

Pressure sensors SPAB, with display



Pressure sensors SPAB

Key features

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At a glance

SPAB

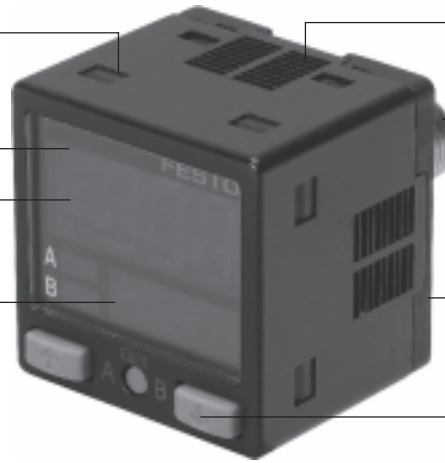
- Plug-in version, plug M8x1
- Cable version

Multi-coloured, two-part display

Alphanumeric pressure display

Displayable units:

- bar
- inchH₂O
- inchHG
- kgf/cm²
- kPa
- mmHg
- psi



Compact design
30 x 30 mm

Country-specific pressure supply ports:

- G $\frac{1}{8}$
- R $\frac{1}{8}$
- NPT $\frac{1}{8}$ -27

Wall or front panel 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 G $\frac{1}{8}$, R $\frac{1}{8}$ or NPT $\frac{1}{8}$ -27
- Switching output PNP, NPN and analogue output
- 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, with display

