

Pressure sensors SPAB, with display



# Pressure sensors SPAB, with display

Key features, product range overview

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## At a glance

### Variants:

- Plug M8x1 with electric adapter SASC
- Plug, square design L1
- Cable version with connecting cable NEBS

### Multi-coloured, two-part display

### Alphanumeric display

### Displayable units:

- bar
- inchH<sub>2</sub>O
- inchHg
- kPa
- psi
- mmHg
- kgf/cm<sup>2</sup>
- MPa



Compact design  
30 x 30 mm

### Country-specific pressure supply ports:

- G<sup>1</sup>/<sub>8</sub>
- R<sup>1</sup>/<sub>8</sub>
- NPT<sup>1</sup>/<sub>8</sub>-27
- M5 female thread

Mounting bracket or front panel mounting, threaded mounting

High ease of use thanks to intuitive operator prompting

## Product description

The pressure sensor SPAB can be used in many industries thanks to its wide range of connection and configuration options and its compact size. Switching point settings are emphasised via switching status indication and switching of the display value colour.

## Main applications

- Pressure/vacuum sensing
- Light assembly
- Wherever there is a need for space-saving pressure measurement with visualisation and limited robustness
- Easy identification of the system status by means of clear, colour-based switching status detection

## Key features

- Pressure measuring range –1 ... +1 or 0 ... 10 bar
- Relative pressure measurement
- Pressure supply port G<sup>1</sup>/<sub>8</sub>, R<sup>1</sup>/<sub>8</sub>, NPT<sup>1</sup>/<sub>8</sub>-27 or M5 female thread
- Electrical connection cable, plug M8x1 or plug, square design
- Switching output PNP, NPN
- Analogue output 1 ... 5 V or 4 ... 20 mA, switchable
- Two-part, multi-coloured display
- Copy function (settings can be transferred from one device to another)
- Simple commissioning thanks to intuitive operation
- Compact design 30x30 mm

