



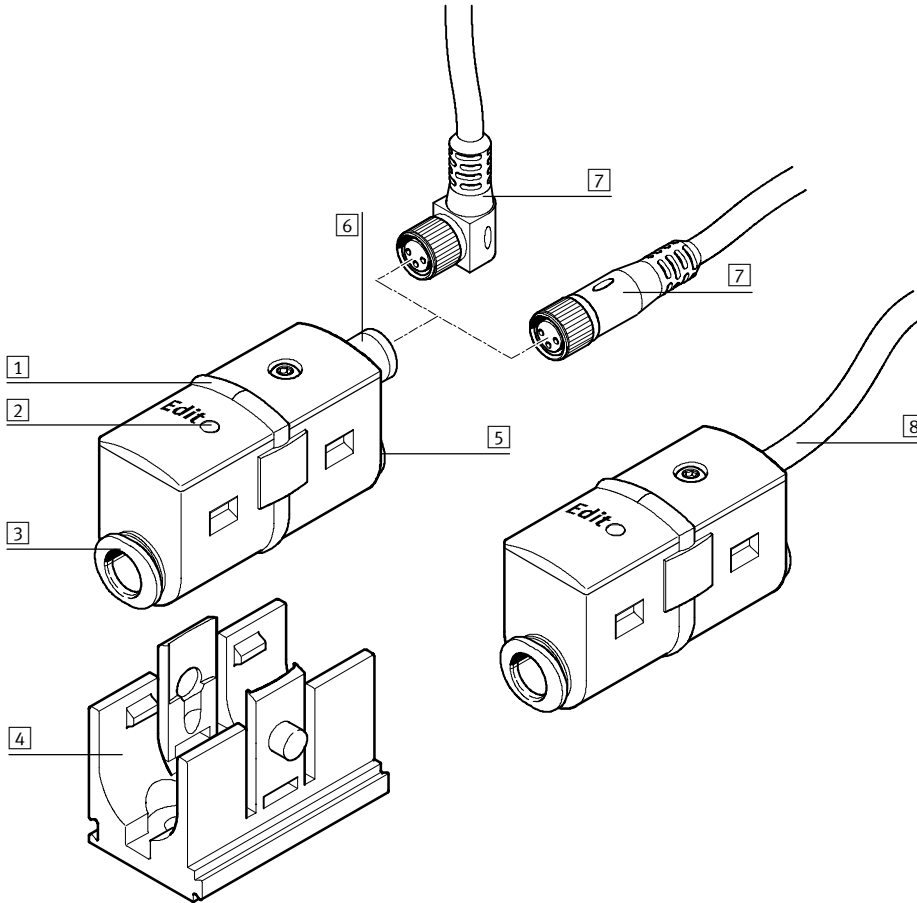
- Programmable and configurable pressure switch for simple pressure sensing tasks
- Teach-in function for programming
- Integrated microprocessor
- Operating status indicated by an LED visible from all sides
- Modular concept ensures easy-to-order, customised configurations

Pressure switch SDE5

Key features at a glance



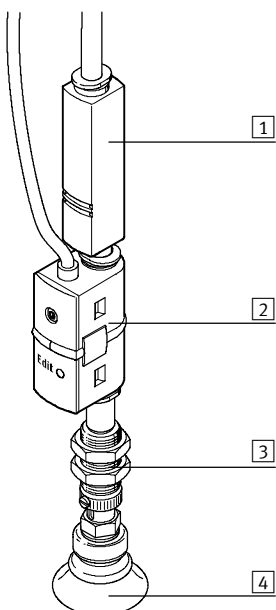
Function overview



- 1 Yellow LED display, visible from all sides
- 2 Programming pushbutton
- 3 Pneumatic connection
- 4 Clip-in, dovetailing bracket for wall-mounting (included in the scope of delivery)
- 5 Pneumatic connection or blanking plug
- 6 Plug M8x1
- 7 Cable with socket SIM-M8 (must be ordered separately → 4 / 8.1-25 or via the modular system → 4 / 8.1-24)
- 8 Free cable end

Application example

Separation of parts by checking the applied vacuum



- 1 Vacuum generator VN
- 2 Pressure switch SDE5
- 3 Suction cup holder HCL
- 4 Suction cup ESS

Two pressures must be programmed (taught-in) for this application:

- Teach-in pressure 1: Part gripped
- Teach-in pressure 2: Part not gripped

Operating mode 1 of the SDE5 calculates the average of the stored teach-in pressures:

If the applied vacuum is below the average, the workpiece is regarded as gripped and the SDE5 registers it as an acceptable part.

