

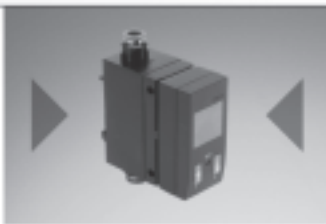
Flow sensors SFE1-LF-...

FESTO

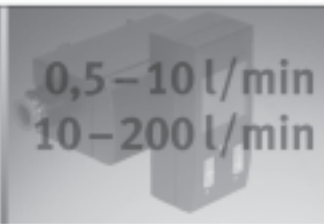


- Flow measuring range
0.5 ... 10 or 10 ... 200 l/min
- Switch output
2x PNP or 2x NPN
- Analogue output
0 ... 10 V or 4 ... 20 mA
- Illuminated LCD for optimised display
- Wide variety of mounting options

Convincingly reliable and easy to use



Compact!



Large measuring range!



Teach-in function!

Incorporated into the attractive display and operation concept of the tried and trusted pressure sensor SDE1, the new flow sensors have produced outstanding results in the areas of:

- leak detection in production
- leak tightness testing of end products
- flow monitoring in parts feeding
- bearing support pressure monitoring

The flow sensor SFE1 supplies absolute flow information with threshold and analogue values as well as convenient switching-point adjustment via an LCD display.

Systematically more reliable

The sensor supplies precise information thanks to its very large measuring range, even in the case of fluctuating or unreliable flow rate ratios.

Designed for convenience

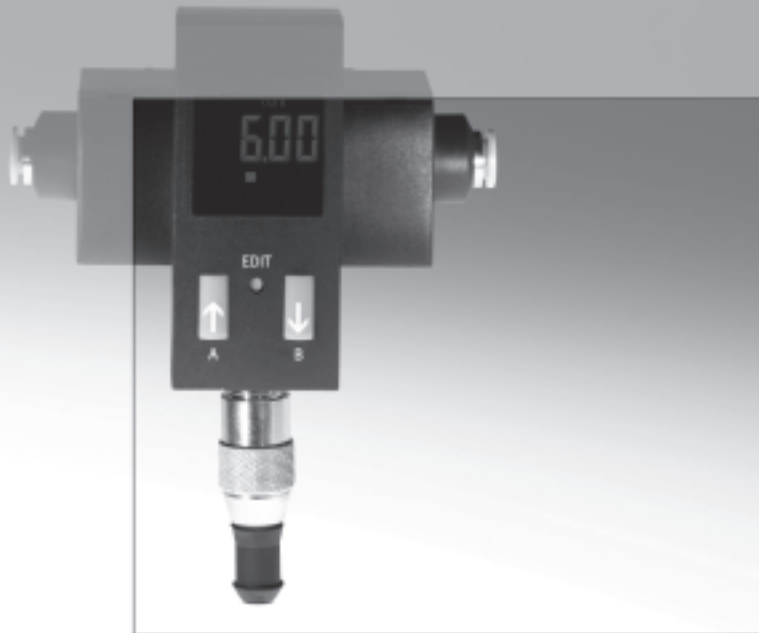
Through clear and fast menu prompting and integrated QS fittings. Ultra-fast teach-in function as with the tried and tested pressure sensor SDE1 and secure connections with extremely short assembly times included.

Flexible installation

Thanks to the extremely compact design that does away with the need for an upstream and downstream smoothing section; the SFE1 has an integrated flow stabilizing zone.

Easier to operate

A large, illuminated LCD display increases the operational safety and makes the currently displayed flow rate values easy to read.



Very large sensing range.

Clear menu prompting and illuminated LCD display.

Compact design with integrated flow stabilizing zone.

Advantages for designers

- During design, minimal information is required regarding the applied flow rate
- The same device can be used for different applications
- Fast commissioning thanks to easy-to-use, intuitive teach-in function
- Minimal assembly times
- Flexible installation without restrictions imposed by smoothing sections
- Design of more efficient machines

Advantages for operators

- Precise information is available even in the event of fluctuating pressure ratios
- Flow rates can be read easily and reliably
- Easy operation without the need for training
- Clearly arranged and more easily accessible installations
- Greater system reliability

Flow sensors SFE1-LF-...

