

Pressure sensors SDE5

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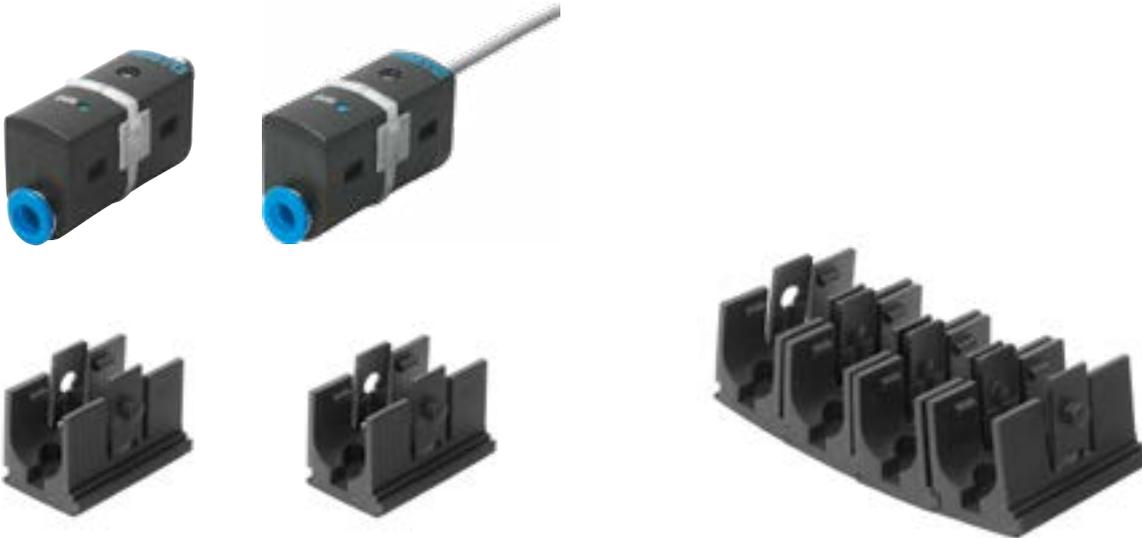
Just look
for the
star!

Key features

At a glance

SDE5-...-M8,
plug version,
plug M8x1, 3-pin

SDE5-...-K,
cable version,
2.5 m long, 3-wire



Linkable wall bracket for clipping in the sensors
(included in the scope of delivery)

Product description

The pressure sensor SDE5 is a cost-effective alternative for quick and easy pressure monitoring. The "intelligent fitting" delivers instant information about the actual pressure and is an equally effective device for object detection via back pressure as it is for pressure, regulation and vacuum detection.

Main applications

The pressure sensor SDE5 can be used wherever simple sensing of the actual pressure is required:

- Compressed air monitoring
- Regulator monitoring
- Confirmation of suction in vacuum technology
- Object detection via back pressure

