

Pressure sensors SDE1, with display



## Pressure sensors SDE1, with display

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Product range overview

Method of measurement	Operating voltage [V DC]	Measured variable	Pressure measuring range [bar]	Pneumatic connection	Type of mounting	Electrical output	
						Digital	Analogue
Piezoresistive pressure sensor with display	15 ... 30	Relative pressure Differential and relative pressure	-1 ... 0, -1 ... +1, 0 ... 2, 0 ... 6, 0 ... 10	Male thread R1/8, R1/4 Female thread G1/8 Push-in fitting for tubing O.D. 4 mm	On service unit, via H-rail, via wall/surface bracket, front panel mounting	PNP	-
						2x PNP	-
						PNP	0 ... 10 V
						PNP	4 ... 20 mA
						2x PNP	4 ... 20 mA
						NPN	-
						2x NPN	-
						NPN	0 ... 10 V
NPN	4 ... 20 mA						

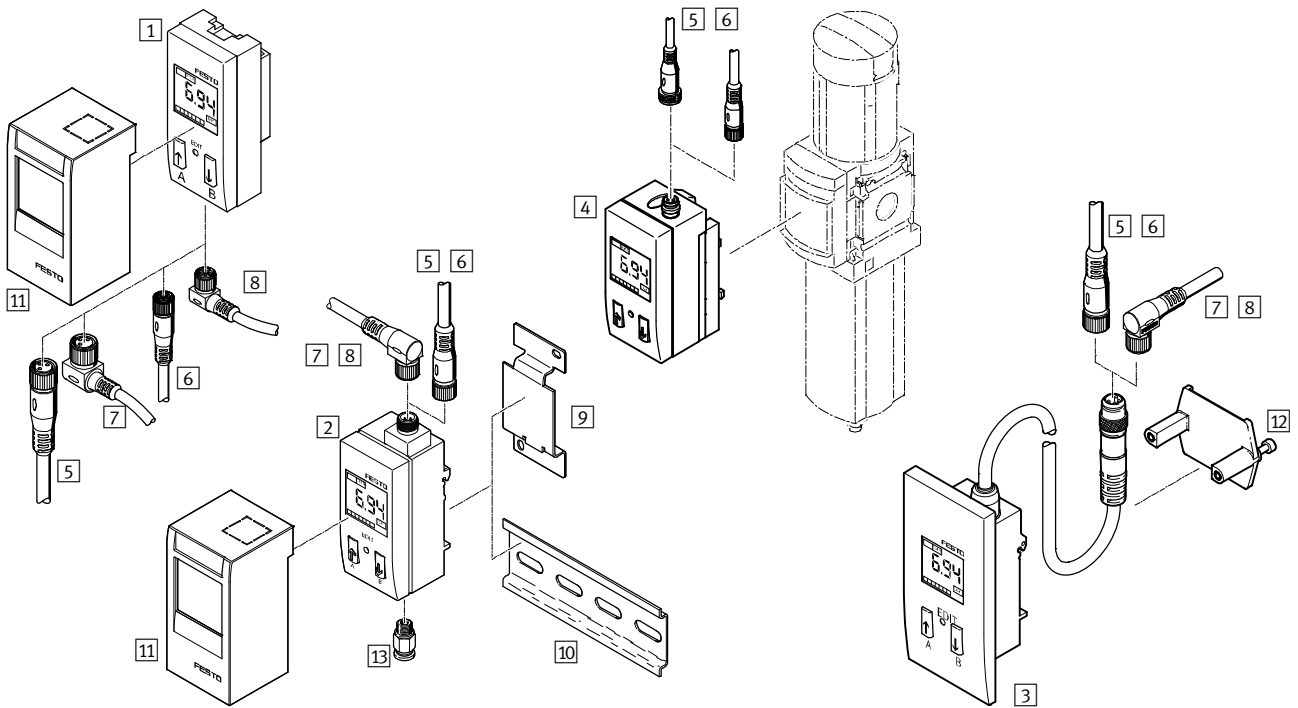
### Variants

- LCD display with backlighting (optimised operation)
- Illuminated LCD display (optimised reading)
- Electrical output PNP, 2x PNP, NPN, 2x NPN, 0 ... 10 V analogue, 4 ... 20 mA analogue and combinations thereof
- Electrical connection with plug M8x1 or M12x1
- Connecting cable