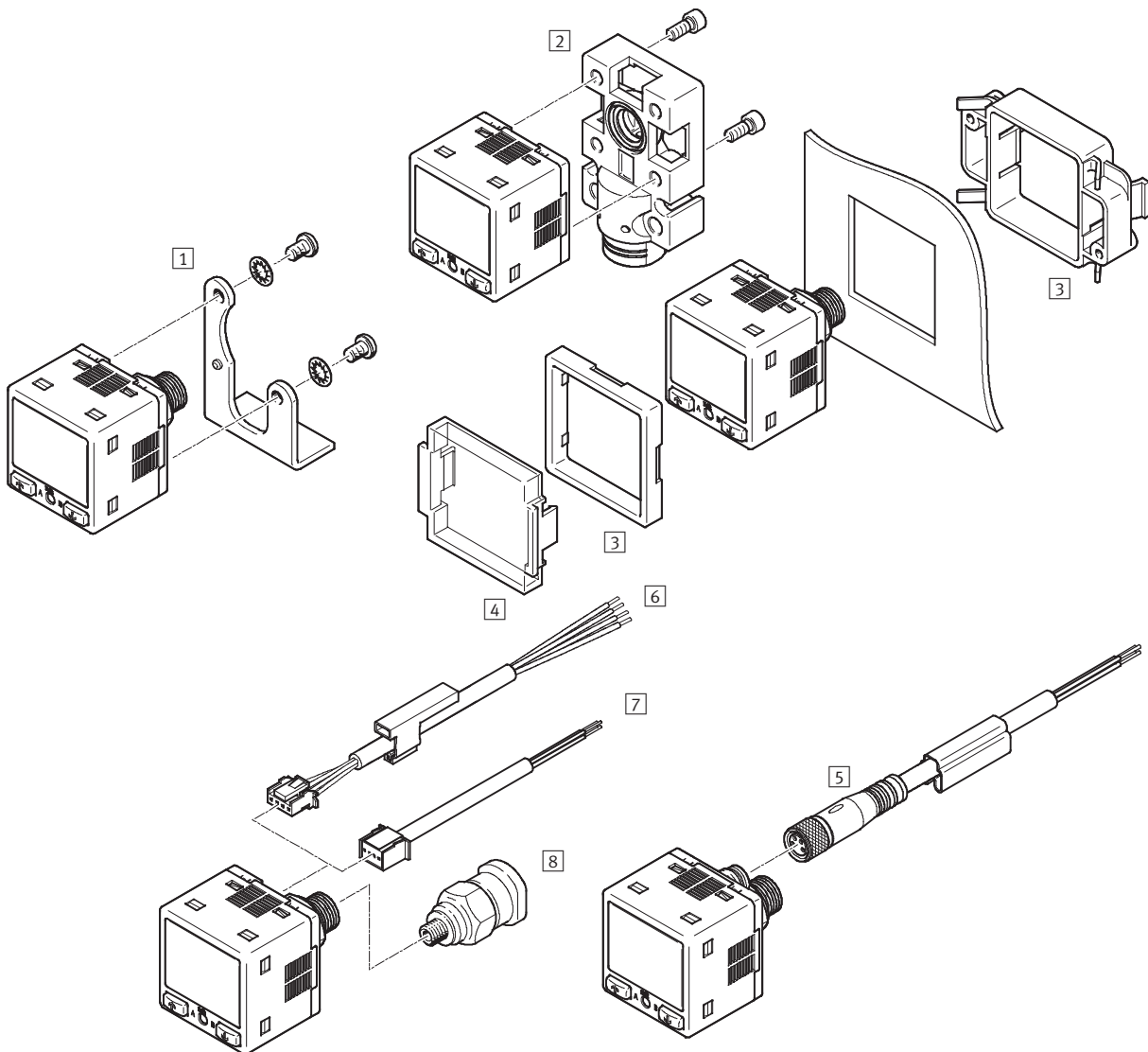
Product range overview

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
						2x PNP	-
						1x NPN	1 ... 5 V
						2x NPN	-

Pressure sensors SPAB, with display

Peripherals overview

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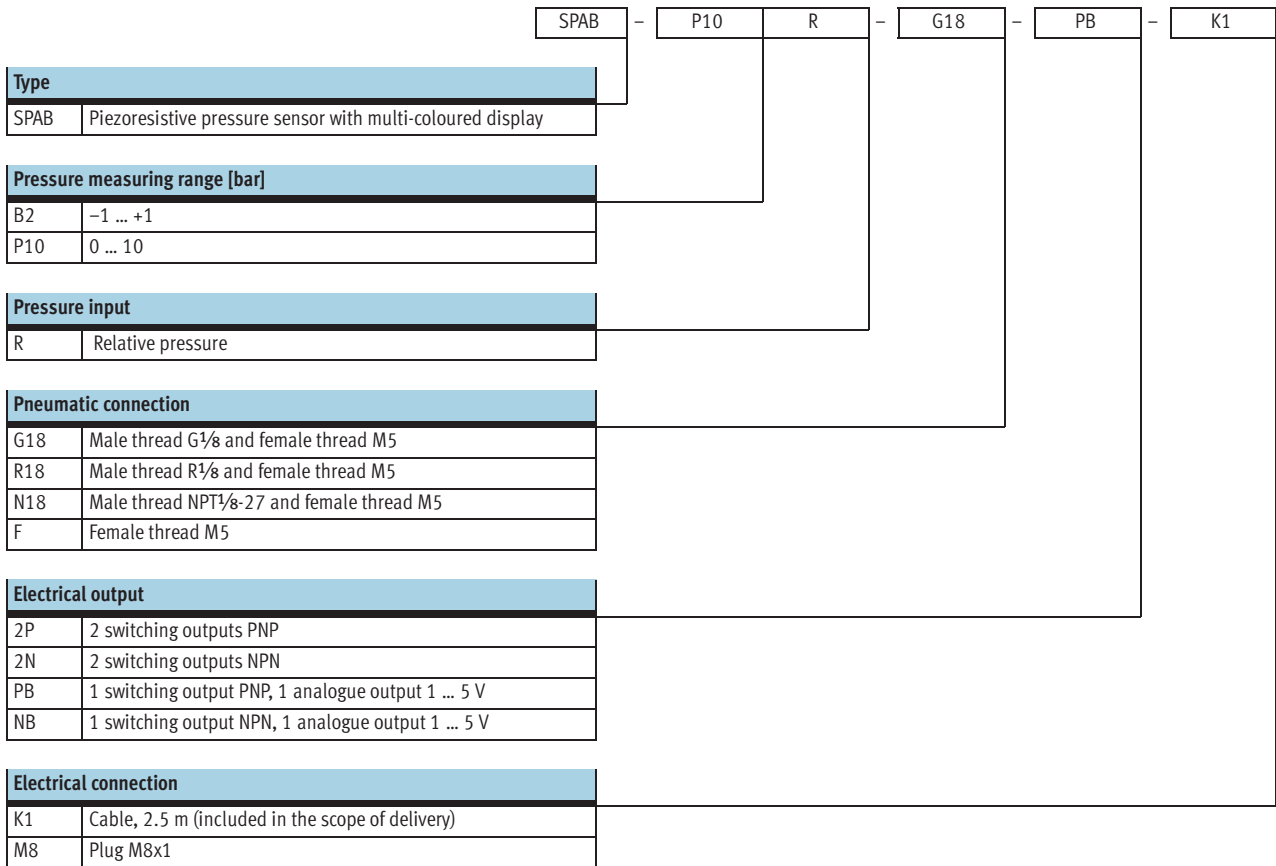