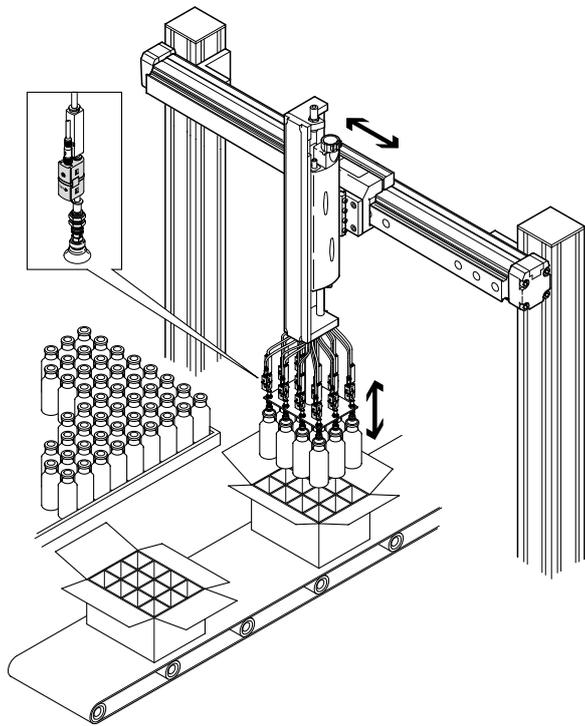
Key features

- Selectable output functions
- Teach-in function for programming
- Minimal assembly times thanks to QS connections and linkable wall brackets
- Quick switching-point adjustment at the touch of a button
- Switching status indication by an LED visible from all sides
- Relative pressure or differential pressure measurement
- 5 pressure measuring ranges: 0 ... -1, -1 ... 1, 0 ... 2, 0 ... 6, 0 ... 10 bar
- Analogue output 0 ... 10 V
- Electrical outputs: 1 switching output PNP or NPN

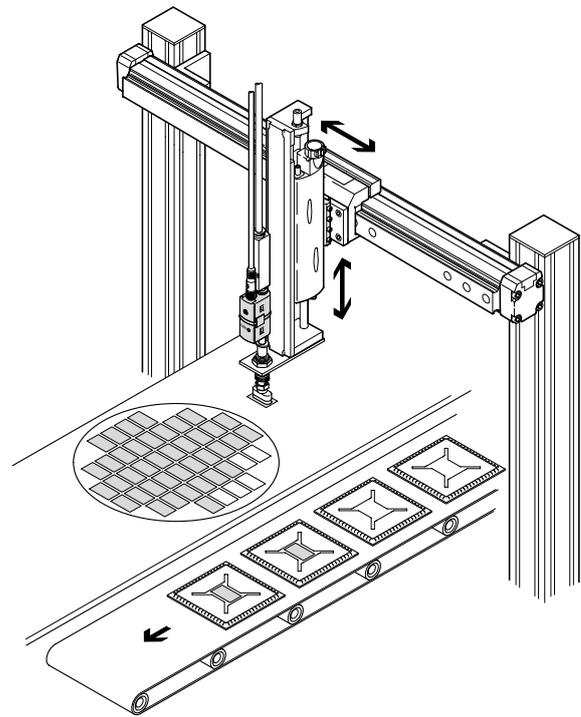
Key features

Application examples

Vacuum monitoring

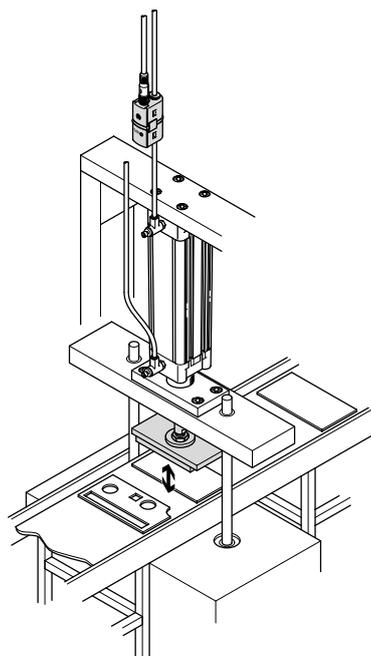


- Pressure sensor SDE5 in combination with a vacuum generator VN for vacuum monitoring when handling bottles

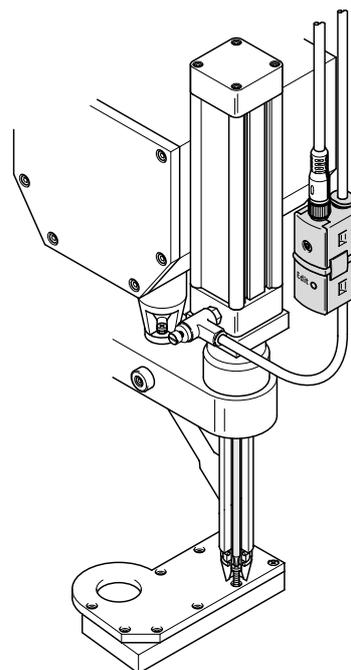


- Pressure sensor SDE5 for suction monitoring when handling small parts, in this case chips.