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### Mounting options

Front panel mounting



Manifold sub-bases via mounting bracket



Threaded mounting with adapter M8



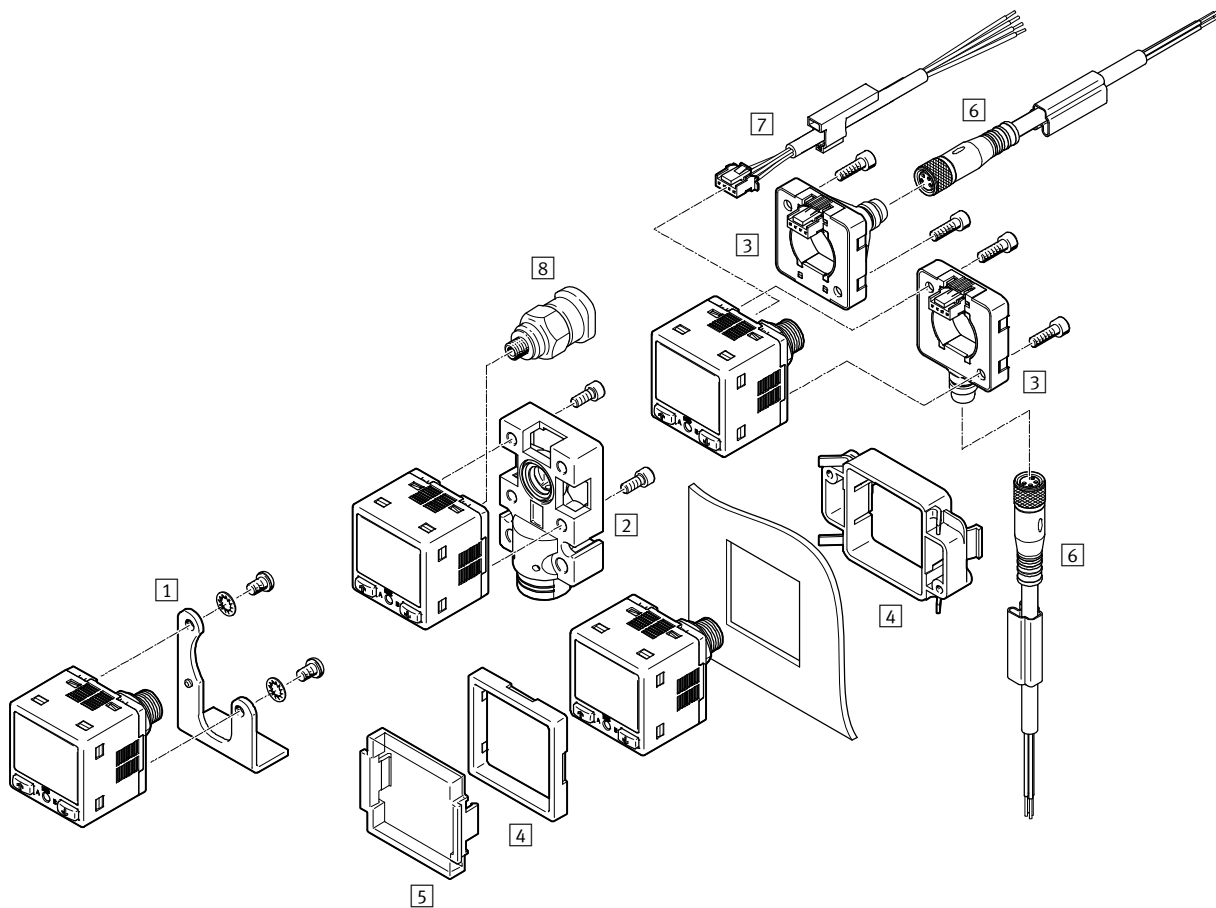
### Product range overview

Measurement method	Measured variable	Pressure measuring range [bar]	Switching function	Pneumatic connection		Electrical output	
				Male thread	Female thread	Digital	Analogue
Piezoresistive pressure sensor with display	1x relative pressure	-1 ... +1 or 0 ... 10	Freely programmable	G $\frac{1}{8}$ , R $\frac{1}{8}$ or NPT $\frac{1}{8}$ -27	M5	1x PNP	1 ... 5 V / 4 ... 20 mA
						2x PNP	-
						1x NPN	1 ... 5 V / 4 ... 20 mA
						2x NPN	-

# Pressure sensors SPAB, with display

Peripherals overview

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Accessories	→ Page/ Internet
1 Mounting bracket SAMH ... A	10
2 Adapter plate SASF for pressure sensor SPAB-...-F	13
3 Electric adapter SASC-...-A	11
4 Front panel installation kit SAMH-...-F	10

Accessories	→ Page/ Internet
5 Protective cover SACC	10
6 Connecting cable NEBU-M8	14
7 Connecting cable NEBS-L1G4	14
8 Push-in fitting QSM-M5	14

# Pressure sensors SPAB, with display

Type codes

SPAB - P10 R - G18 - PB - L1

**Type**

SPAB	Piezoresistive pressure sensor with multi-coloured display
------	--

**Pressure measuring range [bar]**

B2	-1 ... +1
P10	0 ... 10

**Pressure input**

R	Relative pressure
---	-------------------

**Pneumatic connection**

G18	Male thread G $\frac{1}{8}$ and female thread M5
R18	Male thread R $\frac{1}{8}$ and female thread M5
N18	Male thread NPT $\frac{1}{8}$ -27 and female thread M5
F	For adapter plate, female thread M5

**Electrical output**

2P	2 switching outputs PNP
2N	2 switching outputs NPN
PB	1 switching output PNP 1 analogue output 1 ... 5 V / 4 ... 20 mA
NB	1 switching output NPN 1 analogue output 1 ... 5 V / 4 ... 20 mA

**Electrical connection**

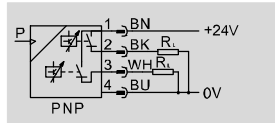
L1	Plug, L1 design
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# Pressure sensors SPAB, with display

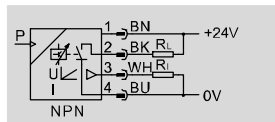
Technical data

Function

E.g. switching output 2x PNP



E.g. switching output NPN, analogue output



- - Voltage  
12 ... 24 V DC

- - Pressure  
-1 ... +10 bar

- - Temperature range  
-10 ... +50 °C



General technical data		
SPAB	-B2	-P10
General information		
Certification	c UL us - Recognized (OL) RCM trademark	
CE mark (see declaration of conformity)	To EU EMC Directive <sup>1)</sup>	
Note on materials	Contains PWIS (paint wetting impairment substances) RoHS-compliant	
Input signal/measuring element		
Measured variable	Relative pressure	
Measurement method	Piezoresistive pressure sensor with display	
Pressure measuring range [bar]	-1 ... +1	0 ... 10
Overload capacity [bar]	5	15
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium	Operation with lubricated medium not possible	
Ambient temperature [°C]	-10 ... +50	

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) → User documentation.  
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.


