

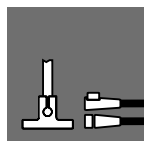
Accessories

Contents

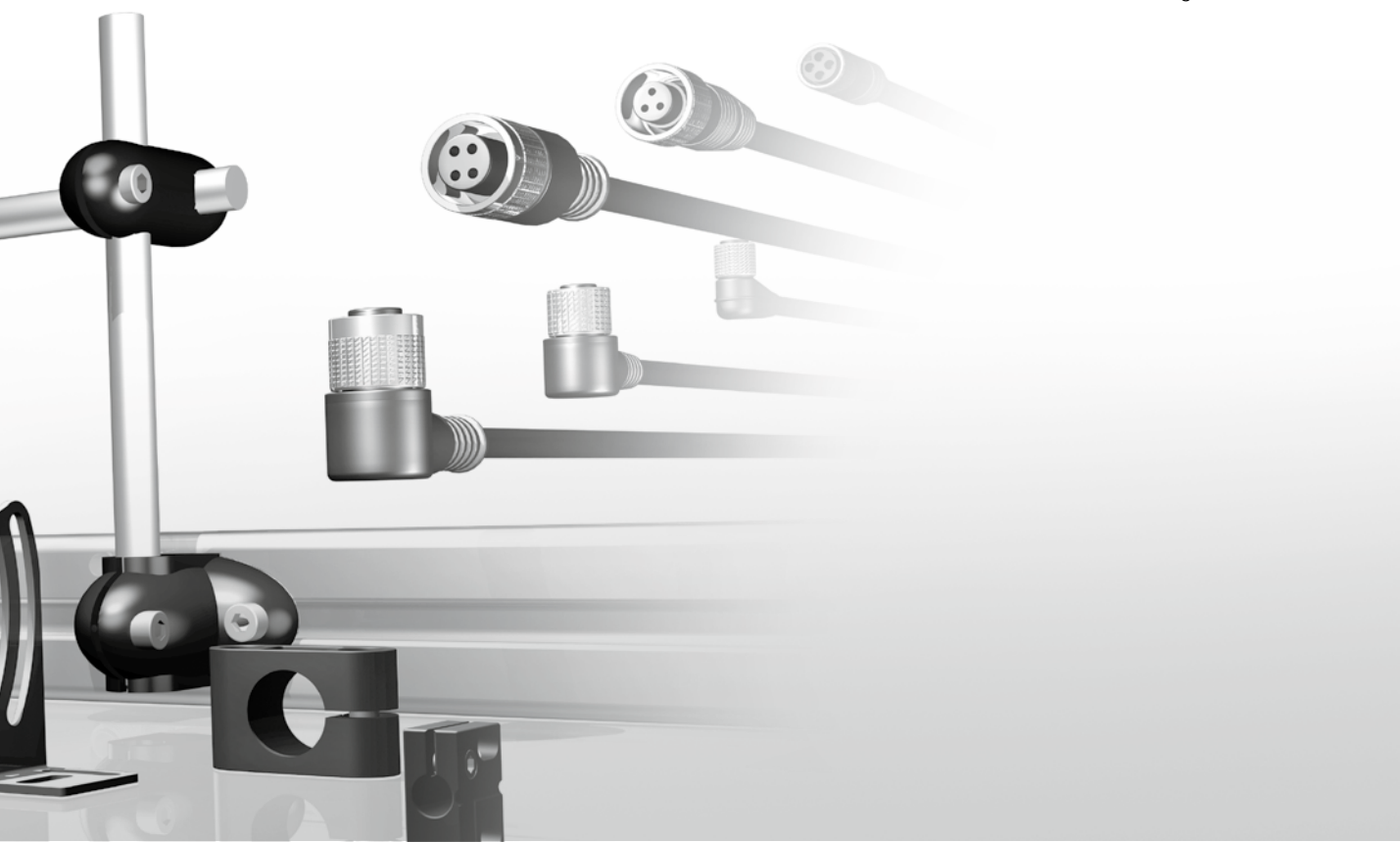
BUS models for individual solutions are optimized through appropriate accessories. For example, power supplies ensure great flexibility for various voltages. They ensure continuity even under high loads. And precisely fitting mounting elements guarantee exact positioning right from the start.

