

## Flow sensor SFAM

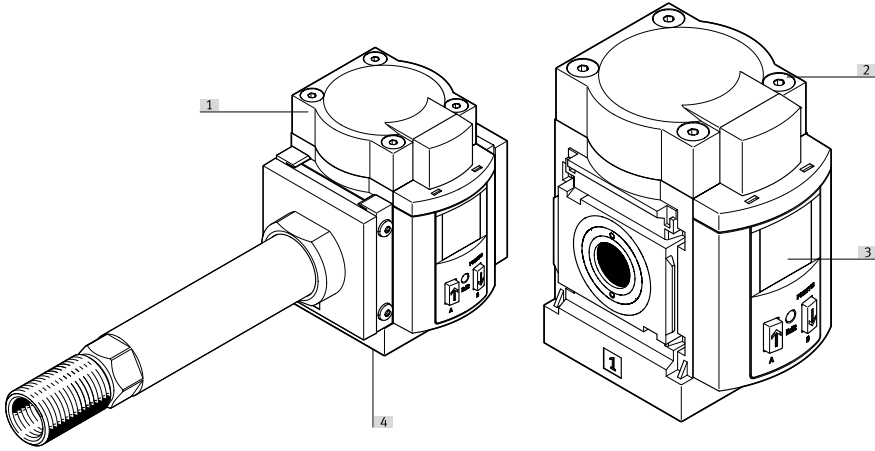
**FESTO**



## Characteristics

**At a glance**

Further information → [sfam](#)



- [1] Threaded mounting of individual device with laminar flow inlet
- [2] Can be combined with components from the MS6 or MS9 series service units
- [3] Bright LCD display with blue background and white 9-segment display. Bar chart depicts the current measured value. Colour change depending on switching point
- [4] Central connection with M12 plug

## Characteristics

### Description

The flow sensor SFAM is suitable for monitoring compressed air and certain inert gases. Measurement is based on a thermal principle. The bypass design reduces the susceptibility to particles and moisture. The flow value as well as the pressure and the temperature of the medium can be transmitted to the connected controller as a switching and analogue signal or via IO-Link®. Thanks to the high measuring dynamics of 1:100, a measuring range of 10 to 15,000 litres can be covered in just 6 variants.

#### High flow rates and compact

- The modular flow sensor can be used as a stand-alone device or can be ideally combined with components from the service units of the MS-6 and MS-9 series.
- There are six different versions that together cover a very large measuring range of 10 to a maximum of 15,000 litres.

#### One for everything

- The built-in pressure sensor and temperature measurement offer a wide range of options for process monitoring and control.
- In addition, by eliminating the need for an additional pressure sensor the installation effort and costs can be minimised.
- The ability to measure the gases Ar, N<sub>2</sub>, and CO<sub>2</sub> also allows you to monitor inert gas applications.
- Systematically more reliable

#### Versatile functions

- Absolute flow information with threshold values and convenient switching point adjustment via a display or IO-Link®
- Absolute pressure information with threshold values and switching point setting
- Absolute temperature information with threshold values and switching point setting
- Cumulative consumption measurement/recorder function
- Patented, adjustable consumption switching signal for air consumption measurement at control level
- The display shows the measured values and IODD in common units
- Switchable electrical outputs. Choice between PNP/NPN, NO/NC and analogue current or voltage output
- Min./max. value memory
- Optional security code can be freely selected (4 digit code), for perfect tamper protection
- ECO function with option to switch off the display
- Replicating function for easy transfer of the set parameters between two identical sensors
- Adjustable colour of the display for clear visualisation of switching statuses

#### IO-Link® communication

- Bidirectional communication between sensor and master via IO-Link®
- Cyclical transfer of measured values and switching statuses
- The sensor can be parameterised remotely using an IO-Link® master
- Sensors are easy to replace thanks to auto-parameterisation
- Sensor identification, diagnostics and teach-in possible via IO-Link®
- Cost-effective and standardised M12 connecting cable

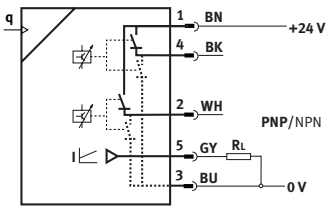
#### Area of application

- Compressed air consumption measurements
- Pneumatic energy consumption measurements
- Energy efficiency monitoring
- Leakage detection

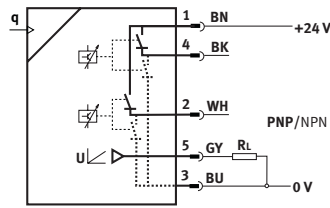
## Characteristics

### Electrical output 1

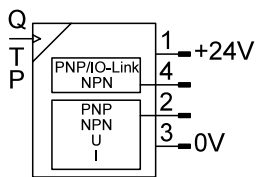
[2SA] 2x PNP or NPN, 1 analogue output 4 ... 20 mA



[2SV] 2x PNP or NPN, 1 analogue output 0 ... 10 V

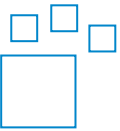


[PNLK] PNP/NPN/IO-Link



### Ordering data - modular system

Further information → [sfam](#)



Configurable product

This product and all its product options can be ordered online via the configurator.

## Type code

<b>001</b>	Series	
<b>SFAM</b>	Flow sensor	

<b>002</b>	Size [mm]	
<b>62</b>	62	
<b>90</b>	90	

<b>003</b>	Flow measuring range	
<b>1000</b>	Max. 1000 l/min	
<b>3000</b>	Max. 3000 l/min	
<b>5000</b>	Max. 5000 l/min	
<b>10000</b>	Max. 10000 l/min	
<b>15000</b>	Max. 15000 l/min	

<b>004</b>	Flow rate input	
<b>L</b>	Unidirectional, from left	
<b>R</b>	Unidirectional, from right	

<b>005</b>	Type of mounting	
<b>M</b>	Manifold assembly	
<b>T</b>	Threaded mounting	
<b>W</b>	Wall mounting	

<b>006</b>	Pneumatic connection	
	None	
<b>G1</b>	G1	
<b>G12</b>	G1/2	
<b>G112</b>	G1 1/2	
<b>N1</b>	1 NPT	
<b>N12</b>	1/2 NPT	
<b>N112</b>	1 1/2 NPT	

<b>007</b>	Electrical output 1	
<b>2SA</b>	2x PNP or NPN, 1 analogue output 4 ... 20 mA	
<b>2SV</b>	2x PNP or NPN, 1 analogue output 0 ... 10 V	
<b>PNLK</b>	PNP/NPN/IO-Link	

<b>008</b>	Electrical output 2	
	None	
<b>PNVBA</b>	PNP or NPN or 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA	

<b>009</b>	Electrical connection	
<b>M12</b>	Plug M12, A-coded	

<b>010</b>	Connecting cable, straight socket	
	None	
<b>2.5S</b>	2.5 m	
<b>5S</b>	5 m	

<b>011</b>	Connecting cable, angled plug socket	
	None	
<b>2.5A</b>	2.5 m	
<b>5A</b>	5 m	

<b>012</b>	Additional function	
	None	
<b>EMD</b>	Energy efficiency and maintenance diagnosis	

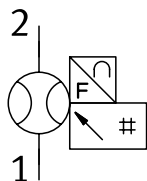
<b>013</b>	EU certification	
	None	
<b>EX2</b>	II 3GD	

<b>014</b>	Electrical accessories	
	None	
<b>2.5A</b>	Angled socket, cable 2.5 m	
<b>2.5S</b>	Straight socket, cable 2.5 m	
<b>5A</b>	Angled socket, cable 5 m	
<b>5S</b>	Straight socket, cable 5 m	

<b>015</b>	Certificate	
	None	
<b>T</b>	Test report	

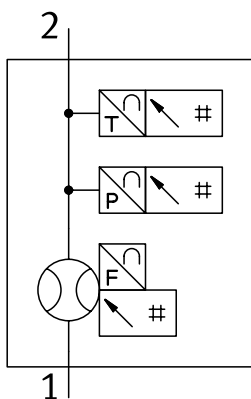
## Datasheet

### General technical data 2SA, 2SV



Approval	RCM trademark, c UL us - Recognized (OL)
CE mark (see declaration of conformity)	To EU EMC Directive, To EU Explosion Protection Directive (ATEX), In accordance with EU RoHS Directive
CE marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
ATEX category gas	II 3G
Explosion ignition protection type for gas	Ex nA IIC T5 X Gc
ATEX category dust	II 3D
Explosion ignition protection type for dust	Ex tc IIIB T80°C X Dc IP54
Explosion ambient temperature	0°C ≤ Ta ≤ +50°C
Certificate issuing authority	UL E322346
Note on materials	RoHS-compliant

