

### **Pressure sensors SPAB**

Key features



## At a glance



#### Product description

- psi

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 G½, R½ or NPT½-27
- 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

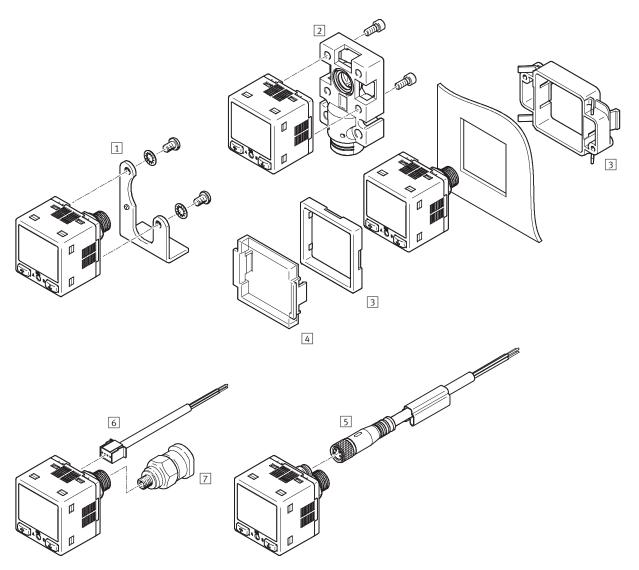


# Pressure sensors SPAB, with display Product range overview

Product range overview											
Measurement	Measured variable	Pressure measuring	Switching function	Pneumatic connection		Electrical output					
method		range									
		[bar]		Male thread	Female thread	Digital	Analogue				
Piezoresistive	1x relative pressure	-1 +1 or	Freely programmable	G½,	M5	1x PNP	1 5 V				
pressure sensor with		0 10		R <sup>1</sup> / <sub>8</sub> or NPT <sup>1</sup> / <sub>8</sub> -27		2x PNP	-				
display						1x NPN	1 5 V				
						2x NPN	-				

## -O- New variants

# Pressure sensors SPAB, with display Peripherals overview



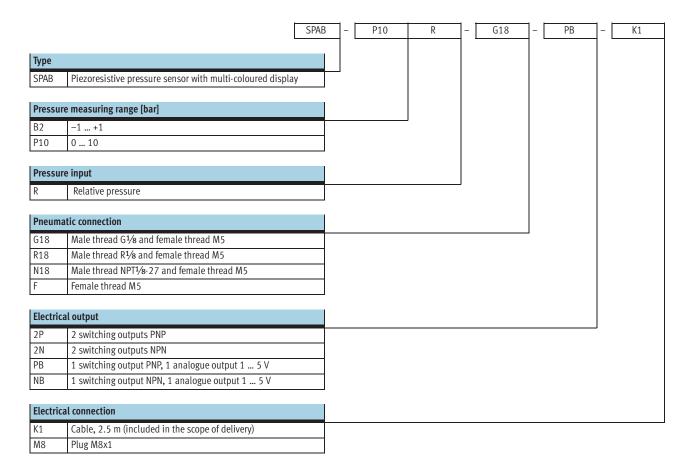
Accessories	→ Page/ Internet
Mounting bracket SAMHA	10
2 Adapter plate SASF for pressure sensor SPABF	11
3 Front panel installation kit SAMHF	10
4 Protective cover SACC	10

Accessories	→ Page/
	Internet
5 Connecting cable NEBU-M8	12
6 Connecting cable NEBU-L1G4 with square, straight socket	12
7 Push-in fitting QSM-M5	12



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Type codes



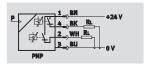


Technical data

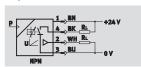
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Function

E.g. switching output 2x PNP



E.g. switching output NPN, analogue output



Voltage

12 ... 24 V DC



Temperature range  $-10 \dots +50 \, ^{\circ}\text{C}$ 



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 <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	Filtered, unlubricated compressed air, grade of filtration 40 µm					
Ambient temperature [°C]	-10 +50					

Electrical data										
Type 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 progra	mmable	•			•	•	•	
Switching element function		Switchable								
Accuracy of FS display	[%]	1				2				
Reproducibility of switching value	[%]	0.1								
Max. output current	[mA]	100								
Analogue output <sup>1)</sup>										
Analogue output		-		1 5		-		1 5		
Accuracy of analogue output zero	[%]	-		5		-		5		
point ±FS										
Accuracy of analogue output margin	[%]	-		5		-		5		
±FS										
Reproducibility of analogue value	[%]	-		0.2		-		0.2	0.2	
Output, additional data										
Protection against short circuit		Yes								

<sup>1) %</sup> FS = % of the measuring range final value (full scale)





