RS-M-D12-1000-00 = 1000 mm



Contents

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- Brackets
- Apertures
- Lenses
- Reflectors

BMS

Signal Conditioning

Power Supplies
- Sensor Testers
- Controllers

Digital Displays

6 Connectors

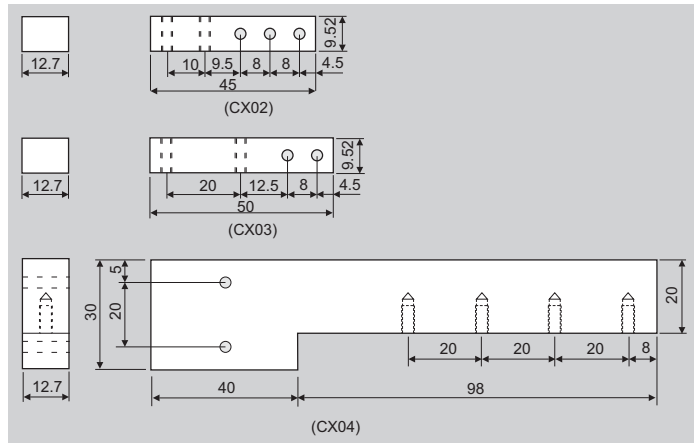
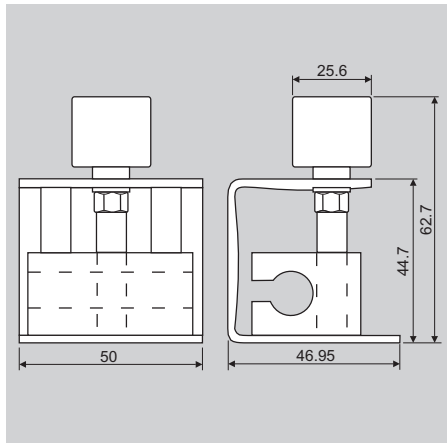
7 Accessories

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Description	Sensor adjustment tool	Adapter bracket
Type	for BGL	for BGL
Application	for fine positioning	for fine positioning



Ordering Code

All BGLs	BMS CS-M-D12-CZ	
BGL 5 - 20 mm		BMS CS-M-D12-CX02-01
BGL 30 - 80 mm		BMS CS-M-D12-CX03-01
BGL 120 - 220 mm		BMS CS-M-D12-CX04-01

Kits Available:

BMS CS-M-D12-CX02-01-Z = BMS CS-M-D12-CZ and BMS CS-M-D12-CX02-01

BMS CS-M-D12-CX03-01-Z = BMS CS-M-D12-CZ and BMS CS-M-D12-CX03-01

BMS CS-M-D12-CX04-01-Z = BMS CS-M-D12-CZ and BMS CS-M-D12-CX04-01



Mounting rods Ø 12 mm, anodized Al

BMS RS-M-D12-**0150**-00 =150 mm

BMS RS-M-D12-**0250**-00 =250 mm

BMS RS-M-D12-**1000**-00 =1000 mm



NEW! BMS Mounting Kits



Kit Number

Kit Number	BMS CS-M-D12-IZ	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	BMS CS-M-D12-ID30-01	BMS CS-M-D12-ID36-01	BMS CS-M-IQ40-02	M10 x 40mm bolt and M10 nut	M10 x 55mm bolt and M10 nut	M10 x 70mm bolt and M10 nut
BMS KIT-MTG-01-D08/40	■	■								■		
BMS KIT-MTG-01-D12/40	■		■							■		
BMS KIT-MTG-01-D16/40	■			■						■		
BMS KIT-MTG-01-D18/40	■				■					■		
BMS KIT-MTG-01-D24/40	■					■				■		
BMS KIT-MTG-01-D30/40	■						■			■		
BMS KIT-MTG-01-D36/40	■							■		■		
BMS KIT-MTG-01-D08/55	■	■									■	
BMS KIT-MTG-01-D12/55	■		■								■	
BMS KIT-MTG-01-D16/55	■			■							■	
BMS KIT-MTG-01-D18/55	■				■						■	
BMS KIT-MTG-01-D24/55	■					■					■	
BMS KIT-MTG-01-D30/55	■						■				■	
BMS KIT-MTG-01-D36/55	■							■			■	
BMS KIT-MTG-01-D08/70	■	■										■
BMS KIT-MTG-01-D12/70	■		■									■
BMS KIT-MTG-01-D16/70	■			■								■
BMS KIT-MTG-01-D18/70	■				■							■
BMS KIT-MTG-01-D24/70	■					■						■
BMS KIT-MTG-01-D30/70	■						■					■
BMS KIT-MTG-01-D36/70	■							■				■
BMS KIT-MTG-01-Q40/40	■								■	■		
BMS KIT-MTG-01-Q40/55	■								■		■	
BMS KIT-MTG-01-Q40/70	■								■			■