Pressure monitoring



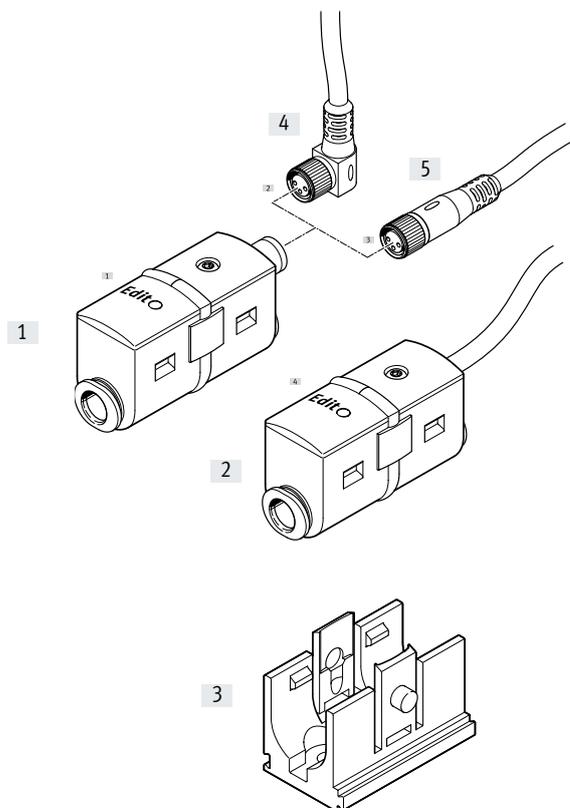
- Pressure sensor SDE5 as pressure monitor for the pressing in of punched parts



- Pressure sensor SDE5 as inline variant for pressure range monitoring on a pneumatic screwdriver.

Peripherals overview

Peripherals overview



Mounting attachments and accessories		→ Page/Internet
[1]	Pressure sensor SDE5-...-M8, plug version	6
[2]	Pressure sensor SDE5-...-K, cable version	6
[3]	Wall bracket (included in the scope of delivery)	–
[4]	Connecting cable NEBU-M8W3 with angled plug socket	13
[5]	Connecting cable NEBU-M8G3 with straight plug socket	13

Type codes

001	Series
SDE5	Pressure sensor
002	Pressure measuring range
V1	-1 ... 0 bar
D2	0 ... 2 bar
D10	0 ... 10 bar
003	Pressure inlet
	Relative pressure
Z	Differential pressure
004	Output function
FP	Freely programmable, (switching/teach-in function, N/O contact, N/C contact)
O	Threshold value with fixed hysteresis, 1 teach-in point, N/O contact
C	Threshold value with fixed hysteresis, 1 teach-in point, N/C contact
O1	Threshold value with fixed hysteresis, 2 teach-in points, N/O contact
O2	Threshold value with variable hysteresis, N/O contact
O3	Window comparator with fixed hysteresis, N/O contact
C3	Window comparator with fixed hysteresis, N/C contact
NF	No binary switching function (analogue output)

005	Pneumatic connection
Q4	Push-in connector 4 mm, at both ends
Q6	Push-in connector 6 mm, at both ends
Q4E	Push-in connector 4 mm, at one end
Q6E	Push-in connector 6 mm, at one end
T14E	Push-in fitting 1/4", at one end
006	Electrical output 1
P	PNP
N	NPN
V	0 ... 10 V
007	Electrical connection
K	Open end
M8	Plug M8, 3-pin

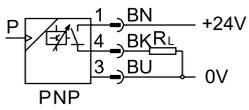
Additional variants can be ordered using the modular product system → 12

- Pressure measuring range
- Pneumatic connection
- X teach-in point permanently set
- Y teach-in point permanently set
- Output function
- Electrical accessories