# Pressure sensors SDE1, with display

Peripherals overview

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Mounting attachments and accessories	→ Page/Internet
1 Pressure sensor SDE1-...-R18, SDE1-...-R14	5
2 Pressure sensor SDE1-...-H18, SDE1-...-W18	5
3 Pressure sensor SDE1-...-FQ4	5
4 Pressure sensor SDE1-...-MS...	5
5 Connecting cable NEBU-M12G...	12
6 Connecting cable, straight socket NEBU-M8G...	12
7 Connecting cable, angled socket NEBU-M12W...	12

Mounting attachments and accessories	→ Page/Internet
8 Connecting cable NEBU-M8W... with angled socket	12
9 Adapter plate SDE1-...-W-...	12
10 Mounting rail to DIN EN 60715	nrh
11 Protective cover SDE1-SH	12
12 Clamping plate (included in the scope of delivery with SDE1-...-FQ4)	-
13 Push-in fitting QS-1/8	12

# Pressure sensors SDE1, with display

Type codes

SDE1 - D10 - G2 - W18 - L - P1 - M12 - G5

Function	
SDE1	Pressure sensor with display

Pressure measuring range	
V1	-1 ... 0 bar
B2	-1 ... +1 bar
D2	0 ... 2 bar
D6	0 ... 6 bar
D10	0 ... 10 bar

Absolute accuracy	
G2	Accuracy 2%

Pneumatic connection and mounting	
Measured variable: relative pressure	
R18	Male thread R1/8, mounting on service unit
R14	Male thread R1/4, mounting on service unit
MS4	Direct connection to MS4 series service units
MS6	Direct connection to MS6 series service units
H18	Female thread G1/8, H-rail mounting
W18	Female thread G1/8, wall or surface mounting
Measured variable: differential pressure and relative pressure	
FQ4	Push-in connector QS-4, front panel mounting
HQ4	Push-in connector QS-4, DIN H-rail mounting
WQ4	Push-in connector QS-4, wall or surface mounting

Display and setting	
C	LCD display with backlighting (optimised operation)
L	Illuminated LCD display (optimised reading)

Electrical output	
P1	1 switching output PNP
P2	2 switching outputs PNP
PU	1 switching output PNP and 0 ... 10 V analogue
PI	1 switching output PNP and 4 ... 20 mA analogue
2I	2 switching outputs PNP and 4 ... 20 mA analogue
N1	1 switching output NPN
N2	2 switching outputs NPN
NU	1 switching output NPN and 0 ... 10 V analogue
NI	1 switching output NPN and 4 ... 20 mA analogue

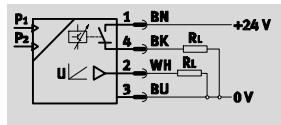
Electrical connection	
M8	Plug M8x1
M12	Plug M12x1

Electric accessories	
Connecting cable, straight plug socket	
G	2.5 m long
G5	5 m long
Connecting cable, angled plug socket	
W	2.5 m long
W5	5 m long

# Pressure sensors SDE1, with display

Technical data

Function<sup>1)</sup>



1) e.g. with 1 switching output PNP and 0 ... 10 V analogue

- - Voltage  
15 ... 30 V DC

- - Pressure  
-1 ... +10 bar

- - Temperature range  
0 ... 50 °C



General technical data					
SDE1-...	-R...	-MS...	-H...	-W...	-F...
Certification	cULus recognized (OL) RCM trademark				-
CE mark (see declaration of conformity) <sup>1)</sup>	To EU EMC Directive				
Note on materials	Free of copper and PTFE RoHS-compliant				

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: [www.festo.com/sp](http://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.

