

Pressure sensors SPAN



Pressure sensors SPAN

Features

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At a glance

Communication interface



Universal pressure measurement

- Pressure and vacuum
- 13 pressure measuring ranges
- All common pressure units
- Optional inspection report

Quick installation

- L1 plug connector for fast commissioning
- M8 electrical adapters enable maximum flexibility
- Wide range of mounting options
- QS4 quick connector



Convenient design

- Compact design 30x30 mm
- Degree of protection IP40
- Reduced weight with QS4

Easy operation

- Clear 2-line display
- Configurable, red perimeter of entire display
- Intuitive menu navigation

Switchable electrical outputs

- Various switching functions
- Switching outputs (PNP/NPN, NO/NC)
- Analogue outputs (0...10V, 1...5V, 4...20 mA)

Product description

The pressure sensor SPAN is suitable for monitoring compressed air and non-corrosive gases. The sensor can be used in many branches due to the compact design. The measuring method is based on a piezoresistive measuring cell for relative pressure measurement. The pressure value is transmitted to the connected control system as a switching signal, as an analogue signal or via IO-Link depending on the sensor variant and selected parameters.

Area of application

- Network monitoring (pressure present)
- Regulator monitoring (pressure in the setpoint range)
- Vacuum (part suctioned)
- Leak test (pressure drop over time)
- Object detection (back pressure present)

Functions

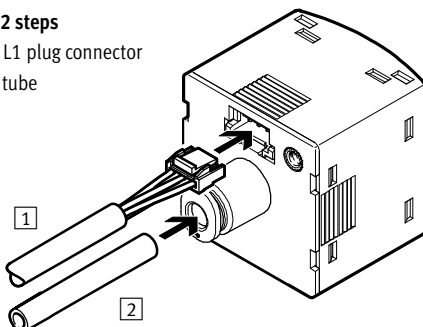
- Monitoring and setting of a pressure threshold, a pressure range or a pressure difference using a teach-in function or by entering values
- ECO function with option to set display switch-off
- Optional security code can be freely chosen (4-digit code)
- Adjustable low-pass filter for smoothing the pressure signal
- Scaling the analogue output to increase the signal dynamics
- Offset compensation possible
- Min./max. value memory for monitoring the compressed air
- All settings that have been carried out on one sensor (master) can be transferred (replication) to identical sensors (device)

Variants with IO-Link

- Serial communication integrated using IO-Link 1.1
- Cyclic transmission of two switch statuses and the measured value of the pressure
- Remote parameterisation of the sensor is possible using an IO-Link master
- Easy sensor replacement with automatic parameterisation (hot swap)
- Sensor identification, diagnostics and teach-in possible via IO-Link

Connection in 2 steps

- 1 Insert the L1 plug connector
- 2 Insert the tube



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Features

Mounting options

Front panel mounting



Manifold mounting with mounting bracket



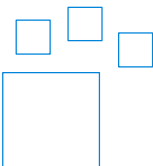
Threaded mounting with M8 adapter



Wall mounting



Ordering data – product options



Configurable product
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or at
→ www.festo.com/catalogue/...

