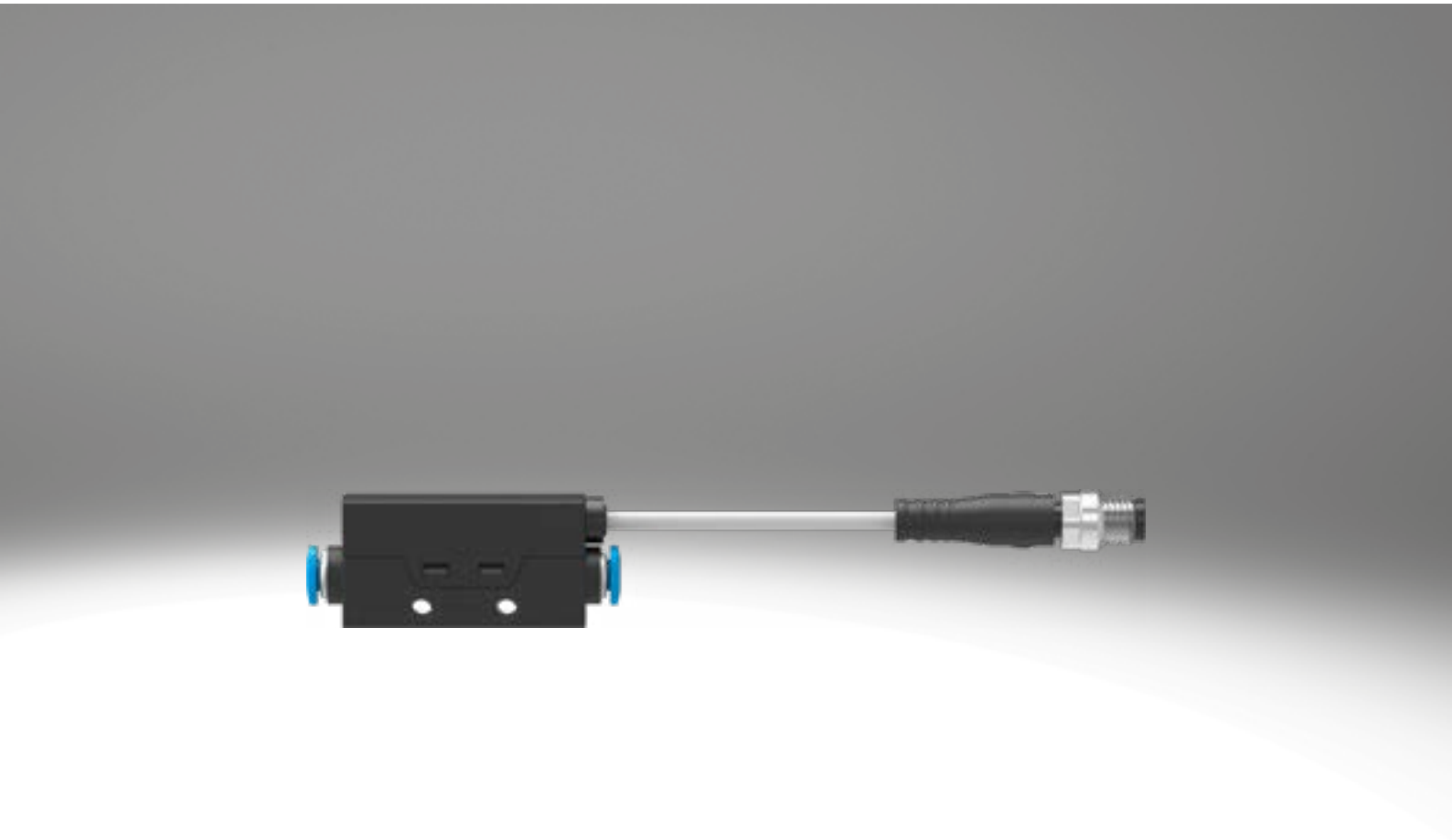
Flow transmitters SFTE

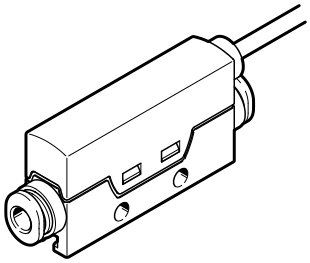


Key features

At a glance

Compact and lightweight
- Compact design 10x40x22 mm
- Degree of protection IP40
- Weight: 9 g for M5 connection (without cable)