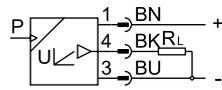
Data sheet

Function

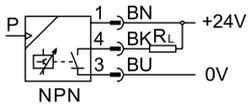
Switching output PNP



Analogue output



Switching output NPN



General technical data					
Type SDE5	-V1	-B2	-D2	-D6	-D10
General information					
Certification	RCM c UL us - Recognized (OL)				
CE marking (see declaration of conformity)	To EU EMC Directive To EU RoHS Directive				
KC mark	KC EMC				
Note on materials	RoHS-compliant				
Input signal/measuring element					
Measured variable	Relative pressure Differential pressure				
Measurement method	Piezoresistive pressure sensor				
Pressure measuring range [bar]	0 ... -1	-1 ... +1	0 ... +2	0 ... +6	0 ... +10
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]				
Note on the operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)				
Temperature of medium [°C]	0 ... +50				
Ambient temperature [°C]	0 ... +50				

Data sheet

Electrical data		
Output, general¹⁾		
Repetition accuracy \pm FS	[%]	0.3
Temperature coefficient \pm FS/K	[%]	0.05
Switching output		
Accuracy switching output \pm FS ¹⁾	[%]	0.5
Switching output		PNP NPN
Switching function		Freely programmable (switching/teach-in function, N/O contact, N/C contact) Threshold value with fixed hysteresis Threshold value with variable hysteresis Window comparator with fixed hysteresis
Switching element function		N/C contact N/O contact Switchable
Max. output current	[mA]	100
Voltage drop	[V]	Max. 1.8
Inductive protective circuit		Adapted to MZ, MY, ME coils
Analogue output		
Output characteristic	[V]	0 ... 10
Accuracy	[%]	3 (ambient temperature 20 ... +25°C)
Analogue output \pm FS ¹⁾		4 (ambient temperature 0 ... +50°C)
Linearity error \pm FS ¹⁾	[%]	0.3

1) % FS = % of measuring range upper limit (full-scale)

Electrical data		
Output, additional data		
Short circuit current rating		Yes
Electronics		
Operating voltage range DC	[V]	15 ... 30
Reverse polarity protection		For all electrical connections
Electromechanical components		
Electrical connection		Plug M8x1, 3-pin, round design, to EN 60947-5-2 Cable 2.5 m, 3-wire, to EN 60947-5-2

Pin allocation		
Plug M8x1, 3-pin	Pin	Meaning
	1	Operating voltage +24 V DC
	2/4	Switching output or analogue output
	3	0 V

Data sheet

Mechanical system		
Type of mounting		Via accessories
Mounting position		Any
Pneumatic connection		QS-4
		QS-6
		QS1/4
		QS5/32
Product weight	[g]	19 (plug version)
		47 (cable version)
Product weight of wall bracket	[g]	5.5
Housing material		PA
		POM
Display/operation		
Switching output		
Switching status indication		Yellow LED
Threshold value setting range	[%]	0 ... 100
Analogue output		
Ready status indication		Green LED
Immissions/emissions		
Storage temperature	[°C]	-20 ... +80
Degree of protection		IP40
Protection class		III
Corrosion resistance	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.

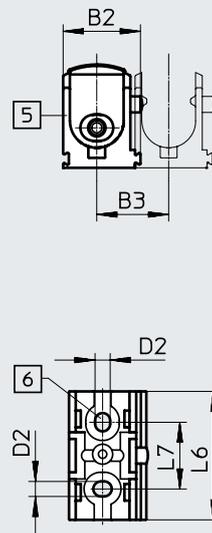
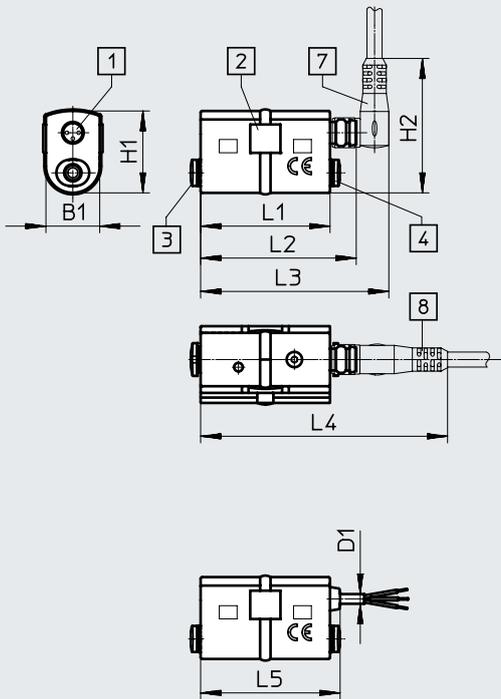
Data sheet

