

Pressure sensors SPAB, with display

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Pressure sensors SPAB

Key features, product range overview

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At a glance

Variants:

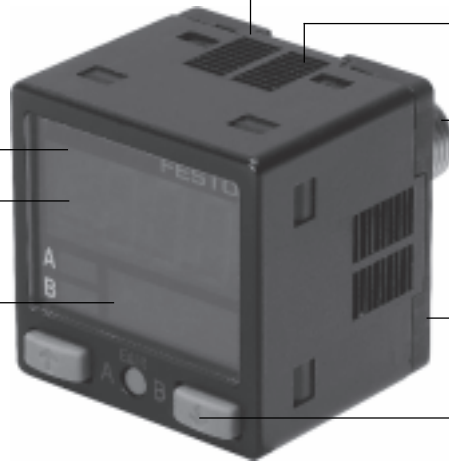
- Plug M8x1 with electric adapter SASC
- Plug, square design L1
- Cable version with connecting cable NEBU
- Threaded mounting
- Angle mounting
- Front panel mounting

Multi-coloured, two-part display

Alphanumeric pressure display

Displayable units:

- bar
- inchH₂O
- inchHg
- kPa
- psi
- mmHg
- kgf/cm²
- MPa



Compact design
30 x 30 mm

Country-specific pressure supply ports:

- G¹/₈
- R¹/₈
- NPT¹/₈-27
- M5 female thread

Wall or front panel mounting,
angle mounting

High ease of use thanks to
intuitive operator prompting

Product description

The pressure sensor SPAB can be used in all 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. Once programmed, the settings can be transferred to other pressure sensors SPAB.

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 G¹/₈, R¹/₈, NPT¹/₈-27 or M5 female thread
- Electrical connection cable, plug M8x1 or plug, square design
- Switching output PNP, NPN and analogue output 1 ... 5 V
- 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

Pressure sensors SPAB

Key features, product range overview

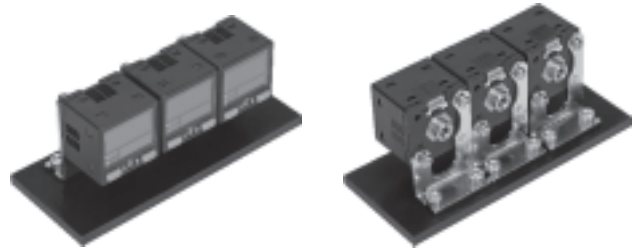
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Mounting options

