Flow sensor SFAW

Type code

001	Series	
SFAW	Flow sensor	

002	Flow measuring range	
32	Max. 32 l/min	
100	Max. 100 l/min	

003	Additional measured variable	
	None	
T	Temperature	

004	Connection type, input	
T	Female thread	
X	Connection provided by the user	

005	Connection size, input	
	Standard	
G1	G1	
G12	G1/2	
G34	G3/4	
N12	1/2 NPT	
R12	R1/2	
R34	R3/4	

006	Connection type, output	
E	As input	
T	Female thread	
X	Connection provided by the user	

007	Connection size, output	
	Standard	
G1	G1	
G12	G1/2	
G34	G3/4	
N12	1/2 NPT	
R12	R1/2	
R34	R3/4	

008	Type of mounting	
	None	
W	Wall mounting	

009	Electrical output 1	
PNLK	PNP/NPN/IO-Link	

010	Electrical output 2	
PN	PNP or NPN	
PNVBA	PNP or NPN or 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA	

011	Electrical output 3	
	None	
VBA	0 ... 10 V or 1 ... 5 V or 4 ... 20 mA	

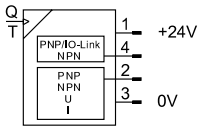
012	Electrical connection	
M12	Plug M12, A-coded	

013	Electrical accessories	
	None	
2.5S	Straight socket, cable 2.5 m	
5S	Straight socket, cable 5 m	

014	Protective devices	
	None	
G	Protective hood	

Datasheet

General technical data, SFAW-...-PNLK-PNVBA



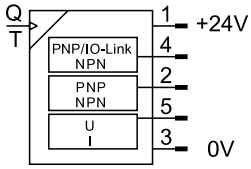
Maximum flexibility and reduced warehousing thanks to switchable electrical outputs:
– PNP/NPN switchable
– Normally closed/normally open switchable
– Current output 4 ... 20 mA

- Pulse output for volume measurement can be freely selected
- Measuring signal filter for setting the rise time
- Additional filter for smoothing the display values

Approval	RCM trademark, c UL us listed (OL)
CE mark (see declaration of conformity) [1)]	To EU EMC Directive, In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
Note on materials	RoHS-compliant

1) For information about the area of use, see the declaration of conformity at: www.festo.com/catalogue/sfaw → Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or industrial environments as well as small businesses, further measures for reducing the emitted interference may be necessary.

General technical data, SFAW-...-PNLK-PN-VBA



Maximum flexibility and reduced warehousing thanks to switchable electrical outputs:
– PNP/NPN switchable
– Normally closed/normally open switchable
– Voltage output 1 ... 5 V,
0 ... 10 V switchable

- Pulse output for volume measurement can be freely selected
- Measuring signal filter for setting the rise time
- Additional filter for smoothing the display values

Approval	RCM trademark, c UL us listed (OL)
CE mark (see declaration of conformity) [1)]	To EU EMC Directive, In accordance with EU RoHS Directive
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1) For information about the area of use, see the declaration of conformity at: www.festo.com/catalogue/sfaw → Support/Downloads.
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Datasheet

Input signal, measuring element		
End value for flow rate measuring range	32 l/min	100 l/min
Start value for flow rate measuring range	1.8 l/min	5 l/min
Measured variable	Flow rate, Temperature	
Flow direction	Unidirectional, P1 -> P2	
Measurement method	Flow: Vortex, Temperature: PT1000	
Operating pressure	0 ... 1.2 MPa	
Operating pressure	0 ... 12 bar	
Operating pressure	0 ... 174 psi	
Note on operating pressure	Max. 1.2 MPa (12 bar / 174 psi) at 40°C, Max. 0.6 MPa (6 bar / 87 psi) at 90°C	
Overload pressure	4 MPa	
Overload pressure	40 bar	
Overload pressure	580 psi	
Operating medium [1]	Liquid media, Water, Neutral fluids	
Note on operating and pilot medium	Media with a kinematic viscosity = 1.8 mm²/sec. [cSt]. Compatibility of the media with the substances in contact with the media must be ensured.	
Media temperature	0 ... 90°C	
Ambient temperature	0 ... 50°C	
Nominal temperature	23°C	

1) Media with a kinematic viscosity = 1.8 mm²/sec. [cSt]. Compatibility of the media with the substances that come into contact with the media must be ensured.