Universal flow detection
- 4 variants 1 ... 10 l/min
- Repetition accuracy +/–1%FS
- Application range –0.9 ... 10 bar
- Suitable for compressed air and non-corrosive gases

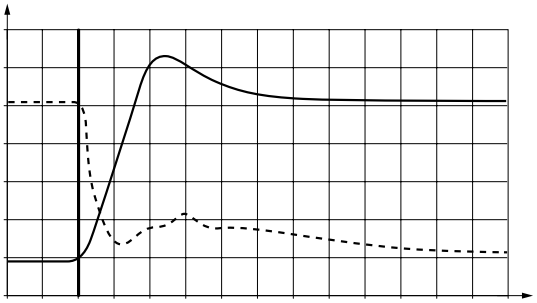


Easy installation
- No laminar flow inlets required
- Integrated push-in connectors
- With 2.5 m cable and open ends or M8 plug
- Copper-free threaded connections

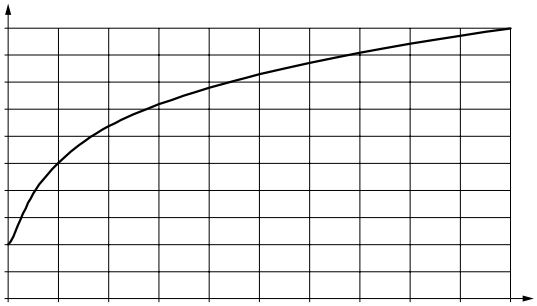
Reliable Pick&Place application
- High signal strength in comparison with pressure measurement
- Reliable sensing "Part picked up"
- 1 ... 5 V or 0 ... 10 V, type for higher signal strength

Fast
- Rise time 3 ms
- Pure analogue signal processing

Typical signal profile for an abrupt change in flow, on ... off



Sensor signal



Product description

The flow transmitter SFTE is suitable for monitoring compressed air and non-corrosive gases. The non-linear sensor signal is output in analogue form as a voltage signal to detect the flow rate. This signal can optionally be processed e.g. by a controller or a signal converter.
The SFTE also supplies an output signal in the event of return flow.

Areas of application

- Picking and placing the smallest of workpieces
- Monitoring of air dosing (air bearing, compressed air motor, purge air etc.)
- Process monitoring
- Pneumatic object detection via air-gap measurement

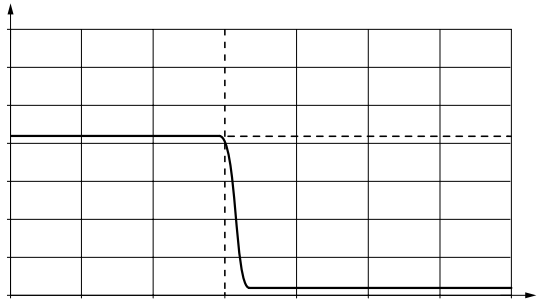
With signal converter SCDN

Threshold monitoring of the SFTE voltage output can take place in combination with the signal converter SCDN. 2 flow transmitters SFTE can be connected to one signal converter SCDN.

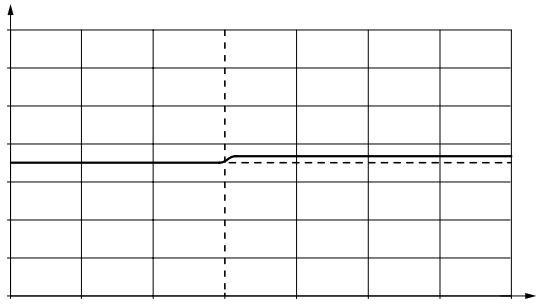
Key features

Comparison of signal strength for a Pick&Place application

With flow transmitter

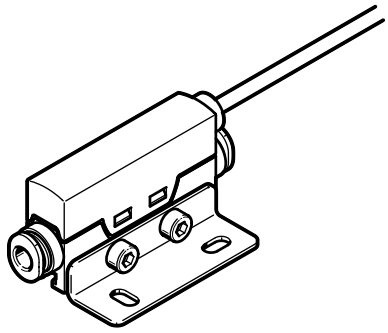


With pressure transmitter



Mounting options

Bracket mounting, single sensor



Bracket mounting, multiple sensors

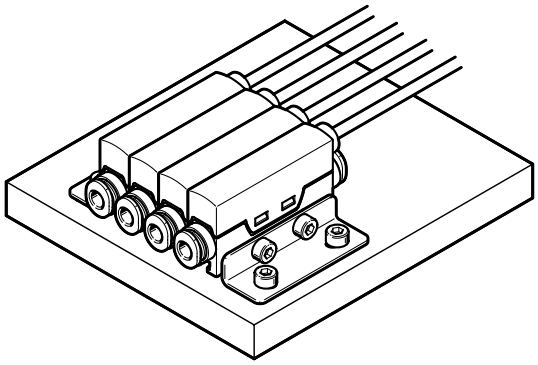


Plate mounting (from underneath)