The extensive line of connector ensure the best connection and safeguards the use of Balluff BUS ultrasonic sensors in all areas of automation.

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Electrical devices
Connectors
Mounting components
BUS-specific accessories

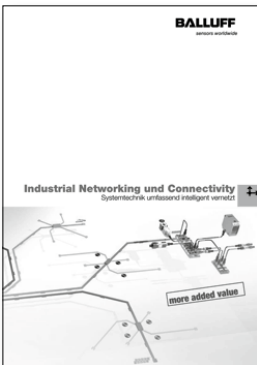


Accessories

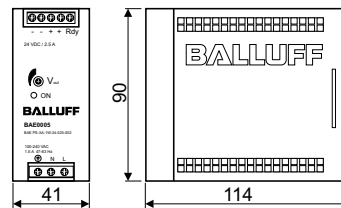
Power supplies · Single-phase input voltage
2.5 A



Output current	2.5 A										
Output power	60 W										
Output voltage	24 V DC										
Input voltage	100...240 V AC										
Ordering code	BAE0005										
Part number	BAE PS-XA-1W-24-025-002										
Input voltage range	85...264 V AC/90...375 V DC										
Inrush current	115 V AC < 30 A/230 V AC < 60 A										
Frequency range	47...63 Hz										
Input fuse	T2 A/250 V AC internal										
Voltage adjustment range	24...28 V DC										
Temperature coefficient	±0.02 %/°C										
Ripple & noise	50 mV										
Holdup time	115 V AC > 20 ms/230 V AC > 30 ms										
Status indicator DC ON	LED green										
Efficiency	89 %										
Response	Hiccup mode										
Switching frequency f	> 100 kHz										
Isolation voltage	3000 V AC										
Isolation resistance	100 MΩ										
Turn-on delay	< 1 s										
Ambient temperature range T _a	-25...+71 °C										
Derating	-2.5 %/°C above +61 °C										
Parallel mode	yes (with external diodes)										
Enclosure rating per IEC 60529	IP 20										
Ready output	DC OK output										
Cooling	air convection										
Housing material	Plastic										
Weight	0.36 kg										
Approvals	CE, TÜV, UL/cUL										
Wiring diagram	<table border="1"> <tr> <td>L, N</td> <td>Input terminals</td> </tr> <tr> <td>PE</td> <td>PE connection</td> </tr> <tr> <td>Vo -</td> <td>Output terminal -</td> </tr> <tr> <td>Vo +</td> <td>Output terminal +</td> </tr> <tr> <td>Rdy</td> <td>Ready output</td> </tr> </table>	L, N	Input terminals	PE	PE connection	Vo -	Output terminal -	Vo +	Output terminal +	Rdy	Ready output
L, N	Input terminals										
PE	PE connection										
Vo -	Output terminal -										
Vo +	Output terminal +										
Rdy	Ready output										



Other power supplies can be found in our catalog "Industrial Networking and Connectivity"



Accessories

Digital display

Digital display for analog input signals

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

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

Standard hardware

- 4 function keys on the front panel

Standard software with the following functions

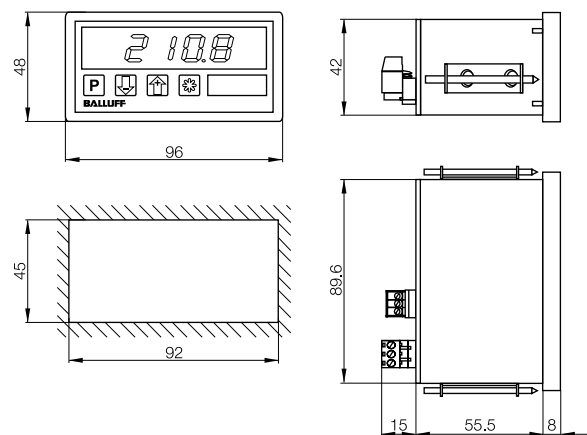
- Scaling
- Tare
- Decimal point
- Display test