Output, general	
Accuracy of flow rate[1]	±2%FS for flow ≤ 50%FS, ±3% of measured value for flow rate ≥ 50% FS
Accuracy temperature in ± °C	2°C
Repetition accuracy of flow rate [2]	< ±0.5% FS for flow rate <= 50%FS, < ±1% of measured value for flow rate >= 50%FS
Temperature coefficient span in ± %FS/K	Typ. ± 0.05%FS/K

1) Accuracy flow rate value = ±2% FS for flow rate <= 50% FS and ±3% o.m.v. for flow rate >= 50% FS

2) Repetition accuracy flow rate value = < ±0.5% FS for flow rate <= 50% FS < ±1% o.m.v. for flow rate >= 50% FS

Switching output	
Switching output	2 x PNP or 2 x NPN, switchable
Switching function	Window comparator, Threshold value comparator, Freely programmable
Switching element function	N/C or N/O contact, switchable
Switch-on time	–
Switch-off time	–
Max. output current	100
Voltage drop	–
Inductive protective circuit	–

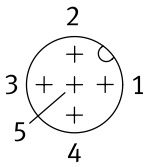
Analogue output	
Analogue output	0 - 10 V, 4 - 20 mA, 1 - 5 V
Flow characteristic curve start value	0 l/min
Flow characteristic curve end value	32 ... 100 l/min
Temperature characteristic curve start value	0°C
Temperature characteristic curve end value	100°C
Rise time	–
Min. load resistance voltage output	15 kOhm
Max. load resistance current output	500 Ohm

Datasheet

Output, additional data	
Short circuit current rating	yes
Overload protection	Available

Electronics	
Operational voltage range DC	18 ... 30 V
Max. current consumption	260 mA
Reverse polarity protection	For all electrical connections

Electromechanics



1 Operating voltage +24 V DC
2 Switching output OutB or OutD or analogue output
3 0 V
4 Switching output OutA or OutC or IO-Link (C/Q line)
5 Analogue output or not assigned

Electrical connection 1, connection type	Plugs
Electrical connection 1, connector system	M12x1, A-coded to EN 61076-2-101
Electrical connection 1, number of connections/cores	5
Electrical connection 1, type of mounting	Screw-type lock, Not rotatable
Electrical connection 1, compatible type of mounting	Compatible with rotatable screw-type lock

Mechanical system	
Mounting position	optional
Max. cable length	20 m with IO-Link® operation, 30 m
Fluid connection	Female thread G1, Female thread G1/2, Female thread G3/4, Connection by the user
Material in contact with the medium	EPDM (peroxide), ETFE, Stainless steel, PA6T/6I reinforced
Material housing	PA-reinforced
Product weight	140 ... 530 g

Display, operation	
Displayable units	US gal, US gal/min, cft, cft/min, l, l/h, l/min, m3, °C, °F

