Flow sensors SFAW

Flow sensors SFAW

Key features

General

The SFAW is intended for use in measuring and monitoring the flow, volume and temperature of liquid media in piping or in terminals in industry. The flow velocity is recorded in accordance with the vortex principle. The flow rate and the accumulated volume are calculated from the flow velocity. An optional, integrated temperature sensor records the temperature of the media. Connection to higher-level systems is provided by 2 switching outputs, an analogue output and/or an IO-Link interface, depending on the type. The outputs can be configured as appropriate to the application.
The switching outputs can be configured to monitor a threshold value or a range. Either PNP or NPN and either normally open (NO) or normally closed (NC) can be set for the outputs. Process values can be read out and parameters changed and transmitted to additional devices via the IO-Link interface.

Application

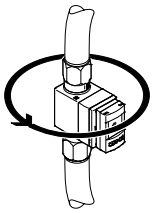
- Cooling circuit monitoring
- Monitoring for leaks and line breaks
- Process water monitoring
- Filling volume monitoring

Overview

An installation concept with short mounting and dismounting times that is easy to implement in all installation situations.

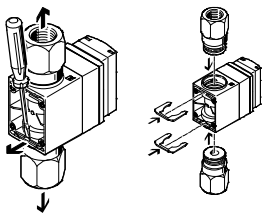
Mounting

The sensor can be rotated through 360° in the direction of flow, so that once it has been installed it can be aligned without the need for tools.



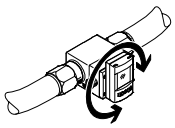
Dismounting

After the screwed-in locking plate (not shown) has been disconnected, it can be removed. The sensor can then be exchanged quickly by undoing the clips on the sensor body and removing them. The fluid connections can then be detached from the sensor body.



Display

A large, illuminated LCD display increases the operational safety and makes the currently displayed values for flow rate or medium temperature and the accumulated volume easy to read. The rotatable display ensures ease of readability and usability when mounted either horizontally or vertically.



Change in colour

Depending on the switching status (e.g. a flow threshold has not been achieved or media temperature exceeded) a change in colour to red can be set in the display for the switching outputs. As a result, it is possible to reliably identify the system status from a large distance or in inaccessible areas.

Media connections

- Free choice of various media connections:
  - Threaded connection (female thread) (G, RC, NPT)
  - Clamped terminal connection to DIN 32676
  - Female hose connector
- Free choice of media connection type on sensor input and sensor output side
- Basic sensor body and media connections can be obtained separately
- Ultra-simple and fast mounting of media connections using clips
- Option of designing dedicated, application-specific connections

Electronics

Maximum versatility and reduced warehousing thanks to switchable electrical outputs:
- PNP/NPN
- NC/NO contact function
- Current output 4 ... 20 mA or voltage output 1 ... 5 V, 0 ... 10 V

Sensor signal monitoring

Flow signal monitoring to detect unstable flows. Possible causes for unstable flows include:
- Air in the line
- Line filling during start-up
- Turbulent flows as a result of unfavourable or incorrect installation

Flow sensors SFAW

Key features

Operation

Monitoring and setting a flow threshold, a flow range, a temperature threshold and a temperature range using a teach-in function or by entering values.

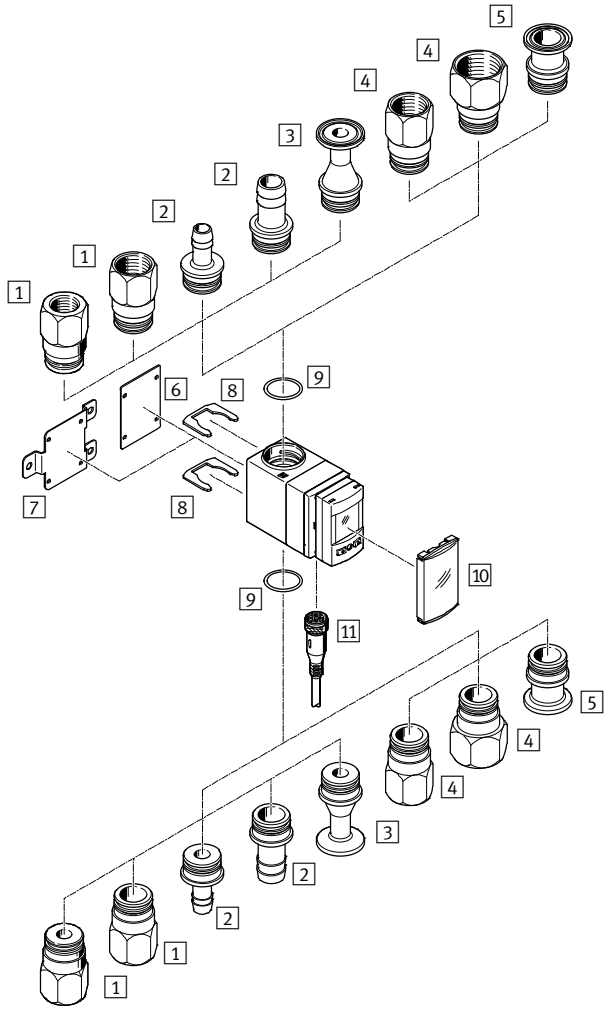
- Flow indication, medium temperature indication, switching outputs and analogue value output for flow rates and temperature can be set on site in one device
- Fast commissioning of the flow sensor thanks to intuitive menu navigation
- Display colour red/blue as visual feedback that the flow rate or temperature thresholds have not been achieved or have been exceeded.
- Min./max. value memory for monitoring the flow and temperature (storage of flow and temperature peaks)
- To prevent undesirable switching status changes – an integrated adjustable filter damps the sensor signal generated by flow peaks
- Scaling the analogue output to increase the signal dynamics
- Switchable flow and volume units l/min, l/h, US gal/min, cfm, l, m^3, US gal, cft
- Switchable temperature units °C, °F
- ECO function with option to set display switch-off
- Optional security code can be freely chosen (4-digit code)
- All settings that have been carried out on one sensor (master) can be transferred (replication) to other, identical sensors (device). This makes it possible to significantly shorten commissioning time.
- Recorder mode for manual volume measurements with start, stop and reset functionality
- Adjustable volume pulse