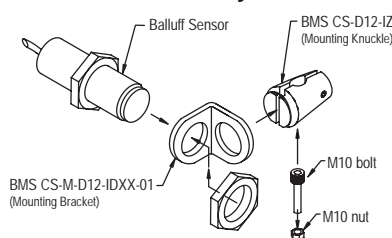
These kits provide you the convenience of all the parts you need in a single box.

Kit Components

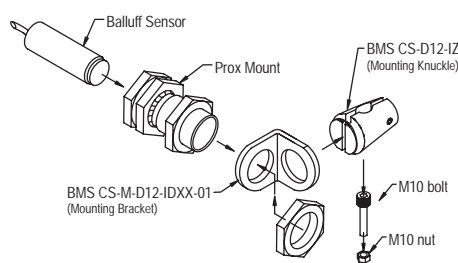
Description

BMS CS-M-D12-IZ	Joint, Rotary Mounting type
BMS CS-M-D12-ID08-01	Bracket, for standard M8 sensors
BMS CS-M-D12-ID12-01	Bracket, for M8 sensor prox mounts or standard M12 sensors
BMS CS-M-D12-ID16-01	Bracket, for M12 sensor prox mounts
BMS CS-M-D12-ID18-01	Bracket, for standard M18 sensors
BMS CS-M-D12-ID24-01	Bracket, for M18 sensor prox mounts
BMS CS-M-D12-ID30-01	Bracket, for standard M30 sensors
BMS CS-M-D12-ID36-01	Bracket, for M30 sensor prox mounts
BMS CS-M-IQ40-02	Bracket, 40x40mm Cube Sensor Mount
M10 x 40mm bolt and M10 nut	M10 x 40mm bolt with M10 x 1.5 nut, black oxide
M10 x 55mm bolt and M10 nut	M10 x 55mm bolt with M10 x 1.5 nut, black oxide
M10 x 70mm bolt and M10 nut	M10 x 70mm bolt with M10 x 1.5 nut, black oxide

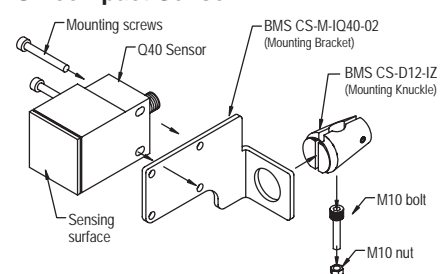
Tubular Sensors Only



Tubular Sensors with Prox Mount



Unicomact Sensor



BOS S Series Signal Adapter

BOS S series signal adapters are crucial for quick, versatile modifications, retrofits and enhancements of a sensor's functionality. Several available models provide quick-change options that will convert PNP/NPN outputs, add delay timing and counting functions, or monitor frequency of machine speeds and motion.

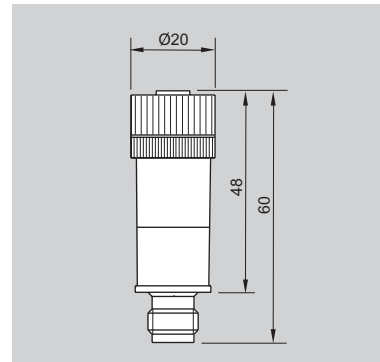
BOS S series signal adapters take the place of expensive signal converters and other control elements. They are also suitable as stand-alone solutions in areas lacking external controllers. They are ideal for applications where a solution must be retrofit without changing the controller. Signal adapters are plugged-in between the sensor and the connection cable, and can be programmed through the control line using a simple teach-in procedure. The output current of 400 mA also allows any signal adapter to be used as a switching amplifier.