Input signal/measuring element					
SDE1	-B2	-V1	-D2	-D6	-D10
Measured variable	Relative pressure Differential pressure <sup>2)</sup>				
Method of measurement	Piezoresistive pressure sensor with display				
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]				
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)				
Pressure measuring range [bar]	-1 ... +1	0 ... -1	0 ... 2	0 ... 6	0 ... 10
Temperature of medium [°C]	0 ... 50				
Ambient temperature [°C]	0 ... 50				

2) Versions with push-in connector QS-4

Output, general		
Accuracy FS <sup>3)</sup>	[%]	2

3) % FS = % of the measuring range (full scale)

Switching output	
Switching output	PNP NPN
Switching function	Freely programmable
Switching element function	Switchable
Reproducibility of switching value [%]	0.3
Max. output current [mA]	150

Analogue output	
Analogue output	[V] 0 ... 10 [mA] 4 ... 20

Output, additional data	
Protection against short circuit	Pulsed

# Pressure sensors SDE1, with display

Technical data

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

Electromechanical components		
SDE1-...	-M8	-M12
Electrical connection	Plug M8x1, 3-pin	Plug M12x1, 3-pin
	Plug M8x1, 4-pin	Plug M12x1, 4-pin
	–	Plug M12x1, 5-pin
	Round design	
	To EN 60947-5-2	

Mechanical components	
Type of mounting	Via H-rail
	Via wall/surface bracket
	On service unit
	Front panel mounting
Pneumatic connection	R1/8
	R1/4
	G1/8
	QS-4
Housing materials	PA, POM-reinforced

- || - Note: This product conforms to ISO 1179-1 and to ISO 228-1

Display/operation		
Display type	Back illuminated LCD	
	Illuminated LCD	
Setting options	Teach-in	
Threshold value setting range	[%]	2 ... 99.8
Hysteresis setting range	[%]	0 ... 90

Immissions/emissions	
Protection class	IP65
Corrosion resistance class CRC <sup>4)</sup>	2

4) 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.

# Pressure sensors SDE1, with display

Technical data

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Electrical outputs <sup>1)</sup>		Pin allocations	
<b>1 switching output PNP</b>			
Variant P1 with plug M8		1 = +24 V 3 = 0 V 4 = Output A	
Variant P1 with plug M12		1 = +24 V 3 = 0 V 4 = Output A	
<b>2 switching outputs PNP</b>			
Variant P2 with plug M8		1 = +24 V 2 = Output B 3 = 0 V 4 = Output A	
Variant P2 with plug M12		1 = +24 V 2 = Output A 3 = 0 V 4 = Output B	
<b>1 switching output PNP and 0 ... 10 V analogue</b>			
Variant PU with plug M8		1 = +24 V 2 = Output B (0 ... 10 V analogue) 3 = 0 V 4 = Output A	
Variant PU with plug M12		1 = +24 V 2 = Output A 3 = 0 V 4 = Output B (0 ... 10 V analogue)	
<b>1 switching output PNP and 4 ... 20 mA analogue</b>			
Variant PI with plug M8		1 = +24 V 2 = Output B (4 ... 20 mA analogue) 3 = 0 V 4 = Output A	
Variant PI with plug M12		1 = +24 V 2 = Output A 3 = 0 V 4 = Output B (4 ... 20 mA analogue)	
<b>2 switching outputs PNP and 4 ... 20 mA analogue</b>			
Variant 2I with plug M12		1 = +24 V 2 = Output B 3 = 0 V 4 = Output A 5 = Output C (4 ... 20 mA analogue)	

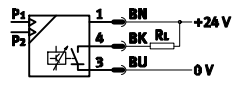
1) Core colours indicated apply when using connecting cable NEBU.