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	1	Brown	Operating voltage +24 V DC			
(++) <sup>2</sup>	3	Blue	0 V			
3	4	Black	Switching output (Out A)			
	2	White	Switching output (Out B)/analogue output			

Mechanical components									
Type SPAB	oe SPAB		-R18	-N18	-F				
Type of mounting		Screw-in	Screw-in						
		Via accessories			-				
Pneumatic connection		Female thread M5							
		Male thread G½ Male thread R½ Male thread NPT½-27		Male thread NPT1/8-27	-				
Product weight	[g]	45			30				
Housing materials		ABS, reinforced							
		PBT, reinforced							

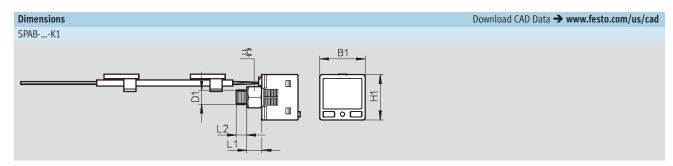
Display/operation	
Display type	Illuminated LCD, multi-coloured
Displayable units	bar
	kgf/cm <sup>2</sup>
	inchHg
	mmHg
	kPa
	inchH <sub>2</sub> O
	psi
Switching status display	Yellow LCD
Setting options	Teach-in
	Via display and keys
Tamper protection	PIN code
Threshold value setting range [%]	0 100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

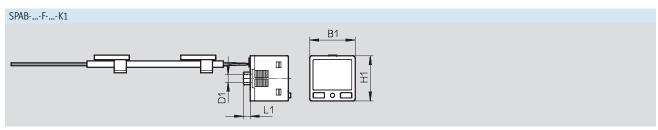
Immissions/emissions							
Protection class	IP40						
Corrosion resistance class CRC <sup>1)</sup>	2						

<sup>1)</sup> 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.

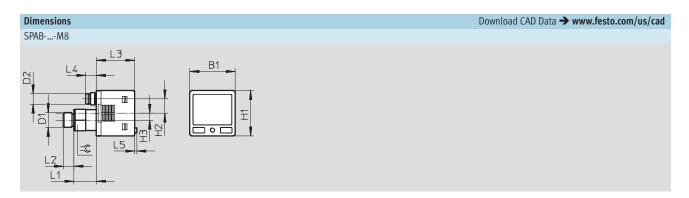


# **Pressure sensors SPAB, with display** Technical data





Туре	B1	D1	H1	L1	L2	=©
SPABG18	30	G1/8	30	10	7	14
SPABR18	30	R1/8	30	9.5	7.5	12
SPABN18	30	NPT¹/8	30	9.5	7.5	12
SPABF	30	M5	30	4.5	-	-



Туре	B1	D1	D2	H1	H2	Н3	L1	L2	L3	L4	L5	=©
SPABG18	30	G1/8	M8x1	30	9.2	4.5	15	7	~25	7	1	14
SPABR18	30	R <sup>1</sup> /8	M8x1	30	9.2	4.5	14	9.5	~25	7	1	11
SPABN18	30	NPT¹/8	M8x1	30	9.2	4.5	14	9.5	~25	7	1	12



# Pressure sensors SPAB, with display Technical data

rdering data													
ersion	Pressure measuring range	Electrical o	output	Electrical connection									
				Cable <sup>1)</sup>		Plug							
	[bar]	Digital	Analogue	Part No.	Туре		Part No.	Туре					
	Male thread G½												
( ) <b>)</b>	-1 +1	1x PNP	1 5 V	552356	SPAB-B2R-G18-PB-K1		553152	SPAB-B2R-G18-PB-M8					
<b>\</b>		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					
Ŭ		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	Ì	553161	SPAB-P10R-G18-2N-M8					
	Mala throad D16	Male thread R1/s											
	-1 +1	1x PNP	1 5 V	552357	SPAB-B2R-R18-PB-K1	П	553153	SPAB-B2R-R18-PB-M8					
	-1 +1	2x PNP	1 J V	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					
			1 5 V	4				SPAB-B2R-R18-2N-M8					
	0 10	2x NPN 1x PNP	1 [ ]/	552354	SPAB-B2R-R18-2N-K1 SPAB-P10R-R18-PB-K1		553150						
	0 10		1 5 V	552369			553165	SPAB-P10R-R18-PB-M8					
		2x PNP	4 5 1/	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 NPT1/8-27												
	-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	Î	553157	SPAB-B2R-N18-NB-M8					
		2x NPN	-	552355	SPAB-B2R-N18-2N-K1	Î	553151	SPAB-B2R-N18-2N-M8					
	0 10	1x PNP	1 5 V	552370	SPAB-P10R-N18-PB-K1	Î	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					
	Family through MF												
	Female thread M5	Law DAID	1 5 1/	F7070F	CDAD DOD F DD 1/4	_							
	-1 +1	1x PNP	1 5 V	570795	SPAB-B2R-F-PB-K1	.0.							
		2x PNP		570793	SPAB-B2R-F-2P-K1	.0.	-						
		1x NPN	1 5 V	570769	SPAB-B2R-F-NB-K1		-						
		2x NPN	-	570794	SPAB-B2R-F-2N-K1	.0.	_						
	0 10	1x PNP	1 5 V	570799	SPAB-P10R-F-PB-K1	.0.	-						
		2x PNP	-	570797	SPAB-P10R-F-2P-K1	·O·	_						
		1x NPN	1 5 V	570800	SPAB-P10R-F-NB-K1	.0	_						
		2x NPN	-	570798	SPAB-P10R-F-2NP-K1	٠0٠	-						