Applications

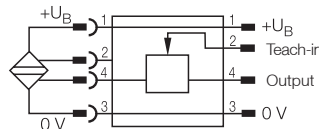
- Batch counting
- Indexing
- Increased switch output
- Underspeed detection
- Jam detection
- Motion detection
- Pulse stretcher
- Broken conveyor detection

Series	
Model	

Signal Adapter
Timer 1ms...65.535s
Counter 1...65535
Signal Inverter PNP to NPN, NPN to PNP
Frequency (Under speed) 0.15...1000Hz



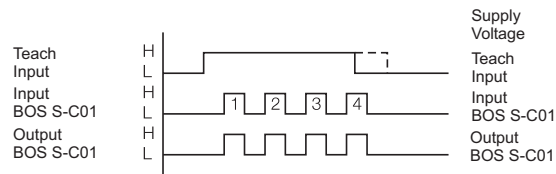
Timer		
PNP		BOS S-T01
NPN		BOS S-T02
Counter		
PNP		BOS S-C01
NPN		BOS S-C02
Signal Inverter		
PNP to NPN		BOS S-F01
NPN to PNP		BOS S-F02
Frequency (under speed)		
PNP		BOS S-M01
NPN		BOS S-M02
Rated Operational Voltage		10...30 Vdc
Supply Voltage		12...24 Vdc
Input Resistance		>10k Ω
Minimum Response Rime		100 μs
Maximum Load Current		400mA
Timer	Minimum Delay	1ms
	Maximum Delay	65.535s
	Operating Frequency (max.)	10 kHz
Counter	Minimum Count	1
	Maximum Count	65535
	Operating Frequency (max.)	10 kHz
Signal Inverter	Operating Frequency (max.)	10 kHz
Frequency (under speed)	Minimum Frequency	0.15 Hz
	Maximum Frequency	1000 Hz
Pulses/Second	Operating Frequency (max.)	1000 Hz
Short Circuit Protection		Yes
Ambient Temperature Range		0...60°C
Remote Teach		Yes
Output Indication		Red Led
Mechanical Protection		IP67
Housing Material		Plastic PBTA/PA
Input Connection		M12 4 pin Female
Output Connection		M12 4 pin Male



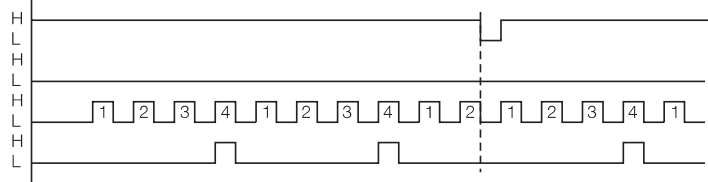
Signal Adapter BOS S-C

Programmable pulse or pause counter

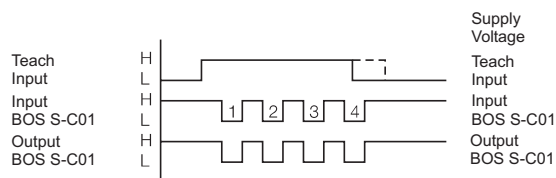
Teaching a pulse count



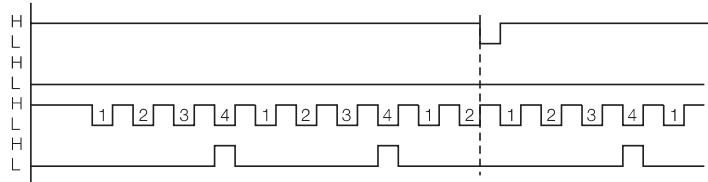
Used as pulse counter



Teaching a pause count



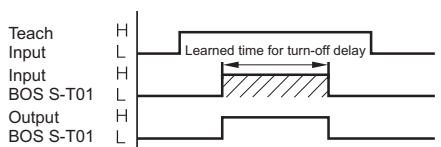
Used as pause counter



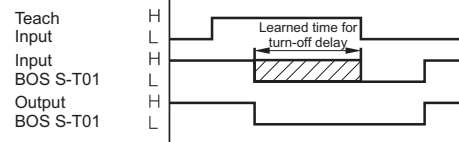
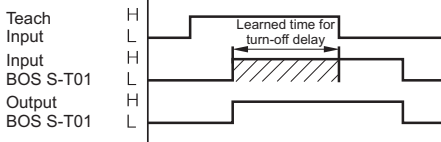
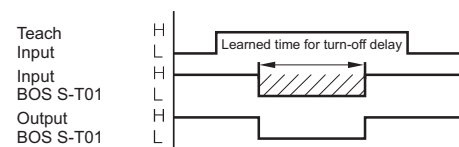
Signal Adapter BOS S-T

