

Flow sensors SFAM

FESTO

Type codes

		SFAM	-	62	-	1000	L	-	T	G12	-	2SA	-	M12
Type														
SFAM	Flow sensor													
Grid dimension														
62	Grid dimension 62 mm													
90	Grid dimension 90 mm													
Flow measuring range [l/min]														
SFAM-62														
1000	Max. 1000													
3000	Max. 3000													
5000	Max. 5000													
SFAM-90														
5000	Max. 5000													
10000	Max. 10000													
15000	Max. 15000													
Flow input														
L	Unidirectional, from left to right													
Type of mounting														
M	Manifold assembly													
T	Threaded mounting													
Pneumatic connection														
SFAM-62														
G12	Female thread G1/2													
SFAM-90-5000L														
G1	Female thread G1													
SFAM-90-10000L/15000L														
G112	Female thread G1 1/2													
Electrical output														
2SA	2x PNP or NPN, 1 analogue output 4 ... 20 mA													
2SV	2x PNP or NPN, 1 analogue output 0 ... 10 V													
Electrical connection														
M12	Straight plug, M12x1, 5-pin													

Additional variants can be ordered using the modular product system → 13

- Flow input
- Type of mounting
- Pneumatic connection
- Electrical accessories
- EU certification (ATEX)

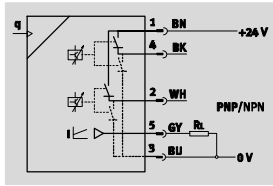
Flow sensors SFAM

Technical data

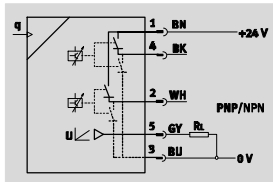
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Function

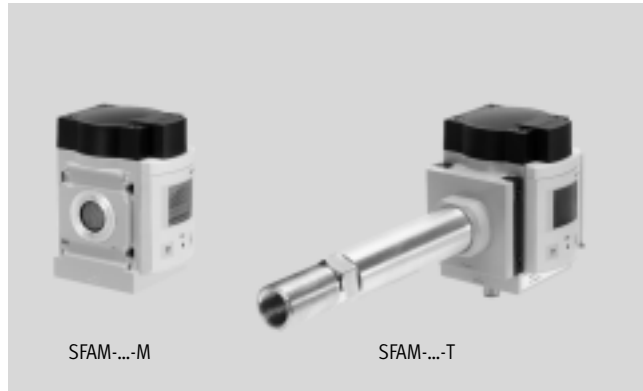
Current output 2SA



Voltage output 2SV



- - Flow rate
10 ... 1000 l/min
30 ... 3000 l/min
50 ... 5000 l/min
100 ... 10000 l/min
150 ... 15000 l/min
- - Temperature range
0 ... +50 °C
- - Operating pressure
0 ... 16 bar



- Analogue output 0 ... 10 V, adjustable switching outputs 2x PNP or 2x NPN
- Analogue output 4 ... 20 mA, adjustable switching outputs 2x PNP or 2x NPN
- Freely selectable pulse output for consumption measurement

- Analogue filter for setting the rise time
- Digital filter for smoothing the display values

- Note
To comply with the specified accuracies, the SFAM must be supplied via the following connections:
– SFAM-62-...-M via a pneumatic connection of at least G $\frac{1}{2}$, SFAM-90-...-M via a pneumatic connection of at least G $\frac{3}{4}$.
– SFAM-62-...-T/W via a connection with an inside diameter of at least 10 mm, SFAM-90-...-T via a connection with an inside diameter of at least 20 mm.

- Note
When using a filter regulator MS-LFR or a pressure regulator MS-LR, a branching module MS6-FRM-1/2 (with size MS6) or MS9-FRM-G (with size MS9) must be installed between the filter regulator or pressure regulator and the (downstream) flow sensor SFAM in order to maintain the specified accuracies.