# Pressure sensors SDE1, with display

Technical data

## Electrical outputs<sup>1)</sup> 1 switching output NPN Pin allocations

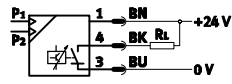
Variant N1 with plug M8



1 = +24 V  
3 = 0 V  
4 = Output A



Variant N1 with plug M12

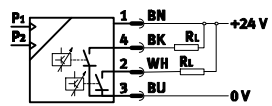


1 = +24 V  
3 = 0 V  
4 = Output A



## 2 switching outputs NPN

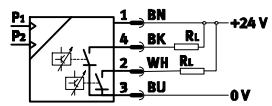
Variant N2 with plug M8



1 = +24 V  
2 = Output B  
3 = 0 V  
4 = Output A



Variant N2 with plug M12

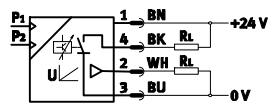


1 = +24 V  
2 = Output A  
3 = 0 V  
4 = Output B



## 1 switching output NPN and 0 ... 10 V analogue

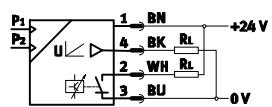
Variant NU with plug M8



1 = +24 V  
2 = Output B (0 ... 10 V analogue)  
3 = 0 V  
4 = Output A



Variant NU with plug M12

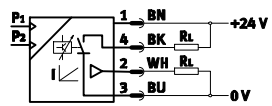


1 = +24 V  
2 = Output A  
3 = 0 V  
4 = Output B (0 ... 10 V analogue)



## 1 switching output NPN and 4 ... 20 mA analogue

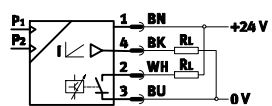
Variant NI with plug M8



1 = +24 V  
2 = Output B (4 ... 20 mA analogue)  
3 = 0 V  
4 = Output A



Variant NI with plug M12



1 = +24 V  
2 = Output A  
3 = 0 V  
4 = Output B (4 ... 20 mA analogue)



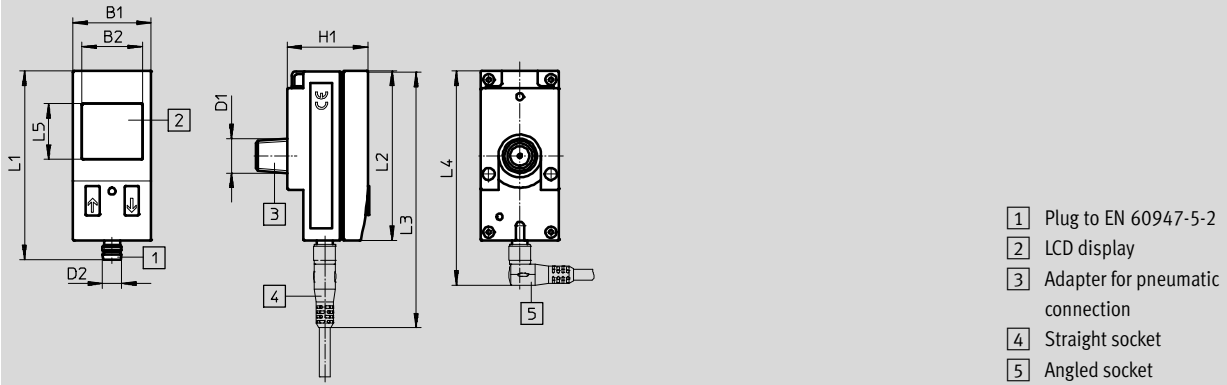
1) Core colours indicated apply when using connecting cable NEBU.



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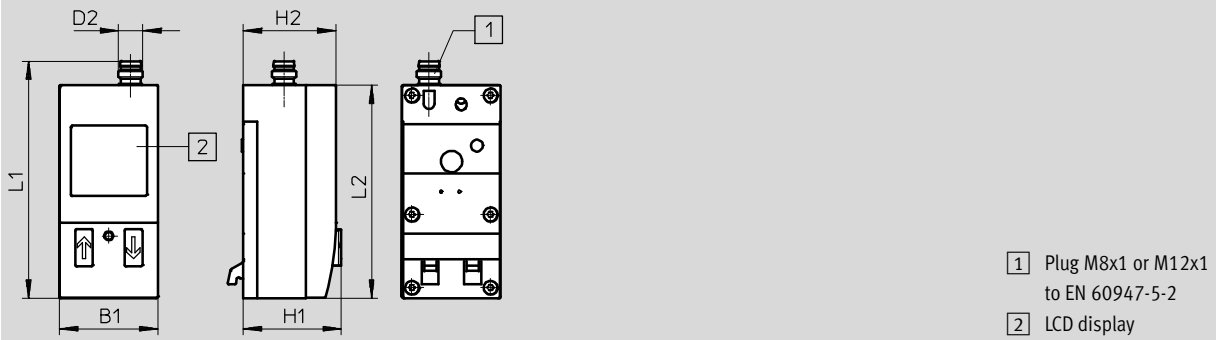
Technical data