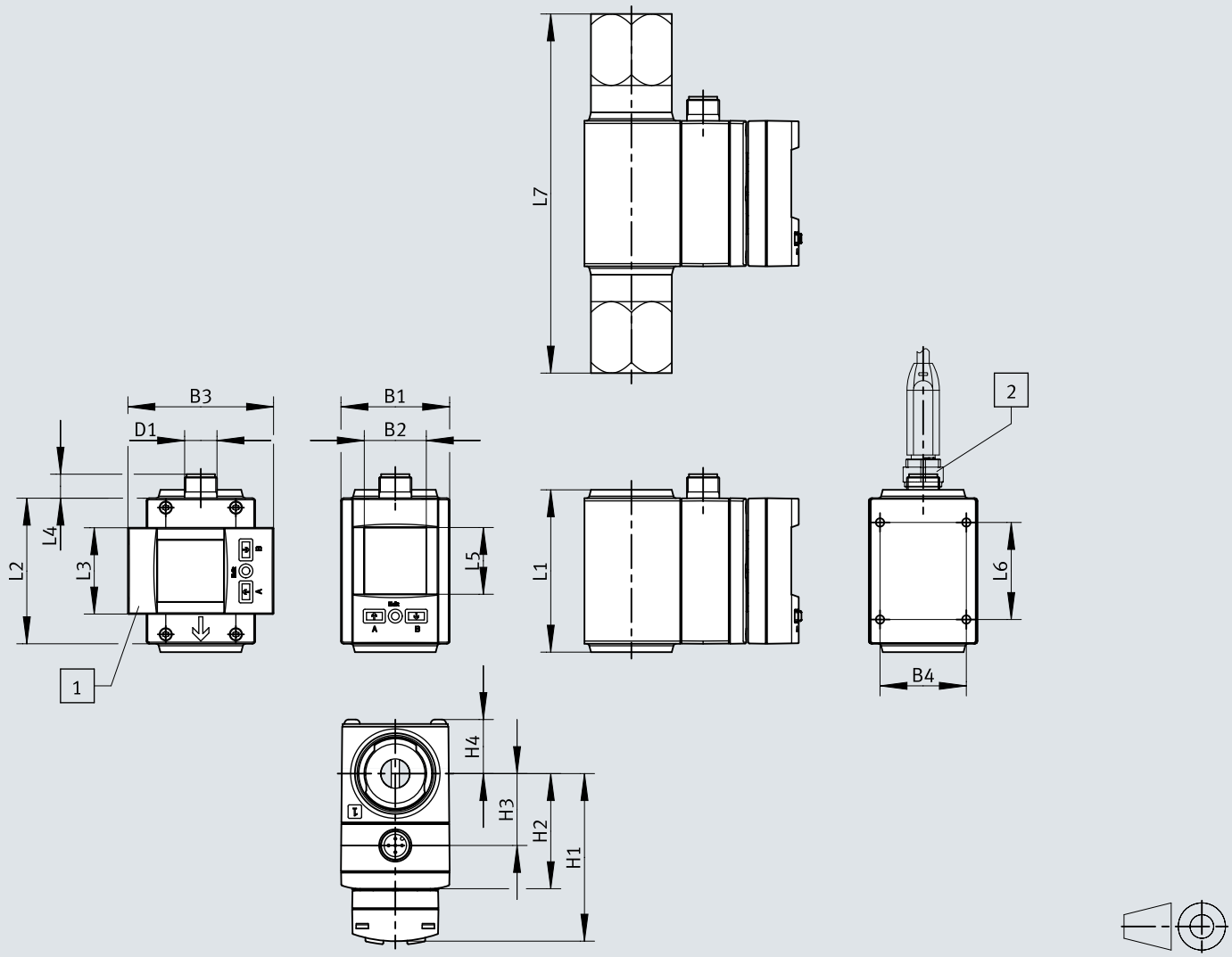
IO-Link®	
Protocol	IO-Link®
IO-Link, Protocol version	Device V 1.1
IO-Link, Profile	Smart sensor profile
IO-Link, Function classes	Binary data channel (BDC), Process data variable (PDV), Identification, Diagnostics, Teach channel
IO-Link, communication mode	COM2 (38.4 kBaud)
IO-Link, SIO-Mode support	Yes
IO-Link, Port class	A
IO-Link, Process data length OUT	0 bytes
IO-Link, Process data length IN	3 bytes, 5 bytes
IO-Link, Process data content IN	1 bit BDC (temperature monitoring), 1 bit BDC (volume monitoring), 14 bit PDV (measured flow value), 14 bit PDV (measured temperature value), 2 bit BDC (flow monitoring)
IO-Link, Service data IN	32-bit volume measurement
Medium	–
IO-Link, Data storage required	0.5

Datasheet

Immission, emission	
Degree of protection	IP65
Corrosion resistance class CRC	3 - high corrosion stress
LABS (PWIS) conformity	VDMA24364-B2-L

Dimensions

Dimensions – SFAW-...-PNLK-PNVBA-M12 Download CAD data www.festo.com

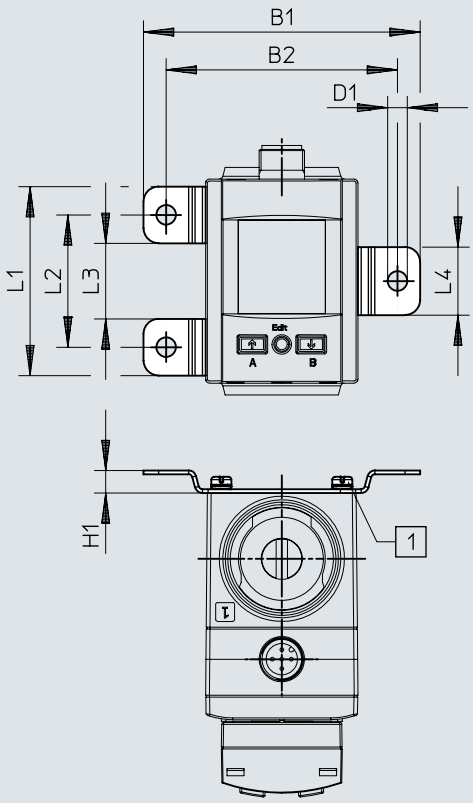


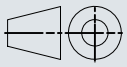
[1] Rotatable display 90° anticlockwise 180° clockwise
[2] Connection for connecting cable, straight