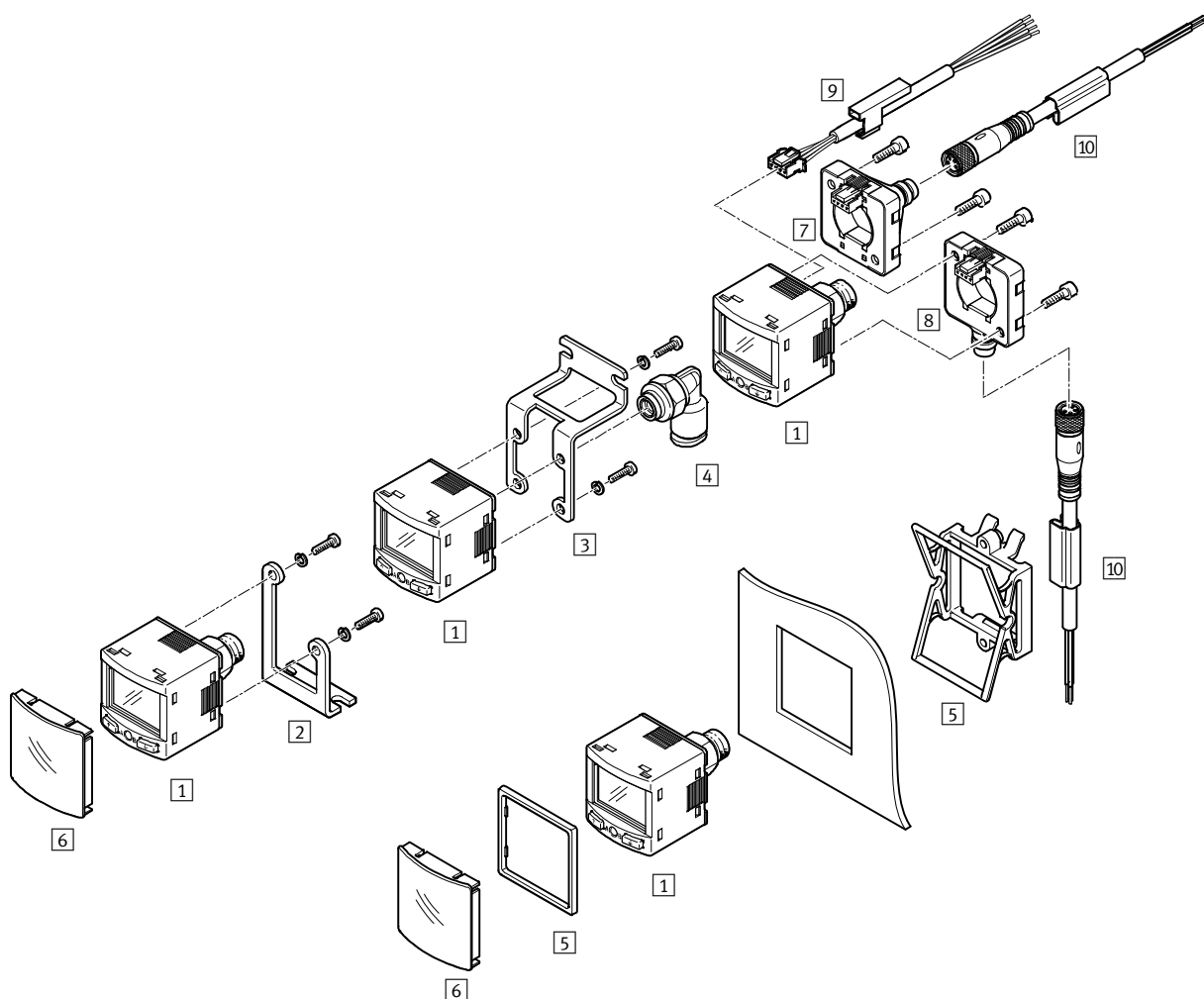
Enter the type (or part number) in the search field:

• SPAN 8003300

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Peripherals overview

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Accessories	→ Page/ Internet
[1] Pressure sensors SPAN	6
[2] Mounting bracket SAMH-PU-A	12
[3] Wall mounting SAMH-PN-W	12
[4] Push-in fitting QSM-L-M5	15
[5] Front panel mounting kit SAMH-PN-F	13

Accessories	→ Page/ Internet
[6] Safety guard SACC-PN-G	13
[7] Electrical adapter SASC-P4-A-M8-S	14
[8] Electrical adapter SASC-P4-A-M8-A	14
[9] Connecting cable NEBS-L1G4	15
[10] Connecting cable NEBU-M8	15

Pressure sensors SPAN

Type codes

		SPAN	-		R	-			-		-		-	L1	+	
--	--	------	---	--	---	---	--	--	---	--	---	--	---	----	---	--

Type	
SPAN	Pressure sensors

Pressure measuring range	
B2	-1 ... 1 bar
B11	-1 ... 10 bar
P025	0 ... 0.25 bar
P05	0 ... 0.5 bar
P1	0 ... 1 bar
P2	0 ... 2 bar
P6	0 ... 6 bar
P10	0 ... 10 bar
P12	0 ... 12 bar
P16	0 ... 16 bar
V025	0 ... -0.25 bar
V05	0 ... -0.5 bar
V1	0 ... -1 bar