Electrical data									
SPAB	-B2				-P10				
Electrical output	2P	2N	PB	NB	2P	2N	PB	NB	
Switching output <sup>1)</sup>									
Switching output	2x PNP	2x NPN	PNP	NPN	2x PNP	2x NPN	PNP	NPN	
Switching function	Freely programmable								
Switching element function	Switchable								
Accuracy of FS display [%]	1				2				
Reproducibility of switching value [%]	0.1				0.2				
Max. output current [mA]	100								
Analogue output <sup>1)</sup>									
Analogue output	[V]	-			1 ... 5		-		1 ... 5
	[mA]	-			4 ... 20		-		4 ... 20
Accuracy of analogue output zero point ±FS [%]	-			5		-		5	
Accuracy of analogue output margin ±FS [%]	-			5		-		5	
Reproducibility of analogue value [%]	-			0.2		-		0.2	
Output, additional data									
Protection against short circuit	Yes								

1) % FS = % of the measuring range final value (full scale)

# Pressure sensors SPAB, with display

Technical data

Electrical data								
SPAB	-B2				-P10			
Electrical output	2P	2N	PB	NB	2P	2N	PB	NB
Electronic components								
Operating voltage range DC	[V]	12 ... 24						
Reverse polarity protection	For all electrical connections							
Electromechanical components								
Plug, 4-pin, square design								

Pin allocation SPAB- ... -L1			
Plug, 4-pin			
Square design	Pin	Wire colour	Allocation
	1	Brown	Operating voltage 12 ... 24 V DC
	2	Black	Switching output A
	3	White	Switching output B / analogue output, external
	4	Blue	0 V DC

Mechanical components					
SPAB	-G18		-R18	-N18	-F
Type of mounting	Screw-in			On adapter plate	
	Via accessories			-	
Pneumatic connection	Female thread M5				
	Male thread G1/8	Male thread R1/8	Male thread NPT1/8-27	-	
Product weight	[g]	45			30
Housing materials	PBT, reinforced				

# Pressure sensors SPAB, with display

Technical data

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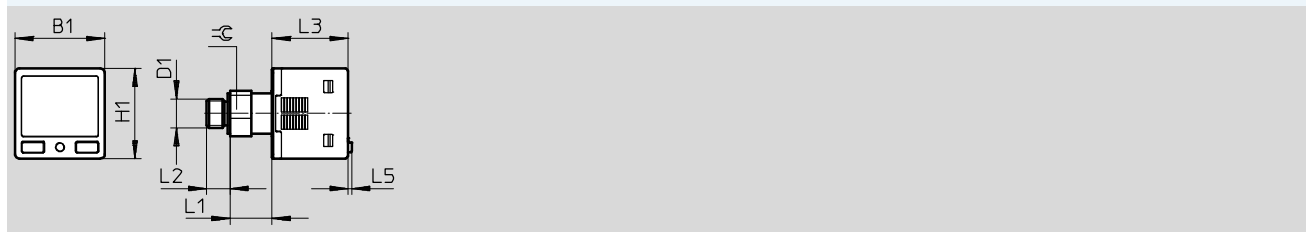
Display/operation		
SPAB	-B2	-P10
Display type	Illuminated LCD, multi-coloured	
Displayable units	bar	bar
	inchH <sub>2</sub> O	–
	inchHg	–
	kPa	kPa
	psi	psi
	mmHg	–
	kgf/cm <sup>2</sup>	kgf/cm <sup>2</sup>
	–	MPa
Switching status display	Yellow LCD	
Setting options	Teach-in	
	Via display and keys	
Tamper protection	PIN code	
Threshold value setting range	[%]	0 ... 100
Hysteresis setting range	[%]	0 ... 90