## Dimensions – Mounting via male thread R1/8 or R1/4



Type	B1	B2	D1	D2	H1	L1	L2	L3	L4	L5
SDE1-...-R18-M8	32.3	25	R1/8	M8	33	78	70	107	89	23
SDE1-...-R14-M8			R1/4							
SDE1-...-R18-M12	32.3	25	R1/8	M12	33	87	70	125	103	23
SDE1-...-R14-M12			R1/4							

## Dimensions – Direct connection to MS4/6 series service units



Type	B1	D2	H1	H2	L1	L2
SDE1-...-MS-...-M8	32.3	M8	32.1	30.4	78	70
SDE1-...-MS-...-M12		M12		32.3		

# Pressure sensors SDE1, with display

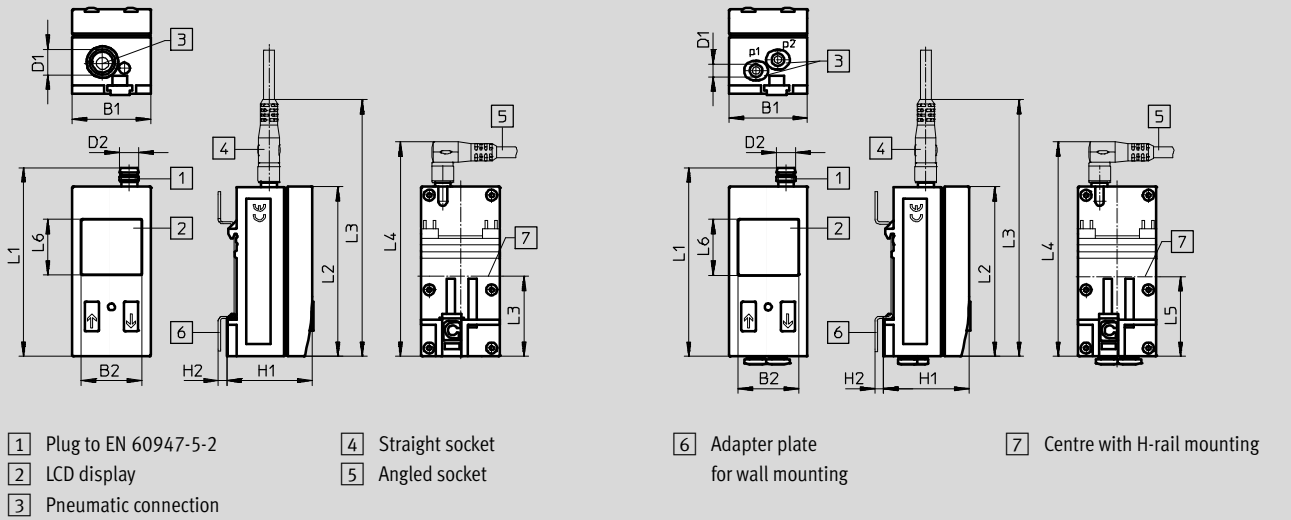
Technical data

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## Dimensions – H-rail, wall or surface mounting