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



Electrical devices
Connectors
Mounting components
BUS-specific accessories



Accessories

Signal adapters

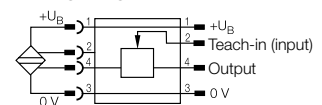
With the signal adapters, various additional functions on the sensors can be adjusted quickly. For example, these can be used to change the output signals or counting and time functions without any additional installation. The signal adapter is simply plugged in between the standardized M12 connection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



Version	Functionality	Device	Setting
N.C./N.O.-inverter	Pulse or pause counter: The BOS S-C counts a sensor's output pulses or pauses and sends an output pulse when a predefined number is reached. The count range is from 1...65535 and can be freely set. It also includes an output inverter function (N.C./N.O.).	BOS S-C...	Pause counter
Flip-Flop			Pause counter
Divider (1 pulse per rotation)			Pulse counter n
Count parts (Count down)			Pulse counter n
Switching amplifier up to 400 mA			Pulse counter 1
Release delay	Timer for switch-on delay and release delay: With the BOS S-T, a switch-on delay or release delay of 1 ms to 65 s can be implemented. A release delay of 100 ms is set in the factory.	BOS S-T...	Release delay n
Switch-on delay			Switch-on delay n
PNP/NPN conversion	PNP/NPN converter: The BOS S-F converts a connected PNP signal to a NPN signal. In addition, the N.C./N.O. output function can be toggled.	BOS S-F...	Factory settings
PNP/NPN conversion and N.C./N.O. toggle			Teach N.C./N.O.
Standstill monitoring	Frequency monitoring: The BOS S-M is a freely adjustable module for frequency monitoring. It is "active" when the frequency value is 5% below the set frequency.	BOS S-M...	
Speed monitoring			
Backlog detection			

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

Wiring diagram



Use

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

Signal adapter selection aid

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

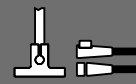


Accessories

Signal adapters

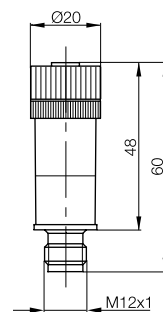
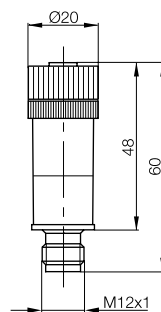
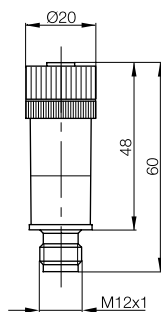
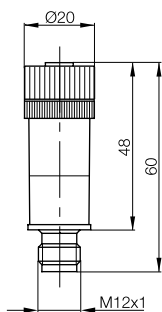


Programmable pulse or pause counter, switching inverter	Programmable timer for on- and off-delay	NPN/PNP converter, configurable N.O./N.C. toggle	Programmable frequency monitoring
BAE002E	BAE002M	BAE002H	BAE002K
BOS S-C01	BOS S-T01	BOS S-F01	BOS S-M01
BAE002F	BAE002N	BAE002J	BAE002K
BOS S-C02	BOS S-T02	BOS S-F02	BOS S-M02
10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
< 400 mA	< 400 mA	< 400 mA	< 400 mA
≤ 10 mA	≤ 10 mA	≤ 10 mA	≤ 10 mA
yes	yes	yes	yes
yes	yes	yes	yes
> 10 kΩ	> 10 kΩ	> 10 kΩ	> 10 kΩ
0.1 ms	0.1 ms	0.1 ms	0.1 ms
10 kHz	10 kHz	10 kHz	10 kHz
PNP	PNP	PNP	PNP
NPN	NPN	NPN	NPN
PNP	PNP	PNP	PNP
NPN	NPN	NPN	NPN
1			
65535			
	1 ms		
	65535 ms		
			0.015 Hz...1 kHz
LED red	LED red	LED red	LED red
0...+60 °C	0...+60 °C	0...+60 °C	0...+60 °C
IP 67	IP 67	IP 67	IP 67
☐	☐	☐	☐
PBT/PA 6.6	PBT/PA 6.6	PBT/PA 6.6	PBT/PA 6.6
M12 female 4-pin	M12 female 4-pin	M12 female 4-pin	M12 female 4-pin
M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin	M12 connector, 4-pin
15 g	15 g	15 g	15 g