IO-Link

- Serial communication integrated using IO-Link 1.1
- Analogue process values are provided digitally
- The sensor can be parameterised and maintained remotely at control level using an IO-Link master
- Automatic parameterisation following sensor change: no need to repeat parameterisation and sensor settings after changing the sensor

Flow sensors SFAW

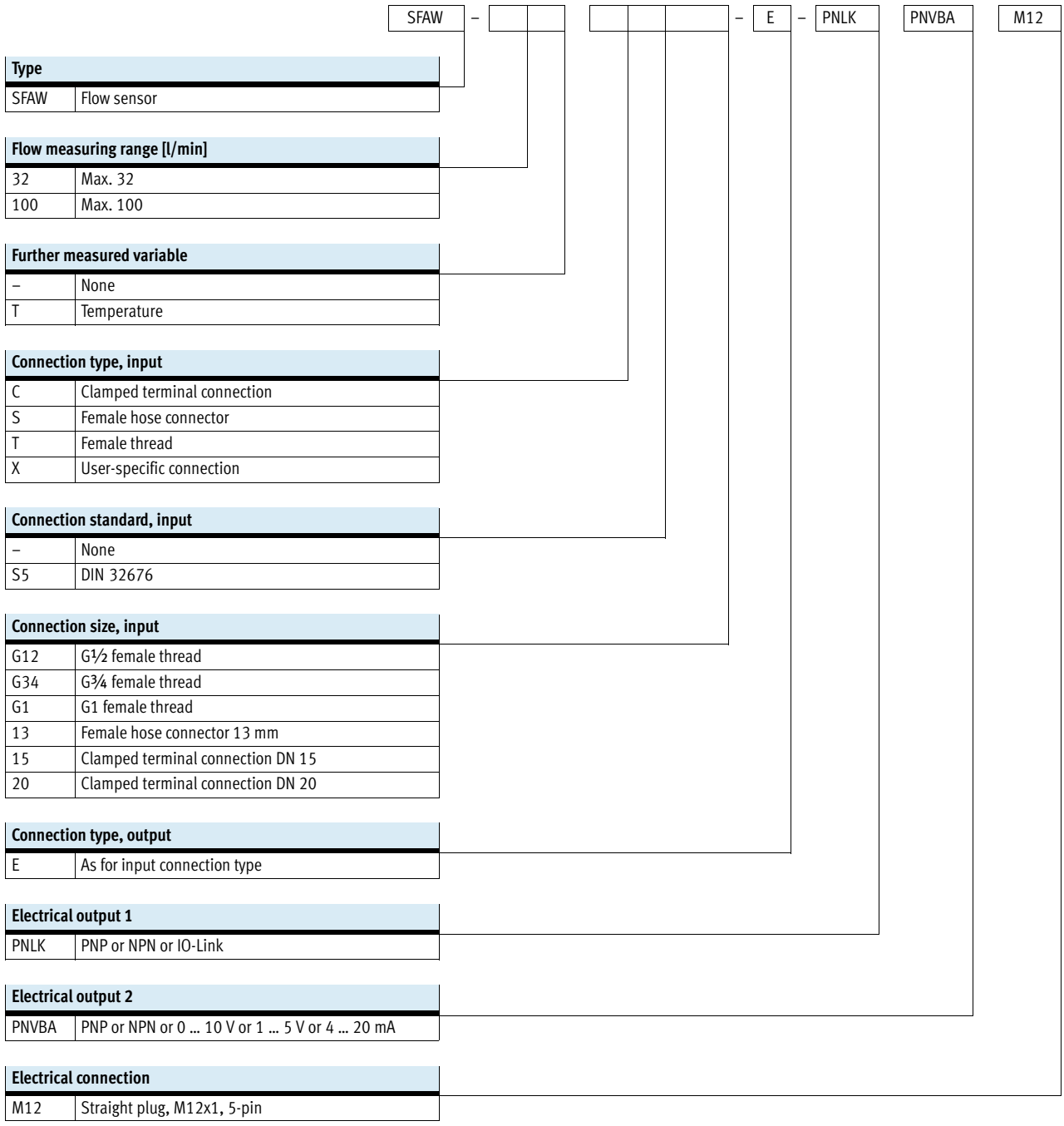
Peripherals overview



Mounting components and accessories			
		Description	**➔ Page/Internet**
1	Connecting adapter SASA-FW-A-32-T...	Female thread for flow measuring range 32 with connection G1½, G¾, R1½, R¾, NPT1½, NPT¾	16
2	Connecting adapter SASA-FW-A-32-S...	Female hose connector for flow measuring range 32 with connection size 13 mm or 19 mm	16
3	Connecting adapter SASA-FW-A-32-CS5...	Clamped terminal connection for flow measuring range 32 with connection DN15	17
4	Connecting adapter SASA-FW-A-100-T...	Female thread for flow measuring range 100 with connection G¾, G1, R¾, R1, NPT¾, NPT1	16
5	Connecting adapter SASA-FW-A-100-CS5...	Clamped terminal connection for flow measuring range 100 with connection DN20	17
6	Locking plate SFAW	For securing the clips (locking plate is screwed to the sensor body)	–
7	Wall mounting SAMH-FW-W	For wall or surface mounting of the flow sensor	14
8	Clip SAMH-FW-SB	For mounting the fluid connections on the body of the flow sensors	15
9	Seal SASF-FW-S-E	For sealing the fluid connections against the body of the flow sensors	14
10	Protective cover SACC-PU-G	For covering the display and control elements	15
11	Connecting cable NEBU	–	17

Flow sensors SFAW

Type codes



Type	
SFAW	Flow sensor

Flow measuring range [l/min]	
32	Max. 32
100	Max. 100

Further measured variable	
–	None
T	Temperature

Connection type, input	
C	Clamped terminal connection
S	Female hose connector
T	Female thread
X	User-specific connection

Connection standard, input	
–	None
S5	DIN 32676

Connection size, input	
G12	G½ female thread
G34	G¾ female thread
G1	G1 female thread
13	Female hose connector 13 mm
15	Clamped terminal connection DN 15
20	Clamped terminal connection DN 20

Connection type, output	
E	As for input connection type

Electrical output 1	
PNLK	PNP or NPN or IO-Link

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

Electrical connection	
M12	Straight plug, M12x1, 5-pin

Additional variants can be ordered using the modular product system ➔ 12

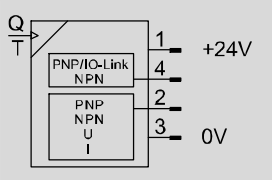
- Further connection options for input and output
- Electrical accessories
- Protective devices

Flow sensors SFAW

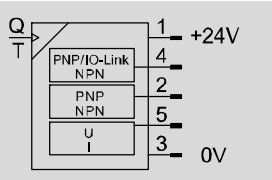
Technical data

Function

SFAW-...-PNLK-PNVBA



SFAW-...-PNLK-PN-VBA



- Maximum versatility and reduced warehousing owing to switchable electrical outputs:
  - PNP/NPN, switchable