Product range overview

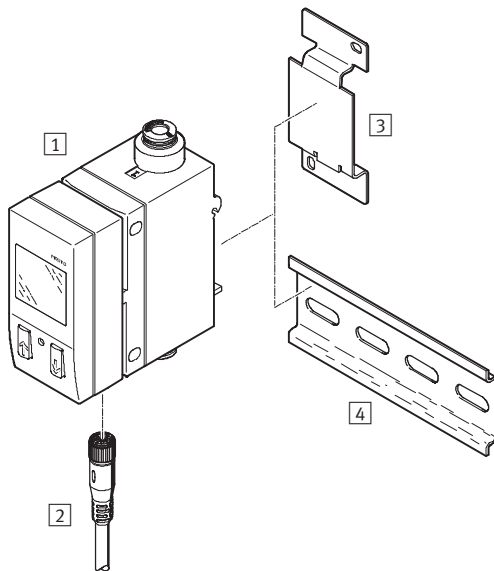
Flow measuring range	Electrical output				Pneumatic connection		Free of copper and PTFE	→ Page
	Switching output		Analogue output					
	2x PNP	2x NPN	0 ... 10 V	4 ... 20 mA	QS-6	QS-8		
0.5 ... 10 l/min	Hat-rail mounting							
	■	–	■	–	■	–	–	4 / 8.2-6
	■	–	–	■	■	–	–	
	–	■	■	–	■	–	–	
	–	■	–	■	■	–	–	
	Wall or surface mounting							
	■	–	■	–	■	–	–	4 / 8.2-6
	■	–	–	■	■	–	–	
	–	■	■	–	■	–	–	
	–	■	–	■	■	–	–	
10 ... 200 l/min	Hat-rail mounting							
	■	–	■	–	–	■	–	4 / 8.2-6
	■	–	–	■	–	■	–	
	–	■	■	–	–	■	–	
	–	■	–	■	–	■	–	
	Wall or surface mounting							
	■	–	■	–	–	■	–	4 / 8.2-6
	■	–	–	■	–	■	–	
	–	■	■	–	–	■	–	
	–	■	–	■	–	■	–	

Flow sensors SFE1-LF-...

Peripherals overview, Type codes

FESTO

Peripherals overview



Accessories	→ Page
1 Flow sensor SFE1-LF-...	4 / 8.2-6
2 Plug socket with cable SIM-M12-5GD-..., straight socket	4 / 8.2-9
3 Adapter plate SDE1-...-W-... (included in the scope of delivery with SFE1-LF-F-...-W...)	
4 Mounting rail to DIN EN 50022	–

Type codes

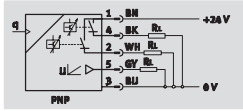
		SFE1	–	LF	–	F200	–	H	Q8	–	P2	I	–	M12
Type		SFE1	Flow sensor											
Construction		LF	Low flow											
Flow measuring range [l/min]		F10	0.5 ... 10											
		F200	10 ... 200											
Assembly		H	Hat-rail mounting											
		W	Wall or surface mounting											
Pneumatic connection		Q6	Push-in fitting QS-6											
		Q8	Push-in fitting QS-8											
Switching output		P2	2x PNP											
		N2	2x NPN											
Analogue output		U	0 ... 10 V											
		I	4 ... 20 mA											
Electrical connection		M12	Plug M12x1, 5-pin											

Flow sensors SFE1-LF-...

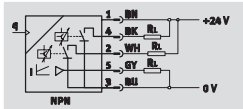
Technical data

FESTO

Function



e.g. with switching output 2x PNP and analogue output 0 ... 10 V



e.g. with switching output 2x NPN and analogue output 4 ... 20 mA

- Flow measuring range 0.5 ... 10 or 10 ... 200 l/min
- Switching output 2x PNP or 2x NPN
- Analogue output 0 ... 10 V or 4 ... 20 mA
- Freely selectable pulse output for consumption measurement
- Illuminated LCD (optimised display)



General technical data		
Flow measuring range	[l/min]	0.5 ... 10 10 ... 200
Pneumatic connection		QS-6 QS-8
Measuring principle		Thermal
Measured variable		Flow rate Consumption
Direction of flow		Unidirectional P1 → P2
Type of display		Illuminated LCD (optimised display)
Displayable unit(s)		l, m ³ l/min, m ³ /min
Reproducibility of the analogue value		± (0.8% o.m.v. + 0.2% FS) ¹⁾
Reproducibility of switching point		± (0.8% o.m.v. + 0.2% FS) ¹⁾
Accuracy		± (3% o.m.v. + 0.3% FS) ¹⁾
Nominal temperature	[°C]	23
Pressure drop	[mbar]	< 100
Type of mounting		With through-holes On a hat-rail mounting On a wall/surface bracket
Mounting position		Any
Material	Body	Polyamide, reinforced
Product weight	[g]	160