Programmable timer for turn-on or turn-off delay

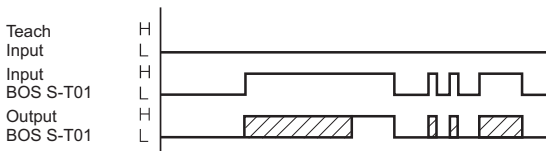
Teaching a turn-on delay



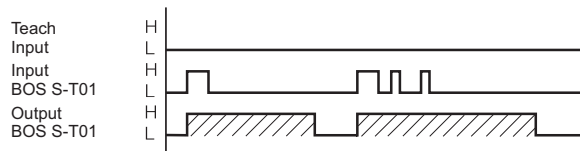
Teaching a turn-off delay



Using with turn-on delay



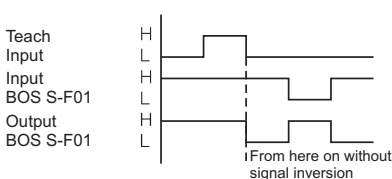
Using with turn-off delay



Signal Adapter BOS S-F

NPN/PNP logic converter, selectable normally-open/normally-closed

Teaching without signal inversion



H = Input or Output active; L = Input or Output inactive

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In-line analog set point controller with integrated switching outputs

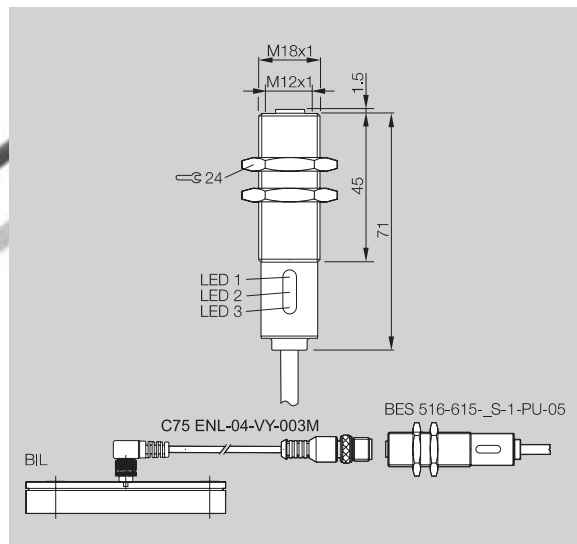
This device can be connected to any Balluff 0...10V analog sensor (inductive, photoelectric, BIL) and provides three integrated switching outputs.

Analog sensors provide a signal which is proportional to the target distance from the sensor face. However, many applications also require a switching signal at certain points along the full range.

The three switching outputs are programmed using a teach-in procedure by holding a target in position and momentarily connecting the control line to the supply. This programs the digital output for that point. A total of three outputs are programmable.

In addition to the three digital outputs, a 0-10 V analog signal is also provided. An LED for each output indicates the switching state of that output.

Housing Size	M18x1
Output Signal	0...10 V



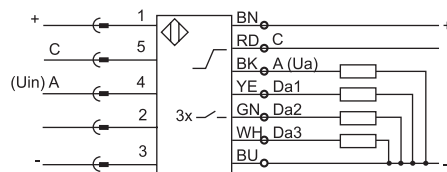
PNP	Normally-open
NPN	Normally-open

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

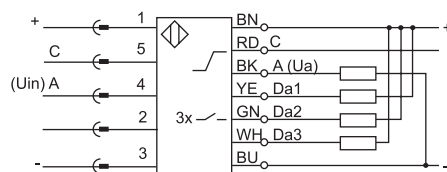
Rated Operational Voltage U_o	24 Vdc
Supply Voltage U_B	15...30 Vdc
Ripple	$\leq 15\%$
Rated Insulation Voltage U_i	75 Vdc
Load Resistance R_L for Analog Output	4200 Ohm
No-load Supply Current I_o at U_o	20 mA
Protected Against Polarity Reversal	yes

