

Pressure sensors SPAB, with display



Pressure sensors SPAB

Key features

FESTO

At a glance

Variants:

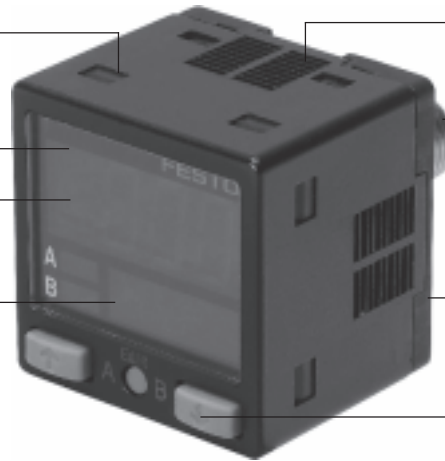
- Plug M8x1
- Plug, square design
- Cable version

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:
- G¹/₈
- R¹/₈
- NPT¹/₈-27

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 G¹/₈, R¹/₈ or NPT¹/₈-27
- Electrical connection cable, plug M8x1 or plug, square design
- 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

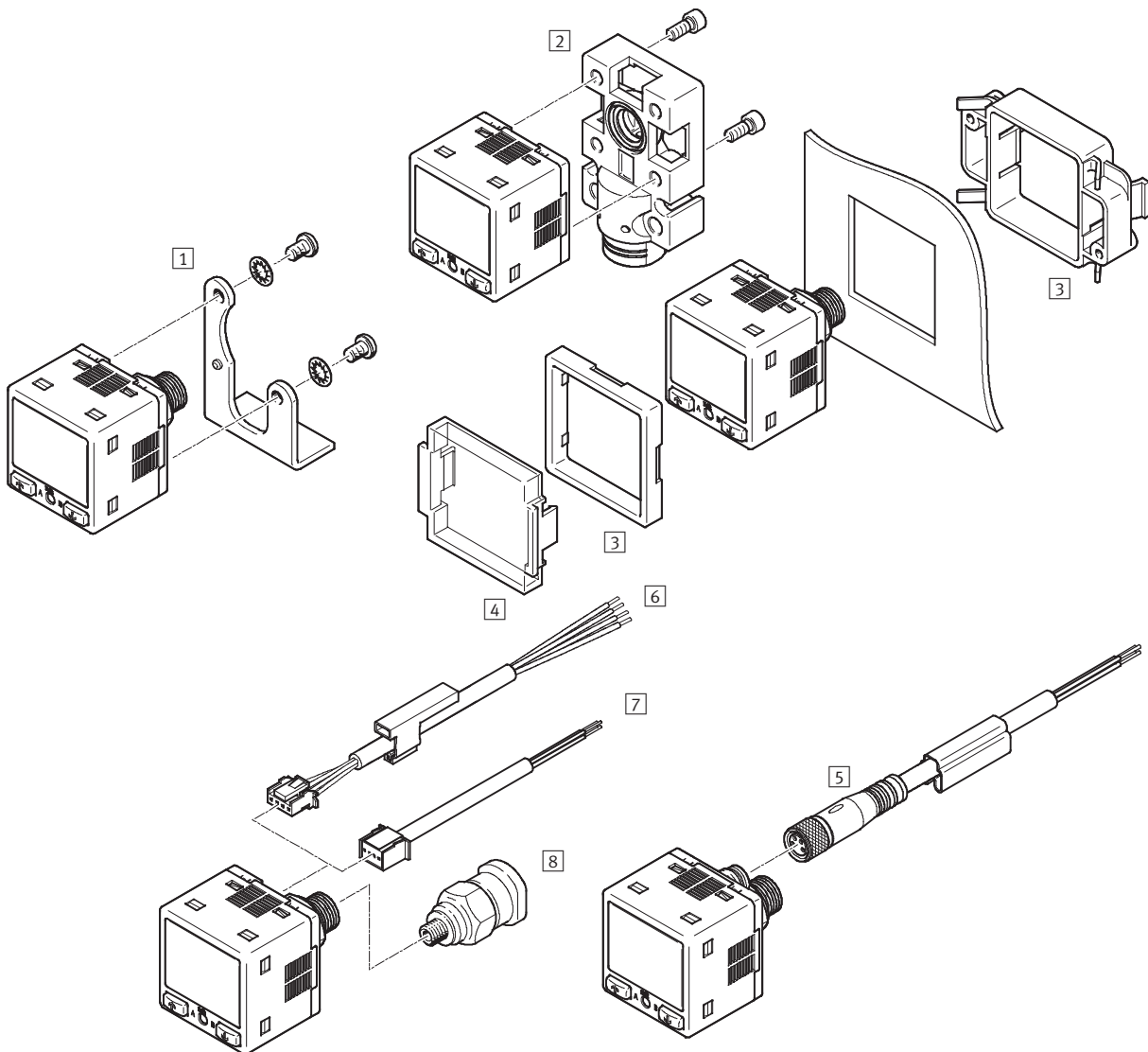
Pressure sensors SPAB, with display

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

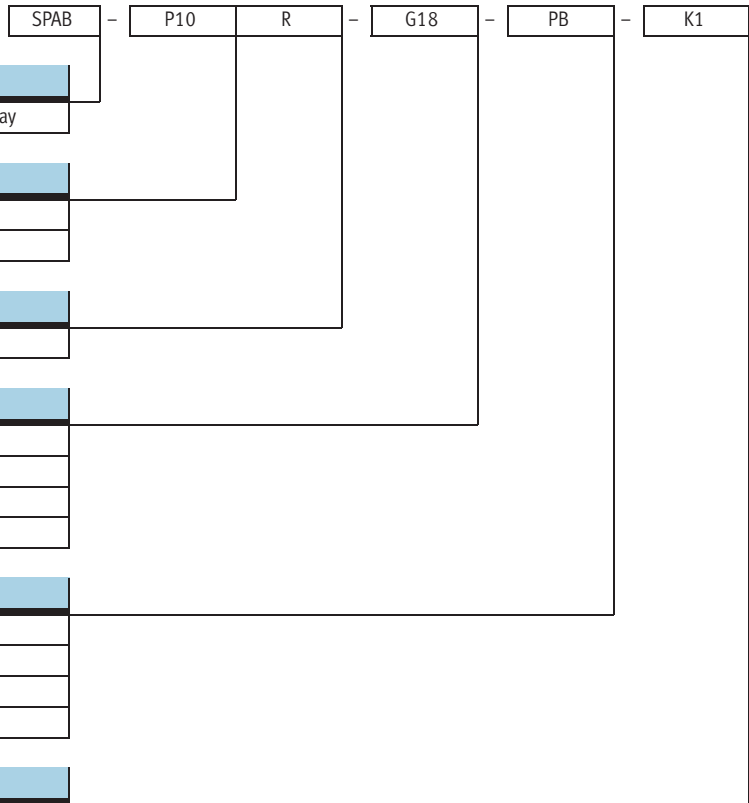


Accessories	→ Page/ Internet
1 Mounting bracket SAMH...-A	11
2 Adapter plate SASF for pressure sensor SPAB...-F	12
3 Front panel installation kit SAMH...-F	11
4 Protective cover SACC	11

Accessories	→ Page/ Internet
5 Connecting cable NEBU-M8	13
6 Connecting cable NEBS-L1G4	13
7 Connecting cable NEBU-L1G4	13
8 Push-in fitting QSM-M5	13

Pressure sensors SPAB, with display

Type codes



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

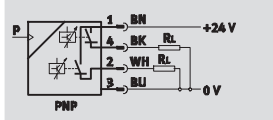
Electrical connection	
K1	Cable, 2.5 m (included in the scope of delivery)
M8	Plug M8x1
L1	Plug, L1 design

Pressure sensors SPAB, with display

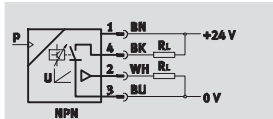
Technical data

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	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								
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 sub-base
	Via accessories			-
Pneumatic connection	Female thread M5			
	Male thread G $\frac{1}{8}$	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.