General technical data	
Certification	RCM trademark cULus recognized (OL)
Certificate issuing authority	UL E322346
CE marking (see declaration of conformity)	To EU EMC Directive ¹⁾ To EU RoHS Directive
KC marking	KC-EMV
Note on materials	RoHS-compliant

¹⁾ For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp → Certificates.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

ATEX	
EU certification	EX2
ATEX category for gas	II 3G
Explosion ignition protection type for gas	Ex nA IIC T5 X Gc
ATEX category for dust	II 3D
Explosion ignition protection type for dust	Ex tc IIIB T80°C X Dc IP54
Explosion-proof temperature rating	0 °C ≤ Ta ≤ +50 °C
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

Flow sensors SFAM

Technical data

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Input signal/measuring element						
Type	SFAM-62				SFAM-90	
Flow measuring range	-1000	-3000	-5000	-5000	-10000	-15000
Measured variable	Flow rate, consumption					
Direction of flow	-L	Unidirectional P1 → P2				
	-R	Unidirectional P2 ← P1				
Measuring principle	Thermal					
Flow measuring range	[l/min]	10 ... 1000	30 ... 3000	50 ... 5000	50 ... 5000	100 ... 10000
Operating pressure	[bar]	0 ... 16				
Nominal pressure	[bar]	6				
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]					
	Nitrogen					
Note on operating/pilot medium	Operation with lubricated medium not possible					
Temperature of medium	[°C]	0 ... +50				
Ambient temperature	[°C]	0 ... +50				
Nominal temperature	[°C]	23				

Output, general ^{1), 2)}	
Accuracy of flow rate values	+/- (3% o.m.v. + 0.3% FS)
Repetition accuracy of zero point in ±%FS [%FS]	0.2
Repetition accuracy of margin in ±%FS [%FS]	0.8
Temperature coefficient of margin in ±%FS/K [%FS/K]	Typically 0.1
Pressure dependence of margin in ±%FS/bar [%FS/bar]	0.5

1) Accuracy with nominal conditions (6 bar, 23 °C and horizontal installation position)

2) % FS = % of the measuring range final value (full scale)

Switching output	
Switching output	2x PNP or 2x NPN, adjustable
Switching function	Window comparator or threshold value comparator, adjustable
Switching element function	N/C or N/O contact, adjustable
Switch-on time	Adjustable (factory setting: approx. 60 ms)
Switch-off time	Adjustable (factory setting: approx. 60 ms)
Max. output current	[mA] 100
Voltage drop	[V] Max. 1.5
Inductive protective circuit	Adapted to MZ, MY, ME coils

Analogue output						
Type	SFAM-62			SFAM-90		
Flow measuring range	-1000	-3000	-5000	-5000	-10000	-15000
Characteristic curve for flow rate	[l/min]	0 ... 1000	0 ... 3000	0 ... 5000	0 ... 5000	0 ... 10000
Output characteristic curve for current	[mA]	4 ... 20				
Output characteristic curve for voltage	[V]	0 ... 10				
Rise time	[ms]	Possible settings: 15, 30, 60 (factory setting), 125, 250, 500, 999				
Max. load resistance at current output	[ohms]	500				
Min. load resistance at voltage output	[kohms]	10				

Output, additional data	
Protection against short circuit	Yes
Protection against overloading	Yes

Flow sensors SFAM

Technical data

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Electronic components		
Operating voltage range DC	[V]	15 ... 30
Reverse polarity protection		For all electrical connections

Electromechanical components		
Electrical connection		Straight plug, M12x1, 5-pin
Max. connecting cable length	[m]	30

Mechanical components								
Type	SFAM-62				SFAM-90			
Type of mounting	-M	-TG12/-WG12	-TN12/-WN12		-M	-TG1	-TN1	-TG112 -TN112
Mounting position	Horizontal							
Pneumatic connection	–	G1/2	1/2NPT		–	G1	1NPT	G11/2 1 1/2NPT
Product weight	[g]	600	1100	1100	1500	2400	2400	2750 2750
Housing materials	PA-reinforced, die-cast aluminium							