### General technical data PNLK-PNVBA



Approval	RCM trademark
CE mark (see declaration of conformity)	To EU EMC Directive, In accordance with EU RoHS Directive
CE marking (see declaration of conformity)	To UK instructions for EMC, To UK RoHS instructions
ATEX category gas	–
Explosion ignition protection type for gas	–
ATEX category dust	–
Explosion ignition protection type for dust	–
Explosion ambient temperature	–
Certificate issuing authority	–
Note on materials	RoHS-compliant

## Datasheet

Input signal, measuring element 2SA, 2SV					
Size [mm]	62			90	
Flow measuring range	Max. 1000 l/min	Max. 3000 l/min	Max. 5000 l/min	Max. 10000 l/min	Max. 15000 l/min
Measured variable	Volume, Volumetric flow rate				
Flow direction	Unidirectional, From left to right				
Measuring principle	Thermal				
Measurement method	Heat Loss				
Start value for flow rate measuring range	10 l/min	30 l/min	50 l/min	100 l/min	150 l/min
End value for flow rate measuring range	1,000 l/min	3,000 l/min	5,000 l/min	10,000 l/min	15,000 l/min
Operating pressure	1.6 MPa				
Operating pressure	232 psi				
Operating pressure	16 bar				
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4], Nitrogen				
Media temperature	0 ... 50°C				
Ambient temperature	0 ... 50°C				
Nominal temperature	23°C				

Input signal, measuring element PNLK-PNVBA					
Size [mm]	62			90	
Flow measuring range	Max. 1000 l/min	Max. 3000 l/min	Max. 5000 l/min	Max. 10000 l/min	Max. 15000 l/min
Measured variable	Pressure, Mass flow rate, Temperature, Volume, Volumetric flow rate				
Flow direction	Unidirectional, From left to right				
Measuring principle	Thermal				
Measurement method	Heat transfer				
Start value for flow rate measuring range	10 l/min	30 l/min	50 l/min	100 l/min	150 l/min
End value for flow rate measuring range	1,000 l/min	3,000 l/min	5,000 l/min	10,000 l/min	15,000 l/min
Temperature measurement start value	0°C				
Temperature measurement end value	50°C				
Start value for pressure measuring range	0 MPa				
Start value for pressure measuring range	0 bar				
Start value for pressure measuring range	0 psi				
End value for pressure measuring range	1.6 MPa				
End value for pressure measuring range	16 bar				
End value for pressure measuring range	232 psi				
Operating pressure	1.6 MPa				
Operating pressure	16 bar				
Operating pressure	232 psi				
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4], Nitrogen				
Media temperature	0 ... 50°C				
Ambient temperature	0 ... 50°C				
Nominal temperature	23°C				

## Datasheet

**Output, general 2SA, 2SV**

Accuracy of flow rate	$\pm (3\% \text{ o.m.v.} + 0.3\% \text{ FS})$
Repetition accuracy offset in $\pm$ %FS	0.2 %FS
Repetition accuracy span in $\pm$ %FS	0.8 %FS
Temperature coefficient span in $\pm$ %FS/K	Typ. 0.1%FS/K
Pressure influence span in $\pm$ %FS/bar	0.5

**Output, general PNLK-PNVBA**

Accuracy of flow rate	$\pm (3\% \text{ o.m.v.} + 0.3\% \text{ FS})$
Repetition accuracy offset in $\pm$ %FS	0.2 %FS
Repetition accuracy span in $\pm$ %FS	0.8 %FS
Temperature coefficient span in $\pm$ %FS/K	Typ. 0.1%FS/K
Temperature coefficient in $\pm$ %FS/K	0.05 %FS/K
Pressure influence span in $\pm$ %FS/bar	0.5 %FS/b.
Accuracy in $\pm$ % FS <sup>1)</sup>	1.5 %FS
Repetition accuracy <sup>2)</sup>	–
Accuracy temperature in $\pm$ °C	5°C

1) Values for pressure measurement

2) Values for pressure measurement

**Switching output**

Switching output	2 x PNP or 2 x NPN, switchable
Switching function	Window comparator or threshold value comparator, adjustable
Switching element function	N/C or N/O contact, switchable
Max. output current	100 mA



## Datasheet

## Analogue output 2SA, 2SV

Size [mm]	62						90							
Flow measuring range	Max. 1000 l/min		Max. 3000 l/min		Max. 5000 l/min				Max. 10000 l/min		Max. 15000 l/min			
Analogue output	0 - 10 V	4 - 20 mA	0 - 10 V	4 - 20 mA	0 - 10 V	4 - 20 mA	0 - 10 V	4 - 20 mA	0 - 10 V	4 - 20 mA	0 - 10 V	4 - 20 mA		
Flow characteristic curve start value	0 l/min													
Flow characteristic curve end value	1,000 l/min		3,000 ... 5,000 l/ min		3,000 l/ min				5,000 l/min		10,000 l/min		15,000 l/min	
Temperature characteristic curve start value	-													
Temperature characteristic curve end value	-													
Output characteristic curve start value <sup>1)</sup>	0 V	-	0 V	-	0 V	-	0 V	-	0 V	-	0 V	-		
Output characteristic curve end value <sup>2)</sup>	10 V	-	10 V	-	10 V	-	10 V	-	10 V	-	10 V	-		
Output characteristic curve starting value <sup>3)</sup>	-	4 mA	-	4 mA	-	4 mA	-	4 mA	-	4 mA	-	4 mA		
Output characteristic curve end value <sup>4)</sup>	-	20 mA	-	20 mA	-	20 mA	-	20 mA	-	20 mA	-	20 mA		
Max. load resistance current output	-	500 Ohm	-	500 Ohm	-	500 Ohm	-	500 Ohm	-	500 Ohm	-	500 Ohm		
Min. load resistance voltage output	10 kOhm	-	10 kOhm	-	10 kOhm	-	10 kOhm	-	10 kOhm	-	10 kOhm	-		

1) Start and end values can be exceeded or are not reached depending on the scaling of the analogue output and the flow value.

2) Start and end values can be exceeded or are not reached depending on the scaling of the analogue output and the flow value.

3) Start and end values can be exceeded or are not reached depending on the scaling of the analogue output and the flow value.

4) Start and end values can be exceeded or are not reached depending on the scaling of the analogue output and the flow value.

## Analogue output PNLK-PNVBA

Size [mm]	62						90					
Flow measuring range	Max. 1000 l/min		Max. 3000 l/min		Max. 5000 l/min				Max. 10000 l/min		Max. 15000 l/min	
Analogue output	0 - 10 V, 4 - 20 mA, 1 - 5 V											
Flow characteristic curve start value	0 l/min											
Flow characteristic curve end value	1,000 l/min		3,000 l/min		5,000 l/min				10,000 l/min		15,000 l/min	
Temperature characteristic curve start value	0°C											
Temperature characteristic curve end value	100°C											
Output characteristic curve start value <sup>1)</sup>	0 V											
Output characteristic curve end value <sup>2)</sup>	10 V											
Output characteristic curve starting value <sup>3)</sup>	4 mA											
Output characteristic curve end value <sup>4)</sup>	20 mA											
Max. load resistance current output	500 Ohm											
Min. load resistance voltage output	20 kOhm											

1) Start and end values can be exceeded or are not reached depending on the scaling of the analogue output and the flow value.

2) Start and end values can be exceeded or are not reached depending on the scaling of the analogue output and the flow value.

3) Start and end values can be exceeded or are not reached depending on the scaling of the analogue output and the flow value.

4) Start and end values can be exceeded or are not reached depending on the scaling of the analogue output and the flow value.