If the applied vacuum is above the average, the workpiece is regarded as not fully gripped and is rejected as unacceptable.

Other applications:

- Pressure monitoring (pressure present?)
- Regulator monitoring (pressure in desired range?)
- Detection of objects by means of back pressure monitoring

Pressure switch SDE5

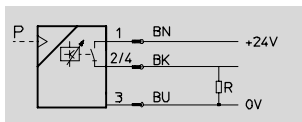
Type code

		SDE5	-	D2	-	0	-	Q6	-	P	-	M8	-	G5	-		-	
Type																		
SDE5	Pressure switch																	
Pressure measuring range																		
V1	-1 ... 0 bar																	
D2	0 ... 2 bar																	
D10	0 ... 10 bar																	
Switching function																		
FP	Freely programmable																	
Threshold comparator with fixed hysteresis, 1 teach-in pressure																		
O	Normally open contact																	
C	Normally closed contact																	
Threshold comparator with fixed hysteresis, 2 teach-in pressures																		
O1	Normally open contact																	
C1	Normally closed contact																	
Threshold comparator with variable hysteresis, 2 teach-in pressures																		
O2	Normally open contact																	
C2	Normally closed contact																	
Window comparator with fixed hysteresis, 2 teach-in pressures																		
O3	Normally open contact																	
C3	Normally closed contact																	
Pneumatic connection																		
Push-in connector at both ends																		
Q3	For tubing OD 3 mm																	
Q4	For tubing OD 4 mm																	
Q6	For tubing OD 6 mm																	
Push-in connector at one end																		
Q3E	For tubing OD 3 mm																	
Q4E	For tubing OD 4 mm																	
Q6E	For tubing OD 6 mm																	
Electrical output																		
P	1 switch output PNP (positive switching)																	
Electrical connection																		
K	2.5 m cable																	
M8	3-pin M8 plug																	
Connecting cable																		
SIM cable with straight connection socket																		
G	2.5 m long																	
G5	5 m long																	
SIM cable with angled connection socket																		
W	2.5 m long																	
W5	5 m long																	
Teach-in point 1 permanently set																		
...X	Permanent factory setting as per customer's requirement, required switching pressure [bar]																	
Teach-in point 2 permanently set																		
...Y	Permanent factory setting as per customer's requirement, required switching pressure [bar]																	

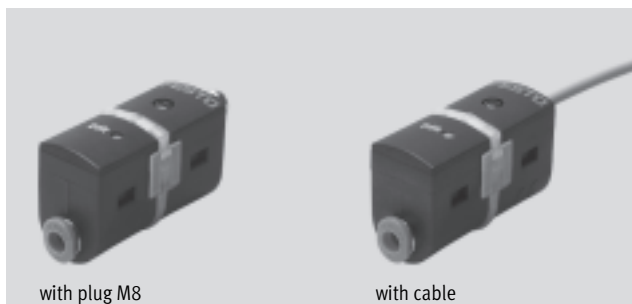
Pressure switch SDE5

Data sheet

Function



- Voltage
15 ... 30 V DC
- Pressure
-1 ... +10 bar
- Temperature range
0 ... 50°C



with plug M8

with cable

General technical data			
Variant	V1	D2	D10
Pressure measuring range [bar]	-1 ... 0	0 ... 2	0 ... 10
Mechanical			
Pneumatic connection	Push-in connector at one or both ends, QS-3, QS-4 or QS-6		
Method of measurement	Piezoresistive pressure switch		
Measured variable	Relative pressure		
Precision ¹⁾	±1.5% of the measuring range final value		
Reproducibility of switching point	±0.3% of the measuring range final value		
Hysteresis FS	2%		
Temperature coefficient	±0.5% / 10K		
Response time [ms]	4		
Electrical connection	Plug M8x1, 3-pin, or 2.5 m cable		
Type of mounting	With accessories		
Mounting position	Any ²⁾		
Electrical			
Operating voltage [V DC]	15 ... 30		
Max. idle current [mA]	20		
Max. output current [mA]	100		
Protection against short circuit	Pulsed		
Protection against polarity reversal	For operating voltage		
Protection against overloading	Yes		
Switching output	PNP		
Switching element function	NO contact or NC contact		
Type of display	Yellow LED, visible from all sides		
CE symbol	89/336/EEC (EMC)		

1) Difference between the teach-in pressure and the switching pressure

2) The collection of condensate in the sensor should be prevented.