	B1	B2	B3	B4	D1	H1	H2	H3	H4	L1	L2	L3	L4	L5	L6	L7
SFAW-32...-X-E-PNLK-PNVBA-M12	40,3	23	54	32	M12x1	62,2	42,7	26,7	20	60,2	54	32	8,9	24,8	36	
SFAW-100...-X-E-PNLK-PNVBA-M12																
SFAW-32...-T-E-PNLK-PNVBA-M12						66,2	46,7	30,7								133,2
SFAW-100...-T-E-PNLK-PNVBA-M12																133,2

Dimensions

Dimensions – Wall mounting SAMH-FW-W Download CAD data www.festo.com

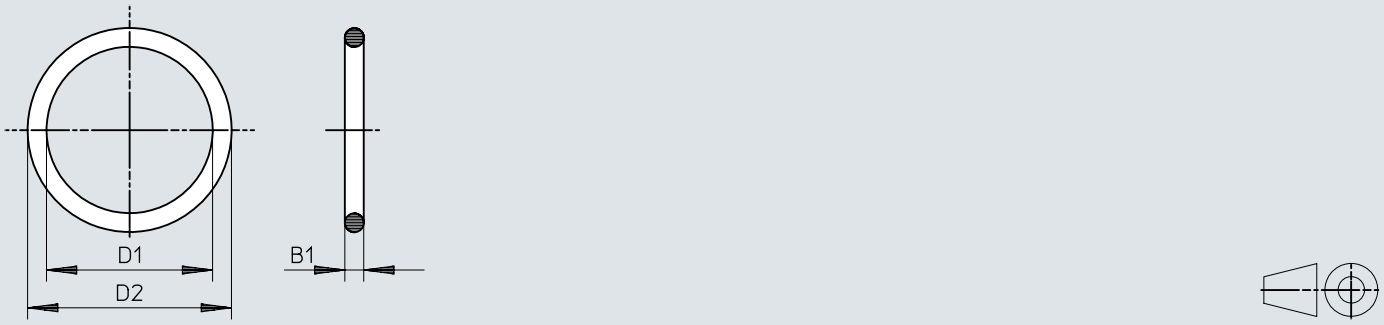




	B1	B2	D1 ø	H1	L1	L2	L3	L4
SAMH-FW-W	73,2	61,2	5,2	6	50	35	20	18

Dimensions

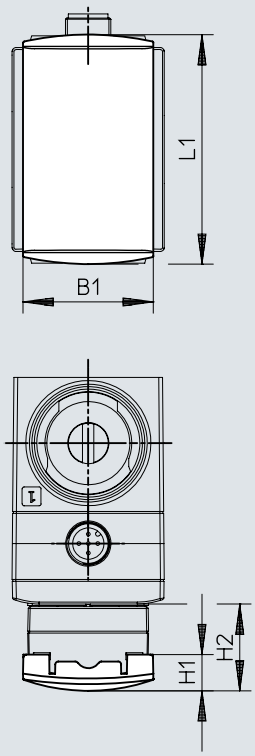
Dimensions – Seal SASF-FW-S-E Download CAD data www.festo.com