## Output, additional data

Short circuit current rating	yes
Overload protection	Available

## Datasheet

## Communication interface

Protocol	IO-Link®
IO-Link, revision ID	V1.1
IO-Link, device profile	Function Extended identification, Function Measurement data, standard resolution, Function Multiple switching signal, Firmware update, Function locator, Function Product URI, Function Teach single value, Identification and diagnostics, Smart sensor - SSP 4.1.2
IO-Link, transmission rate	COM3
IO-Link, SIO-Mode support	Yes
IO-Link, port type	Class A
IO-Link, process data length input	96
IO-Link, Process data content IN	Flow rate measured value 16-bit MDC, Flow rate monitoring 2-bit SSC, Temperature measured value 16 bit MDC, Temperature monitoring 2-bit SSC, Volume / mass pulse 1 bit SSC, Pressure measured value 16 bit MDC, Pressure monitoring 2 bit SSC
IO-Link, Service data IN	Volume/mass measured value 32 bit
IO-Link, minimum cycle time	1.5
IO-Link, Data storage required	0.5

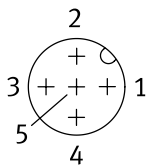
## Electronics 2SA, 2SV

Operational voltage range DC	15 ... 30 V
Reverse polarity protection	For all electrical connections

## Electronics PNLK-PNVBA

Operational voltage range DC	18 ... 30 V
Reverse polarity protection	For all electrical connections

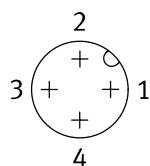
## Electromechanics 2SA, 2SV



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, used connections/cores	5
Electrical connection 1, type of mounting	Screw-type lock
Max. cable length	30 m

## Datasheet

## Electromechanics PNLK-PNVBA



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, used connections/cores	4
Electrical connection 1, type of mounting	Screw-type lock
Max. cable length	20 m with IO-Link® operation, 30 m

## Mechanical components

Size [mm]	62						90					
Flow measuring range	Max. 1000 l/min		Max. 3000 l/min		Max. 5000 l/min				Max. 10000 l/min		Max. 15000 l/min	
Type of mounting	In-line installation	On service unit	In-line installation	On service unit	In-line installation	On service unit	In-line installation	On service unit	In-line installation	On service unit	In-line installation	On service unit
Pneumatic connection <sup>1)</sup>	G1/2	Manifold module	G1/2	Manifold module	G1/2	Manifold module	G1	Manifold module	G1 1/2	Manifold module	G1 1/2	Manifold module
Mounting position	Horizontal											
Material housing	Die-cast aluminium, PA-reinforced											
Product weight	600 ... 1,100 g	600 g	600 ... 1,100 g	600 g	600 ... 1,100 g	600 g	600 ... 2,400 g	600 ... 1,500 g	600 ... 2,750 g	600 ... 1,500 g	600 ... 2,750 g	600 ... 1,500 g

- 1) G12 corresponds to the connecting plate and laminar flow inlet with female thread G1/2" and male thread G3/4"  
N12 corresponds to the connecting plate and laminar flow inlet with female thread 1/2 NPT and male thread 3/4 NPT  
G1 corresponds to the connecting plate and laminar flow inlet with female thread G1" and male thread G1 1/2"  
N1 corresponds to the connecting plate and laminar flow inlet with female thread 1 NPT and male thread 1 1/2 NPT  
G112 corresponds to the connecting plate and laminar flow inlet with female thread G1 1/2" and male thread G2"  
N112 corresponds to the connecting plate and laminar flow inlet with female thread 1 1/2 NPT and male thread 2 NPT

## Display, operation 2SA, 2SV

Size [mm]	62						90					
Flow measuring range	Max. 1000 l/min		Max. 3000 l/min		Max. 5000 l/min				Max. 10000 l/min		Max. 15000 l/min	
Display type	Illuminated LCD, multi-colour											
Displayable units	l, l/min, m3, scf, scfm											
Setting options	Teach-in, Via display and keys											
Protection against tampering	PIN code											
Setting range threshold value	1 ... 100%											
Setting range hysteresis	0 ... 90%											

## Display, operation PNLK-PNVBA

Size [mm]	62						90					
Flow measuring range	Max. 1000 l/min		Max. 3000 l/min		Max. 5000 l/min				Max. 10000 l/min		Max. 15000 l/min	
Display type	Illuminated LCD, multi-colour											
Displayable units	MPa, bar, kPa, kg, kg/min, l, l/min, m3, m3/h, psi, scfm, scft, °C, °F											
Setting options	IO-Link®, Teach-in, Via display and keys											
Protection against tampering	IO-Link, PIN code											
Setting range threshold value	0 ... 100%											
Setting range hysteresis	0 ... 90%											

## Datasheet

**Immission, emission 2SA, 2SV**

Degree of protection	IP65
Protection class	III
Corrosion resistance class CRC	2 - Moderate corrosion stress
LABS (PWIS) conformity	VDMA24364-B1/B2-L

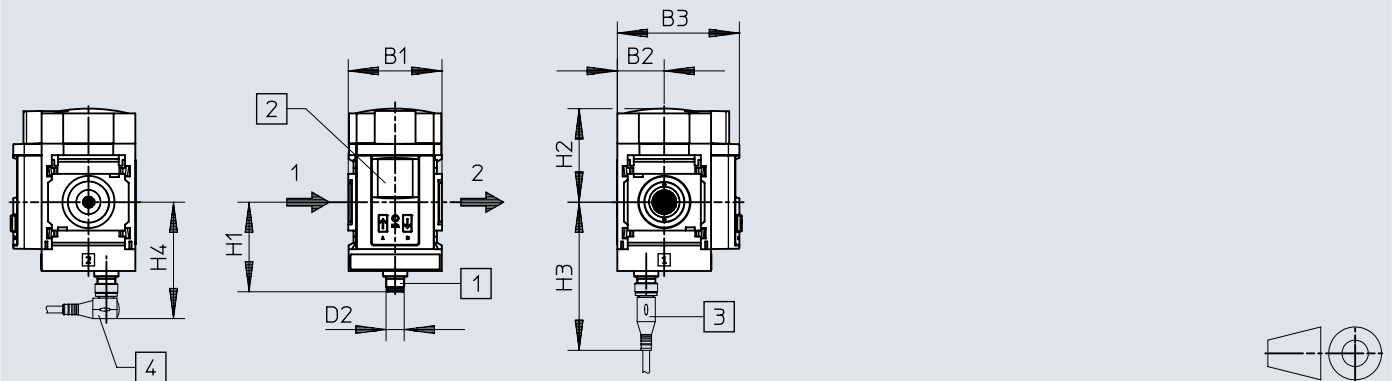
**Immission, emission PNLK-PNVBA**

Degree of protection	IP65, IP60
Protection class	III
Corrosion resistance class CRC	2 - Moderate corrosion stress
LABS (PWIS) conformity	VDMA24364-B1/B2-L

## Dimensions

Dimensions – SFAM-62-...-M for battery assembly in service unit component combination MS6 series

Download CAD data → [www.festo.com](http://www.festo.com)



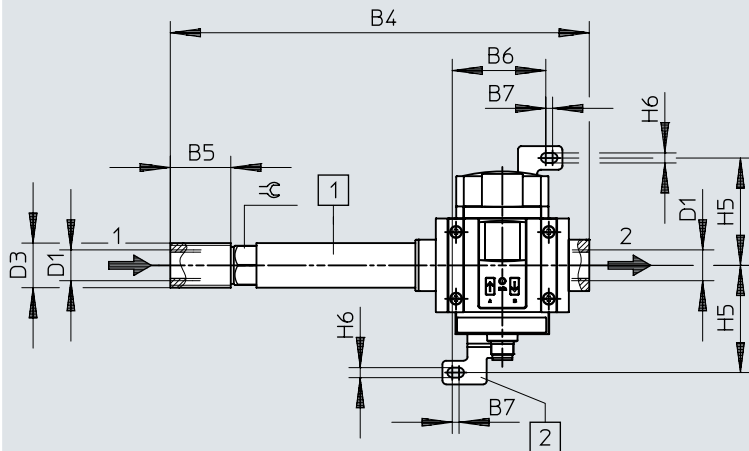
- [1] Plug M12x1 according to EN 60947-5-2
- [2] LCD display
- [3] Connecting cable, straight socket
- [4] Connecting cable, angled plug socket

	B1	B2	B3	D2	H1	H2	H3	H4
SFAM-62-...-M	62	31	81	M12x1	59,3	61,9	~98	~76,4

## Dimensions

### Dimensions – SFAM-62-...-T/W for single mounting

Download CAD data → [www.festo.com](http://www.festo.com)