Accessories	→ Page/ Internet
1 Mounting bracket SAMH...-A	10
2 Adapter plate SASF for pressure sensor SPAB...-F	11
3 Front panel installation kit SAMH...-F	10
4 Protective cover SACC	10

Accessories	→ Page/ Internet
5 Connecting cable NEBU-M8	12
6 Connecting cable NEBS-L1G4	12
7 Connecting cable NEBU-L1G4	12
8 Push-in fitting QSM-M5	12

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Type codes

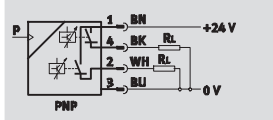


Pressure sensors SPAB, with display

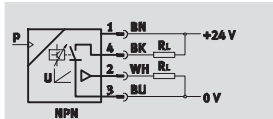
Technical data

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		
Type SPAB	-B2	-P10
General information		
Certification	cULus listed (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	Filtered, unlubricated compressed air, grade of filtration 40 µm	
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								
Type 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							
Max. output current [mA]	100							
Analogue output ¹⁾								
Analogue output	-		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)

Pressure sensors SPAB, with display

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Technical data

Electrical data								
Type 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							
	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				
Type SPAB	-G18	-R18	-N18	-F
Type of mounting	Screw-in			On sub-base
	Via accessories			-
Pneumatic connection	Female thread M5			
	Male thread G $\frac{3}{8}$	Male thread R $\frac{1}{8}$	Male thread NPT $\frac{1}{8}$ -27	-
Product weight	[g]	45		30
Housing materials	ABS, reinforced			
	PBT, reinforced			

Display/operation	
Display type	Illuminated LCD, multi-coloured
Displayable units	bar
	kgf/cm ²
	inchHg
	mmHg
	kPa
	inchH ₂ O
	psi
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.