Dimensions

Download CAD data → www.festo.com

SDE5-...-M8, plug version

SDE5 with wall bracket



- [1] Plug M8x1, 3-pin or cable, 3-wire, 2.5 m long
- [2] LED display, visible from all sides
- [3] Pneumatic connection 1
- [4] Pneumatic connection 2 or blanking plug with SDE5-...-E
- [5] Retaining bracket for wall mounting (included in the scope of delivery)
- [6] 2x through-hole for retaining screw
- [7] Connecting cable NEBU-M8W3 with angled plug socket
- [8] Connecting cable NEBU-M8G3 with straight socket

SDE5-...-K, cable version

Type	B1	B2	B3	D1	D2	H1	H2	L1	L2	L3	L4	L5	L6	L7
SDE5-...-M8	16	23	21.4	-	4.5	24.5	40.3	38.5	45.5	56	73.5	-	38.5	20
SDE5-...-K				2.9			-		-	-	-	41.5		

Data sheet

★ Core product range

Ordering data – Measured variable: relative pressure							
Pressure measuring range [bar]	Switching element function	Electrical output	Electrical connection	Pneumatic connection		Part no.	Type
				At one end	At both ends		
Freely programmable (switching/teach-in function, N/O contact, N/C contact)							
0 ... -1	Switchable	Switching output PNP	Plug M8x1, 3-pin	–	QS-6	★ 542887	SDE5-V1-FP-Q6-P-M8
0 ... +10	Switchable	Switching output PNP	Plug M8x1, 3-pin	QS-4	–	★ 542900	SDE5-D10-FP-Q4E-P-M8
				QS-6	–	★ 542897	SDE5-D10-FP-Q6E-P-M8
				–	QS-6	★ 542898	SDE5-D10-FP-Q6-P-M8
			Cable, 3-wire	QS-4	–	★ 542901	SDE5-D10-FP-Q4E-P-K
				–	QS-6	★ 542899	SDE5-D10-FP-Q6-P-K
Threshold value with fixed hysteresis, 1 teach-in pressure							
0 ... -1	N/O contact	Switching output PNP	Plug M8x1, 3-pin	QS-4	–	★ 527460	SDE5-V1-O-Q4E-P-M8
				QS-6	–	★ 527461	SDE5-V1-O-Q6E-P-M8
				–	QS-4	★ 527457	SDE5-V1-O-Q4-P-M8
				–	QS-6	★ 527458	SDE5-V1-O-Q6-P-M8
0 ... +2	N/O contact	Switching output PNP	Cable, 3-wire	QS-6	–	★ 542888	SDE5-D2-O-Q6E-P-K
0 ... +10	N/O contact	Switching output PNP	Plug M8x1, 3-pin	QS-4	–	★ 527466	SDE5-D10-O-Q4E-P-M8
				QS-6	–	★ 527467	SDE5-D10-O-Q6E-P-M8
			Cable, 3-wire	–	QS-4	★ 527463	SDE5-D10-O-Q4-P-M8
				–	QS-6	★ 527464	SDE5-D10-O-Q6-P-M8
	N/C contact	Switching output PNP	Plug M8x1, 3-pin	QS-4	–	★ 542889	SDE5-D10-C-Q4E-P-M8
				QS-6	–	★ 542894	SDE5-D10-C-Q6E-P-M8
			Cable, 3-wire	QS-6	–	★ 542895	SDE5-D10-C-Q6E-P-K
Threshold value with fixed hysteresis, 2 teach-in pressures with mean value calculation							
0 ... -1	N/O contact	Switching output PNP	Plug M8x1, 3-pin	–	QS-6	★ 542886	SDE5-V1-O1-Q6-P-M8
Threshold value with variable hysteresis, 2 teach-in pressures							
0 ... +10	N/O contact	Switching output PNP	Plug M8x1, 3-pin	QS-6	–	★ 542891	SDE5-D10-O2-Q6E-P-M8
				–	QS-6	★ 542892	SDE5-D10-O2-Q6-P-M8
Window comparator with fixed hysteresis, 2 teach-in pressures							
0 ... +10	N/O contact	Switching output PNP	Cable, 3-wire	QS-6	–	★ 542893	SDE5-D10-O3-Q6E-P-K
	N/C contact	Switching output PNP	Cable, 3-wire	QS-6	–	★ 542896	SDE5-D10-C3-Q6E-P-K