Immissions/emissions	
Protection class	IP40
Corrosion resistance class CRC <sup>1)</sup>	2

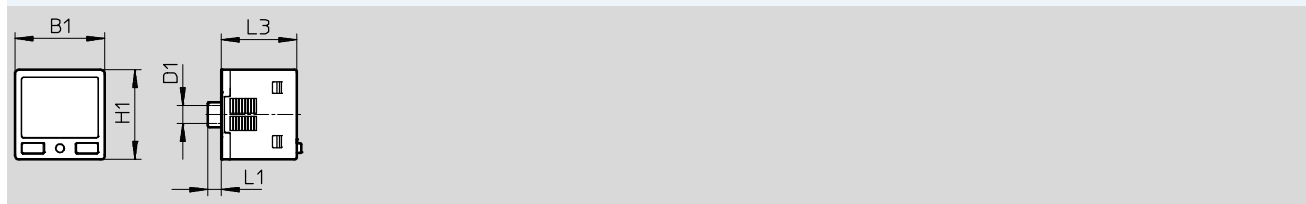
1) Corrosion resistance class CRC 2 to Festo standard FN 940070  
 Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

## Dimensions Download CAD data → [www.festo.com](http://www.festo.com)

SPAB-...-L1



SPAB-...-F-...-L1



Type	B1	D1	D2	H1	H2	H3	L1	L2	L3	L4	L5	≡
SPAB-...-G18-...-L1	30	G1/8	–	30	–	–	15	7	~25	–	1	14
SPAB-...-R18-...-L1	30	R1/8	–	30	–	–	14	9.5	~25	–	1	12
SPAB-...-N18-...-L1	30	NPT1/8	–	30	–	–	14	9.5	~25	–	1	12
SPAB-...-F-...-L1	30	M5	–	30	–	–	4.4	–	~25	–	–	–



# Pressure sensors SPAB, with display

Technical data

Ordering data				
Pressure measuring range [bar]	Electrical output		Part No.	Type
	Digital	Analogue		
<b>Male thread G<math>\frac{1}{8}</math> and female thread M5</b>				
-1 ... +1	1 switching output PNP	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000051	SPAB-B2R-G18-PB-L1
	2 switching outputs PNP	-	8000045	SPAB-B2R-G18-2P-L1
	1 switching output NPN	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000054	SPAB-B2R-G18-NB-L1
	2 switching outputs NPN	-	8000048	SPAB-B2R-G18-2N-L1
0 ... 10	1 switching output PNP	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000063	SPAB-P10R-G18-PB-L1
	2 switching outputs PNP	-	8000057	SPAB-P10R-G18-2P-L1
	1 switching output NPN	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000066	SPAB-P10R-G18-NB-L1
	2 switching outputs NPN	-	8000060	SPAB-P10R-G18-2N-L1
<b>Male thread R<math>\frac{1}{8}</math> and female thread M5</b>				
-1 ... +1	1 switching output PNP	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000052	SPAB-B2R-R18-PB-L1
	2 switching outputs PNP	-	8000046	SPAB-B2R-R18-2P-L1
	1 switching output NPN	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000055	SPAB-B2R-R18-NB-L1
	2 switching outputs NPN	-	8000049	SPAB-B2R-R18-2N-L1
0 ... 10	1 switching output PNP	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000064	SPAB-P10R-R18-PB-L1
	2 switching outputs PNP	-	8000058	SPAB-P10R-R18-2P-L1
	1 switching output NPN	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000067	SPAB-P10R-R18-NB-L1
	2 switching outputs NPN	-	8000061	SPAB-P10R-R18-2N-L1
<b>Male thread NPT<math>\frac{1}{8}</math>-27 and female thread M5</b>				
-1 ... +1	1 switching output PNP	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000053	SPAB-B2R-N18-PB-L1
	2 switching outputs PNP	-	8000047	SPAB-B2R-N18-2P-L1
	1 switching output NPN	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000056	SPAB-B2R-N18-NB-L1
	2 switching outputs NPN	-	8000050	SPAB-B2R-N18-2N-L1
0 ... 10	1 switching output PNP	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000065	SPAB-P10R-N18-PB-L1
	2 switching outputs PNP	-	8000059	SPAB-P10R-N18-2P-L1
	1 switching output NPN	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000068	SPAB-P10R-N18-NB-L1
	2 switching outputs NPN	-	8000062	SPAB-P10R-N18-2N-L1
<b>For adapter plate, female thread M5</b>				
-1 ... +1	1 switching output PNP	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000071	SPAB-B2R-F-PB-L1
	2 switching outputs PNP	-	8000069	SPAB-B2R-F-2P-L1
	1 switching output NPN	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000072	SPAB-B2R-F-NB-L1
	2 switching outputs NPN	-	8000070	SPAB-B2R-F-2N-L1
0 ... 10	1 switching output PNP	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000075	SPAB-P10R-F-PB-L1
	2 switching outputs PNP	-	8000073	SPAB-P10R-F-2P-L1
	1 switching output NPN	1 analogue output 1 ... 5 V / 4 ... 20 mA	8000076	SPAB-P10R-F-NB-L1
	2 switching outputs NPN	-	8000074	SPAB-P10R-F-2N-L1