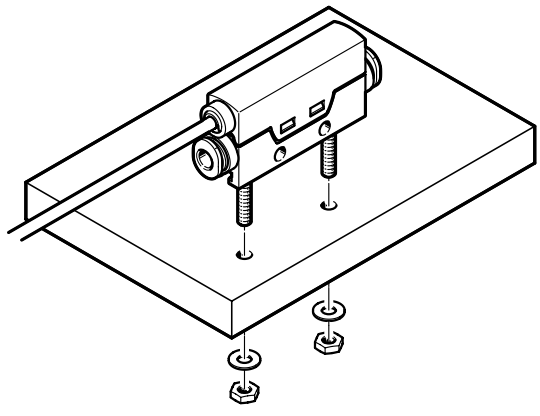
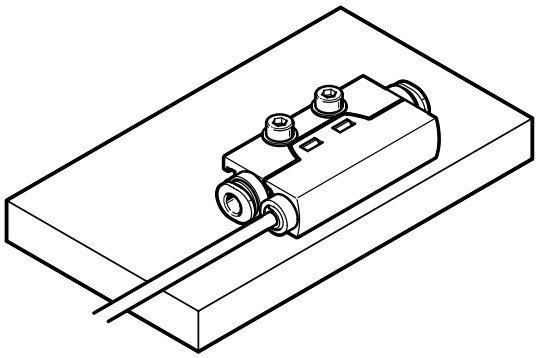
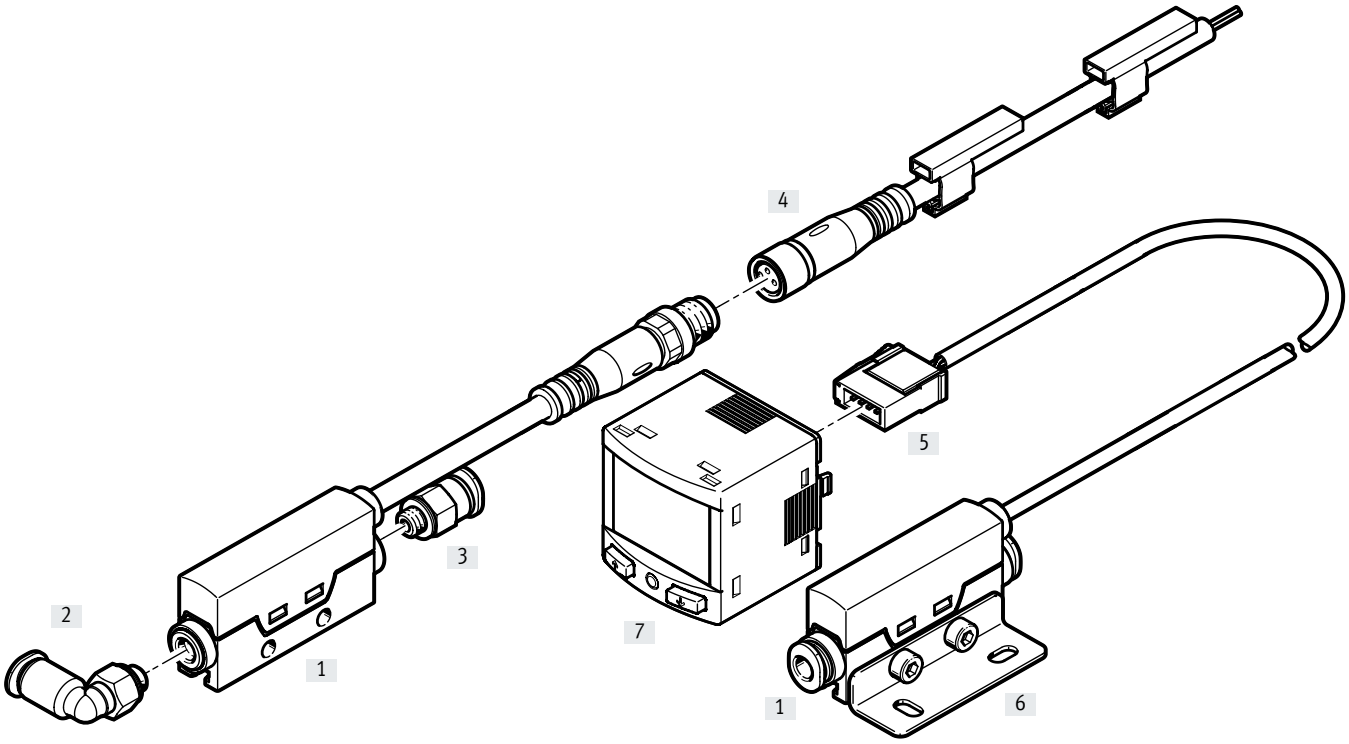