Electrical devices

Connectors
Mounting components
BUS-specific accessories



Accessories

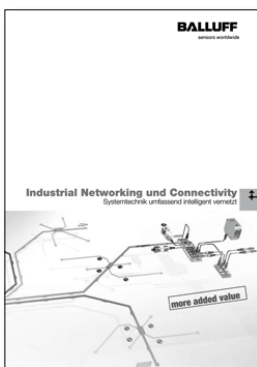
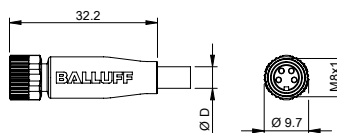
M8-female straight,
4-pin, no LED



Connector diagram and wiring		
Supply voltage max. AC U_B	30 V AC	
Supply voltage max. DC U_B	30 V DC	
Cable	molded	
No. of wires × cross-section	4×0.34 mm ²	
Enclosure rating per IEC 60529	IP 67	
Ambient temperature range T_a	-25...+80 °C	
Use	complementary (N.O./N.C.)	

Cable material	Color	Length	Ordering code
PUR	Black	2 m	Part number BCC02N2 BCC M314-0000-10-003-PX0434-020
PUR	Black	5 m	BCC02N3 BCC M314-0000-10-003-PX0434-050
PUR	Black	10 m	BCC02N4 BCC M314-0000-10-003-PX0434-100

Other cable materials, colors and lengths on request.
Connectors without LED are suitable for PNP and NPN switching functions.



Other connectors and connectivity products can be found in our catalog "Industrial Networking and Connectivity".

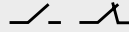


Accessories

M12 female connector, straight
4-pin and 5-pin, without LED



PIN 1: brown
PIN 2: white
PIN 3: blue
PIN 4: black



250 V AC

250 V DC

molded

4×0.34mm²

IP 68

-25...+80 °C

complementary (N.O./N.C.) \curvearrowright / \curvearrowleft

Ordering code

Part number

BCC032F

BCC M415-0000-1A-003-PX0434-020

BCC032H

BCC M415-0000-1A-003-PX0434-050

BCC032J

BCC M415-0000-1A-003-PX0434-100



PIN 1: brown
PIN 2: white
PIN 3: blue
PIN 4: black
PIN 5: gray



60 V AC

60 V DC

molded

5×0.34mm²

IP 67

-25...+80 °C

Ordering code

Part number

BCC0096

BKS-S137-17-PU-05

BCC0097

BKS-S137-17-PU-10

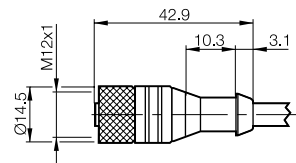
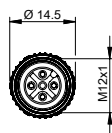
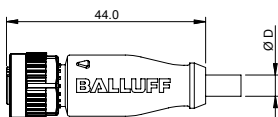