Wall mounting



Manifold sub-bases via mounting bracket



Threaded mounting with adapter M8



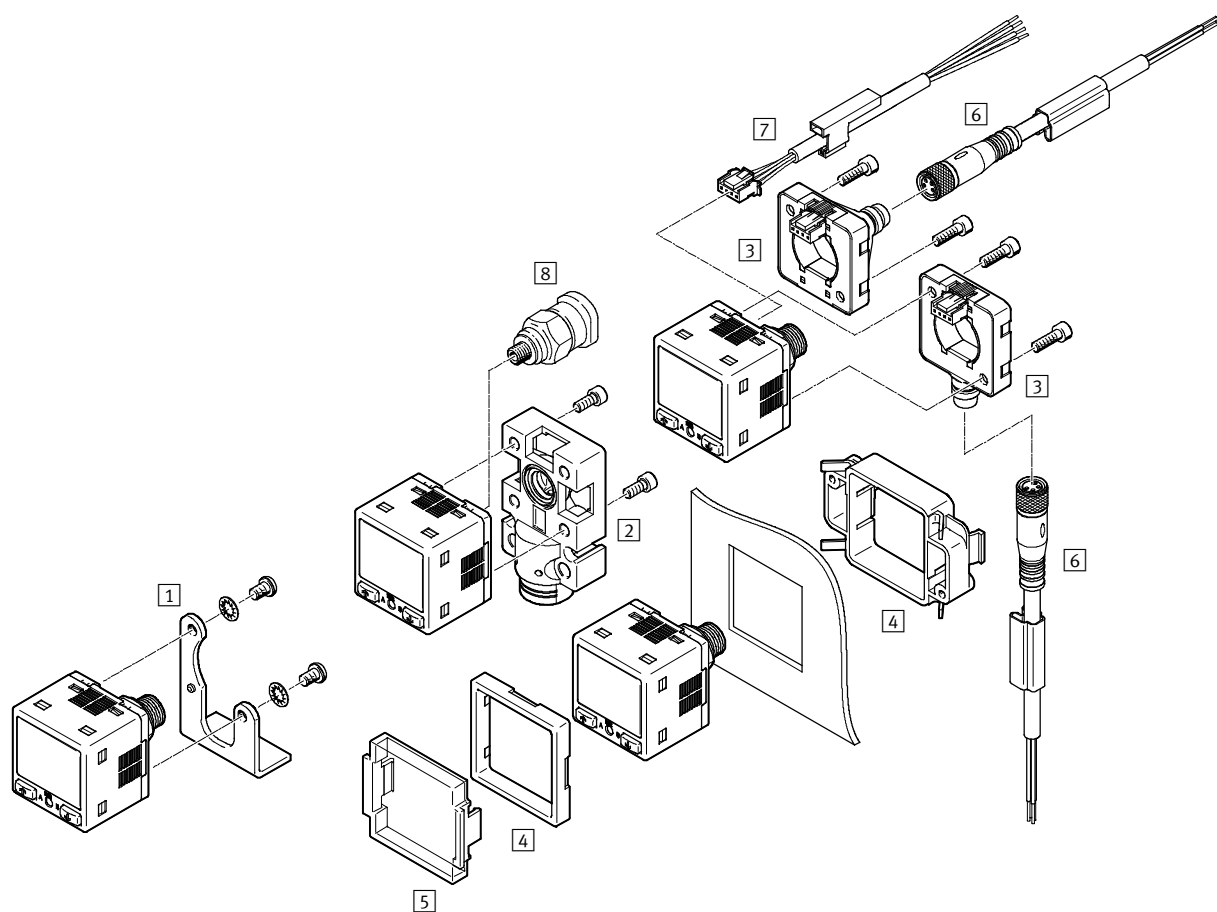
Product range overview

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	G1/8, R1/8 or NPT1/8-27	M5	1x PNP	1 ... 5 V
						2x PNP	-
						1x NPN	1 ... 5 V
						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	12
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	13
7 Connecting cable NEBS-L1G4	13
8 Push-in fitting QSM-M5	13

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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	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										
NB	1 switching output NPN, 1 analogue output 1 ... 5 V										
Electrical connection											
L1	Plug, L1 design										

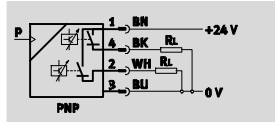
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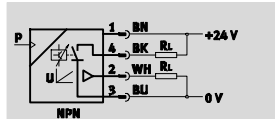
Technical data

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) C-Tick	
CE mark (see declaration of conformity)	To EU EMC Directive ¹⁾	
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 → Support → 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 ¹⁾								
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 ¹⁾								
Analogue output [V]	–		1 ... 5		–		1 ... 5	
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)

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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 operating voltage							
Electromechanical components								
Electrical connection	Plug M8x1, 4-pin, round design to EN 60 947-5-2							
	Plug, 4-pin, square design							
	Cable, 4-wire, 2.5 m							

Pin allocation to EN 60947-5-2			
Plug, 4-pin			
M8x1	Pin	Wire colour	Allocation
	1	Brown	Operating voltage +24 V DC
	3	Blue	0 V
	4	Black	Switching output (Out A)
	2	White	Switching output (Out B)/analogue output

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	ABS, reinforced			
	PBT, reinforced			

Display/operation		
SPAB	-B2	-P10
Display type	Illuminated LCD, multi-coloured	
Displayable units	bar	bar
	inchH ₂ O	–
	inchHg	–
	kPa	kPa
	psi	psi
	mmHg	–
	kgf/cm ²	kgf/cm ²
	–	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 ¹⁾	2