Operating and environmental conditions			
Variant	V1	D2	D10
Operating medium	Filtered compressed air, lubricated or unlubricated		
Pressure measuring range [bar]	-1 ... 0	0 ... 2	0 ... 10
Threshold value setting range	0 ... 100%		
Overload pressure [bar]	5	6	15
Ambient temperature [°C]	0 ... 50	0 ... 50	0 ... 50
Temperature of medium [°C]	0 ... 50	0 ... 50	0 ... 50
Corrosion resistance class CRC ¹⁾	2	2	2
Protection class to EN 60 529	IP40	IP40	IP40

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 surrounding industrial atmosphere or media such as cooling or lubricating agents.

Pressure switch SDE5

Data sheet



Weights [g]	
With plug M8, without bracket	19
With cable, without bracket	47
Bracket	5.5

Switch functions

Operating mode	NO switching element (normally open)	NC switching element (normally closed)
----------------	--------------------------------------	--

Mode 0
Threshold comparator with fixed hysteresis, 1 teach-in pressure

Mode 1
Threshold comparator with fixed hysteresis, 2 teach-in pressures

Mode 2
Threshold comparator with variable hysteresis, 2 teach-in pressures

Mode 3
Window comparator with fixed hysteresis, 2 teach-in pressures

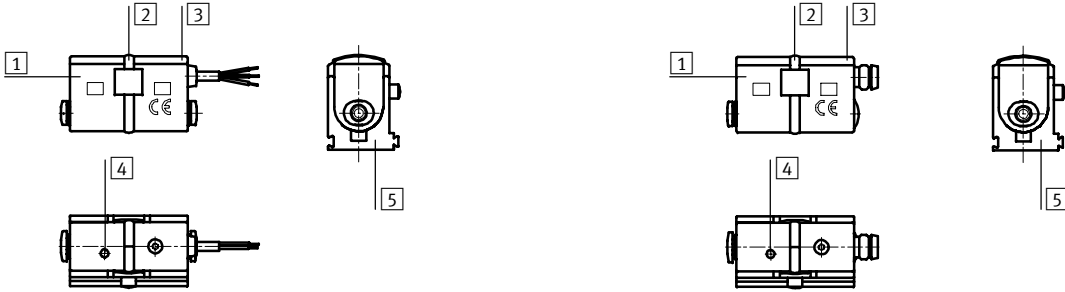
- A Binary output signal
- p Pressure
- SP Switching point
- TP Teach-in pressure
- Hy Hysteresis

Pressure switch SDE5

Data sheet



Materials

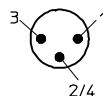
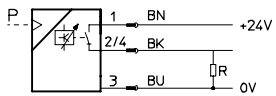


Pressure switch

1	Housing	POM, reinforced
2	Fibre optics	PA
3	Cover	PPS, reinforced
4	Pushbutton	VMQ
5	Wall bracket	PP

Pin allocation

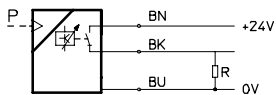
Variant with plug M8



1 = Brown
2/4 = Black
3 = Blue

Note
The colours specified are for cables with socket SIM-...