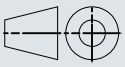


	B1	D1 ø	D2 ø
SASF-FW-S-E	2,5	22	27

Dimensions

Dimensions – Protective hood SACC-PU-G Download CAD data www.festo.com

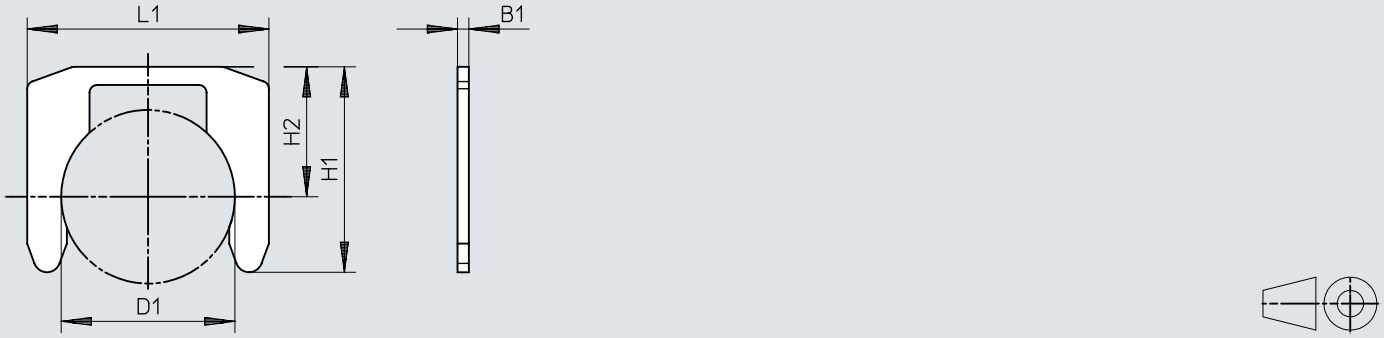




	B1	L1	H1	H2
SACC-PU-G	34,5	60,8	9,6	23

Dimensions

Dimensions – Clamp SAMH-FW-SB Download CAD data www.festo.com



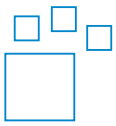
	B1	D1 ø	H1	H2	L1
SAMH-FW-SB	1,5	23	27,2	17,2	32

Ordering data

Ordering data

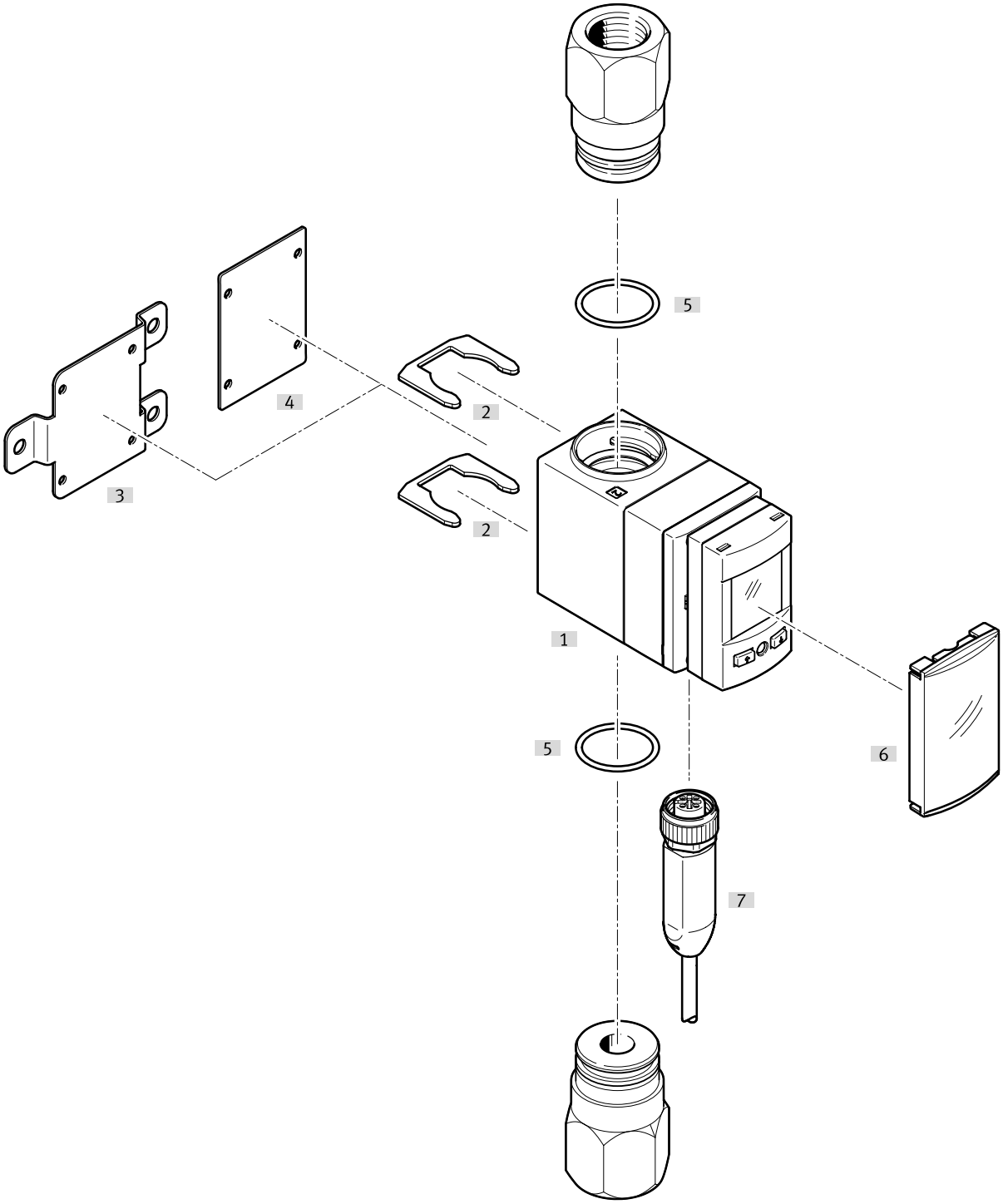
	End value for flow rate measuring range	Measured variable	Fluid connection	Product weight	Part no.	Type
	32 l/min	Flow rate, Temperature	Female thread G1/2	400 g	**8036872**	**SFAW-32T-TG12-E-PNLK-PNVBA-M12**
					8036871	**SFAW-32-TG12-E-PNLK-PNVBA-M12**
			Female thread G3/4	530 g	**8036874**	**SFAW-32T-TG34-E-PNLK-PNVBA-M12**
					8036873	**SFAW-32-TG34-E-PNLK-PNVBA-M12**
			Connection by the user	140 g	**8036888**	**SFAW-32T-X-E-PNLK-PNVBA-M12**
					8036887	**SFAW-32-X-E-PNLK-PNVBA-M12**
	100 l/min		Female thread G1	400 g	**8036877**	**SFAW-100-TG1-E-PNLK-PNVBA-M12**
					8036878	**SFAW-100T-TG1-E-PNLK-PNVBA-M12**
			Female thread G3/4	530 g	**8036876**	**SFAW-100T-TG34-E-PNLK-PNVBA-M12**
					8036875	**SFAW-100-TG34-E-PNLK-PNVBA-M12**
			Connection by the user	140 g	**8036889**	**SFAW-100-X-E-PNLK-PNVBA-M12**
					8036890	**SFAW-100T-X-E-PNLK-PNVBA-M12**