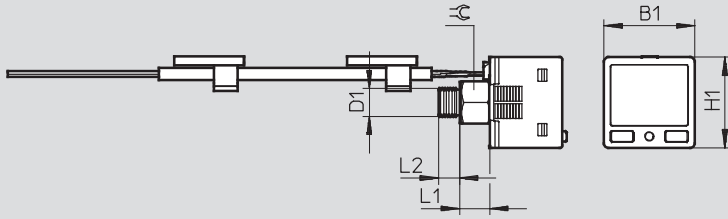
Pressure sensors SPAB, with display

Technical data

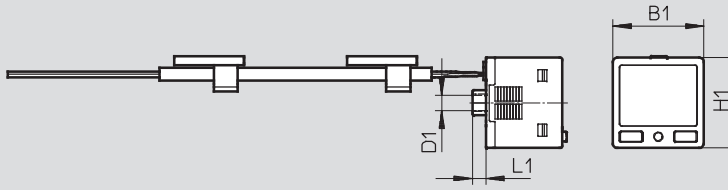
Dimensions


Download CAD Data → www.festo.com/us/cad

SPAB-...-K1



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



Type	B1	D1	H1	L1	L2	
SPAB-...-G18-...-K1	30	G1/8	30	10	7	14
SPAB-...-R18-...-K1	30	R1/8	30	9.5	7.5	12
SPAB-...-N18-...-K1	30	NPT1/8	30	9.5	7.5	12
SPAB-...-F-...-K1	30	M5	30	4.4	-	-

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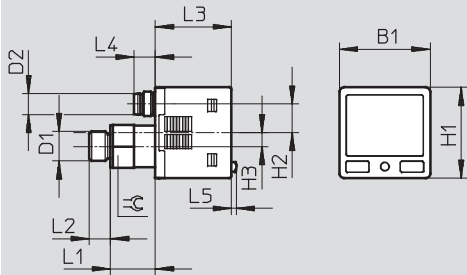
Technical data

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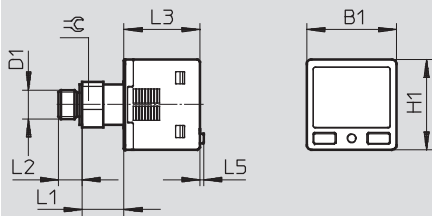
Dimensions

Download CAD Data → www.festo.com/us/cad

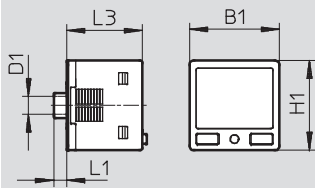
SPAB-...-M8



SPAB-...-L1



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



































Type	B1	D1	D2	H1	H2	H3	L1	L2	L3	L4	L5	⌀
SPAB-...-G18-...-M8	30	G $\frac{1}{8}$	M8x1	30	9.2	4.5	15	7	~25	7	1	14
SPAB-...-R18-...-M8	30	R $\frac{1}{8}$	M8x1	30	9.2	4.5	14	9.5	~25	7	1	12
SPAB-...-N18-...-M8	30	NPT $\frac{1}{8}$	M8x1	30	9.2	4.5	14	9.5	~25	7	1	12
SPAB-...-G18-...-L1	30	G $\frac{1}{8}$	-	30	-	-	15	7	~25	-	1	14
SPAB-...-R18-...-L1	30	R $\frac{1}{8}$	-	30	-	-	14	9.5	~25	-	1	12
SPAB-...-N18-...-L1	30	NPT $\frac{1}{8}$	-	30	-	-	14	9.5	~25	-	1	12
SPAB-...-F-...-L1	30	M5	-	30	-	-	4.4	-	~25	-	-	-