24 Vdc
15...30 Vdc
$\leq 15\%$
75 Vdc
4200 Ohm
20 mA
yes

PNP analog and PNP discrete output



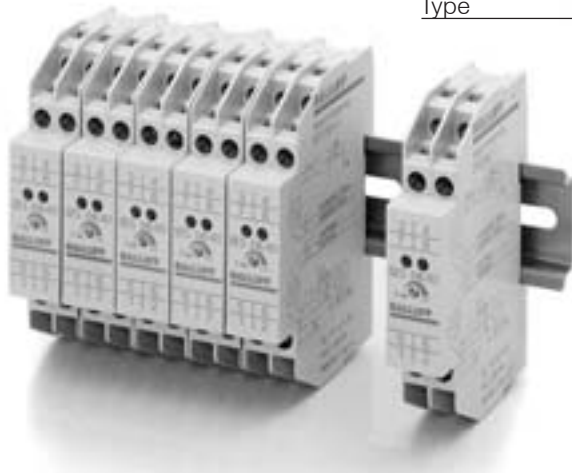
NPN analog and NPN discrete output



Ambient Temperature Range T_a	-10...+70 °C
Hysteresis	500mV
Operating Frequency f	2000
Degree of Protection per IEC 60529	IP 67
Housing Material	nickel plated brass
Connection	cabl
No. of Wires x Gauge	7 x 24 AWG
Approvals	cULus
Recommended Connector	C75 ENL-04-VY-003M
LED Indication for Each Output	yes
Teach-in Function	yes
Rated Operational Current I_o for One Switching Output	100 mA
Voltage Drop U_d at I_o	≤ 1.5 V

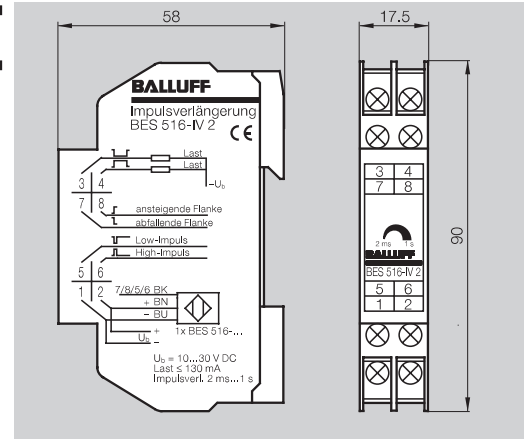
-10...+70 °C
500mV
2000
IP 67
nickel plated brass
cabl
7 x 24 AWG
cULus
C75 ENL-04-VY-003M
yes
yes
100 mA
≤ 1.5 V





Type

Pulse Stretching Device



Rapid Movement Recognition

Three-wire DC sensors can have very high switching frequencies. This fast response time coupled with high speed operations on a machine can mean that events can sometimes occur without being detected by the control on the machine.

The pulse width lengthening device allows the switch output to be extended from 2 milliseconds to 1 second. The adjustable delay can then be used to insure your machine receives the switching signal.

Features:

- Protected against overload (through PTC) and against polarity reversal.
- On the input, only a PNP sensor from BES 515-..., BES 516-... or BES 517-... (DC, 3-/4-wire) can be used, either normally open or normally closed.
- Both or only one of the outputs can be installed.