  - N/C or N/O contact, switchable
  - Current output 4 ... 20 mA or 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

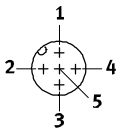
General technical data	
Certification	RCM mark
	c UL us - Listed (OL)
CE marking (see declaration of conformity)	To EU EMC Directive
	To EU RoHS Directive
KC marking	KC-EMV
Note on materials	RoHS compliant

Input signal, measuring element			
		-32	-100
Measured variable		Flow, temperature	
Direction of flow		Unidirectional P1 → P2	
Measuring principle for flow		Vortex	
Measuring principle for temperature		PT1000	
Flow measuring range	[l/min]	1.8 ... 32	5 ... 100
Temperature measuring range	[°C]	0 ... 90	
Operating pressure	[bar]	0 ... 12; max. 12 bar at 40 °C, max. 6 bar at 100 °C	
Max. overload pressure	[bar]	40	
Operating medium[1)]		Liquid media, neutral liquids, water	
Temperature of medium	[°C]	0 ... 90	
Ambient temperature	[°C]	0 ... 50	
Nominal temperature	[°C]	23	

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

Electrical data			
		-32	-100
Output, general			
Accuracy of zero point Flow ≤ 50% FS[1)]	[% FS]	±2	
Accuracy of margin Flow ≥ 50% FS[1)]	[% FS]	±3	
Repetition accuracy of zero point Flow ≤ 50% FS[2)]	[% FS]	±0.5	
Repetition accuracy of margin Flow ≥ 50% FS[2)]	[% FS]	±1	
Accuracy of temperature	[°C]	±2	
Temperature coefficient of margin	[% FS]	Typ. ±0.05 % FS/K	
Switching output			
Switching output		2 x PNP or 2 x NPN or IO-Link, switchable	
Switching function		Threshold value comparator or window comparator, freely programmable	
Switching element function		N/C contact or N/O contact, switchable	
Switch-on time	[ms]	400 with filter time constant 150 ms (adjustable)	
Switch-off time	[ms]	300 with filter time constant 150 ms (adjustable)	
Max. output current	[mA]	100	
Voltage drop	[V]	Max. 1.5	
Pull-down / pull-up resistor		PNP: integrated; NPN: not integrated	
Inductive protective circuit		Present	
Analog output			
Characteristic curve for flow rate	[l/min.]	0 ... 32	0 ... 100
Characteristic curve for temperature	[°C]	0 ... 100	
Output characteristic curve for current	[mA]	4 ... 20	
Output characteristic curve for voltage	[V]	0 ... 10 or 1 ... 5, adjustable	
Rise time	[ms]	900 with filter time constant 150 ms (adjustable)	
Max. load resistance at current output	[Ohm]	500	
Min. load resistance at voltage output	[kOhm]	15	
Output, additional data			
Protection against short circuit		Yes	
Overload protection		Yes	
Electronic components			
Operating voltage range DC	[v]	18 ... 30	
Max. current consumption	[mA]	260	
Protection against incorrect polarity		For all electrical connections	
IO-Link, SIO mode support		Yes	
Electromechanical components			
Electrical connection		Straight plug, M12x1, 5-pin, A-coded	
Max. connecting cable length	[m]	30, for IO-Link operation 20	