Pressure sensors SPAB, with display

Technical data

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Ordering data									
Pressure measuring range [bar]	Electrical output		Electrical connection						
			Cable ¹⁾				Plug M8x1		Plug, square design
	Digital	Analogue	Part No.	Type	Part No.	Type	Part No.	Type	
Male thread G³/₈									
-1 ... +1	1x PNP	1 ... 5 V	552356	SPAB-B2R-G18-PB-K1	553152	SPAB-B2R-G18-PB-M8	8000051	SPAB-B2R-G18-PB-L1	
	2x PNP	-	552350	SPAB-B2R-G18-2P-K1	553146	SPAB-B2R-G18-2P-M8	8000045	SPAB-B2R-G18-2P-L1	
	1x NPN	1 ... 5 V	552359	SPAB-B2R-G18-NB-K1	553155	SPAB-B2R-G18-NB-M8	8000054	SPAB-B2R-G18-NB-L1	
	2x NPN	-	552353	SPAB-B2R-G18-2N-K1	553149	SPAB-B2R-G18-2N-M8	8000048	SPAB-B2R-G18-2N-L1	
0 ... 10	1x PNP	1 ... 5 V	552368	SPAB-P10R-G18-PB-K1	553164	SPAB-P10R-G18-PB-M8	8000063	SPAB-P10R-G18-PB-L1	
	2x PNP	-	552362	SPAB-P10R-G18-2P-K1	553158	SPAB-P10R-G18-2P-M8	8000057	SPAB-P10R-G18-2P-L1	
	1x NPN	1 ... 5 V	552371	SPAB-P10R-G18-NB-K1	553167	SPAB-P10R-G18-NB-M8	8000066	SPAB-P10R-G18-NB-L1	
	2x NPN	-	552365	SPAB-P10R-G18-2N-K1	553161	SPAB-P10R-G18-2N-M8	8000060	SPAB-P10R-G18-2N-L1	
Male thread R¹/₂									
-1 ... +1	1x PNP	1 ... 5 V	552357	SPAB-B2R-R18-PB-K1	553153	SPAB-B2R-R18-PB-M8	8000052	SPAB-B2R-R18-PB-L1	
	2x PNP	-	552351	SPAB-B2R-R18-2P-K1	553147	SPAB-B2R-R18-2P-M8	8000046	SPAB-B2R-R18-2P-L1	
	1x NPN	1 ... 5 V	552360	SPAB-B2R-R18-NB-K1	553156	SPAB-B2R-R18-NB-M8	8000055	SPAB-B2R-R18-NB-L1	
	2x NPN	-	552354	SPAB-B2R-R18-2N-K1	553150	SPAB-B2R-R18-2N-M8	8000049	SPAB-B2R-R18-2N-L1	
0 ... 10	1x PNP	1 ... 5 V	552369	SPAB-P10R-R18-PB-K1	553165	SPAB-P10R-R18-PB-M8	8000064	SPAB-P10R-R18-PB-L1	