Ordering Code	BES 516-IV 2
Output (LED displays)	plus switching (PNP), complementary
Pulse Length Adjustable	2 ms...1 s
Factory Set Value	200 ms (+50 ms)
Input 7/8	refers to each edge of the input signal
Input 5/6	refers to the pulse end of the input signal
Repeatability	< 10 %
Input	1 PNP- or 1 NPN-Normally open or closed
Min. Input Pulse Length	1.5 ms
Supply Voltage U_B	10...30 Vdc (input voltage = output voltage)
Including Ripple	≤ 15 % (SS)
No-load Current	ca. 20 mA
Output Current	≤ 130 mA
Allowable Load Capacity	≤ 0.5 μ F/24 V
Ambient Operating Temperature	0...60 °C
Dimensions	90 × 58 × 17.5 mm
Housing Mount	rail EN 50022-35
Max. Connector Cross-section	2 × 14 AWG
Degree of Protection per IEC 60529	housing IP 40/clamp IP 20

Output: 3	low pulse, expanded
4	high pulse expanded

	PNP	NPN
Input: 7	falling edge	rising edge
8	rising edge	falling edge
5	low pulse	high pulse
6	high pulse	low pulse
1	- V_s	
2	+ V_s	

Falling edge	Expanded output signal is triggered by the falling edge
Rising edge	Expanded output signal is triggered by the rising edge
Low pulse	Expanded output signal is triggered by a low pulse
High pulse	Expanded output signal is triggered by a high pulse

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**Sensor Tester
BES 516-3**

A quick and easy way to test standard 10-30 Vdc sensors in the field.

- Tests 3-wire and 2-wire DC sensors
- PNP or NPN output
- Audible sound
- LED indicators
- Convenient size



Description

**High Power Sensor Tester
BES 516-5**

For use with higher voltage and current sensors and optos.



**Tester and Programmer
BES 516-4**

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

- Programs the switching distance of analog sensors
- Tests analog sensors
- Tests 2-wire and 3-wire BES sensors



**Sensor Controller
BES 516-705-U5**

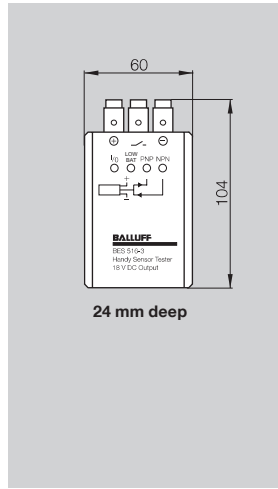
Designed to operate two 24 Vdc electronic sensors from a 115 Vac line source.

- DIN rail or panel mountable
- 2 independent relays
- 110 Vac input, 24 Vdc output
- Accepts PNP and NPN sensors
- Provides 100 mA output current