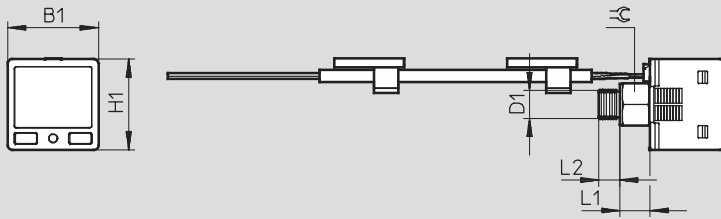
Pressure sensors SPAB, with display

Technical data

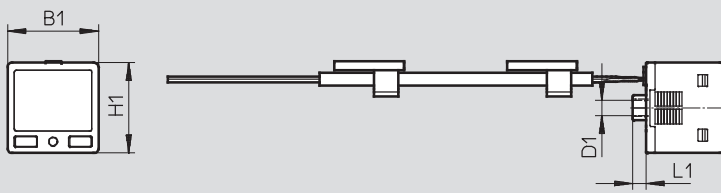
Dimensions

Download CAD data → www.festo.com

SPAB-...-K1



SPAB-...-F...-K1

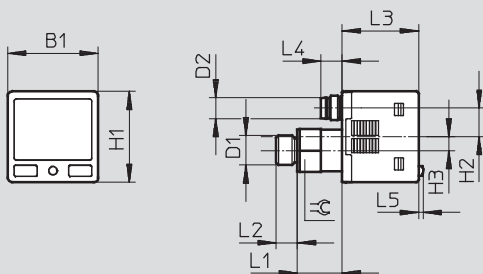


Type	B1	D1	H1	L1	L2	⌀
SPAB-...-G18	30	G1/8	30	10	7	14
SPAB-...-R18	30	R1/8	30	9.5	7.5	12
SPAB-...-N18	30	NPT1/8	30	9.5	7.5	12
SPAB-...-F	30	M5	30	4.5	-	-

Dimensions

Download CAD data → www.festo.com

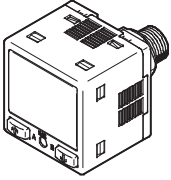








SPAB-...-M8



Type	B1	D1	D2	H1	H2	H3	L1	L2	L3	L4	L5	⌀
SPAB-...-G18	30	G1/8	M8x1	30	9.2	4.5	15	7	~25	7	1	14
SPAB-...-R18	30	R1/8	M8x1	30	9.2	4.5	14	9.5	~25	7	1	11
SPAB-...-N18	30	NPT1/8	M8x1	30	9.2	4.5	14	9.5	~25	7	1	12

Pressure sensors SPAB, with display

Technical data

Ordering data							
Version	Pressure measuring range [bar]	Electrical output		Electrical connection		Plug	
		Digital	Analogue	Cable ¹⁾		Part No.	Type
				Part No.	Type		
	Male thread G $\frac{1}{8}$						
	-1 ... +1	1x PNP	1 ... 5 V	552356	SPAB-B2R-G18-PB-K1	553152	SPAB-B2R-G18-PB-M8
		2x PNP	–	552350	SPAB-B2R-G18-2P-K1	553146	SPAB-B2R-G18-2P-M8
		1x NPN	1 ... 5 V	552359	SPAB-B2R-G18-NB-K1	553155	SPAB-B2R-G18-NB-M8
		2x NPN	–	552353	SPAB-B2R-G18-2N-K1	553149	SPAB-B2R-G18-2N-M8
	0 ... 10	1x PNP	1 ... 5 V	552368	SPAB-P10R-G18-PB-K1	553164	SPAB-P10R-G18-PB-M8
		2x PNP	–	552362	SPAB-P10R-G18-2P-K1	553158	SPAB-P10R-G18-2P-M8
		1x NPN	1 ... 5 V	552371	SPAB-P10R-G18-NB-K1	553167	SPAB-P10R-G18-NB-M8
		2x NPN	–	552365	SPAB-P10R-G18-2N-K1	553161	SPAB-P10R-G18-2N-M8
	Male thread R $\frac{1}{8}$						
	-1 ... +1	1x PNP	1 ... 5 V	552357	SPAB-B2R-R18-PB-K1	553153	SPAB-B2R-R18-PB-M8
		2x PNP	–	552351	SPAB-B2R-R18-2P-K1	553147	SPAB-B2R-R18-2P-M8
		1x NPN	1 ... 5 V	552360	SPAB-B2R-R18-NB-K1	553156	SPAB-B2R-R18-NB-M8
		2x NPN	–	552354	SPAB-B2R-R18-2N-K1	553150	SPAB-B2R-R18-2N-M8
	0 ... 10	1x PNP	1 ... 5 V	552369	SPAB-P10R-R18-PB-K1	553165	SPAB-P10R-R18-PB-M8
		2x PNP	–	552363	SPAB-P10R-R18-2P-K1	553159	SPAB-P10R-R18-2P-M8
		1x NPN	1 ... 5 V	552372	SPAB-P10R-R18-NB-K1	553168	SPAB-P10R-R18-NB-M8
		2x NPN	–	552366	SPAB-P10R-R18-2N-K1	553162	SPAB-P10R-R18-2N-M8
	Male thread NPT $\frac{1}{8}$ -27						
	-1 ... +1	1x PNP	1 ... 5 V	552358	SPAB-B2R-N18-PB-K1	553154	SPAB-B2R-N18-PB-M8
2x PNP		–	552352	SPAB-B2R-N18-2P-K1	553148	SPAB-B2R-N18-2P-M8	
1x NPN		1 ... 5 V	552361	SPAB-B2R-N18-NB-K1	553157	SPAB-B2R-N18-NB-M8	
2x NPN		–	552355	SPAB-B2R-N18-2N-K1	553151	SPAB-B2R-N18-2N-M8	
0 ... 10	1x PNP	1 ... 5 V	552370	SPAB-P10R-N18-PB-K1	553166	SPAB-P10R-N18-PB-M8	
	2x PNP	–	552364	SPAB-P10R-N18-2P-K1	553160	SPAB-P10R-N18-2P-M8	
	1x NPN	1 ... 5 V	552373	SPAB-P10R-N18-NB-K1	553169	SPAB-P10R-N18-NB-M8	
	2x NPN	–	552367	SPAB-P10R-N18-2N-K1	553163	SPAB-P10R-N18-2N-M8	
Female thread M5							
-1 ... +1	1x PNP	1 ... 5 V	570795	SPAB-B2R-F-PB-K1		–	
	2x PNP	–	570793	SPAB-B2R-F-2P-K1		–	
	1x NPN	1 ... 5 V	570796	SPAB-B2R-F-NB-K1		–	
	2x NPN	–	570794	SPAB-B2R-F-2N-K1		–	
0 ... 10	1x PNP	1 ... 5 V	570799	SPAB-P10R-F-PB-K1		–	
	2x PNP	–	570797	SPAB-P10R-F-2P-K1		–	
	1x NPN	1 ... 5 V	570800	SPAB-P10R-F-NB-K1		–	
	2x NPN	–	570798	SPAB-P10R-F-2N-K1		–	