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

# Pressure sensors SPAB, with display Accessories

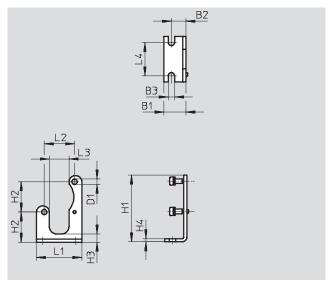
#### Mounting bracket SAMH

Material:

Galvanised chromated steel

Note on materials: RoHS-compliant





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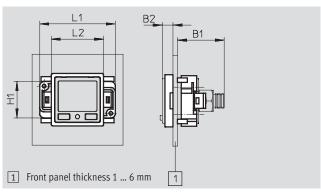
Dimensions and ordering data													
B1	B2	В3	D1	H1	H2	Н3	H4	L1	L2	L3	L4	Part No.	Туре
			Ø										
14.5	9.5	4.2	3.5	~44	20	5.5	2	30	20	13	22	552376	SAMH-P4-A

#### Front panel installation kit SAMH

Materials: PC, POM

Note on materials: RoHS-compliant





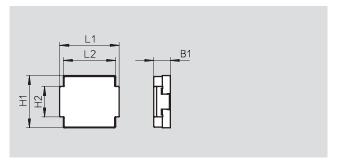
Ordering data						
B1	B2	H1	L1	L2	Part No.	Туре
~31	7	24	50	34.5	552377	SAMH-P4-F

#### Protective cover SACC

Material: PC

Note on materials: RoHS-compliant





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



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Accessories

#### Adapter plate SASF

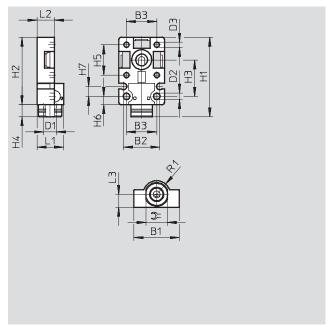
for pressure sensor SPAB-...-F

Materials: PBT-reinforced High-alloy stainless steel HNBR

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







#### Note

To differentiate the adapter plates - R1/8 No line
R1/8, G1/8 and NPT1/8, they are - NPT1/8 One line
identified as follows at the - G1/8 Two lines
pneumatic connection:

Dime	Dimensions and ordering data																									
B1	B2	В3	D1	D2	D3	H1	H2	Н3	H4	H5	Н6	H7	L1	L2	L3	R1	=©	Part No.	Type							
				Ø	Ø																					
			R <sup>1</sup> /8															570801	SASF-P4-P-R18	.0.						
30	24	20	G1/8	4.3	3.4	52.5	44.5	24	8	20	5.5	5.5	5.5	5.5	6.5	6.5	6.5	17.5	7.5 11.5	5 8.5	9	14	14	570802	SASF-P4-P-G18	.0.
			NPT1/8															570803	SASF-P4-P-N18	.0.						
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	-0-						

<sup>1)</sup> 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

Ordering da	ita – Connecting cables				
				Ted	chnical data → Internet: nebu
	Designation	Number of wires	Cable length [m]	Part No.	Туре
M8x1					
	Straight socket	4	2.5	541342	NEBU-M8G4-K-2.5-LE4
0			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 boar	d plug connector				
0	Straight socket,	4	2.5	552374	NEBU-L1G4-K-2.5-LE4 <sup>1)</sup>
	square design		5	552375	NEBU-L1G4-K-5-LE4

<sup>1)</sup> 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.	Туре							
Ī	AN)	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** Comprehensive engineering support and on-site services



**Complete Systems** Shipment, stocking and storage services

#### The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



Electromechanical Electromechanical actuators, motors, controllers & drives



**Pneumatics** Pneumatic linear and rotary actuators, valves, and air supply



PLCs and I/O Devices PLC's, operator interfaces, sensors and I/O devices

#### Supporting Advanced Automation... As No One Else Can!

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.

#### Quality Assurance, ISO 9001 and ISO 14001 Certifications

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.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.



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