Display/operation						
Type	SFAM-62			SFAM-90		
Flow measuring range	-1000	-3000	-5000	-5000	-10000	-15000
Display type	Illuminated LCD, blue					
Displayable units	l/min, scfm, l, m³, scf					
Setting range for flow rate threshold values	[%FS]	1 ... 100				
Setting range for consumption pulse threshold values	[l]	3 ... 19,999	10 ... 19,999	15 ... 19,999	15 ... 19,999	30 ... 19,999 50 ... 19,999
	[m³]	1 ... 19,999				
	[scf]	0.1 ... 1,999.9	0.4 ... 1,999.9	0.5 ... 1,999.9	0.5 ... 1,999.9	1 ... 1,999.9 2 ... 1,999.9
Hysteresis setting range	[%FS]	0 ... 90				

Immissions/emissions						
Type	SFAM-62			SFAM-90		
Flow measuring range	-1000	-3000	-5000	-5000	-10000	-15000
Storage temperature [°C]	-20 ... +80					
Protection class	IP65					
Pressure drop at 50 %FS flow rate and 6 bar with mounting type -M [mbar]	0 ... 100	0 ... 100	0 ... 100	0 ... 40	0 ... 100	0 ... 200
Pressure drop at 50 %FS flow rate with mounting type -T/-W [mbar]	0 ... 100	0 ... 100	0 ... 100	0 ... 100	0 ... 100	0 ... 100
Electrical protection class	III					
Corrosion resistance class CRC ¹⁾	2					

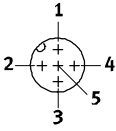
1) Corrosion resistance class 2 according to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

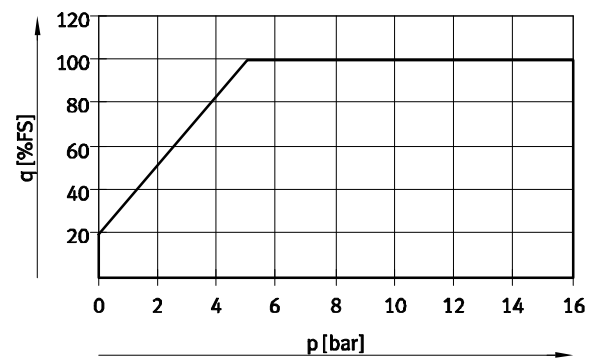
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Technical data

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Pin allocation		
Plug M12x1, 5-pin	Pin	Meaning
	1	Operating voltage +24 V DC
	2	Binary output B
	3	0 V
	4	Binary output A
	5	Analogue output C

Flow measuring range¹⁾ q_n as a function of operating pressure p_1



- 1) For an operating pressure of more than 5 bar, the flow sensor can determine measured values with the specified accuracy over the entire measuring range. For an operating pressure below 5 bar, the measuring range with the specified accuracy is reduced as shown in the graph.