1) Accuracy of flow value = ± 2% FS for flow ≤ 50% FS and ± 3% o.m.v. for flow ≥ 50% FS
2) Repeat accuracy of flow value = < ± 0.5% FS for flow ≤ 50% FS < ± 1% o.m.v. for flow ≥ 50% FS

Pin allocation		
	Pin	Meaning
Plug M12x1, 5-pin		
	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

Mechanical system		
	-32	-100
Type of mounting	Wall bracket	
Mounting position	Any	
Materials in contact with the medium	ETFE, PA6T/6I reinforced, EPDM (perox.), stainless steel	
Materials		
Housing	PA reinforced	
Wall bracket	Stainless steel	
Protective cover	PA	
Key pad	TPE-O	
Inspection window	PA	
Sealing ring	EPDM	

Display/operation			
		-32	-100
Display type		Illuminated LCD, blue	
Displayable units		l/min, l/h, ft³/min, US gal/min, l, m3, ft³, US gal, °C, °F	
Switching status indication		Visual	
Setting options		Teach-in, IO-Link, via display and keys	
Tamper-proof		Electronic locking	
Setting range for threshold value	[l]	0.1 ... 1999.9	
Volume pulse	[m3]	0.01 ... 199.99	
	[ft³]	0.01 ... 199.9	
	[US gal]	1 ... 19999	
Adjustable hysteresis	[% FS]	0 ... 90	

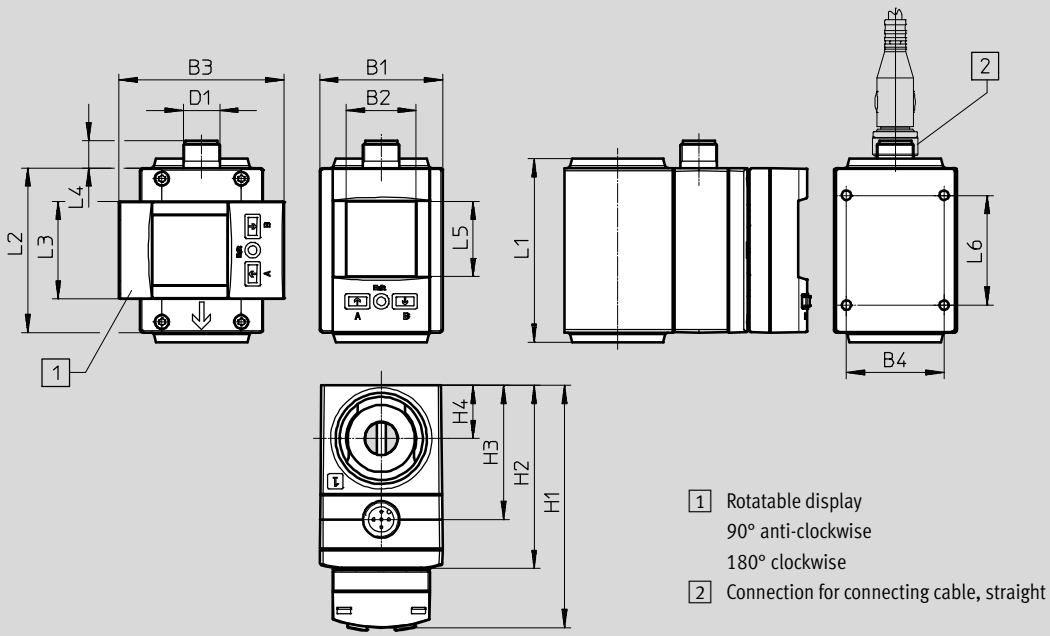
Immissions/emissions			
		-32	-100
Storage temperature	[°C]	–20 ... +80	
Degree of protection		IP65	
Protection class		III	
Shock resistance		Shock test SG2 to FN/EN	
Vibration resistance		EN60068-2-6/2-200Hz/0.7 mm	
Corrosion resistance class CRC[1)]		3	
PWIS criterion		PWIS-free to FN 942010	

1) Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. External visible parts with primarily functional requirements for the surface and which are in direct contact with a normal industrial environment.