	2x PNP	-	552363	SPAB-P10R-R18-2P-K1	553159	SPAB-P10R-R18-2P-M8	8000058	SPAB-P10R-R18-2P-L1	
	1x NPN	1 ... 5 V	552372	SPAB-P10R-R18-NB-K1	553168	SPAB-P10R-R18-NB-M8	8000067	SPAB-P10R-R18-NB-L1	
	2x NPN	-	552366	SPAB-P10R-R18-2N-K1	553162	SPAB-P10R-R18-2N-M8	8000061	SPAB-P10R-R18-2N-L1	
Male thread NPT¹/₈-27									
-1 ... +1	1x PNP	1 ... 5 V	552358	SPAB-B2R-N18-PB-K1	553154	SPAB-B2R-N18-PB-M8	8000053	SPAB-B2R-N18-PB-L1	
	2x PNP	-	552352	SPAB-B2R-N18-2P-K1	553148	SPAB-B2R-N18-2P-M8	8000047	SPAB-B2R-N18-2P-L1	
	1x NPN	1 ... 5 V	552361	SPAB-B2R-N18-NB-K1	553157	SPAB-B2R-N18-NB-M8	8000056	SPAB-B2R-N18-NB-L1	
	2x NPN	-	552355	SPAB-B2R-N18-2N-K1	553151	SPAB-B2R-N18-2N-M8	8000050	SPAB-B2R-N18-2N-L1	
0 ... 10	1x PNP	1 ... 5 V	552370	SPAB-P10R-N18-PB-K1	553166	SPAB-P10R-N18-PB-M8	8000065	SPAB-P10R-N18-PB-L1	
	2x PNP	-	552364	SPAB-P10R-N18-2P-K1	553160	SPAB-P10R-N18-2P-M8	8000059	SPAB-P10R-N18-2P-L1	
	1x NPN	1 ... 5 V	552373	SPAB-P10R-N18-NB-K1	553169	SPAB-P10R-N18-NB-M8	8000068	SPAB-P10R-N18-NB-L1	
	2x NPN	-	552367	SPAB-P10R-N18-2N-K1	553163	SPAB-P10R-N18-2N-M8	8000062	SPAB-P10R-N18-2N-L1	
Female thread M5									
-1 ... +1	1x PNP	1 ... 5 V	570795	SPAB-B2R-F-PB-K1	-	-	8000071	SPAB-B2R-F-PB-L1	
	2x PNP	-	570793	SPAB-B2R-F-2P-K1	-	-	8000069	SPAB-B2R-F-2P-L1	
	1x NPN	1 ... 5 V	570796	SPAB-B2R-F-NB-K1	-	-	8000072	SPAB-B2R-F-NB-L1	
	2x NPN	-	570794	SPAB-B2R-F-2N-K1	-	-	8000070	SPAB-B2R-F-2N-L1	
0 ... 10	1x PNP	1 ... 5 V	570799	SPAB-P10R-F-PB-K1	-	-	8000075	SPAB-P10R-F-PB-L1	
	2x PNP	-	570797	SPAB-P10R-F-2P-K1	-	-	8000073	SPAB-P10R-F-2P-L1	
	1x NPN	1 ... 5 V	570800	SPAB-P10R-F-NB-K1	-	-	8000076	SPAB-P10R-F-NB-L1	
	2x NPN	-	570798	SPAB-P10R-F-2N-K1	-	-	8000074	SPAB-P10R-F-2N-L1	