1) 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 SPAB, with display

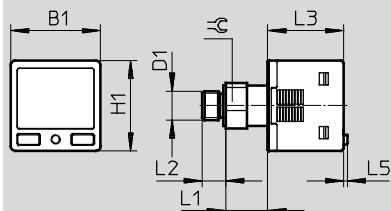
Technical data

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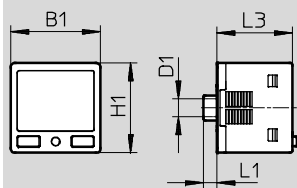
Dimensions

Download CAD data → www.festo.com

SPAB-...-L1



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



Type	B1	D1	D2	H1	H2	H3	L1	L2	L3	L4	L5	Symbol
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

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Technical data

Ordering data			
Pressure measuring range [bar]	Electrical output		Electrical connection
			Plug, square design L1
	Digital	Analogue	Part No. Type
Male thread G $\frac{1}{8}$			
-1 ... +1	1x PNP	1 ... 5 V	8000051 SPAB-B2R-G18-PB-L1
	2x PNP	–	8000045 SPAB-B2R-G18-2P-L1
	1x NPN	1 ... 5 V	8000054 SPAB-B2R-G18-NB-L1
	2x NPN	–	8000048 SPAB-B2R-G18-2N-L1
0 ... 10	1x PNP	1 ... 5 V	8000063 SPAB-P10R-G18-PB-L1
	2x PNP	–	8000057 SPAB-P10R-G18-2P-L1
	1x NPN	1 ... 5 V	8000066 SPAB-P10R-G18-NB-L1
	2x NPN	–	8000060 SPAB-P10R-G18-2N-L1
Male thread R $\frac{1}{8}$			
-1 ... +1	1x PNP	1 ... 5 V	8000052 SPAB-B2R-R18-PB-L1
	2x PNP	–	8000046 SPAB-B2R-R18-2P-L1
	1x NPN	1 ... 5 V	8000055 SPAB-B2R-R18-NB-L1
	2x NPN	–	8000049 SPAB-B2R-R18-2N-L1
0 ... 10	1x PNP	1 ... 5 V	8000064 SPAB-P10R-R18-PB-L1
	2x PNP	–	8000058 SPAB-P10R-R18-2P-L1
	1x NPN	1 ... 5 V	8000067 SPAB-P10R-R18-NB-L1
	2x NPN	–	8000061 SPAB-P10R-R18-2N-L1
Male thread NPT $\frac{1}{8}$ -27			
-1 ... +1	1x PNP	1 ... 5 V	8000053 SPAB-B2R-N18-PB-L1
	2x PNP	–	8000047 SPAB-B2R-N18-2P-L1
	1x NPN	1 ... 5 V	8000056 SPAB-B2R-N18-NB-L1
	2x NPN	–	8000050 SPAB-B2R-N18-2N-L1
0 ... 10	1x PNP	1 ... 5 V	8000065 SPAB-P10R-N18-PB-L1
	2x PNP	–	8000059 SPAB-P10R-N18-2P-L1
	1x NPN	1 ... 5 V	8000068 SPAB-P10R-N18-NB-L1
	2x NPN	–	8000062 SPAB-P10R-N18-2N-L1
Female thread M5			
-1 ... +1	1x PNP	1 ... 5 V	8000071 SPAB-B2R-F-PB-L1
	2x PNP	–	8000069 SPAB-B2R-F-2P-L1
	1x NPN	1 ... 5 V	8000072 SPAB-B2R-F-NB-L1
	2x NPN	–	8000070 SPAB-B2R-F-2N-L1
0 ... 10	1x PNP	1 ... 5 V	8000075 SPAB-P10R-F-PB-L1
	2x PNP	–	8000073 SPAB-P10R-F-2P-L1
	1x NPN	1 ... 5 V	8000076 SPAB-P10R-F-NB-L1
	2x NPN	–	8000074 SPAB-P10R-F-2N-L1