IO-Link	SFAW-...T-TG...-E-PNLK-...	SFAW-...-TG...-E-PNLK-...
Protocol	IO-Link	
Protocol version	Device V 1.1	
Profile	Smart sensor profile	
Function classes	Binary data channel (BDC)	
	Process data variable (PDV)	
	Identification	
	Diagnostics	
	Teach channel	
Communication mode	COM2 (38.4 kBaud)	
SIO mode support	Yes	
Port class	A	
Process data width OUT	0 bytes	
Process data width IN	5 bytes	3 bytes
Process data content IN	1 bit BDC (temperature monitoring)	–
	14 bit PDV (temperature measured value)	–
	14 bit PDV (flow measured value)	
	2 bit BDC (flow monitoring)	
	1 bit BDC (volume monitoring)	
IO-Link, service data contents IN	32 bit PDV (volume measured value)	
IO-Link, minimum cycle time	5 ms	
IO-Link, data memory required	0.5 KB	

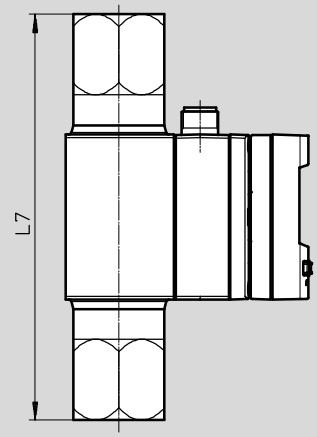
Dimensions Download CAD data ➔ **www.festo.com**

SFAW-...-PNLK-PNVBA-M12

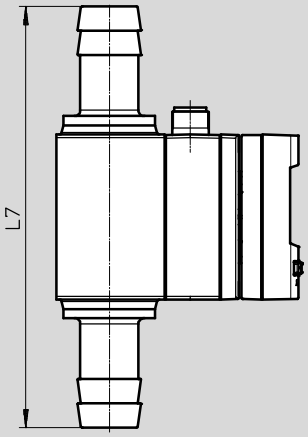


1 Rotatable display
90° anti-clockwise
180° clockwise
2 Connection for connecting cable, straight

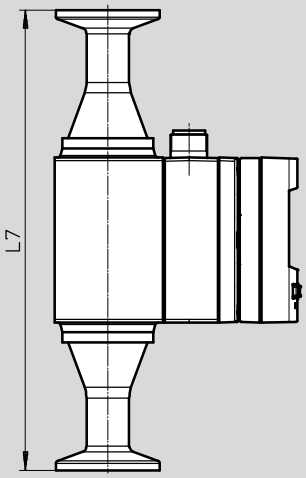
SFAW-...-T-...



SFAW-...-S-...



SFAW-...-C-...

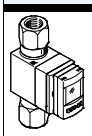
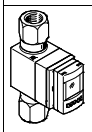


Type	B1	B2	B3	B4	D1	H1	H2	H3	H4	L1	L2	L3	L4	L5	L6	L7
SFAW-32...-X-E-PNLK-PNVBA-M12	40.3	23	54	32	M12x1	79.5	60	44	17.4	60.2	54	32	8.9	24.8	36	–
SFAW-32...-T-E-PNLK-PNVBA-M12																133.2
SFAW-32...-S-E-PNLK-PNVBA-M12																126.2
SFAW-32...-C-E-PNLK-PNVBA-M12																151
SFAW-100...-X-E-PNLK-PNVBA-M12						83.5	64	48								–
SFAW-100...-T-E-PNLK-PNVBA-M12																133.2
SFAW-100...-S-E-PNLK-PNVBA-M12																138.2
SFAW-100...-C-E-PNLK-PNVBA-M12																111

Flow sensors SFAW

Technical data

FESTO

Ordering data					
Design	Flow measuring range [l/min.]	Measured variable	Connection type	Part No.	Type
	32	Without temperature measurement	Clamped terminal connection	**8036883**	**SFAW-32-CS515-E-PNLK-PNVBA-M12**
			Female hose connector	**8036879**	**SFAW-32-S13-E-PNLK-PNVBA-M12**
			Female thread	**8036871**	**SFAW-32-TG12-E-PNLK-PNVBA-M12**
				8036873	**SFAW-32-TG34-E-PNLK-PNVBA-M12**
			User-specific connection	**8036887**	**SFAW-32-X-E-PNLK-PNVBA-M12**
		With temperature measurement	Clamped terminal connection	**8036884**	**SFAW-32T-CS515-E-PNLK-PNVBA-M12**
			Female hose connector	**8036880**	**SFAW-32T-S13-E-PNLK-PNVBA-M12**
			Female thread	**8036872**	**SFAW-32T-TG12-E-PNLK-PNVBA-M12**
				8036874	**SFAW-32T-TG34-E-PNLK-PNVBA-M12**
			User-specific connection	**8036888**	**SFAW-32T-X-E-PNLK-PNVBA-M12**
	100	Without temperature measurement	Clamped terminal connection	**8036885**	**SFAW-100-CS520-E-PNLK-PNVBA-M12**
			Female thread	**8036877**	**SFAW-100-TG1-E-PNLK-PNVBA-M12**
				8036875	**SFAW-100-TG34-E-PNLK-PNVBA-M12**
			User-specific connection	**8036889**	**SFAW-100-X-E-PNLK-PNVBA-M12**
		With temperature measurement	Clamped terminal connection	**8036886**	**SFAW-100T-CS520-E-PNLK-PNVBA-M12**
			Female thread	**8036878**	**SFAW-100T-TG1-E-PNLK-PNVBA-M12**
				8036876	**SFAW-100T-TG34-E-PNLK-PNVBA-M12**
			User-specific connection	**8036890**	**SFAW-100T-X-E-PNLK-PNVBA-M12**