Plate mounting (from the side)



Peripherals overview



Mounting components and accessories

		Description	→ Page
[1]	SFTE Flow transmitter	Flow transmitter	6
[2]	QSML-M5-3 Push-in fitting	90° connection	12
[3]	QSM-M5-6 Push-in fitting	Straight connection	12
[4]	NEBU-M8G3- ... Connecting cable	M8x1, straight socket	12
[5]	NECU-S-ECG4-HX-Q3 Plug	Square design, 4-pin, straight, insulation displacement connector	12
[6]	SAMH-FE-A Mounting bracket	For wall or surface mounting (screws are not included in scope of delivery)	11
[7]	SCDN- ... Signal converter	Converts analogue signals into digital switching signals or IO-Link	12

Type codes

001	Series	
SFTE	Flow transmitter	

002	Flow measuring range	
1	Max. 1 l/min	
2	Max. 2 l/min	
5	Max. 5 l/min	
10	Max. 10 l/min	
20	Max. 20 l/min	

003	Flow rate input	
U	Unidirectional	

004	Pneumatic connection	
M5	M5	
Q3	Push-in connector 3 mm	
Q4	Push-in connector 4 mm	

005	Thread type	
	None	
F	Female thread	

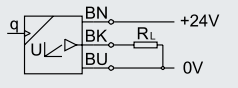
006	Electrical output 1	
B	1 ... 5 V	
V	0 ... 10 V	

007	Electrical connection	
2.5K	Cable 2.5 m, open end	
0.3M8	Cable 0.3 m, with plug M8	

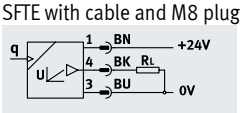
Data sheet

Function

SFTE with cable and open end



SFTE with cable and M8 plug



- Max. flow rate
  - 1 l/min
  - 2 l/min
  - 5 l/min
  - 10 l/min
- Size 10 mm
- Operating pressure –0.9 ... 10 bar
- Temperature range 0 ... +50°C
- Voltage 24 V DC
- IP40 degree of protection

General technical data

		1U	2U	5U	10U
Measured variable		Volumetric flow rate			
		Mass flow rate			
Flow direction		Unidirectional			
Measuring principle		Thermal			
Measurement method		Heat loss			
Certification		RCM			
CE marking (see declaration of conformity)		To EU EMC Directive			
		To EU RoHS Directive			
KC mark		KC EMC			
UKCA marking (see declaration of conformity)		To UK instructions for EMC			
		To UK RoHS instructions			
Flow rate detection range, start value	[l/min]	0			
Flow rate detection range, end value	[l/min]	1	2	5	10
Operating pressure	[bar]	–0.9 ... 10			
Operating medium		Compressed air to ISO 8573-1:2010 [6:4:4]			
		Nitrogen			
Temperature of medium	[°C]	0 ... 50			
Ambient temperature	[°C]	0 ... 50			
Nominal temperature	[°C]	23			

General output

Repetition accuracy	[% FS][1)]	±1

1) The unit %FS relates to the entire voltage range of the analogue output.

Analogue output

		V	B
Analogue output[1)]	[V]	0 ... 10	1 ... 5
Rise time	[ms]	3	
Min. load resistance of voltage output	[kOhm]	20	

1) Output characteristic is not linear to the flow.