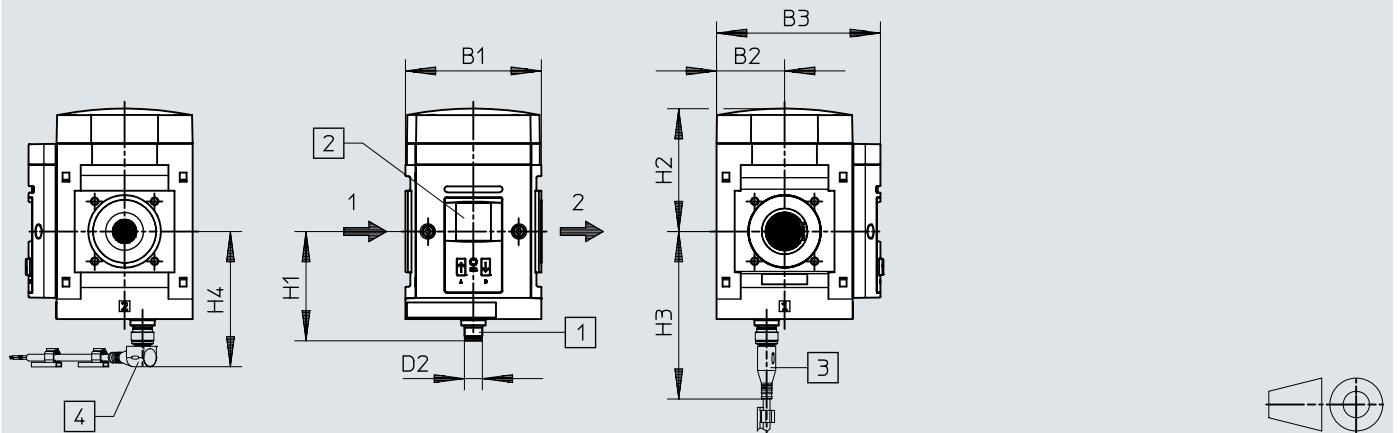
- [1] Laminar flow inlet
- [2] Wall mounting (only with mounting type -W) with mounting bracket MS6-WB

	B1	B2	B3	B4	B5	B6	B7	D1	D2	D3	H1	H2	H3	H4	H5	H6	±G
SFAM-62-...-TG12	62	31	78,7	277	40	-	-	G 1/2	M12x1	G 3/4	63,5	62,1	101	80	-	-	26
SFAM-62-...-WG12						61,9	4,5								71	6,6	
SFAM-62-...-TN12	62	31	78,7	277	40	-	-	1/2 NPT	M12x1	NPT 3/4	63,5	62,1	101	80	-	-	26
SFAM-62-...-WN12						61,9	4,5								71	6,6	

## Dimensions

Dimensions – SFAM-90-...-M for battery assembly in service unit component  
combination MS9 series

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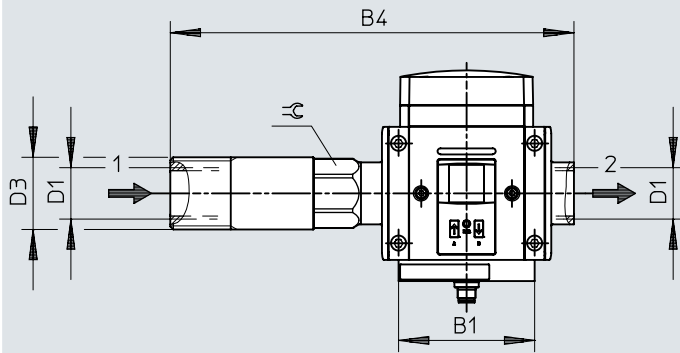
- [1] Plug M12x1 according to EN 60947-5-2
- [2] LCD display
- [3] Connecting cable, straight socket
- [4] Connecting cable, angled plug socket

	B1	B2	B3	D2	H1	H2	H3	H4
SFAM-90-...-M	90	45	108,5	M12x1	72,3	81,2	~111	~89,4

## Dimensions

Dimensions – SFAM-90-...-T for individual mounting

Download CAD data → [www.festo.com](http://www.festo.com)



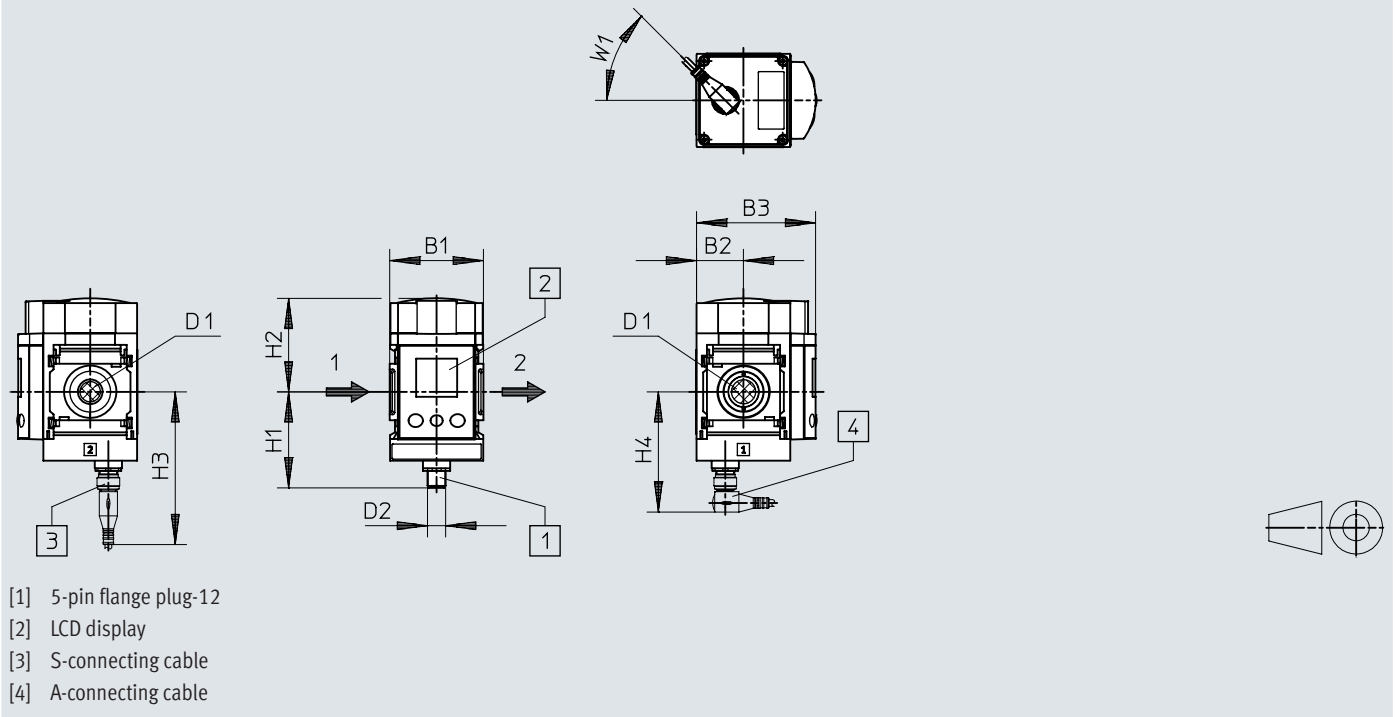
	B1	B4	D1	D3	⊕
SFAM-90-...-TG1	90	267	G 1	G 1 1/2	41
SFAM-90-...-TG112		301	G 1 1/2	G2	55
SFAM-90-...-TN1	90	267	1 NPT	1 1/2 NPT	41
SFAM-90-...-TN112		301	1 1/2 NPT	2 NPT	55



## Dimensions

Dimensions – SFAM-62/90-...L-M-...-2SA/V-M12-...

Download CAD data → [www.festo.com](http://www.festo.com)