1) % o.m.v. = % of measured value
% FS = % of full scale

Electrical data		
Analogue output		0 ... 10 V 4 ... 20 mA
Switching output		2x PNP 2x NPN
Max. output current	[mA]	≤ 100
Switching element function		NO contact NC contact
Switching function		Threshold comparator Window comparator
Operating voltage range	[V DC]	15 ... 30
Load resistance	[kΩ]	≥ 10 ≤ 0.5
Electrical connection		Straight plug, M12x1, 5-pin
Protection against short circuit		Yes
Protection against overloading		Available
Protection class to EN 60 529		IP65
CE symbol		89/336/EEC (EMC)

Flow sensors SFE1-LF-...

Technical data

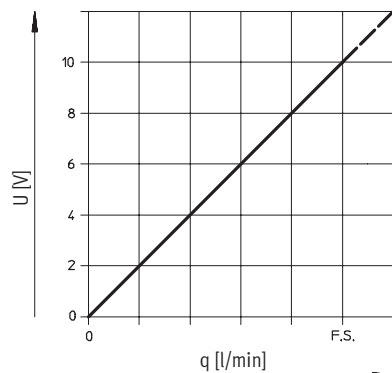
Operating and environmental conditions		
Operating pressure	[bar]	0 ... 10
Operating medium	Compressed air, filtered, unlubricated, grade of filtration 5 µm Nitrogen Air quality class 3:4:1 acc. to DIN ISO 8573-1	
Temperature of medium	[°C]	0 ... 50
Ambient temperature	[°C]	0 ... 50
Corrosion resistance class CRC ¹⁾		2

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

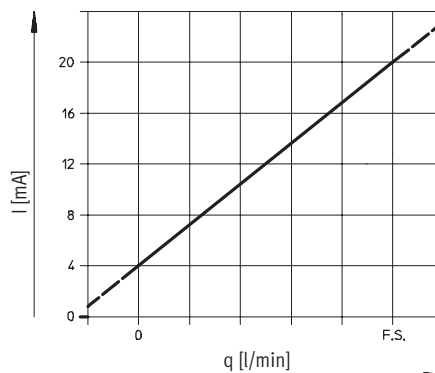
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Analogue output as a function of flow