Output, additional data

Short circuit current rating	Yes
Overload protection	Provided

Data sheet

Electronics		
Operating voltage range DC	[V]	22 ... 26
No-load supply current	[mA]	≤ 17
Reverse polarity protection		For all electrical connections

Electromechanics			
Electrical connection		0.3M8	2.5K
Connection type		Cable with plug	Cable
Connection technology		M8x1, A-coded to EN 61076-2-104	Open end
Number of pins, wires		3	3
Cable length	[m]	0.3	2.5
Weight	[g]	40	37
Cable sheath material		TPE-U(PUR)	

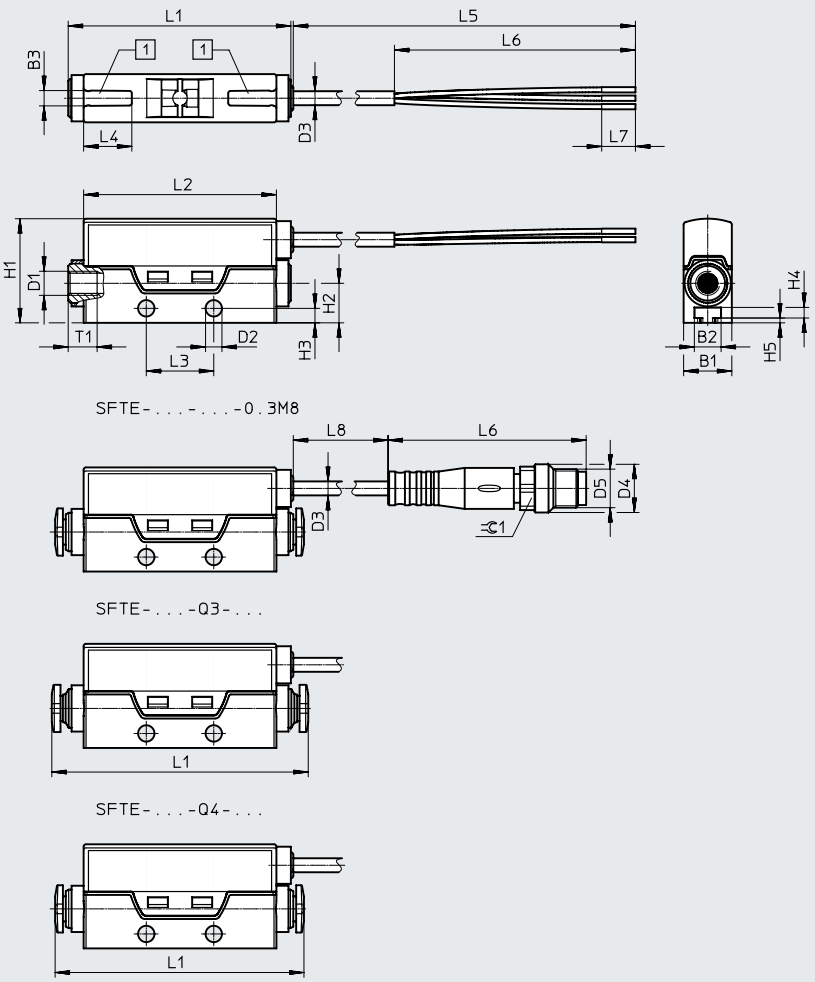
Mechanics	
Type of mounting	In-line installation
	With through-hole
	Via accessories
Mounting position	Any
Materials	
Housing	Reinforced PA
Note on materials	RoHS-compliant

Immission/emission	
Degree of protection	IP40
PWIS conformity	VDMA24364-B2-L
Corrosion resistance class CRC[1)]	2

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Data sheet

Dimensions Download CAD data ➔ www.festo.com



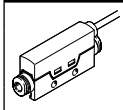
[1] T-slot for M3 hexagon head screws (EN ISO 4017). Distance between holes 27 mm to 33 mm

Type	B1	B2	B3	D1	D2 ø	D3 ø	H1	H2	H3	H4
SFTE-... -M5F-...	10	5.5	3.2	M5	3.4	2.9	21.6	8.2	3	2.2
SFTE-... -Q4-...				Q4						
SFTE-... -Q3-...				Q3						

Type	H5	L1 max.	L2	L3	L4	L5	L6	L7	T1
SFTE-... -M5F-...	1	47	40	14	10	~2500	50	7	6
SFTE-... -Q4-...		55							
SFTE-... -Q3-...		55							

Data sheet

Ordering data

Design	Flow measuring range [l/min]	Connection type	Voltage output [V]	Part no.	Type
	0 ... 1	Female thread M5	1 ... 5	**8058510**	**SFTE-1U-M5F-B-2.5K**
		For push-in connector O.D. 4 mm		**8058511**	**SFTE-1U-Q4-B-2.5K**
	0 ... 5	Female thread M5		**8058512**	**SFTE-5U-M5F-B-2.5K**
		For push-in connector O.D. 4 mm		**8058513**	**SFTE-5U-Q4-B-2.5K**
	0 ... 10	Female thread M5		**8058514**	**SFTE-10U-M5F-B-2.5K**
		For push-in connector O.D. 4 mm		**8058515**	**SFTE-10U-Q4-B-2.5K**