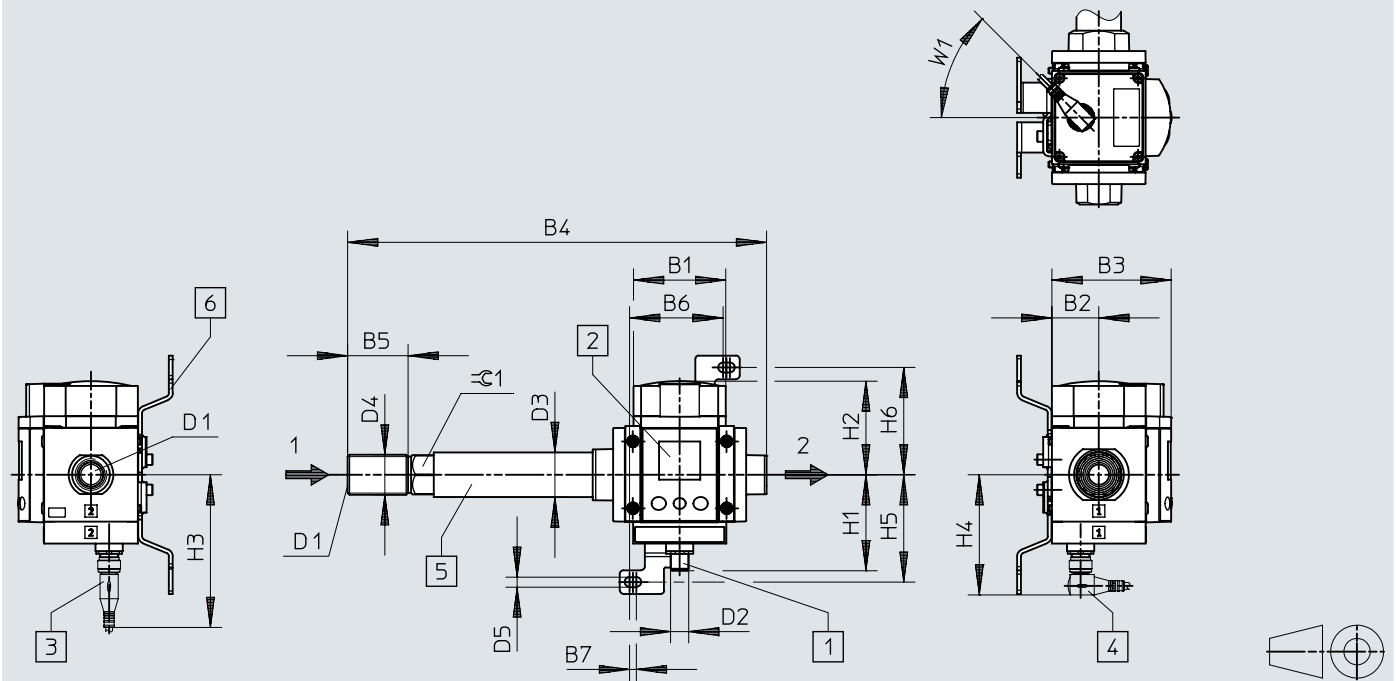
	B1	B2	B3	D1	D2	H1	H2	H3	H4	W1
SFAM-62-1000L-M-2SA-M12	62	31	78,8	G1/2 1/2NPT	M12x1	63,5	61,9	~101	~80	45°
SFAM-62-1000L-M-2SV-M12										
SFAM-62-1000L-M-2SA-M12										
SFAM-62-1000L-M-2SV-M12										
SFAM-62-1000L-M-2SA-M12										
SFAM-62-1000L-M-2SA-M12										

	B1	B2	B3	D1	D2	H1	H2	H3	H4	W1
SFAM-62-90L-M-2SA-M12	90	45	109	G1 NPT1	M12x1	76,5	81,2	~115,2	~93,6	45°
SFAM-62-90L-M-2SV-M12										
SFAM-62-90L-M-2SA-M12										
SFAM-62-90L-M-2SV-M12										
SFAM-62-90L-M-2SA-M12										
SFAM-62-90L-M-2SA-M12										

## Dimensions

Dimensions – SFAM-62/90-...L-TG-...2SA/V-M12-...

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- [1] 5-pin flange plug-12
- [2] LCD display
- [3] S-connecting cable
- [4] A-connecting cable
- [5] Laminar flow inlet
- [6] Wall bracket only with type of mounting W

## Dimensions

	B1	B2	B3	B4	B5	B6	B7	D1	D2	D3
SFAM-62-1000L-M-2SA-M12	62	31	78,8	~277	~40	61,9	4,5	G1/2 1/2NPT	M12x1	29,5
SFAM-62-1000L-M-2SV-M12										
SFAM-62-3000L-M-2SA-M12										
SFAM-62-3000L-M-2SV-M12										
SFAM-62-5000L-M-2SA-M12										
SFAM-62-5000L-M-2SV-M12										

	D4	D5	H1	H2	H3	H4	H5	H6	W1	∠1
SFAM-62-1000L-M-2SA-M12	G3/4 NPT3/4	6,6	63,5	61,9	~101	~80	71	71	45°	26
SFAM-62-1000L-M-2SV-M12										
SFAM-62-3000L-M-2SA-M12										
SFAM-62-3000L-M-2SV-M12										
SFAM-62-5000L-M-2SA-M12										
SFAM-62-5000L-M-2SV-M12										

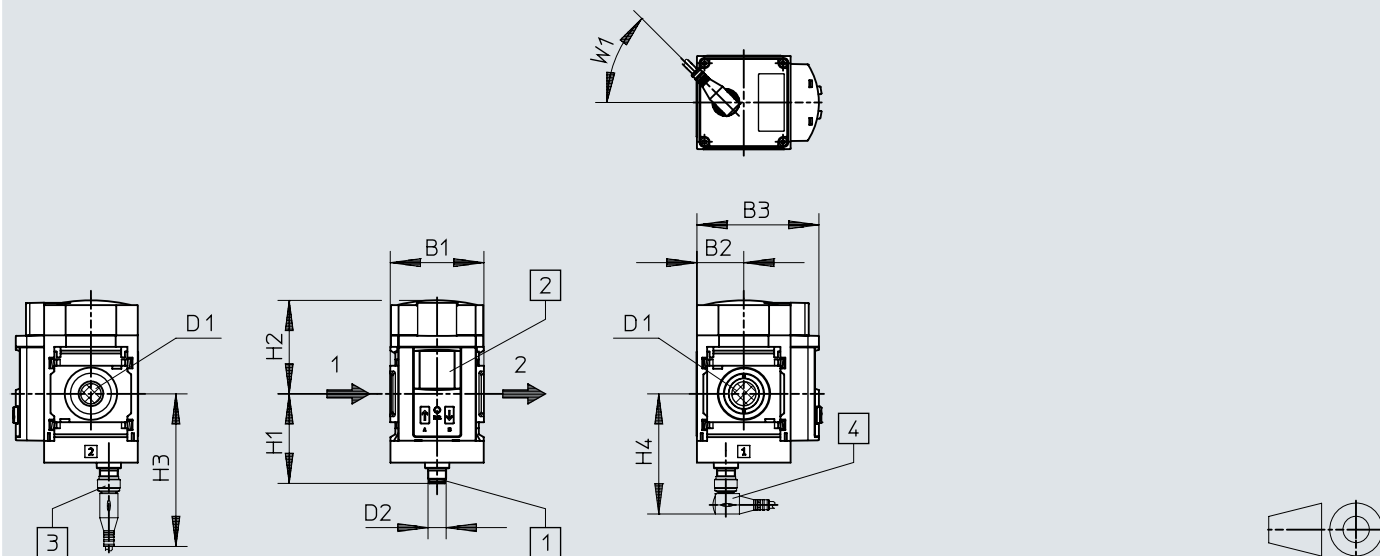
	B1	B2	B3	B4	B6	B7	D1	D2	D3
SFAM-90-5000L-TG1-2SA-M12	90	45	109	~267	-	-	G1 NPT1	M12x1	47,8
SFAM-90-5000L-TG1-2SV-M12				~301					59,6
SFAM-90-10000L-TG112-2SA-M12				~267					47,8
SFAM-90-10000L-TG112-2SV-M12				~301					59,6
SFAM-90-15000L-TG112-2SA-M12									
SFAM-90-15000L-TG112-2SV-M12									

	D4	D5	H1	H2	H3	H4	H5	H6	W1	∠1
SFAM-90-5000L-TG1-2SA-M12	G11/2 / NPT1 1/2	-	76,5	81,2	~115,2	~93,6	-	-	45°	41
SFAM-90-5000L-TG1-2SV-M12	G2 / NPT2									55
SFAM-90-10000L-TG112-2SA-M12	G11/2 / NPT1 1/2									41
SFAM-90-10000L-TG112-2SV-M12										
SFAM-90-15000L-TG112-2SA-M12	G2 / NPT2									55
SFAM-90-15000L-TG112-2SV-M12										

## Dimensions

Dimensions – SFAM-62/90-...L-M-...-PNLK-PNVBA-M12-...