1) Connecting cable NEBU-L1... (2.5 m long) included in the scope of delivery.

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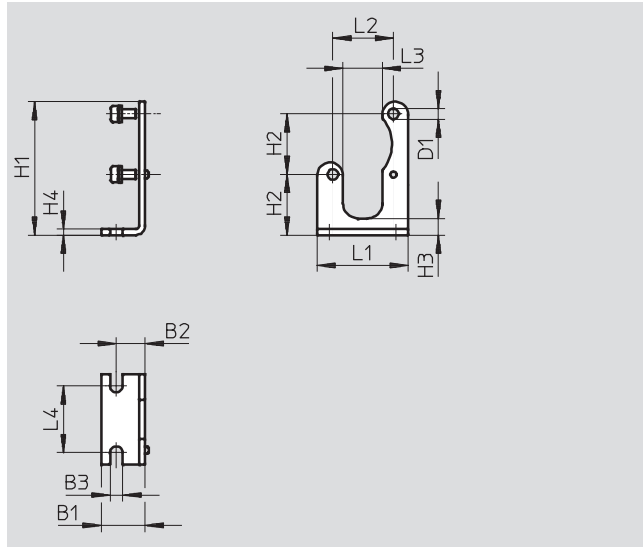
Accessories

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Mounting bracket SAMH

Material:
Galvanised chromated steel

Note on materials:
RoHS-compliant

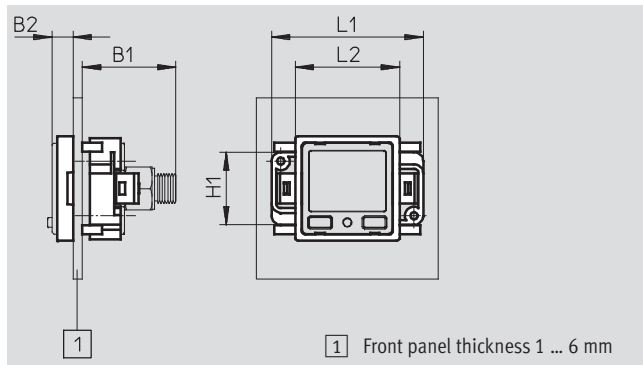


Dimensions and ordering data													Part No.	Type
B1	B2	B3	D1 Ø	H1	H2	H3	H4	L1	L2	L3	L4			
14.5	9.5	4.2	3.5	~44	20	5.5	2	30	20	13	22	552376	SAMH-P4-A	