FESTO

Ordering table						
			Conditions	Code		Entry code
M	Module no.	8022000				
	Function	Flow sensor		SFAW		-SFAW
M	Flow measuring range l/min	Max. 32		-32		
		Max. 100		-100		
O	Further measured variable	None				
		Temperature		T		
M	Connection type, input	Female thread		-T		
		Clamped terminal connection		-C		
		Female hose connector	4	-S		
		User-specific connection	1	-X		
O	Connection standard, input	Not specified				
		DIN32676	2 3	S5		
	Connection size, input	Standard				
		Female thread G½	4 5 6 7	G12		
		Female thread G¾	5 6 7	G34		
		Female thread G1	5 6 7 8	G1		
		Female thread R½	4 5 6 7	R12		
		Female thread R¾	5 6 7	R34		
		Female thread R1	5 6 7 8	R1		
		Female thread NPT½	4 5 6 7	N12		
		Female thread NPT¾	5 6 7	N34		
		Female thread NPT1	5 6 7 8	N1		
		Female hose connector 13 mm	4 5 9 10	13		
		Female hose connector 19 mm	4 5 8 9 10	19		
		Clamped terminal connection DN 15	11	15		
		Clamped terminal connection DN 20	12	20		
M	Connection type, output	As for input	13	-E		
		Female thread		-T		
		Clamped terminal connection		-C		
		Female hose connector	4	-S		
		User-specific connection	13	-X		
O	Connection standard, output	None				
		DIN32676	14 15	S5		
	Connection size, output	Standard				
		Female thread G½	16 17 18	G12		
		Female thread G¾	16 17 18	G34		
		Female thread G1	16 17 18	G1		
		Female thread R½	16 17 18	R12		
		Female thread R¾	16 17 18	R34		
		Female thread R1	16 17 18	R1		
		Female thread NPT½	16 17 18	N12		
		Female thread NPT¾	16 17 18	N34		
		Female thread NPT1	16 17 18	N1		
		Female hose connector 13 mm	16 19 20	13		
		Female hose connector 19 mm	4 16 19 20	19		
		Clamped terminal connection DN 15	11	15		
		Clamped terminal connection DN 20	12	20		

Transfer order code

8022000	SFAW	–		–		–		–		–		–		–		–

Flow sensors SFAW

Ordering data – Modular product system

Ordering table

			Conditions	Code		Entry code
	Type of mounting	None				
		Wall mounting		**-W**		
M	Electrical output 1	PNP or NPN or IO-Link		**-PNLK**		
	Electrical output 2	PNP or NPN	21	**-PN**		
		PNP or NPN or 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA		**-PNVBA**		
O	Electrical output 3	None				
		0 ... 10 V or 1 ... 5 V or 4 ... 20 mA	22	**-VBA**		
M	Electrical connection	M12 plug, A-coded		**-M12**		M12
O	Electrical accessories	None				
		Straight socket, 2.5 m cable		**+2.5 S**		
		Straight socket, 5 m cable		**+5S**		
	Protective devices	None				
		Protective cover		**G**		

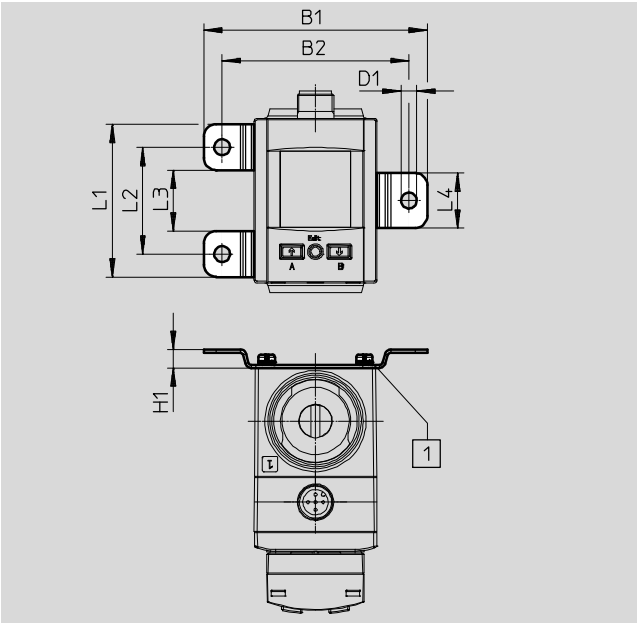
1 **X** Not in combination with connection standard input and not connection size input
2 **S5** Mandatory specification in combination with connection type, input, C
3 **S5** Not in combination with connection type, input, S, T, X
4 **G12, N12, R12, 10, 13, 19, S** Not in combination with flow measuring range 100
5 **G1, N1, R1, G12, G34, N12, N34, R12, R34, 13, 19** Not in combination with connection type, input, X, C
Not in combination with connection standard, input, S5
6 **G1, N1, R1, G12, G34, N12, N34, R12, R34** Not in combination with connection type, input, S
7 **G1, N1, R1, G12, G34, N12, N34, R12, R34** Mandatory specification in combination with connection type, input, T
8 **G1, N1, R1, 20** Not in combination with flow measuring range 32
9 **13, 19** Not in combination with connection type, input, T
10 **13, 19** Mandatory specification in combination with connection type, input, S
11 **15, 15** Mandatory specification in combination with flow measuring range 32 and C
12 **20, 20** Mandatory specification in combination with flow measuring range 100 and C
13 **E, X** Not in combination with connection standard output and not connection size output
14 **S5** Mandatory specification in combination with connection type, output, C
15 **S5** Not in combination with connection type, output, E, T, X, S
16 **G1, N1, R1, G12, G34, N12, N34, R12, R34, 13, 19** Not in combination with connection type, output, E, X, C
Not in combination with connection standard, output S5
17 **G1, N1, R1, G12, G34, N12, N34, R12, R34** Not in combination with connection type, output, S
18 **G1, N1, R1, G12, G34, N12, N34, R12, R34** Mandatory specification in combination with connection type, output, T
19 **13, 19** Not in combination with connection type, output, T
20 **13, 19** Mandatory specification in combination with connection type, output, S
21 **PN** Mandatory specification only in combination with VBA (electrical output 3)
22 **VBA** Not in combination with electrical output 2, PNVBA