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- [1] 5-pin flange plug-12
- [2] LCD display
- [3] S-connecting cable
- [4] A-connecting cable

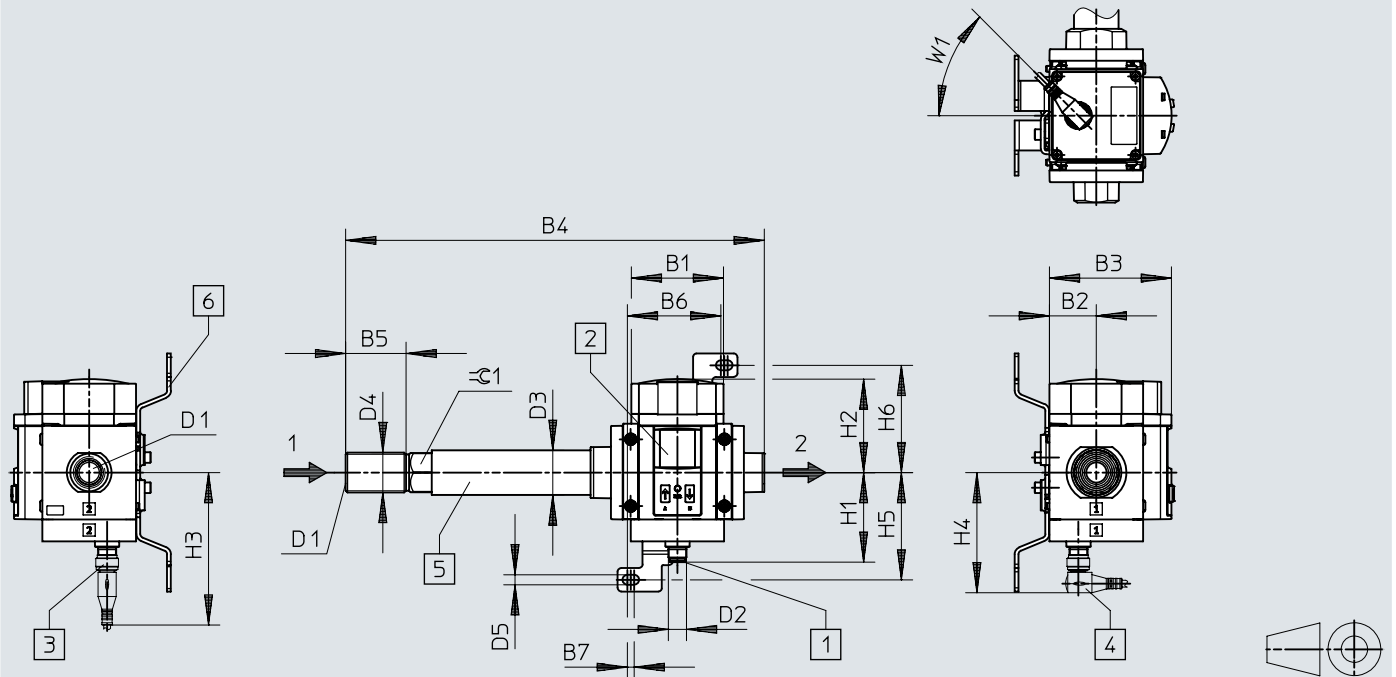
	B1	B2	B3	D1	D2	H1	H2	H3	H4	W1
SFAM-62-1000L-M-...-M12	62	31	81	G1/2 NPT1/2	M12x1	59,3	61,9	~98	~76,4	45°
SFAM-62-3000L-M-...-M12										
SFAM-62-5000L-M-...-M12										

	B1	B2	B3	D1	D2	H1	H2	H3	H4	W1
SFAM-90-5000L-M-TG1-...-M12	62	31	81	G1/2 NPT1/2	M12x1	59,3	61,9	~98	~76,4	45°
SFAM-90-10000L-M-TG112-...-M12										
SFAM-90-15000L-M-TG112-...-M12										

# Dimensions

Dimensions – SFAM-62/90-...L-TG...-PNLK-PNVBA-M12-...

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- [1] 5-pin flange plug-12
- [2] LCD display
- [3] S-connecting cable
- [4] A-connecting cable
- [5] Laminar flow inlet
- [6] Wall bracket only with type of mounting W

	B1	B2	B3	B4	B5	B6	B7	D1	D2	D3
SFAM-62-1000L-TG12-...-M12	62	31	81	~277	~40	61,9	4,5	G1/2 NPT 1/2	M12x1	29,5
SFAM-62-3000L-TG12-...-M12										
SFAM-62-5000L-TG12-...-M12										


	D4	D5	H1	H2	H3	H4	H5	H6	W1	∠G1
SFAM-62-1000L-TG12-...-M12	G3/4 NPT3/4	6,6	59,3	61,9	~98	~76,4	71	71	45°	26
SFAM-62-3000L-TG12-...-M12										
SFAM-62-5000L-TG12-...-M12										

	B1	B2	B3	B4	B5	B6	B7	D1	D2	D3
SFAM-90-5000L-TG1-...-M12	90	45	108,5	~267	-	-	-	G1 NPT1	M12x1	47,8
SFAM-90-10000L-TG112-...-M12				~301						59,6
SFAM-90-15000L-TG112-...-M12										

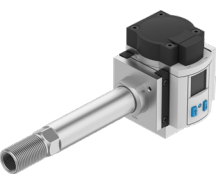
	D4	D5	H1	H2	H3	H4	H5	H6	W1	∠G1
SFAM-90-5000L-TG1-...-M12	G2 NPT2	-	72,3	81,2	~111	~89,4	-	-	45°	41
SFAM-90-10000L-TG112-...-M12										55
SFAM-90-15000L-TG112-...-M12										

## Ordering data


### Manifold assembly in service unit component combination MS series

	Start value for flow rate measuring range	End value for flow rate measuring range	Electrical output 1	Part no.	Type
	10 l/min	1,000 l/min	2x PNP or NPN, 1 analogue output 4 ... 20 mA	564930	SFAM-62-1000L-M-2SA-M12
			2x PNP or NPN, 1 analogue output 0 ... 10 V	564932	SFAM-62-1000L-M-2SV-M12
	30 l/min	3,000 l/min	2x PNP or NPN, 1 analogue output 4 ... 20 mA	564934	SFAM-62-3000L-M-2SA-M12
			2x PNP or NPN, 1 analogue output 0 ... 10 V	564936	SFAM-62-3000L-M-2SV-M12
	50 l/min	5,000 l/min	2x PNP or NPN, 1 analogue output 4 ... 20 mA	564938	SFAM-62-5000L-M-2SA-M12
			2x PNP or NPN, 1 analogue output 0 ... 10 V	573346	SFAM-90-5000L-M-2SA-M12
			2x PNP or NPN, 1 analogue output 0 ... 10 V	573347	SFAM-90-5000L-M-2SV-M12
	100 l/min	10,000 l/min	2x PNP or NPN, 1 analogue output 4 ... 20 mA	564940	SFAM-62-5000L-M-2SV-M12
			2x PNP or NPN, 1 analogue output 0 ... 10 V	573348	SFAM-90-10000L-M-2SA-M12
	150 l/min	15,000 l/min	2x PNP or NPN, 1 analogue output 4 ... 20 mA	573349	SFAM-90-10000L-M-2SV-M12
			2x PNP or NPN, 1 analogue output 0 ... 10 V	573350	SFAM-90-15000L-M-2SA-M12
			2x PNP or NPN, 1 analogue output 0 ... 10 V	573351	SFAM-90-15000L-M-2SV-M12


### Threaded mounting of individual device


	Electrical output 1	Start value for flow rate measuring range	End value for flow rate measuring range	Part no.	Type
	2x PNP or NPN, 1 analogue output 4 ... 20 mA	10 l/min	1,000 l/min	565375	SFAM-62-1000L-TG12-2SA-M12
		30 l/min	3,000 l/min	565379	SFAM-62-3000L-TG12-2SA-M12
		50 l/min	5,000 l/min	565383	SFAM-62-5000L-TG12-2SA-M12
				573352	SFAM-90-5000L-TG1-2SA-M12
		100 l/min	10,000 l/min	573354	SFAM-90-10000L-TG112-2SA-M12
		150 l/min	15,000 l/min	573356	SFAM-90-15000L-TG112-2SA-M12
	2x PNP or NPN, 1 analogue output 0 ... 10 V	10 l/min	1,000 l/min	565376	SFAM-62-1000L-TG12-2SV-M12
		30 l/min	3,000 l/min	565380	SFAM-62-3000L-TG12-2SV-M12
		50 l/min	5,000 l/min	573353	SFAM-90-5000L-TG1-2SV-M12
				565384	SFAM-62-5000L-TG12-2SV-M12
		100 l/min	10,000 l/min	573355	SFAM-90-10000L-TG112-2SV-M12
		150 l/min	15,000 l/min	573357	SFAM-90-15000L-TG112-2SV-M12

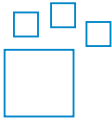
### Manifold assembly, PNLK-PNVBA

	Start value for flow rate measuring range	End value for flow rate measuring range	Electrical output 1	Electrical output 2	Part no.	Type
	10 l/min	1,000 l/min	PNP/NPN/IO-Link	PNP or NPN or 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA	8181241	SFAM-62-1000L-M-PNLK-PNVBA-M12