Ordering data – Modular product system

	End value for flow rate measuring range	Fluid connection	Part no.	Type
	32 ... 100 l/min	Female thread 1/2 NPT, Female thread 3/4 NPT, Female thread G1, Female thread G1/2, Female thread G3/4, Female thread Rc1/2, Female thread Rc3/4, Connection by the user	**8022000**	**SFAW-**

Peripherals

Peripherals overview



Accessories			→ Link
	Type/order code	Description	
[1]	Flow sensor SFAW	For measuring and monitoring the flow, volume and temperature of liquid media	🔗 –
[2]	Clamp SAMH-FW-SB	For mounting the fluid connections on the body of the flow sensors	14
[3]	Wall mounting SAMH-FW-W	For wall or surface mounting of the flow sensor	14
[4]	Locking plate SFAW	For securing the clamps (locking plate is screwed to the sensor body)	🔗 –
[5]	Seal SASF-FW-S-E	For sealing the fluid connections against the body of the flow sensors	14
[6]	Protective hood SACC-PU-G	For covering the display and control elements	14
[7]	Connecting cables NEBA M12x1, straight socket	–	14

Accessories

Wall mounting SAMH-FW-W

	Information on materials	LABS (PWIS) conformity	Corrosion resistance class CRC	Part no.	Type
	High-alloy stainless steel	VDMA24364-B2-L	3 - high corrosion stress	**8036909**	**SAMH-FW-W**

Seal SASF-FW-S-E

	LABS (PWIS) conformity	Note on materials	Part no.	Type
	VDMA24364-B2-L	RoHS-compliant	**8036907**	**SASF-FW-S-E**

Protective hood SACC-PU-G

	Information on materials	LABS (PWIS) conformity	Corrosion resistance class CRC	Part no.	Type
	PA	VDMA24364-B1/B2-L	2 - Moderate corrosion stress	**8003353**	**SACC-PU-G**

Clamp SAMH-FW-SB

LABS (PWIS) conformity	Information on materials	Corrosion resistance class CRC	Part no.	Type
VDMA24364-B2-L	High-alloy stainless steel	3 - high corrosion stress	**8036908**	**SAMH-FW-SB**

Connecting cables NEBA M12x1, straight socket

	Cable structure	Cable length	Product weight	Part no.	Type
	4 x 0.25 mm²	2.5 m	72 g	**8078239**	**NEBA-M12G5-U-2.5-N-LE4**
	5 x 0.25 mm²		85 g	**8078242**	**NEBA-M12G5-U-2.5-N-LE5**