Ordering data – Modular product system

Ordering table

		Conditions	Code	Enter code
Module no.	**8035301**			
Function	Flow sensor		**SFTE**	-SFTE
Flow measuring range l/min	Max. 1		**-1**	
	Max. 2		**-2**	
	Max. 5		**-5**	
	Max. 10		**-10**	
Flow input	Unidirectional		**U**	
Pneumatic connection	M5		**-M5**	
	Push-in connector 3 mm		**-Q3**	
	Push-in connector 4 mm		**-Q4**	
Thread type	None	[1]		
	Female thread	[2]	**F**	
Electrical output	1 ... 5 V		**-B**	
	0 ... 10 V		**-V**	
Electrical connection	Cable 2.5 m, open end		**-2.5K**	
	Cable 0.3 m, with M8 plug		**-0.3M8**	

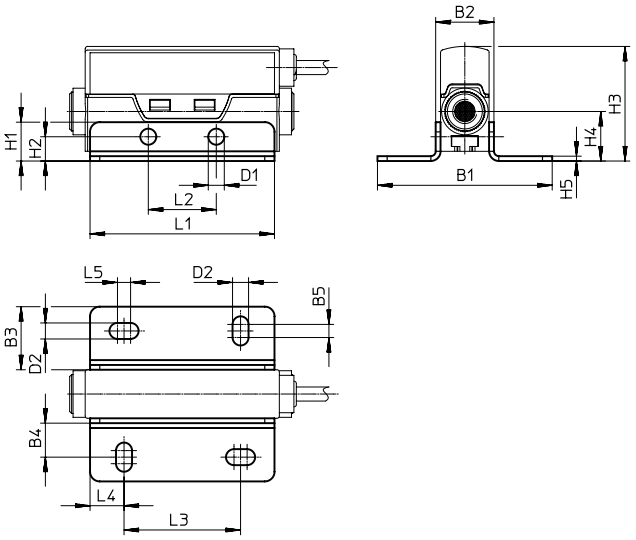
[1] Not in combination with pneumatic connection M5

[2] Not in combination with push-in connector 4 mm Q4
Not in combination with push-in connector 3 mm Q3

Accessories – Ordering data

Mounting bracket SAMH-FE-A
For wall or surface mounting

Material: High-alloy stainless steel,
RoHS-compliant



Dimensions and ordering data

Type	B1	B2	B3	B4	B5	D1 ø	D2	H1	H2	H3	H4
SAMH-FE-A	36	12	13	7	2.7	3.3	3.3	8	5	23.6	10.2

Type	H5	L1	L2	L3	L4	L5	CRC[1]	Weight [g]	Part no.	Type
SAMH-FE-A	1	38	14	24	7	2.7	2	6	**8058519**	**SAMH-FE-A**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Accessories – Ordering data

Ordering data – Connecting cables Data sheets ➔ Internet: nebu

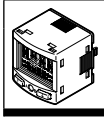
	Number of wires	Cable length [m]	Part no.	Type
Socket, 3-pin, M8 – open cable end				
	3	2.5	**541333**	**NEBU-M8G3-K-2.5-LE3**
		5	**541334**	**NEBU-M8G3-K-5-LE3**

Ordering data – Push-in fittings Data sheets ➔ Internet: qsm

	O.D.	Nominal width [mm]	For tubing O.D. [mm]	Part no.	Type	PU[1]
Straight connection						
	M5	2.2	6	**153306**	**QSM-M5-6**	**10**
90° connection						
	M5	1.5	3	**153331**	**QSML-M5-3**	**10**
		1.7	4	**153333**	**QSML-M5-4**	**10**
		2.1	6	**153335**	**QSML-M5-6**	**10**

1) Packaging unit

Ordering data – Signal converter Data sheets ➔ Internet: scdn

	Measured variable	Part no.	Type
	Voltage	**8035555**	**SCDN-2V-EC4-PNLK-L1**

Ordering data – Plug Data sheets ➔ Internet: necu

	Electrical connection	Connection cross section [mm²]	Part no.	Type
	Square design, 4-pin, straight, insulation displacement connector	0.14	**570922**	**NECU-S-ECG4-HX-Q3**