## Ordering data

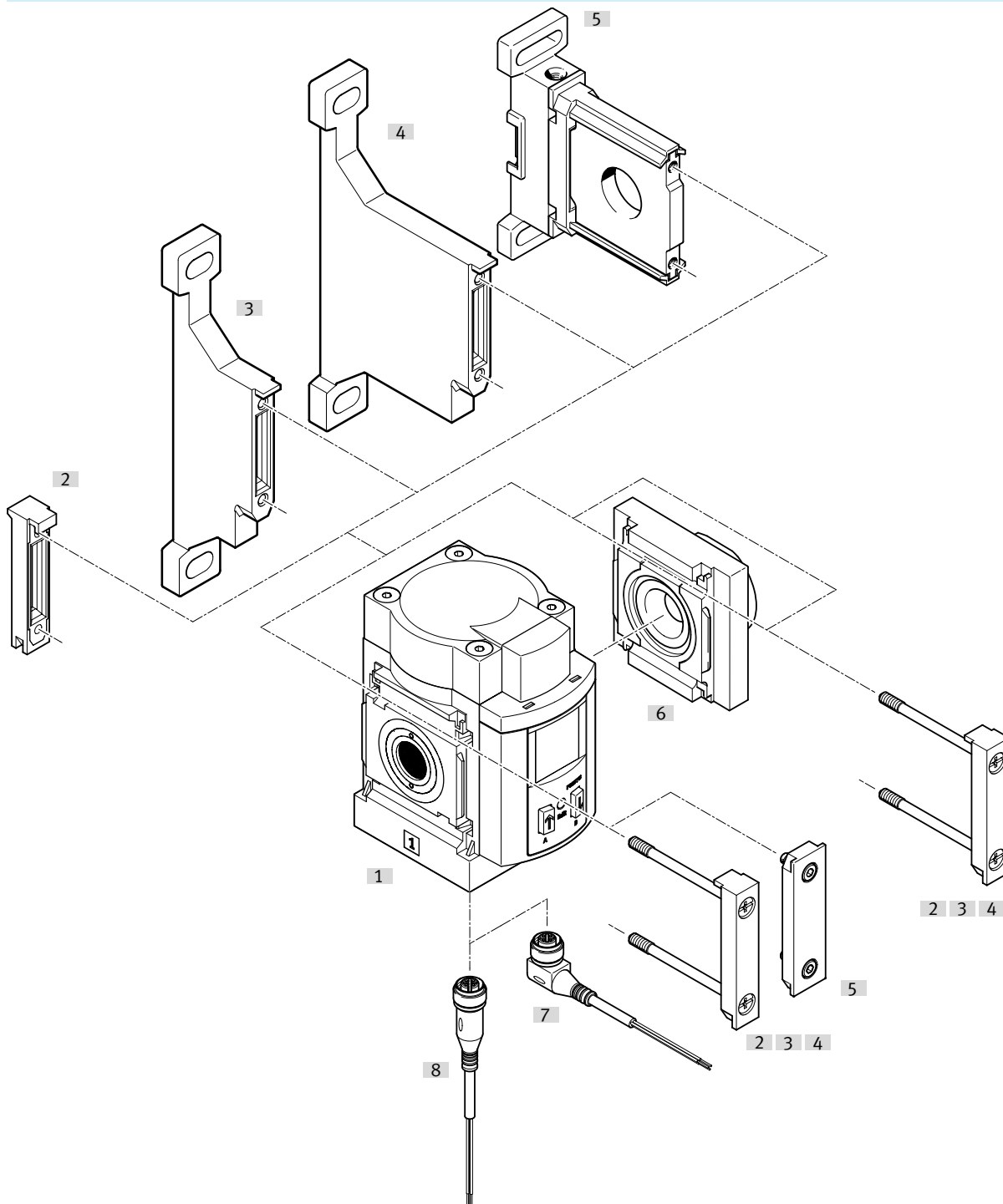
Manifold assembly, PNLK-PNVBA						
	Start value for flow rate measuring range	End value for flow rate measuring range	Electrical output 1	Electrical output 2	Part no.	Type
	30 l/min	3,000 l/min	PNP/NPN/IO-Link	PNP or NPN or 0 ... 10 V or 1 ... 5 V or 4 ... 20 mA	8181242	SFAM-62-3000L-M-PNLK-PNVBA-M12
	50 l/min	5,000 l/min			8181247	SFAM-90-5000L-M-PNLK-PNVBA-M12
	100 l/min	10,000 l/min			8181243	SFAM-62-5000L-M-PNLK-PNVBA-M12
	150 l/min	15,000 l/min			8181248	SFAM-90-10000L-M-PNLK-PNVBA-M12
					8181249	SFAM-90-15000L-M-PNLK-PNVBA-M12

Threaded mounting, PNLK-PNVBA				
	Start value for flow rate measuring range	End value for flow rate measuring range	Part no.	Type
	10 l/min	1,000 l/min	8181244	SFAM-62-1000L-TG12-PNLK-PNVBA-M12
	30 l/min	3,000 l/min	8181245	SFAM-62-3000L-TG12-PNLK-PNVBA-M12
	50 l/min	5,000 l/min	8181246	SFAM-62-5000L-TG12-PNLK-PNVBA-M12
			8181250	SFAM-90-5000L-TG1-PNLK-PNVBA-M12
	100 l/min	10,000 l/min	8181251	SFAM-90-10000L-TG112-PNLK-PNVBA-M12
	150 l/min	15,000 l/min	8181252	SFAM-90-15000L-TG112-PNLK-PNVBA-M12

Ordering information – Modular product system				
	Start value for flow rate measuring range	End value for flow rate measuring range	Part no.	Type
	10 ... 150 l/min	1,000 ... 15000 l/min	563796	SFAM

## Peripherals

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

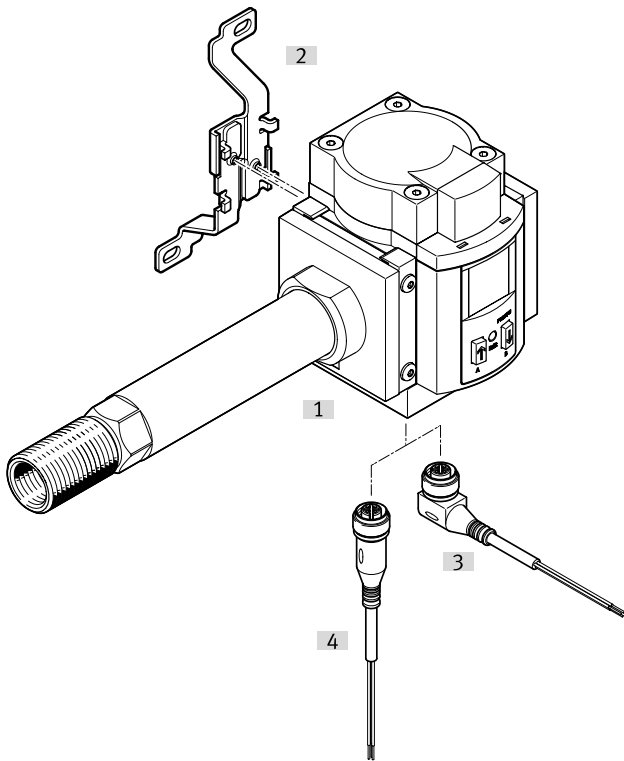


Accessories			→ Page/Internet
Type/order code	Description		
[1] Flow sensor SFAM	Flow sensor SFAM		–
[2] Module connector MS6-MV	For manifold assembly in service unit combination MS6 series		ms6-mv
[3] Mounting bracket MS6-WP	For manifold assembly in service unit combination MS6 series		ms6-wp
[4] Mounting bracket MS6-WPB	For manifold assembly in service unit combination MS6 series		ms6-wpb
[5] Mounting bracket MS6-WPM	For manifold assembly in service unit combination MS6 series		ms6-wpm
[6] Connecting plate MS6-AG...	For manifold assembly in service unit combination MS6 series		ms6-ag
[7] Connecting cable NEBA-M12, angled socket	For manifold assembly in service unit combination MS6 series		28
[8] Connecting cable NEBA-M12, straight socket	For manifold assembly in service unit combination MS6 series		28