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

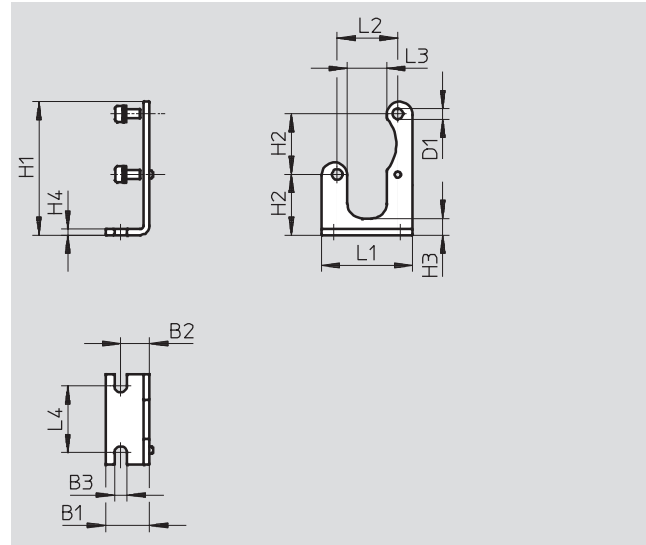
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Accessories

Mounting bracket SAMH

Material:
Galvanised chromated steel

Note on materials:
RoHS-compliant

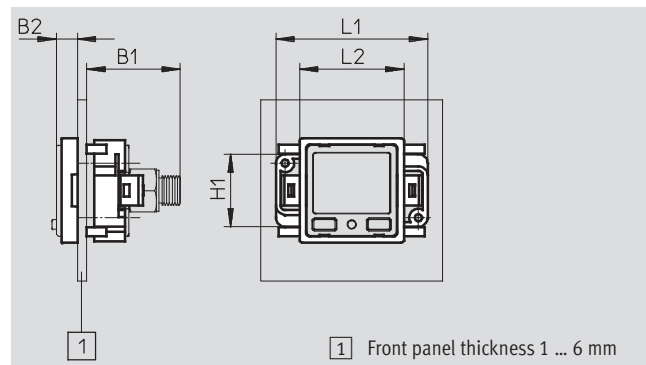


Dimensions and ordering data													Part No.	Type
B1	B2	B3	D1 Ø	H1	H2	H3	H4	L1	L2	L3	L4			
14.5	9.5	4.2	3.5	~44	20	5.5	2	30	20	13	22	552376	SAMH-P4-A	

Front panel installation kit SAMH

Materials:
PC, POM

Note on materials:
RoHS-compliant

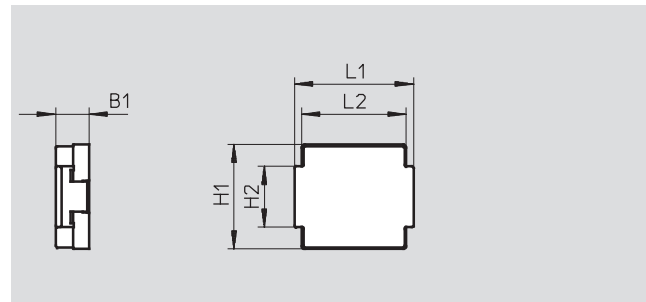


Ordering data							Part No.	Type
B1	B2	H1	L1	L2				
~31	7	24	50	34.5	552377	SAMH-P4-F		

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		

Pressure sensors SPAB, with display

Accessories

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Adapter plate SASF

for pressure sensor SPAB-...-F

Materials:

PBT-reinforced

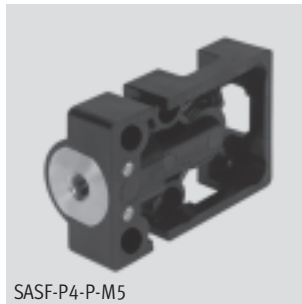
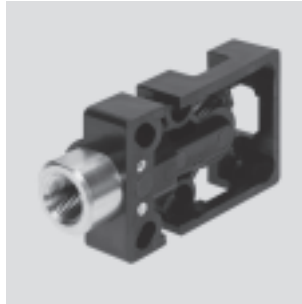
High-alloy stainless steel

HNBR

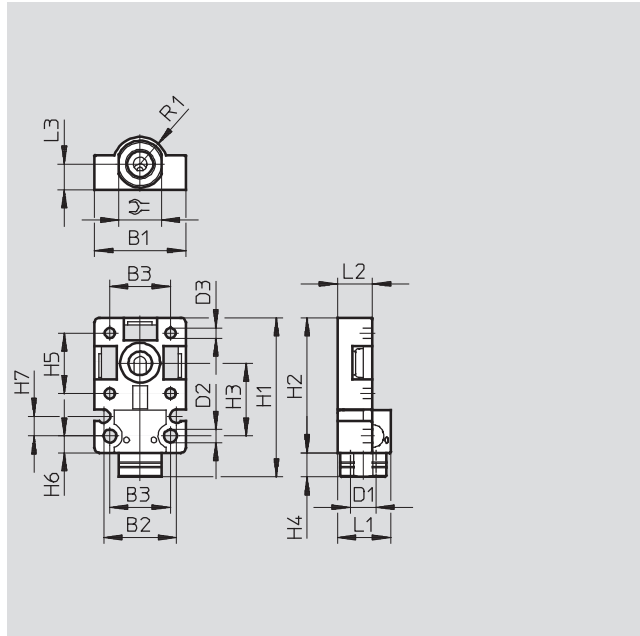
Note on materials:

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







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

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	

Product Range and Company Overview

A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



Custom Automation Components
Complete custom engineered solutions



Custom Control Cabinets
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Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

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Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

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