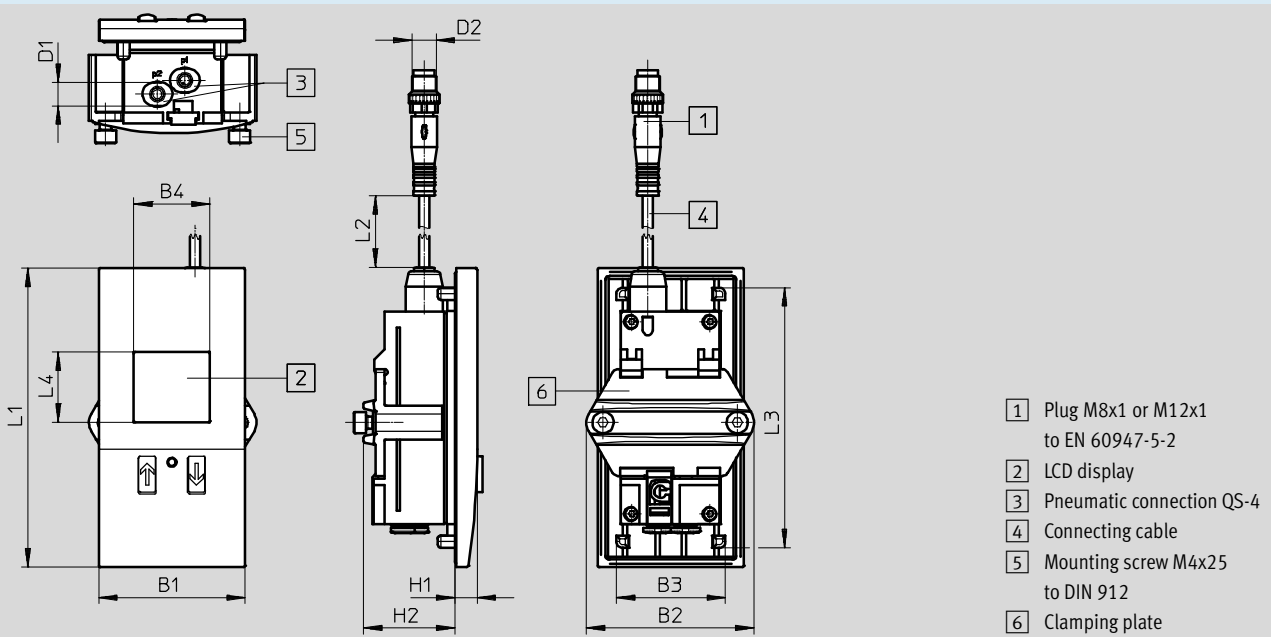
Pneumatic connection G1/8

Pneumatic connection QS-4



Type	B1	B2	D1	D2	H1	H2	L1	L2	L3	L4	L5	L6
SDE1-...-H18-...-M8	32.3	25	G1/8	M8	35.2	3.6	78	70	107	89	33	23
SDE1-...-W18-...-M8												
SDE1-...-H18-...-M12	32.3	25	G1/8	M12	35.2	3.6	87	70	125	103	33	23
SDE1-...-W18-...-M12												
SDE1-...-HQ4-...-M8	32.3	25	QS-4	M8	35.2	3.6	78	70	107	89	33	23
SDE1-...-WQ4-...-M8												

## Dimensions – Panel mounting



Type	B1	B2	B3	B4	D1	D2	H1	H2	L1	L2	L3	L4
SDE1-...-FQ4-M8	48	55	35.8	25	QS-4	M8x1	8	30	98	320	85.3	23
SDE1-...-FQ4-M12						M12x1						

# Pressure sensors SDE1, with display

Modular product system

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M Mandatory data								O Options
Module No.	Function	Pressure range	Absolute accuracy	Pneumatic connection and mounting	Display and setting	Electrical output	Electrical connection	Accessories: plug socket
192766	SDE1	B2, V1, D2, D6, D10	G2	R18, R14, MS4, MS6, H18, W18, HQ4, WQ4, FQ4	C, L	P1, P2, PU, PI, N1, N2, NU, NI	M8, M12	G, W, G5, W5
<b>Ordering example</b>								
192766	SDE1	- D6	- G2	- W18	- L	- P2	- M12	- W5