# Pressure sensors SPAB, with display

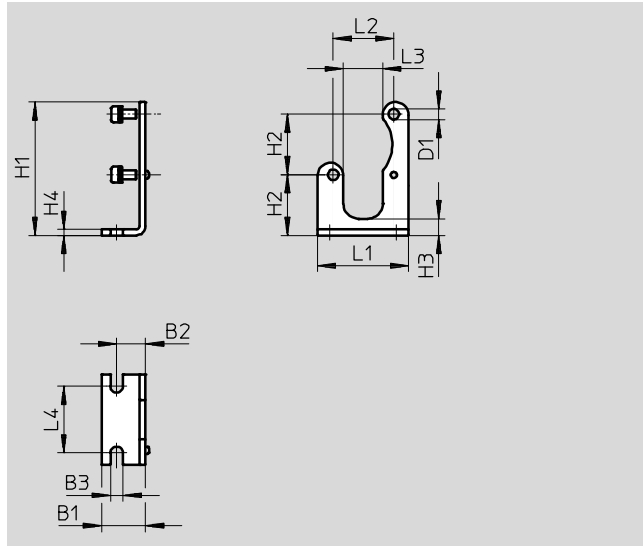
Accessories



## Mounting bracket SAMH

Material:  
Galvanised chromated steel

Note on materials:  
RoHS-compliant

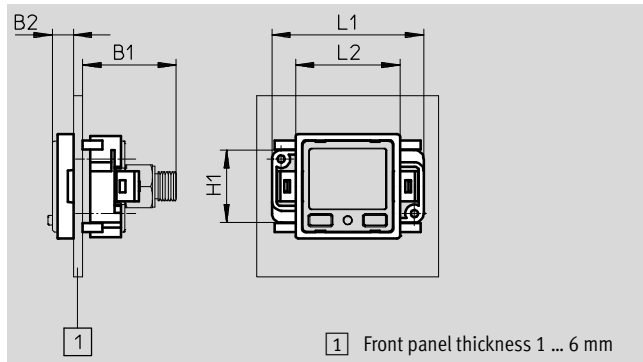


Dimensions and ordering data													Part No.	Type
B1	B2	B3	D1 Ø	H1	H2	H3	H4	L1	L2	L3	L4			
14.5	9.5	4.2	3.5	~44	20	5.5	2	30	20	13	22	<b>552376</b>	<b>SAMH-P4-A</b>	

## Front panel installation kit SAMH

Materials:  
PC, POM

Note on materials:  
RoHS-compliant

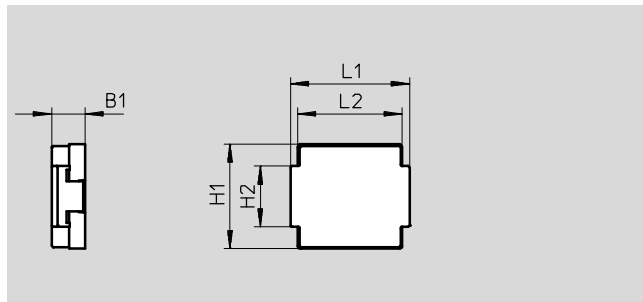


Ordering data							Part No.	Type
B1	B2	H1	L1	L2				
~31	7	24	50	34.5			<b>552377</b>	<b>SAMH-P4-F</b>