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Accessories

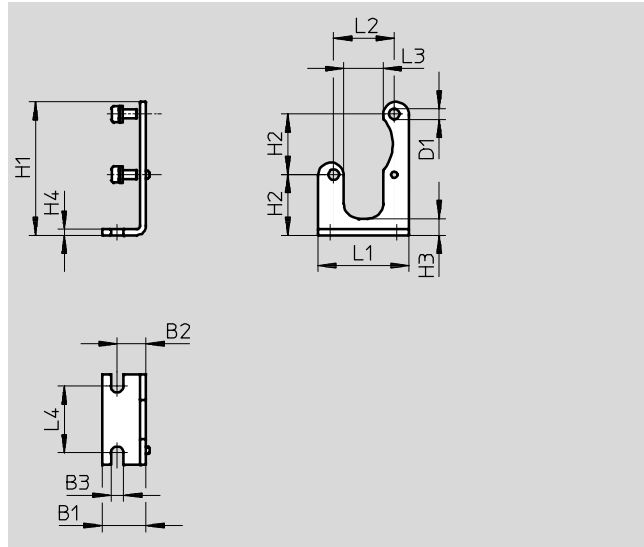
Mounting bracket SAMH

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		552376	SAMH-P4-A

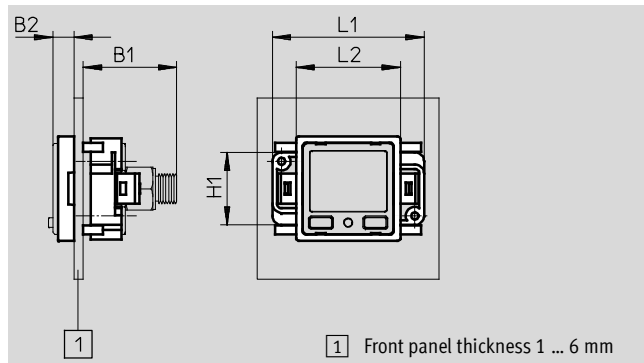
Front panel installation kit SAMH

Materials:

PC, POM

Note on materials:

RoHS-compliant



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

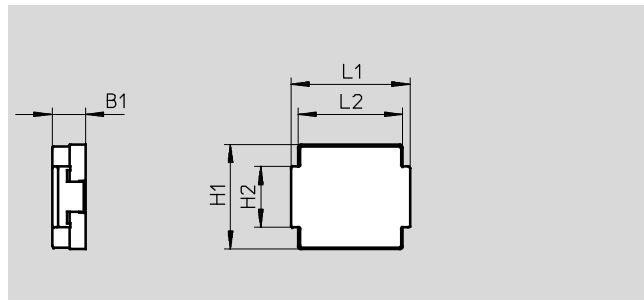
Protective cover SACC

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			552378	SACC-P4-G

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Accessories

Electric adapter SASC

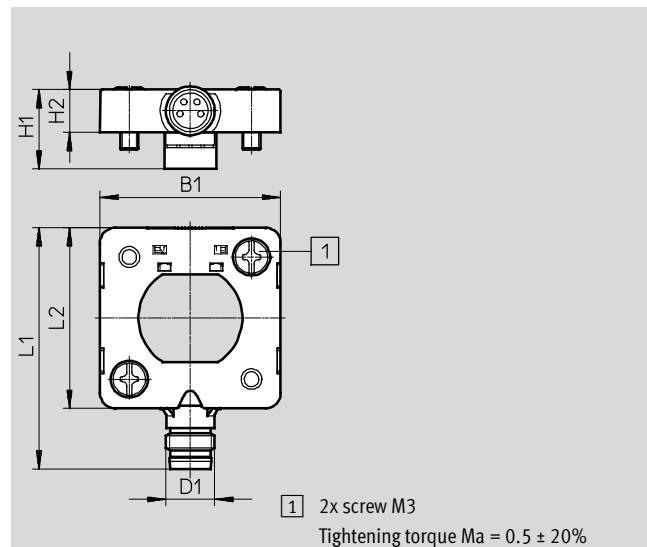
Material:

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 ¹⁾	Part No. Type
29.6	M8x1	13	7	39.5	29.6	2	8000326 SASC-P4-A-M8-A

1) 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.