Ordering table				
		Condi- tions	Code	Enter code
M	Module No.	192766		192766
	Function	Pressure sensor	SDE1	SDE1
	Pressure range	Pressure range -1 ... 1 bar	-B2	
		Pressure range 0 ... -1 bar	-V1	
		Pressure range 0 ... 2 bar	-D2	
		Pressure range 0 ... 6 bar	-D6	
		Pressure range 0 ... 10 bar	-D10	
	Absolute accuracy	Accuracy 2%	-G2	-G2
	Pneumatic connection and mounting	Mounting R1/8 (service units)	-R18	
		Mounting R1/4 (service units)	-R14	
		Direct connection on MS4 series service units	-MS4	
		Direct connection on MS6 series service units	-MS6	
		Relative pressure with G1/8 connection for H-rail mounting	-H18	
		Relative pressure with G1/8 connection for wall/surface mounting	-W18	
		H-rail mounting, 4 mm push-in connector	-HQ4	
		Wall mounting, 4 mm push-in connector	-WQ4	
		Front panel mounting, 4 mm push-in connector	-FQ4	
	Display and setting	LCD display (optimised operation)	-C	
		Illuminated LCD (optimised reading)	-L	
	Electrical output	1 switch (PNP)	-P1	
		2 switches (PNP)	-P2	
		1 switch (PNP) and 0 ... 10 V analogue	-PU	
		1 switch (PNP) and 4 ... 20 mA analogue	-PI	
		1 switch (NPN)	-N1	
		2 switches (NPN)	-N2	
		1 switch (NPN) and 0 ... 10 V analogue	-NU	
		1 switch (NPN) and 4 ... 20 mA analogue	-NI	
	Electrical connection	Plug M8	-M8	
		Plug M12	-M12	
O	Accessories		-	-
	Electric accessories	Connecting cable, straight plug socket, 2.5 m	1 G	
		Connecting cable, angled plug socket, 2.5 m	1 W	
		Connecting cable, straight plug socket, 5 m	G5	
		Connecting cable, angled plug socket, 5 m	W5	

1 G, W Not with electrical connection M12 in combination with electrical output P2, PU, PI, N2, NU, NI.



### Transfer order code



192766 SDE1 - - G2 - - - - -



# Pressure sensors SDE1, with display


Accessories

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Ordering data – Connecting cables				Technical data → Internet: nebu	
	Number of wires	Cable length [m]	Part No.	Type	
<b>M8x1, straight socket</b>					
	3	2.5	541333	NEBU-M8G3-K-2.5-LE3	
		5	541334	NEBU-M8G3-K-5-LE3	
	4	2.5	541342	NEBU-M8G4-K-2.5-LE4	
		5	541343	NEBU-M8G4-K-5-LE4	
<b>M8x1, angled socket</b>					
	3	2.5	541338	NEBU-M8W3-K-2.5-LE3	
		5	541341	NEBU-M8W3-K-5-LE3	
	4	2.5	541344	NEBU-M8W4-K-2.5-LE4	
		5	541345	NEBU-M8W4-K-5-LE4	

Ordering data – Connecting cables				Technical data → Internet: nebu	
	Number of wires	Cable length [m]	Part No.	Type	
<b>M12x1, straight socket</b>					
	3	2.5	541363	NEBU-M12G5-K-2.5-LE3	
		5	541364	NEBU-M12G5-K-5-LE3	
	4	2.5	550326	NEBU-M12G5-K-2.5-LE4	
		5	541328	NEBU-M12G5-K-5-LE4	
	5	2.5	541330	NEBU-M12G5-K-2.5-LE5	
		5	541331	NEBU-M12G5-K-5-LE5	
<b>M12x1, angled socket</b>					
	3	2.5	541367	NEBU-M12W5-K-2.5-LE3	
		5	541370	NEBU-M12W5-K-5-LE3	
	4	2.5	550325	NEBU-M12W5-K-2.5-LE4	
		5	541329	NEBU-M12W5-K-5-LE4	

Ordering data – Accessories		
	Part No.	Type
<b>Adapter plate</b>		
	194297	SDE1-...-W-...
<b>Protective cover</b>		
	537074	SDE1-SH

Ordering data – Push-in fittings				Technical data → Internet: qs	
	For tubing O.D. [mm]	Part No.	Type		
	4	186095	QS-G1/8-4		
	6	186096	QS-G1/8-6		
	8	186098	QS-G1/8-8		