0 ... 10 V



4 ... 20 mA

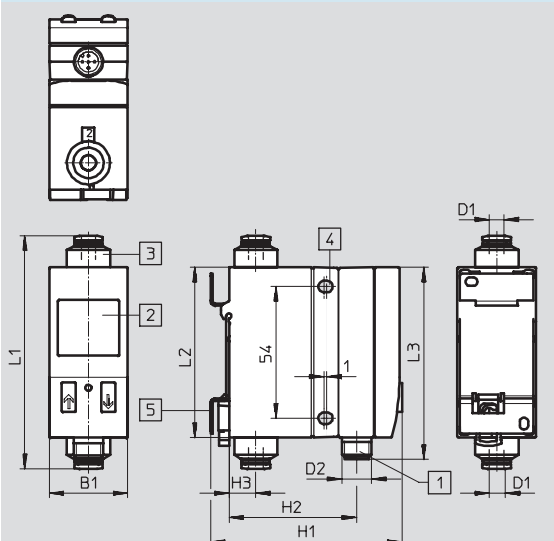


U, I Analogue output

q Flow

Dimensions

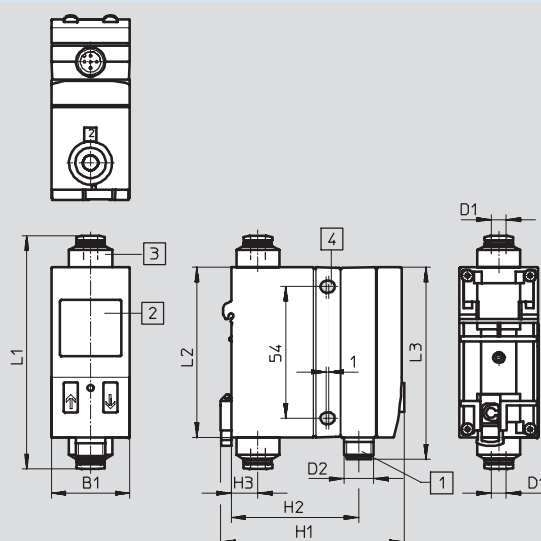
Wall or surface mounting



1 M12x1 plug in accordance with EN 60947-5-2

2 LCD display
3 Pneumatic connection

Hat-rail mounting



4 Hole for mounting screw M4

5 Adapter plate for wall mounting

Type of mounting	Flow measuring range [l/min]	B1	D1	D2	H1	H2	H3	L1	L2	L3
Wall or surface mounting	0.5 ... 10	32.3	QS-6	M12x1	75.7	52.5	11	95.6	69.8	78.9
	10 ... 200		QS-8					99.8		
Hat-rail mounting	0.5 ... 10	32.3	QS-6	M12x1	79	52.5	11	95.6	69.8	78.9
	10 ... 200		QS-8					99.8		

Flow sensors SFE1-LF-...

Technical data

FESTO

Ordering data – flow measuring range 0.5 ... 10 l/min					
Switching output		Analogue output		Part No.	Type
2x PNP	2x NPN	0 ... 10 V	4 ... 20 mA		
Hat-rail mounting					
■	–	■	–	537 867	SFE1-LF-F10-HQ6-P2U-M12
■	–	–	■	537 866	SFE1-LF-F10-HQ6-P2I-M12
–	■	■	–	537 869	SFE1-LF-F10-HQ6-N2U-M12
–	■	–	■	537 868	SFE1-LF-F10-HQ6-N2I-M12
Wall or surface mounting					
■	–	■	–	537 871	SFE1-LF-F10-WQ6-P2U-M12
■	–	–	■	537 870	SFE1-LF-F10-WQ6-P2I-M12
–	■	■	–	537 873	SFE1-LF-F10-WQ6-N2U-M12
–	■	–	■	537 872	SFE1-LF-F10-WQ6-N2I-M12

Ordering data – flow measuring range 10 ... 200 l/min					
Switching output		Analogue output		Part No.	Type
2x PNP	2x NPN	0 ... 10 V	4 ... 20 mA		
Hat-rail mounting					
■	–	■	–	537 875	SFE1-LF-F200-HQ8-P2U-M12
■	–	–	■	537 874	SFE1-LF-F200-HQ8-P2I-M12
–	■	■	–	537 877	SFE1-LF-F200-HQ8-N2U-M12
–	■	–	■	537 876	SFE1-LF-F200-HQ8-N2I-M12
Wall or surface mounting					
■	–	■	–	537 879	SFE1-LF-F200-WQ8-P2U-M12
■	–	–	■	537 878	SFE1-LF-F200-WQ8-P2I-M12
–	■	■	–	537 881	SFE1-LF-F200-WQ8-N2U-M12
–	■	–	■	537 880	SFE1-LF-F200-WQ8-N2I-M12

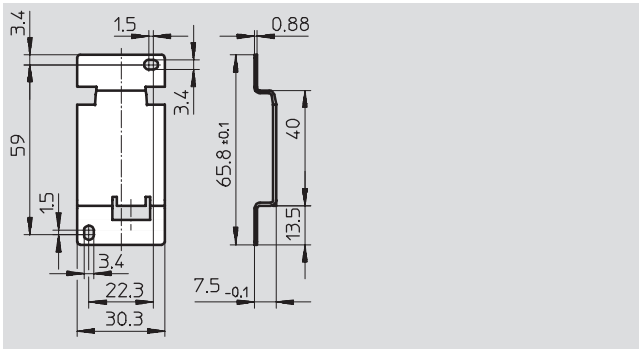
Flow sensors SFE1-LF-...

Accessories






Adapter plate SDE1-...-W...
for wall or surface mounting

Material:
Steel



Ordering data		
	Part No.	Type
Adapter plate ¹⁾	194 297	SDE1-...-W...

1) Included in the scope of delivery with SFE1-LF-...-W...

Ordering data – Plug sockets with cable M12x1							Technical data → 4 / 8.3-27	
	Assembly	Port	Switching output		Cable length [m]	Part No.	Type	
			PNP	NPN				
Straight socket								
	Union nut M12x1	5-pin			2.5	175 715	SIM-M12-5GD-2,5-PU	
					5	175 716	SIM-M12-5GD-5-PU	