Electric adapter SASC

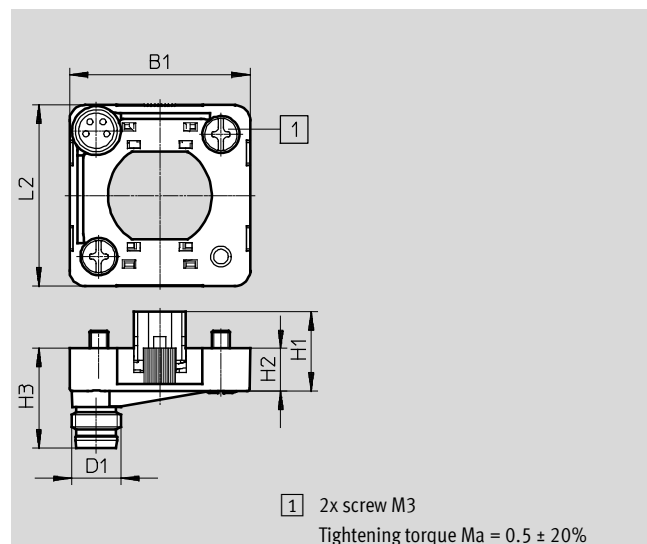
Material:

Housing: PA-reinforced

Plug housing: Nickel plated brass

Note on materials:

RoHS-compliant



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

1) 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 SPAB, with display

Accessories

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Adapter plate SASF

for pressure sensor SPAB-...-F

Materials:

PBT-reinforced

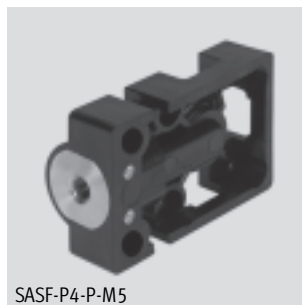
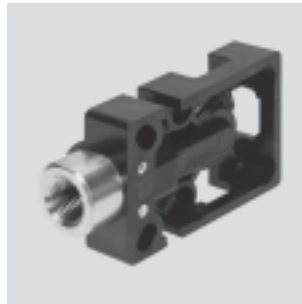
High-alloy stainless steel

HNBR

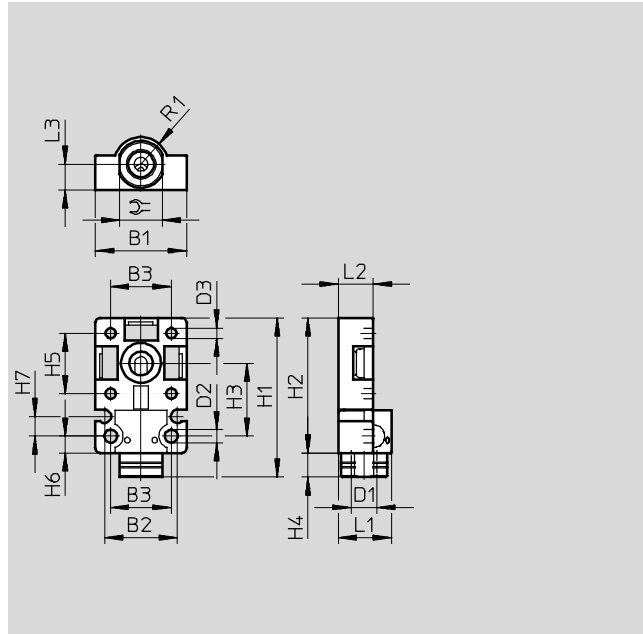
Note on materials:

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																		Part No.	Type
B1	B2	B3	D1	D2 Ø	D3 Ø	H1	H2	H3	H4	H5	H6	H7	L1	L2	L3	R1	⌀		
30	24	20	R $\frac{1}{8}$	4.3	3.4	52.5	44.5	24	8	20	5.5	6.5	17.5	11.5	8.5	9	14	570801	SASF-P4-P-R18
			G $\frac{1}{8}$															570802	SASF-P4-P-G18
			NPT $\frac{1}{8}$															570803	SASF-P4-P-N18
30	24	20	M5	4.3	3.4	–	44.5	24	–	20	5.5	6.5	17.5	11.5	8.5	9	–	570804	SASF-P4-P-M5

1) 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.

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Accessories

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

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