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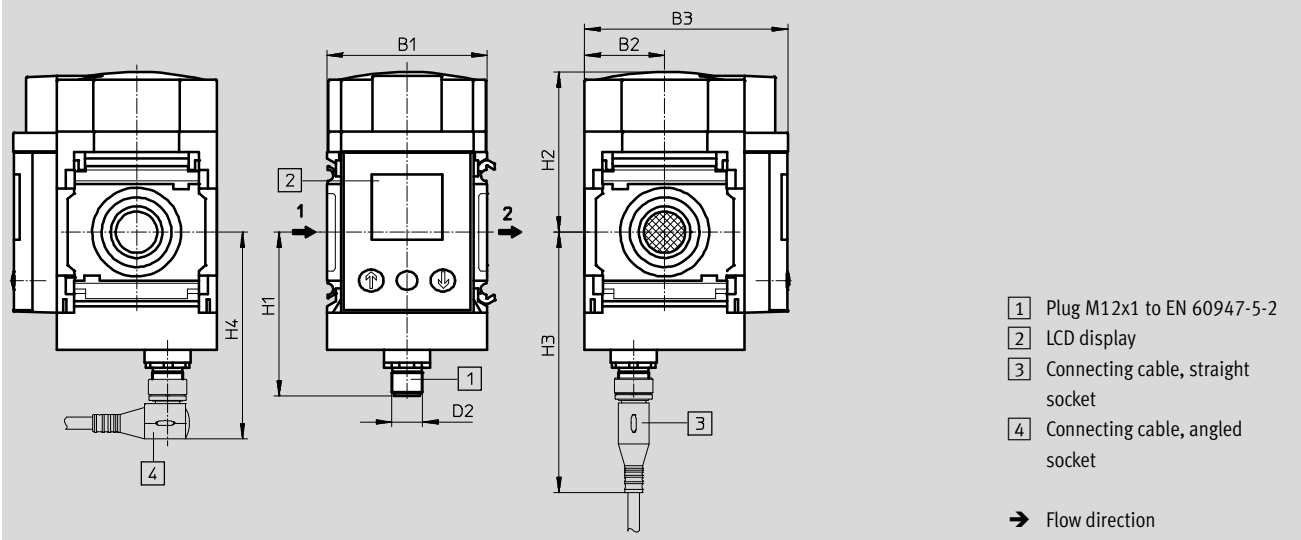
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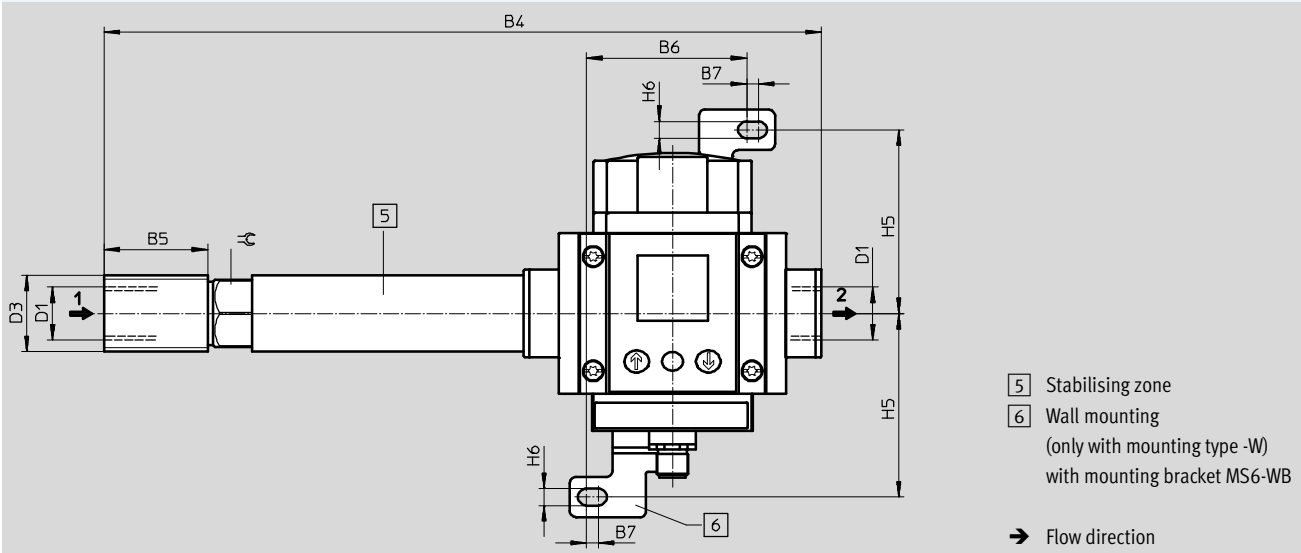
Dimensions – SFAM-62

Download CAD data → www.festo.com

SFAM-62-...-M for manifold assembly in MS6 series service unit combination



SFAM-62-...-T/W for individual assembly



Type	B1	B2	B3	B4	B5	B6	B7	D1	D2	D3	H1	H2	H3	H4	H5	H6	⌀
SFAM-62-...-M	62	31	78.7	–	–	–	–	–	M12x1	–	63.5	62.1	101	80	–	–	–
SFAM-62-...-TG12	62	31	78.7	277	40	–	–	G1/2	M12x1	G3/4	63.5	62.1	101	80	–	–	26
SFAM-62-...-WG12						61.9	4.5									71	
SFAM-62-...-TN12	62	31	78.7	277	40	–	–	1/2NPT	M12x1	3/4NPT	63.5	62.1	101	80	–	–	26
SFAM-62-...-WN12						61.9	4.5									71	