Variant with cable



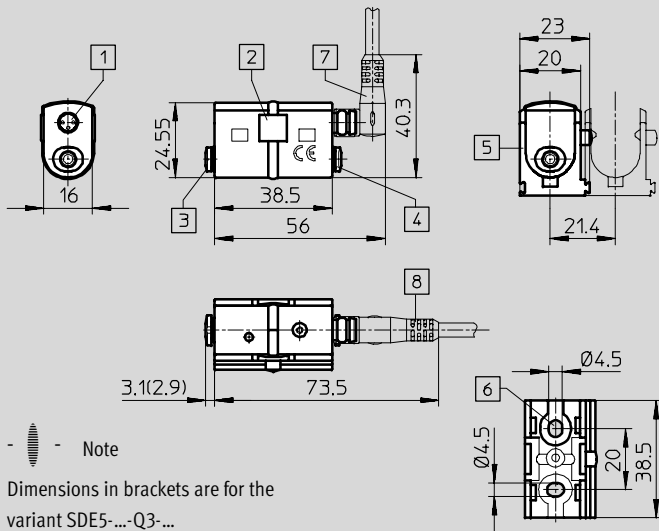
BN = Brown
BK = Black
BU = Blue

Pressure switch SDE5

Data sheet

Dimensions

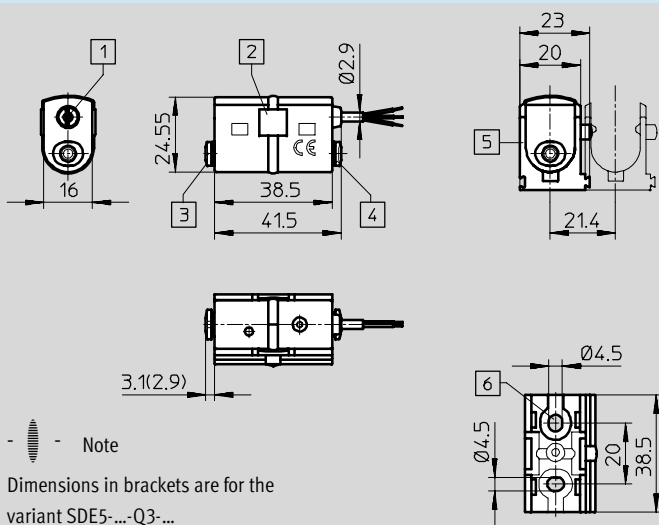
Variant with plug M8



- 1 Plug M8x1, 3-pin, pin allocation to EN 60 947-5-2 Appendix D
- 2 Yellow LED display, visible from all sides
- 3 Pneumatic connection QS-3, QS-4 or QS-6
- 4 Pneumatic connection QS-3, QS-4 or QS-6 or blanking plug with SDE5-...-Q...E...
- 5 Bracket for wall mounting
- 6 Through-hole for mounting screw
- 7 Angled connection socket SIM-M8-3WD
- 8 Straight connection socket SIM-M8-3GD

Note
Dimensions in brackets are for the variant SDE5-...-Q3-...

Variant with cable



- 1 PUR cable, 3-core, 2.5 m long
- 2 Yellow LED display, visible from all sides
- 3 Pneumatic connection QS-3, QS-4 or QS-6
- 4 Pneumatic connection QS-3, QS-4 or QS-6 or blanking plug with SDE5-...-Q...E...
- 5 Bracket for wall mounting
- 6 Through-hole for mounting screw

Note
Dimensions in brackets are for the variant SDE5-...-Q3-...

Ordering data

Pressure range	Pneumatic connection	For tubing OD [mm]					
		3		4		6	
		Part No.	Type	Part No.	Type	Part No.	Type
-1 ... 0 bar	at one end	527 459	SDE5-V1-O-Q3E-P-M8	527 460	SDE5-V1-O-Q4E-P-M8	527 461	SDE5-V1-O-Q6E-P-M8
	at both ends	527 456	SDE5-V1-O-Q3-P-M8	527 457	SDE5-V1-O-Q4-P-M8	527 458	SDE5-V1-O-Q6-P-M8
0 ... 10 bar	at one end	527 465	SDE5-D10-O-Q3E-P-M8	527 466	SDE5-D10-O-Q4E-P-M8	527 467	SDE5-D10-O-Q6E-P-M8
	at both ends	527 462	SDE5-D10-O-Q3-P-M8	527 463	SDE5-D10-O-Q4-P-M8	527 464	SDE5-D10-O-Q6-P-M8

Note
Additional wall brackets can be reordered using the embossed part number.

Pressure switch SDE5

Ordering data – modules



[M] Mandatory data							[O] Options		
Module No.	Sensor function	Pressure range	Switching function	Pneumatic connection	Electrical output	Electrical connection	Connecting cable	Teach-in point 1 permanently set	Teach-in point 2 permanently set
529 027	SDE5	V1 D2 D10	FP 0 C 01 C1 02 C2 03 C3	Q3 Q4 Q6 Q3E Q4E Q6E	P	K M8	G W G5 W5	...X	...Y
Ordering example									
529 027	SDE5	- D10	- 02	- Q6	- P	- M8	- G5	- 5,5X	- 5,5Y