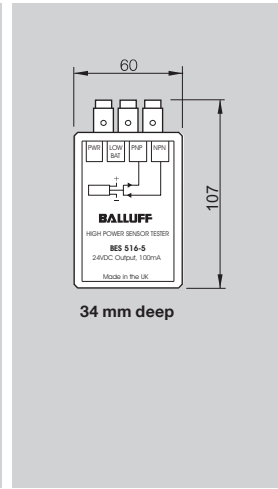


Description

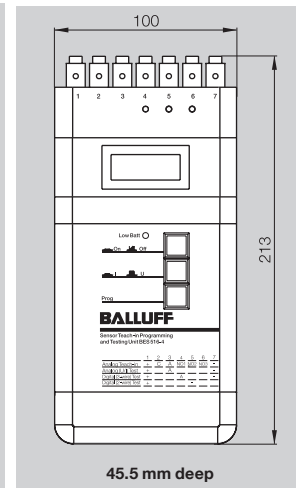
Sensor Tester



High Power Sensor Tester

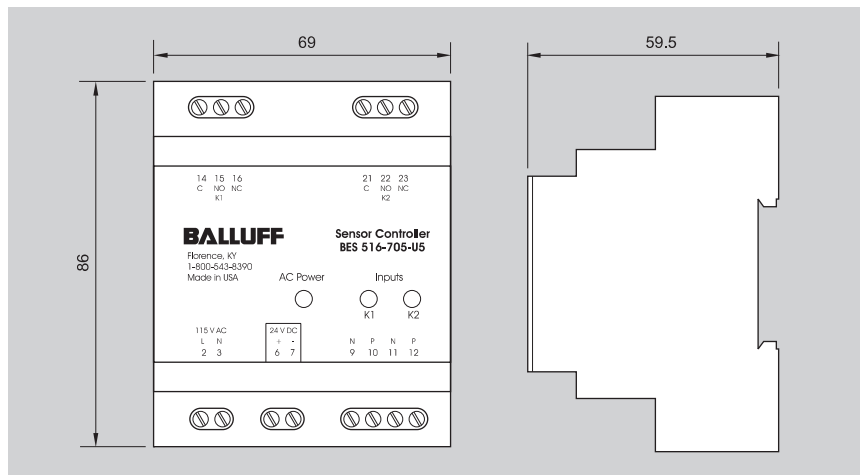


Analog Tester and Programmer



Part Number	BES 516-3	BES 516-5	BES 516-4
Output Voltage	18 Vdc	20-24 Vdc	18 Vdc
Supply Current	35 mA	100 mA	35 mA
LED Indication	1 power indicator	power and output	power, output and battery
Battery Type	2 x 9 V batteries	6 - 1.5 VAA (not included)	2 x 9 V batteries
Sensor Connection	3 spring-loaded terminals	3 spring-loaded terminals	7 spring-loaded terminals
Degree of Protection	IP 21	IP 21	IP 40
Housing Material	plastic	plastic	plastic

Sensor Controller



Part Number	BES 516-705-U5
Input Voltage	115 Vac ($\pm 10\%$), 60 Hz
Input Current	36mA AC (Full Load)
Output Voltage	24 Vdc
Output Current	100mA DC max.
Output Ripple/Noise	20 mV
Circuit Protection	2AG, .250mA Slo-Blo fuse
Relay Configuration	2, 1 Form C (SPDT)
Relay Contact Material	Silver Cadmium Oxide
Relay Ratings	6A at 120 Vac or 24 Vdc
Relay Life	100,000 Operations
LED Indication	Green Power, 2 red output

Name
Series

BDD 600 Series

Analog - input
digital display



BDD 640 Series

The BDD 640 series panel meters offer high performance and advanced functionality in a compact package. The BDD 640 series is a high resolution display designed for use with continuous output analog position sensors. The universal 16-bit analog input allows the BDD 640 series to be used with either 0–10 Vdc or 4–20 mA analog inputs. Available options include a scaleable 16-bit output and up to 4 programmable PNP set-points.

Features:

- Ultra thin design consumes minimal panel space
- 100% adjustable zero and span
- 16-bit input resolution for superior accuracy
- Fast update rate provides superior display readout response
- Available with up to 4 programmable setpoint outputs
- Scaleable 16-bit analog output available

BDD 640-R3A-0-00-E-00
BDD 644-R3A-0-54-E-00
BDD 645-R3A-5-53-E-00

Input Signal
Display

Supply Voltage

Temperature Range

Update Rate

Resolution

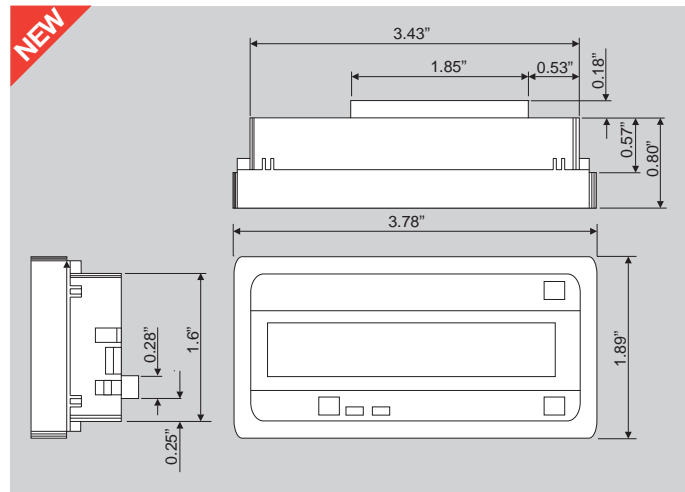
Digital Outputs

Analog Output

Housing Information

Accessories

BSS Z-001



Display only

Display with 4 programmable PNP outputs

Display with 2 programmable PNP outputs and 2 scalable analog outputs

0-10 Vdc or 4-20 mA

6-digit (5-digit usable for analog models),
0.56" digits, 6 ms refresh rate

24 Vdc ± 20%

0 to 70°C

67 ms

16-bit A/D

PNP, 100 mA per output

16-bit analog, 0-10 Vdc or 4-20 mA,
100% adjustable

Plastic, 1/8 DIN housing, panel mountable

Clear NEMA 4X IP65 display cover



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