Transfer order code

– [ ] – [ ] – [ ] – [ ] – [M12] – [ ] – [ ] – [ ]

Wall mounting SAMH-FW-W
For wall or surface mounting

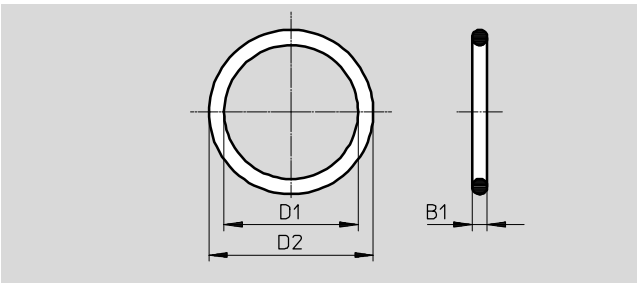
Materials:
Stainless steel



Dimensions								
Type	B1	B2	D1 ∅	H1	L1	L2	L3	L4
SAMH-FW-W	73.2	61.2	5.2	6	50	35	20	18

Ordering data		
	Part No.	Type
Wall mounting	**8036909**	**SAMH-FW-W**

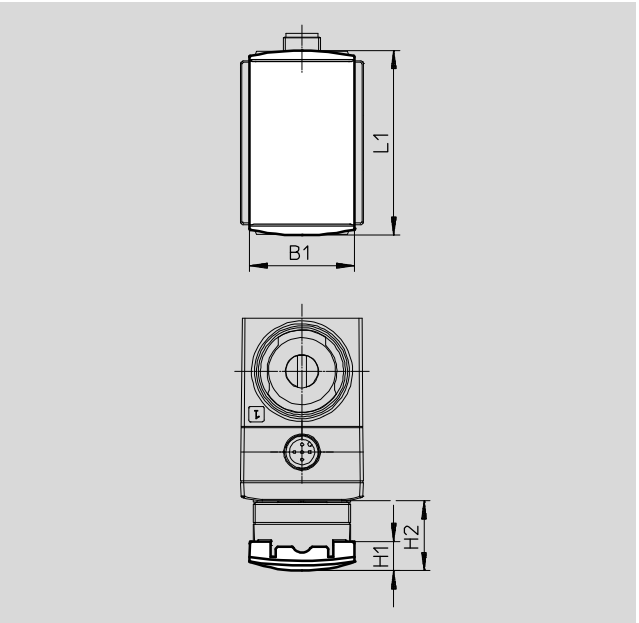
Seal SASF-FW-S-E
For sealing the fluid connections
against the body of the flow sensors



Dimensions			
Type	B1	D1 ∅	D2 ∅
SASF-FW-S-E	2.5	22	27

Ordering data		
	Part No.	Type
Seal	**8036907**	**SASF-FW-S-E**

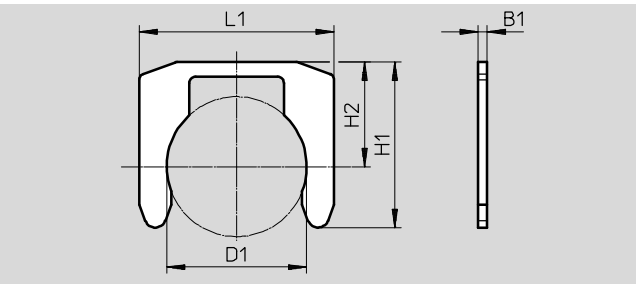
Protective cover SACC-PU-G
For covering the display and control elements



Dimensions				
Type	B1	L1	H1	H2
SACC-PU-G	34.5	60.8	9.6	23

Ordering data		
	Part No.	Type
Protective cover	**8003353**	**SACC-PU-G**

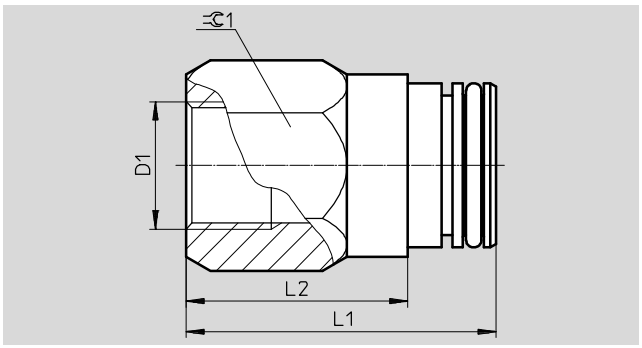
Clip SAMH-FW-SB
For mounting the fluid connections on the body of the flow sensors