## Protective cover SACC

Material:  
PC

Note on materials:  
RoHS-compliant



Dimensions and ordering data							Part No.	Type
B1	H1	H2	L1	L2				
~28	34.5	20	39.3	34.5			<b>552378</b>	<b>SACC-P4-G</b>

# Pressure sensors SPAB, with display

Accessories

## Electric adapter SASC

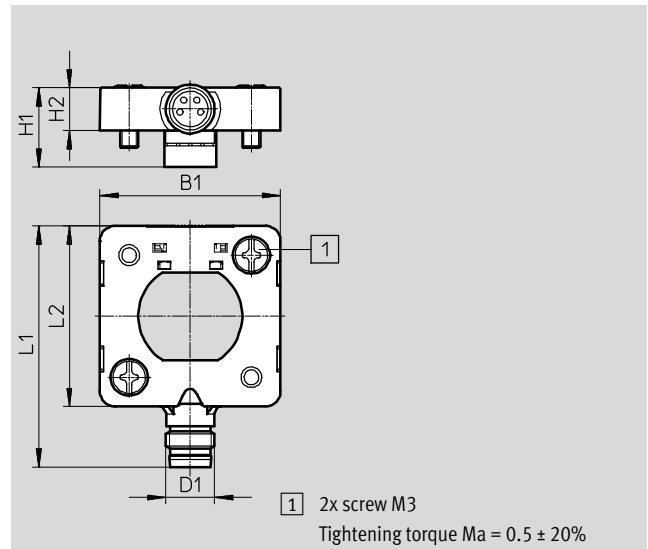
Material:

Housing: PA-reinforced

Plug housing: Nickel plated brass

Note on materials:

RoHS-compliant



Dimensions and ordering data								
B1	D1 Ø	H1	H2	L1	L2	CRC <sup>1)</sup>	Part No.	Type
29.6	M8x1	13	7	39.5	29.6	2	<b>8000326</b>	<b>SASC-P4-A-M8-A</b>

1) Corrosion resistance class CRC 2 to Festo standard FN 940070  
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Pin allocation		
Plug, 4-pin, M8x1		
Round design	Pin	Allocation
	1	Operating voltage 12 ... 24 V DC
	2	Switching output B / analogue output, external
	4	Switching output A
	3	0 V DC

# Pressure sensors SPAB, with display

Accessories



## Electric adapter SASC

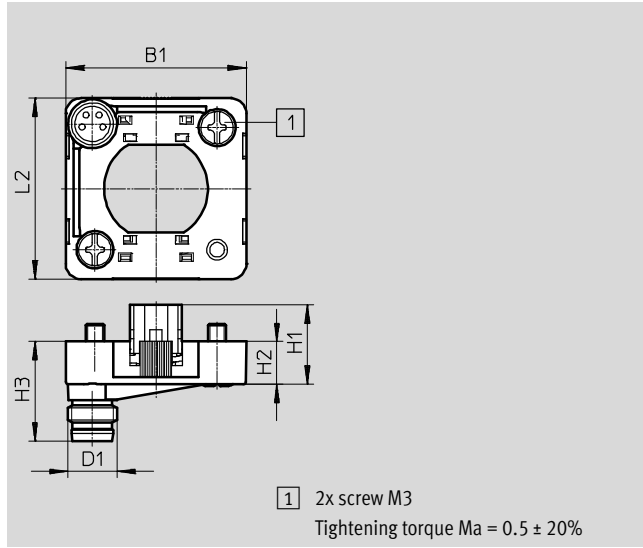
Material:

Housing: PA-reinforced

Plug housing: Nickel plated brass

Note on materials:

RoHS-compliant



Dimensions and ordering data							
B1	D1	H1	H2	H3	L2	CRC <sup>1)</sup>	Part No. Type
29.6	M8x1 ∅	13	7	16.3	29.6	2	<b>8000327 SASC-P4-A-M8-S</b>

1) Corrosion resistance class CRC 2 to Festo standard FN 940070  
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Pin allocation		
Plug, 4-pin, M8x1		
Round design	Pin	Allocation
	1	Operating voltage 12 ... 24 V DC
	2	Switching output B / analogue output, external
	3	0 V DC
	4	Switching output A