Electrical
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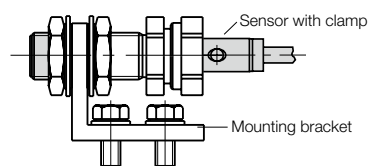
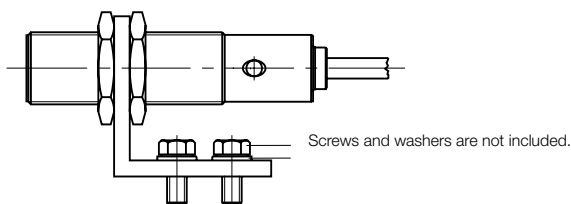
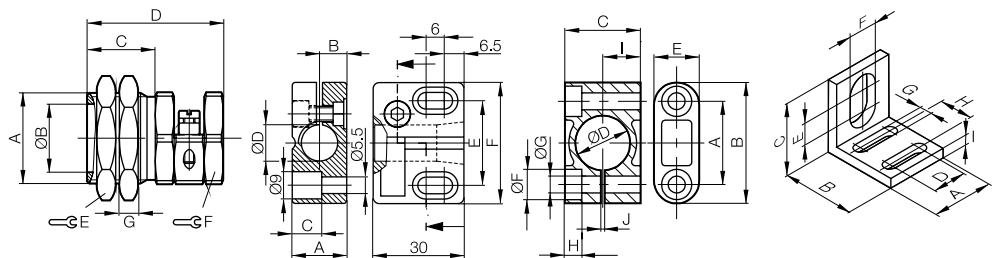


Accessories

Holders and fastening systems



Description	Clamp without positive stop			Mounting clamp without positive stop			Mounting cuff			Mounting bracket			
Ø 12 mm	Ordering code	BAM00E4		BAM00C9			BAM00C4			BAM00C0			
	Part number	BES 12,0-KH-4		BES 12,0-KB-3			BES 12,0-BS-1			BES 12-HW-1			
Ø 18 mm	Ordering code	BAM00FZ		BAM00F7			BAM00F2			BAM00EY			
	Part number	BES 18,0-KH-4		BES 18,0-KB-3			BES 18,0-BS-1			BES 18-HW-1			
Ø 30 mm	Ordering code	BAM00J8					BAM00HN			BAM00HH			
	Part number	BES 30,0-KH-4					BES 30,0-BS-1			BES 30-HW-1			
Style		for Ø 12 mm	for Ø 18 mm	for Ø 30 mm	for Ø 12 mm	for Ø 18 mm	for Ø 12 mm	for Ø 18 mm	for Ø 30 mm	for Ø 12 mm	for Ø 18 mm	for Ø 30 mm	
Dimension A		M16x1	M24x1.5	M36x1.5	18	24	22	26	42	25	30	40	
Dimension B		12	18	30	9	12	32	36	55	30	40	40	
Dimension C		16	18	18	9.7	13.5	20	26	38	30	40	60	
Dimension D		30.5	36	40	Ø 12	Ø 18	Ø 11.9	Ø 17.9	Ø 30	14	18	30	
Dimension E		flat-to-flat 22	flat-to-flat 30	flat-to-flat 41	28	28	12	12	18	9	11	19	
Dimension F		flat-to-flat 17	flat-to-flat 24	flat-to-flat 41	40	40	Ø 8	Ø 8	Ø 10	12.1	18.1	30.1	
Dimension G		3.9	5.0	5.9			Ø 4.5	Ø 4.5	Ø 5.5	5.2	5.2	5.2	
Dimension H		2.1	3.2	3.2			4.5	4.5	5.5	14	14	14	
Dimension I							10	13	19	4	5	5	
Dimension J							1	1	1.5				
Material		CuZn coated			PA 6			PA 6			Al		



These aluminum mounting brackets provide a way of easily and quickly attaching sensors to the machine. When using tubular sensors, it is recommended that additional clamps be used.

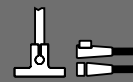
Use
For all sensors with appropriate diameter.