## Peripherals

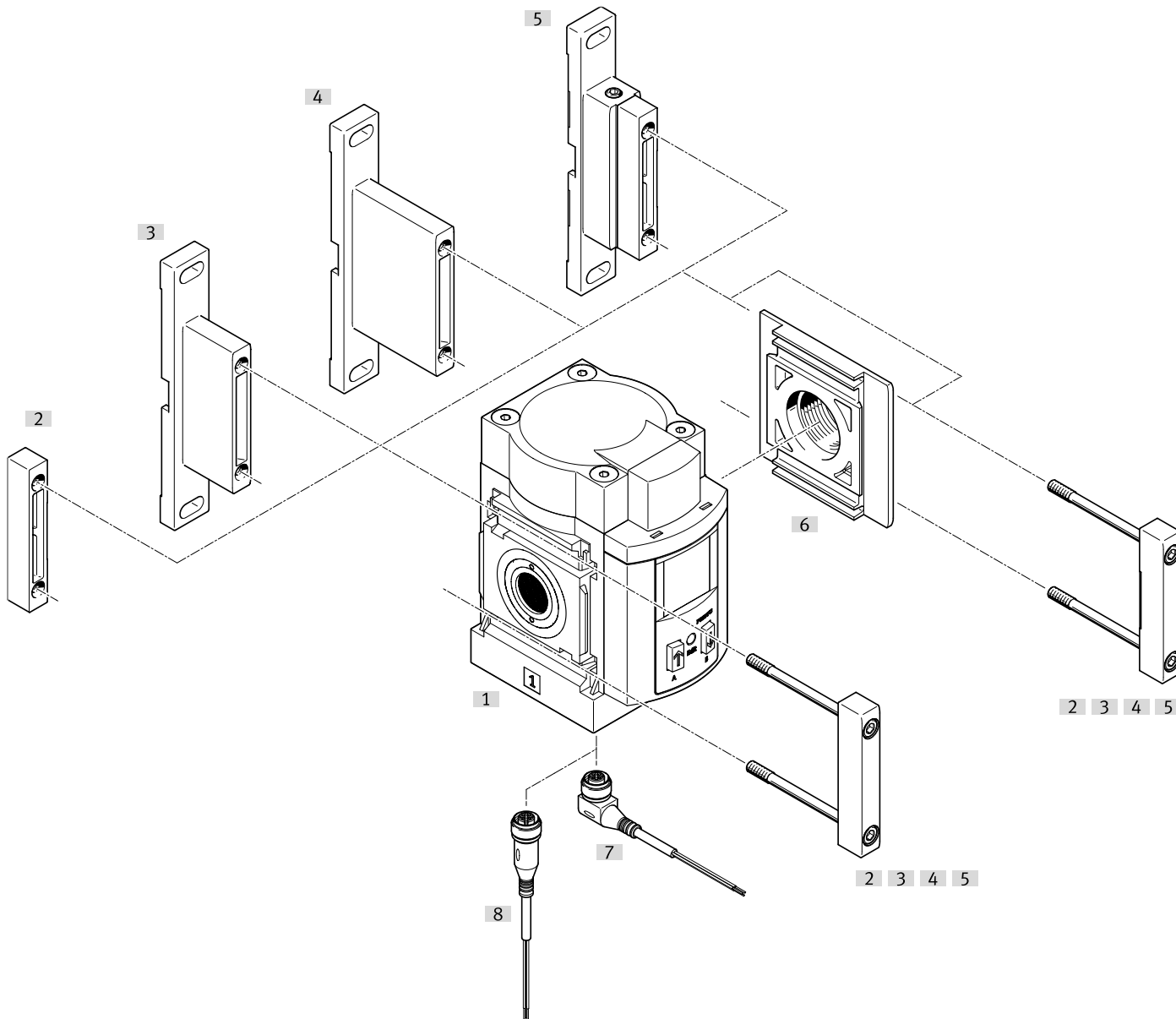
## SFAM-62-...-T/W for individual assembly



Accessories			→ Page/Internet
Type/order code	Description		
[1]	Flow sensor SFAM	Flow sensor SFAM	–
[2]	Mounting bracket MS6-WB	For individual mounting	ms6-wb
[3]	Connecting cable NEBA-M12, angled socket	For individual mounting	28
[4]	Connecting cable NEBA-M12, straight socket	For individual mounting	28

## Peripherals

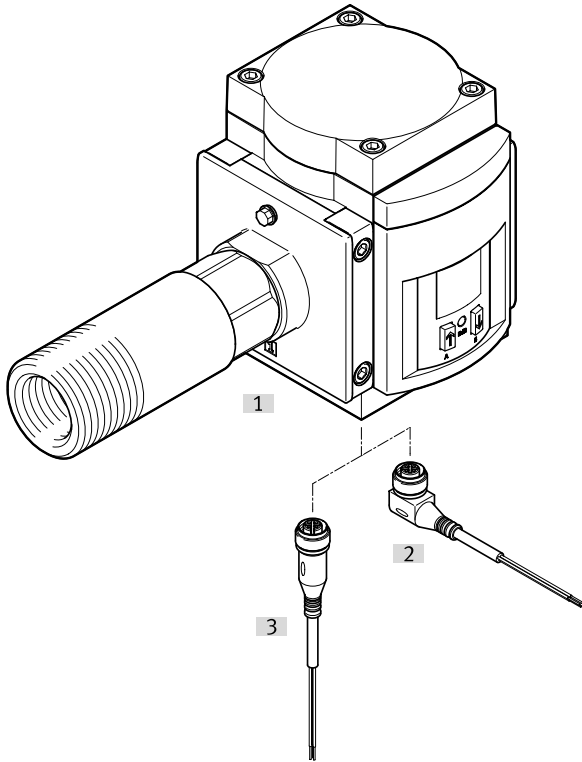
SFAM-90-...-M for manifold assembly in service unit combination MS9 series



Accessories			→ Page/Internet
Type/order code	Description		
[1] Flow sensor SFAM	Flow sensor SFAM		-
[2] Module connector MS9-MV	For manifold assembly in service unit combination MS9 series		ms9-mv
[3] Mounting bracket MS9-WP	For manifold assembly in service unit combination MS9 series		ms9-wp
[4] Mounting bracket MS9-WPB	For manifold assembly in service unit combination MS9 series		ms9-wpb
[5] Mounting bracket MS9-WPM	For manifold assembly in service unit combination MS9 series		ms9-wpm
[6] Connecting plate MS9-AG...	For manifold assembly in service unit combination MS9 series		ms9-ag
[7] Connecting cable NEBA-M12, angled socket	For manifold assembly in service unit combination MS9 series		28
[8] Connecting cable NEBA-M12, straight socket	For manifold assembly in service unit combination MS9 series		28

## Peripherals

## SFAM-90-...-T for individual assembly



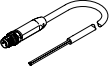
Accessories			→ Page/Internet
Type/order code	Description		
[1]	Flow sensor SFAM	Flow sensor SFAM	–
[2]	Connecting cable NEBA-M12, angled socket	For individual mounting	28
[3]	Connecting cable NEBA-M12, straight socket	For individual mounting	28

## Accessories

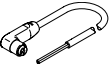
## Adapter, SASC-F5-A-M12-S

Degree of protection	Ambient temperature	Product weight	Part no.	Type
IP65	-25 ... 85 °C	30 g	8156703	SASC-F5-A-M12-S

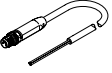
## Connecting cable NEBA-M12, straight socket

	Cable structure	Cable length	Product weight	Part no.	Type
	5 x 0.25 mm <sup>2</sup>	2.5 m	85 g	8078242	NEBA-M12G5-U-2.5-N-LE5
		5 m	142 g	8078243	NEBA-M12G5-U-5-N-LE5

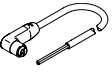
## Connecting cable NEBA-M12, angled socket

	Cable structure	Cable length	Product weight	Part no.	Type
	5 x 0.25 mm <sup>2</sup>	2.5 m	76 g	8078251	NEBA-M12W5-U-2.5-N-LE5
		5 m	143 g	8078252	NEBA-M12W5-U-5-N-LE5

## Connecting cable NEBA-M12, straight socket

	Cable structure	Cable length	Product weight	Part no.	Type
	4 x 0.25 mm <sup>2</sup>	2.5 m	72 g	★ 8078239	NEBA-M12G5-U-2.5-N-LE4
		5 m	134 g	★ 8078240	NEBA-M12G5-U-5-N-LE4

## Connecting cable NEBA-M12, angled socket

	Cable structure	Cable length	Product weight	Part no.	Type
	4 x 0.25 mm <sup>2</sup>	2.5 m	73 g	8078248	NEBA-M12W5-U-2.5-N-LE4
		5 m	135 g	8078249	NEBA-M12W5-U-5-N-LE4