Data sheet

Ordering data – Measured variable: relative pressure							
Pressure measuring range [bar]	Switching element function	Electrical output	Electrical connection	Pneumatic connection		Part no.	Type
				At one end	At both ends		
Freely programmable (switching/teach-in function, N/O contact, N/C contact)							
0 ... +10	Switchable	Switching output PNP	Plug M8x1, 3-pin	QS1/4	–	567467	SDE5-D10-FP-T14E-P-M8
Threshold value with fixed hysteresis, 1 teach-in pressure							
0 ... +10	N/O contact	Switching output PNP	Plug M8x1, 3-pin	QS1/4	–	567468	SDE5-D10-O-T14E-P-M8
		Switching output NPN	Plug M8x1, 3-pin	–	QS-6	567473	SDE5-D10-O-Q6-N-M8
			Cable, 3-wire	–	QS-6	567469	SDE5-D10-O-Q6-N-K
Analogue output (no binary switching function)							
0 ... –1	–	Analogue output 0 ... 10 V	Plug M8x1, 3-pin	QS-6	–	567463	SDE5-V1-NF-Q6E-V-M8
			Cable, 3-wire	–	QS-6	567464	SDE5-V1-NF-Q6-V-M8
				QS-6	–	567470	SDE5-V1-NF-Q6E-V-K
0 ... +10	–	Analogue output 0 ... 10 V	Plug M8x1, 3-pin	QS-6	–	567465	SDE5-D10-NF-Q6E-V-M8
				–	QS-6	567466	SDE5-D10-NF-Q6-V-M8
			Cable, 3-wire	QS-6	–	567471	SDE5-D10-NF-Q6E-V-K
				–	QS-6	567472	SDE5-D10-NF-Q6-V-K
Ordering data – Measured variable: differential pressure							
Pressure measuring range [bar]	Switching element function	Electrical output	Electrical connection	Pneumatic connection		Part no.	Type
				At one end	At both ends		
Freely programmable (switching/teach-in function, N/O contact, N/C contact)							
0 ... +10	Switchable	Switching output PNP	Plug M8x1, 3-pin	–	QS-6	567460	SDE5-D10Z-FP-Q6-P-M8
Threshold value with fixed hysteresis, 1 teach-in pressure							
0 ... +10	N/O contact	Switching output PNP	Plug M8x1, 3-pin	–	QS-6	567462	SDE5-D10Z-O-Q6-P-M8