Ordering table							
Size	5	Conditions		Code		Enter code	
[M] Module No.	529 027					529 027	
Sensor function	Pressure switch			SDE5		SDE5	
Pressure range	Pressure range 0 ... -1 bar (relative)			-V1			
	Pressure range 0 ... 2 bar (relative)			-D2			
	Pressure range 0 ... 10 bar (relative)			-D10			
Switching function	Freely programmable, NO contact, NC contact			-FP			
	Threshold value with fixed hysteresis, 1 teach-in point, NO contact			-0			
	Threshold value with fixed hysteresis, 1 teach-in point, NC contact			-C			
	Threshold value with fixed hysteresis, 2 teach-in points, NO contact			-01			
	Threshold value with fixed hysteresis, 2 teach-in points, NC contact			-C1			
	Threshold value with variable hysteresis, NO contact			-02			
	Threshold value with variable hysteresis, NC contact			-C2			
	Window comparator with fixed hysteresis, NO contact			-03			
	Window comparator with fixed hysteresis, NC contact			-C3			
Pneumatic connection	QS3 connection at both ends			-Q3			
	QS4 connection at both ends			-Q4			
	QS6 connection at both ends			-Q6			
	QS3 connection at one end			-Q3E			
	QS4 connection at one end			-Q4E			
	QS6 connection at one end			-Q6E			
Electrical output	1 switch output PNP			-P		-P	
Electrical connection	Cable 2.5 m			-K			
	M8 plug, 3-pin			-M8			
[O] Connecting cable (accessory)	2.5 m SIM cable with straight connection socket		[1]	-G			
	2.5 m SIM cable with angled connection socket		[1]	-W			
	5.0 m SIM cable with straight connection socket		[1]	-G5			
	5.0 m SIM cable with angled connection socket		[1]	-W5			
Teach-in point 1 permanently set [bar]	0 ... 10 (required switching pressure)		[2]	-...X			
Teach-in point 2 permanently set [bar]	0 ... 10 (required switching pressure)		[2] [3]	-...Y			

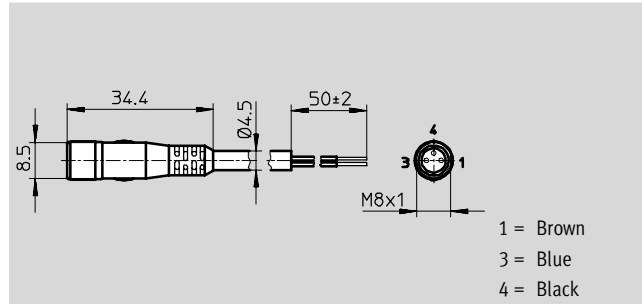
- [1] **G, W, G5, W5** Only in combination with M8 [2] **X, Y** Not in combination with FP, 01, C1 Must be evaluated if 02, C2, 03, C3, and X or Y was selected Only one decimal place permissible in combination with D10 [3] **Y** Not in combination with 0, C

Pressure switch SDE5

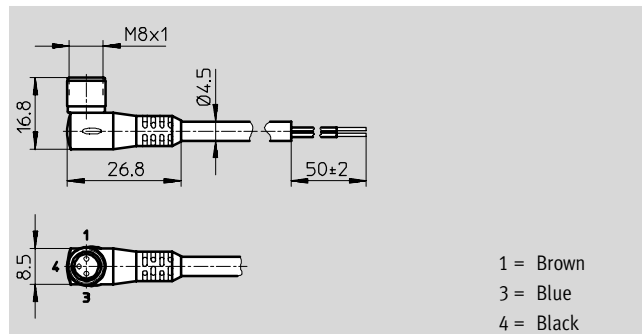
Accessories



Socket with cable
SIM-M8-3GD-...-PU



Socket with cable
SIM-M8-3WD-...-PU



Technical data		SIM-M8-...-2,5-PU	SIM-M8-...-5-PU	SIM-M8-...-10-PU
Cable length	[m]	2.5	5	10
Cable diameter	[mm]	4.5		
Constructional design		3x0.25 mm ²		
Cable ends		Open end		
Current-carrying capacity	[A]	2.8 A		
Operating voltage		45 V AC / 70 V DC		
Protection class to EN 60 529		IP 67		
Ambient temperature				
Fixed cable installation	[°C]	-40 ... 70		
Flexible cable installation	[°C]	-5 ... 70		
Materials				
Housing		PUR		
Cable sheath		PUR		

Ordering data		Straight		Angled	
Plug outlet		Part No.	Type	Part No.	Type
Cable length	2.5 m	159 420	SIM-M8-3GD-2,5-PU	159 422	SIM-M8-3WD-2,5-PU
	5 m	159 421	SIM-M8-3GD-5-PU	159 423	SIM-M8-3WD-5-PU
	10 m	192 964	SIM-M8-3GD-10-PU	192 965	SIM-M8-3WD-10-PU

Note
Further cables with socket
→ 4 / 8.3-2