Accessories

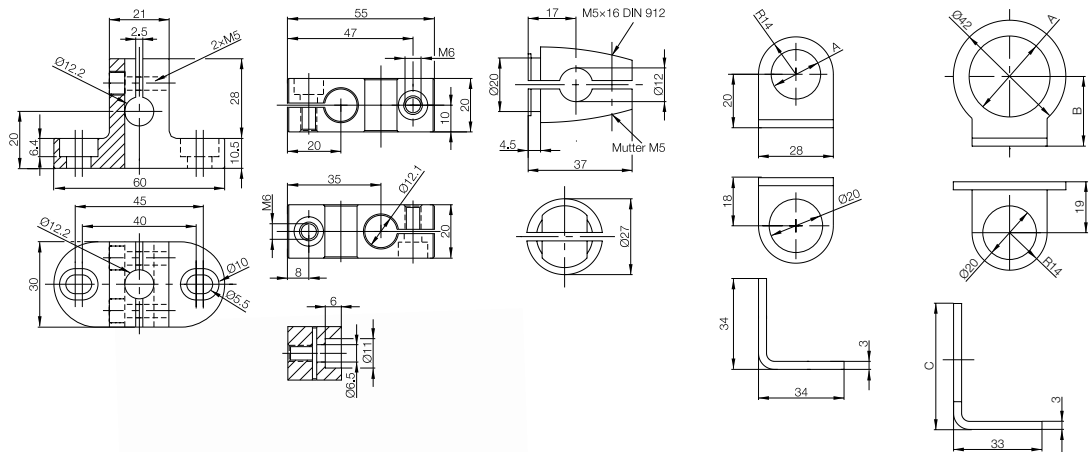
Mounting system



Description	Base holder	Cross-connector	Clamping cylinder	Sensor holder	Sensor holder
Version	For 1 rod \varnothing 12 mm (vertical or horizontal)	For 2 rods \varnothing 12 mm		For clamping cylinder	For clamping cylinder
Use	For mounting on base plates or extrusions	Connecting element for 2 rods \varnothing 12 mm	Accommodates all holders, sensors and reflectors	For tubular sensors and clamps M12, M18	For tubular sensors M30
Ordering code	BAM002W	BAM002Z	BAM0031		
Part number	BMS CU-M-D12-A040-00	BMS CC-M-D12-B-00	BMS CS-M-D12-IZ		
\varnothing 12 mm	Ordering code			BAM0037	
Part number				BMS CS-M-D12-ID12-01	
\varnothing 18 mm	Ordering code			BAM0032	
Part number				BMS CS-M-D12-ID18-01	
\varnothing 30 mm	Ordering code				BAM0033
Part number					BMS CS-M-D12-ID30-01
Material	Al anodized	Al anodized	GD-Zn	Stainless steel	Stainless steel



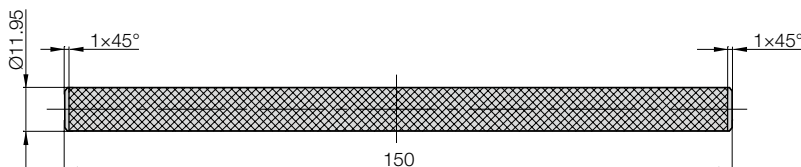
Electrical devices
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	A	A	B	C
BMS CS-...12	\varnothing 12	BMS CS-...30	\varnothing 30.2	26
BMS CS-...18	\varnothing 18		26	47

Mounting rods \varnothing 12 mm, anodized Al

Order code	Part designation	Length
BAM002R	BMS RS-M-D12-0150-00	150 mm
BAM002T	BMS RS-M-D12-0250-00	250 mm
BAM002U	BMS RS-M-D12-1000-00	1000 mm (for user assembly)



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



Accessories

Sound deflection brackets and focussing attachments



Description	Sound deflection bracket for BUS M18	Sound deflection bracket for BUS M30	Focussing attachments M12 → 5 mm	Focussing attachments M18 → 11 mm
Ordering code	BAM01EP	BAM01ER	BAM01ET	BAM01EU
Part number	BAM BD-US-001-D20-4	BAM BD-US-001-D32-4	BAM AP-US-001-M12-0	BAM AP-US-002-M18-0
Material	V2A	V2A	POM	POM