# Pressure sensors SPAB, with display

Accessories

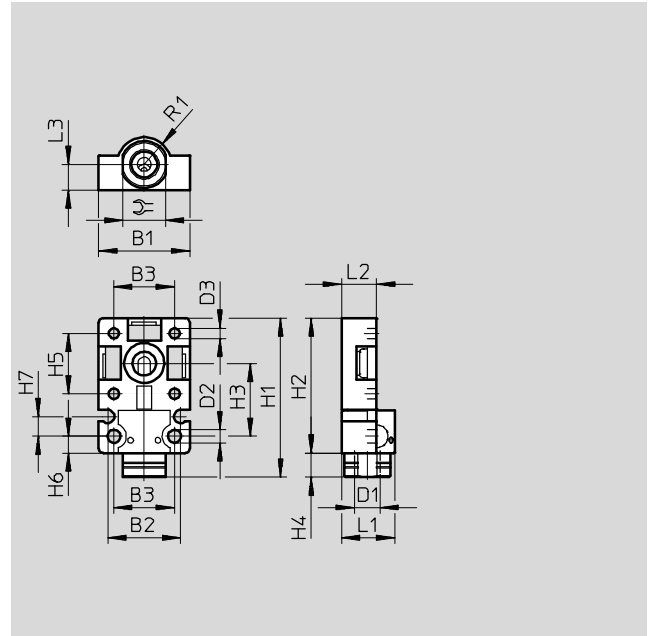
**Adapter plate SASF**  
for pressure sensor SPAB-...-F

Materials:  
PBT-reinforced  
High-alloy stainless steel  
HNBR

Note on materials:  
Contains PWIS (paint wetting  
impairment substances)  
RoHS-compliant



SASF-P4-P-M5



Note  
To differentiate the adapter plates R $\frac{1}{8}$ , G $\frac{1}{8}$  and NPT $\frac{1}{8}$ , they are identified as follows at the pneumatic connection:

- R $\frac{1}{8}$  No line
- NPT $\frac{1}{8}$  One line
- G $\frac{1}{8}$  Two lines

Dimensions and ordering data										
B1	B2	B3	D1	D2	D3	H1	H2	H3	H4	H5
30	24	20	R $\frac{1}{8}$	4.3	3.4	52.5	44.5	24	8	20
			G $\frac{1}{8}$							
			NPT $\frac{1}{8}$							
30	24	20	M5	4.3	3.4	-	44.5	24	-	20




H6	H7	L1	L2	L3	R1	$\approx$	CRC <sup>1)</sup>	Part No.	Type
5.5	6.5	17.5	11.5	8.5	9	14	2	570801	SASF-P4-P-R18
								570802	SASF-P4-P-G18
								570803	SASF-P4-P-N18
5.5	6.5	17.5	11.5	8.5	9	-	570804	SASF-P4-P-M5	


1) Corrosion resistance class CRC 2 to Festo standard FN 940070  
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

## Pressure sensors SPAB, with display

Accessories

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Ordering data – Connecting cables				Technical data → Internet: nebu	
	Designation	Number of wires	Cable length [m]	Part No.	Type
	Socket, rectangular design L1	4	2.5	<b>572576</b>	<b>NEBS-L1G4-K-2.5-LE4</b>
			5	<b>572577</b>	<b>NEBS-L1G4-K-5-LE4</b>
	Straight socket, M8x1	4	2.5	<b>541342</b>	<b>NEBU-M8G4-K-2.5-LE4</b>
			5	<b>541343</b>	<b>NEBU-M8G4-K-5-LE4</b>
	Angled socket, M8x1	4	2.5	<b>541344</b>	<b>NEBU-M8W4-K-2.5-LE4</b>
			5	<b>541345</b>	<b>NEBU-M8W4-K-5-LE4</b>

Ordering data – Push-in fittings			Technical data → Internet: quick star	
	Pneumatic connection	For tubing O.D. [mm]	Part No.	Type
	M5	4	<b>153304</b>	<b>QSM-M5-4</b>
		6	<b>153306</b>	<b>QSM-M5-6</b>