Dimensions					
Type	B1	D1 ∅	H1	H2	L1
SAMH-FW-SB	1.5	23	27.2	17.2	32

Ordering data		
	Part No.	Type
Clip	**8036908**	**SAMH-FW-SB**

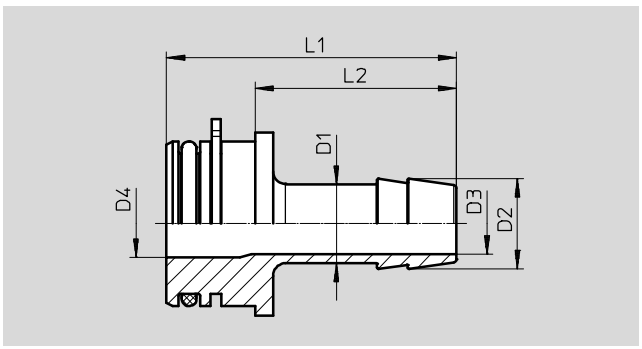
Fluid connection set
SASA-FW-A- ...
Connection type female thread



Dimensions and ordering data

Type	Flow measuring range [l/min.]	D1 ∅	L1	L2	⌯1	Part No.	Type
SASA-FW-A-32-TG12	32	G½	51	36.5	30	**8036891**	**SASA-FW-A-32-TG12**
SASA-FW-A-32-TG34		G¾				**8036892**	**SASA-FW-A-32-TG34**
SASA-FW-A-32-TR12		R½				**8036895**	**SASA-FW-A-32-TR12**
SASA-FW-A-32-TR34		R¾				**8036896**	**SASA-FW-A-32-TR34**
SASA-FW-A-32-TN12		½" NPT				**8036899**	**SASA-FW-A-32-TN12**
SASA-FW-A-32-TN34		¾" NPT				**8036900**	**SASA-FW-A-32-TN34**
SASA-FW-A-100-TG34	100	G¾	51	36.5	30	**8036893**	**SASA-FW-A-100-TG34**
SASA-FW-A-100-TG1		G1			36	**8036894**	**SASA-FW-A-100-TG1**
SASA-FW-A-100-TR34		R¾			30	**8036897**	**SASA-FW-A-100-TR34**
SASA-FW-A-100-TR1		R1			36	**8036898**	**SASA-FW-A-100-TR1**
SASA-FW-A-100-TN34		¾" NPT			30	**8036901**	**SASA-FW-A-100-TN34**
SASA-FW-A-100-TN1		1NPT			36	**8036902**	**SASA-FW-A-100-TN1**

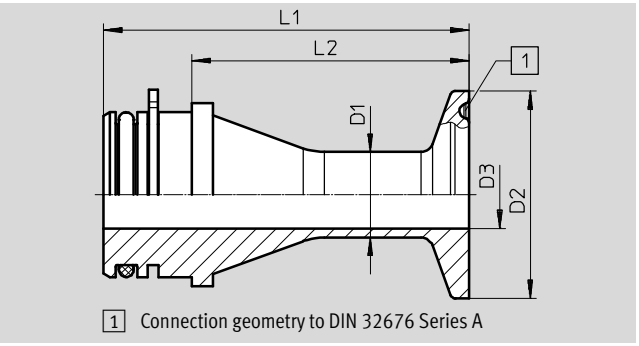
Fluid connection set
SASA-FW-A- ...
Connection type female hose connector



Dimensions and ordering data

Type	Flow measuring range [l/min.]	D1 ∅	D2 ∅	D3 ∅	D4 ∅	L1	L2	Part No.	Type
SASA-FW-A-32-S13	32	13	14.8	10	11	47.5	33	**8036903**	**SASA-FW-A-32-S13**
SASA-FW-A-32-S19		19	20.8	15	19	53.5	39	**8036904**	**SASA-FW-A-32-S19**

Fluid connection set
SASA-FW-A- ...
Connection type clamped terminal connection



1 Connection geometry to DIN 32676 Series A

Dimensions and ordering data

Type	Flow measuring range [l/min.]	D1 ∅	D2 ∅	D3 ∅	L1	L2	Part No.	Type
SASA-FW-A-32-CS515	32	14	34	11	59.9	45.4	**8036905**	**SASA-FW-A-32-CS515**
SASA-FW-A-100-CS520	100	23	34	19	39.9	25.4	**8036906**	**SASA-FW-A-100-CS520**

Ordering data – Connecting cables

Technical data ➔ Internet: nebu

	Number of wires	Cable length [m]	Part No.	Type
M12x1, straight socket				
	4	2.5	**550326**	**NEBU-M12G5-K-2.5-LE4**
		5	**541328**	**NEBU-M12G5-K-5-LE4**
M12x1, straight socket				
	5	2.5	**541330**	**NEBU-M12G5-K-2.5-LE5**
		5	**541331**	**NEBU-M12G5-K-5-LE5**