Front panel installation kit SAMH

Materials:
PC, POM

Note on materials:
RoHS-compliant

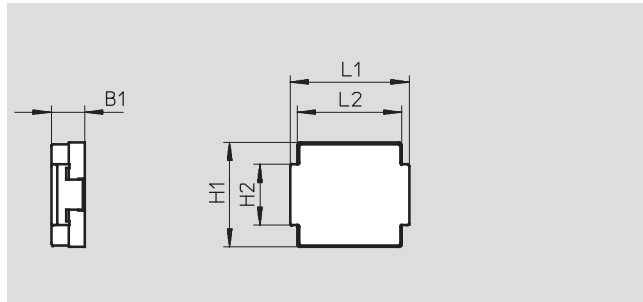


Ordering data							Part No.	Type
B1	B2	H1	L1	L2				
~31	7	24	50	34.5			552377	SAMH-P4-F

Protective cover SACC

Material:
PC

Note on materials:
RoHS-compliant



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

Pressure sensors SPAB, with display

Accessories

Adapter plate SASF

for pressure sensor SPAB-...-F

Materials:

PBT-reinforced

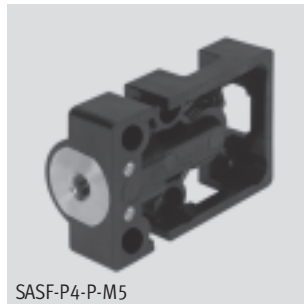
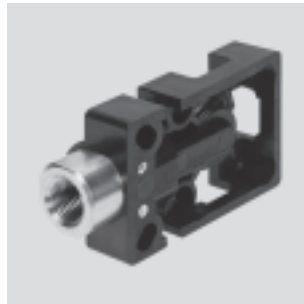
High-alloy stainless steel

HNBR

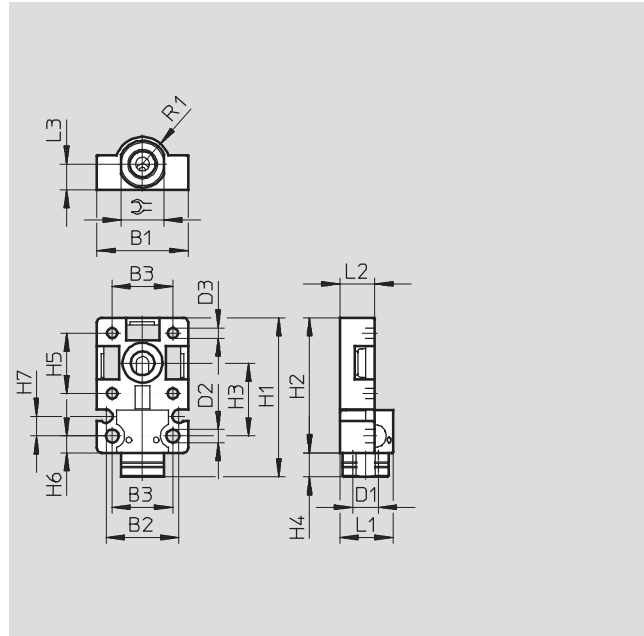
Note on materials:

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	H6	H7	L1	L2	L3	R1	☞	Part No.	Type	
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					
	Straight socket, square design	4	2.5	552374	NEBU-L1G4-K-2.5-LE4 ¹⁾
			5	552375	NEBU-L1G4-K-5-LE4
	Socket, rectangular design L1	4	2.5	572576	NEBS-L1G4-K-2.5-LE4 
			5	572577	NEBS-L1G4-K-5-LE4 

1) Included in the scope of delivery with SPAB-...-K1.

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