Ordering data – Modular product system

Ordering table				
Size	5	Conditions	Code	Enter code
Module no.	529027			529027
Function	Pressure sensor		SDE5	SDE5
Pressure measuring range [bar]	0 ... -1		-V1	
	-1 ... 1		-B2	
	0 ... 2		-D2	
	0 ... 6		-D6	
	0 ... 10		-D10	
Pressure inlet	Relative pressure			
	Differential pressure		Z	
Output function	Freely programmable (switching/teach-in function, N/O contact, N/C contact)		-FP	
	Threshold value with fixed hysteresis, 1 teach-in point, N/O contact		-O	
	Threshold value with fixed hysteresis, 1 teach-in point, N/C contact		-C	
	Threshold value with fixed hysteresis, 2 teach-in points, N/O contact		-O1	
	Threshold value with fixed hysteresis, 2 teach-in points, N/C contact		-C1	
	Threshold value with variable hysteresis, N/O contact		-O2	
	Threshold value with variable hysteresis, N/C contact		-C2	
	Window comparator with fixed hysteresis, N/O contact		-O3	
	Window comparator with fixed hysteresis, N/C contact		-C3	
	No binary switching function (analogue output)		-NF	
Pneumatic connection	Push-in connector 4 mm, at both ends		-Q4	
	Push-in connector 6 mm, at both ends		-Q6	
	Push-in connector 5/32, at both ends		-T532	
	Push-in connector 1/4, at both ends		-T14	
	Push-in connector 4 mm, at one end	[4]	-Q4E	
	Push-in connector 6 mm, at one end	[4]	-Q6E	
	Push-in connector 5/32, at one end	[4]	-T532E	
	Push-in connector 1/4, at one end	[4]	-T14E	
Electrical output	1 switching output PNP	[5]	-P	
	1 switching output NPN	[5]	-N	
	1 analogue output 0 ... 10 V	[6]	-V	
Electrical connection	2.5 m cable		-K	
	Plug M8, 3 pin		-M8	
Electrical accessories	Connecting cable, straight socket, 2.5 m	[1]	-G	
	Connecting cable, angled plug socket, 2.5 m	[1]	-w	
	Connecting cable, straight socket, 5 m	[1]	-G5	
	Connecting cable, angled plug socket, 5 m	[1]	-W5	
X teach-in point permanently set in bar	-0.85 ... 10 ⁻¹	[2]	-...X	
X teach-in point negative	Negative range	[7]	V	
Y teach-in point permanently set in bar	-0.85 ... 10 ⁻¹	[2] [3]	-...Y	
Y teach-in point negative	Negative range	[8]	V	

[1] **G, W, G5, W5** Only in combination with M8

[2] **Y** Not in combination with O, C

[3] **X, Y** Not in combination with FP, O1, C1, NF

Must be evaluated if O2, C2, O3, C3,
and X or Y has been selected

Only one decimal place permitted in combination with D10

Sensor without edit key, no change to switching point possible

[4] **Q4E, Q6E, T532E, T14E**

Not in combination with supply port Z

[5] **P, N** Not in combination with output function NF

[6] **V** Only in combination with output function NF

[7] **V** Only in combination with B2 and X teach-in point in the negative range,
but then mandatory entry

[8] **V** Only in combination with B2 and Y teach-in point in the negative range,
but then mandatory entry

[7] **V** Only in combination with B2 and X teach-in point in the negative range,
but then mandatory entry

[8] **V** Only in combination with B2 and Y teach-in point in the negative range,
but then mandatory entry

[8] **V** Only in combination with B2 and Y teach-in point in the negative range,
but then mandatory entry

[1] Permissible value range. However, the value for the permanently set teach-in point must lie within the selected pressure measuring range V1, B2, D2, D6 or D10.
Note regarding V1: enter the teach-in pressure without preceding plus or minus sign.
Note regarding B2: enter the teach-in pressure for vacuum without preceding plus or minus sign, but with the suffix V; see [7] or [8].

Accessories

Ordering data – Connecting cable NEBU-M8						Data sheets → Internet: nebu
	Electrical connection	Number of wires	Cable length [m]	Order code ¹⁾	Part no.	Type
	M8x1, straight socket	3	2.5	G	★ 541333	NEBU-M8G3-K-2.5-LE3
		3	5	G5	★ 541334	NEBU-M8G3-K-5-LE3
	M8x1, angled socket	3	2.5	W	★ 541338	NEBU-M8W3-K-2.5-LE3
		3	5	W5	★ 541341	NEBU-M8W3-K-5-LE3

1) When ordering using the modular product system → 11