Supply port	
R	Relative pressure

Pneumatic connection	
G18	G1/8
R18	R1/8
N18	1/8 NPT
M5	M5
Q4	Push-in connector 4 mm

Thread type	
-	Without
F	Female thread
M	Male thread

Electrical output 1	
PN	PNP or NPN
PNLK	PNP, NPN or IO-Link

Electrical output 2	
PN	PNP or NPN
PNVBA	PNP, NPN
	0 ... 10 V
	1 ... 5 V
	4 ... 20 mA

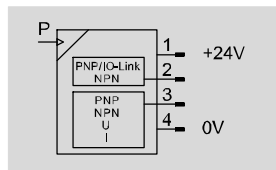
Electrical connection	
L1	Plug connector, design L1

Certificate	
	Without
T	Test report

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Technical data

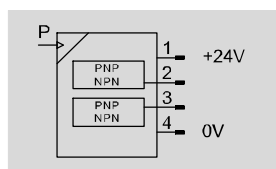
Variant with IO-Link and analogue outputs ... -PNLK-PNVBA



- Compact design 30x30
- 13 pressure measuring ranges
-1 ... +16 bar for selection
- Voltage 15 ... 30 V DC
- Temperature range 0 ... +50 °C
- Protection: IP40



Variant with 2 switching outputs ... -PN-PN



General technical data	
Approval certificate	RCM
CE marking (see declaration of conformity)	To EU EMC Directive
Note on materials	RoHS compliant

Input signal, measuring element	-B2	-B11	-V025	-V05	-V1	-P025	-P05	-P1	-P2	-P6	-P10	-P12	P16
Measured variable	Relative pressure												
Method of measurement	Piezoresistive pressure sensor												
Pressure measuring range starting value [bar]	-1	0											
Pressure measuring range end value [bar]	1	10	-0.25	-0.5	-1	0.25	0.5	1	2	6	10	12	16
Overload range [bar]	5	15	1	2	5	1	2	5	6	15	15	15	20
Operating medium	Compressed air according to ISO 8573-1:2010 [7:4:4] Inert gases												
Note on operating/pilot medium	Lubricated operation possible												
Temperature of medium [°C]	0 ... +50												
Ambient temperature [°C]	0 ... +50												

Output, general	-B2	-B11	-V025	-V05	-V1	-P025	-P05	-P1	-P2	-P6	-P10	-P12	P16
Accuracy FS [%]	±1.5												±2
Repetition accuracy [%]	±0.3												
Temperature coefficient [%FS/K]	±0.05												

Switching output	
Switching output	2 x PNP or 2 x NPN, switchable
Switching function	Window comparator Threshold value comparator Auto difference monitoring
Switching element function	N/C or N/O contact, switchable
Max. output current [mA]	100
Short circuit protection	Yes

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Technical data

Analogue output			
SPAN-...		-PNLK-PNVBA	PN-PN
Analogue output	[V]	0 ... 10	–
	[V]	1 ... 5	–
	[mA]	4 ... 20	–
Max. load resistance of current output	[Ω]	500	–
Min. load resistance of voltage output	[kΩ]	20	–

IO-Link device according to IEC 61131-9	
SPAN-...	
-PNLK	
Protocol	IO-Link
IO-Link	
Protocol version	Device V 1.1
Profile	Smart sensor profile
Function classes	Binary data channel (BDC)
	Process data variable (PDV)
	Identification
	Diagnostics
	Teach channel
Communication mode	COM2 (38.4 kBaud)
SIO mode support	Yes
Port class	0
Process data width OUT	0 bytes
Process data width IN	2 bytes
Process data content IN	14 bit PDV (pressure measurement value)
	2 bit BDC (pressure monitoring)
Minimum cycle time	3 ms
Data memory required	0.5 KB

Electronics		
Operating voltage range DC	[V]	15 ... 30
Protection against incorrect polarity	For all electrical connections	
Electrical connection	Plug connector, 4-pin, square design	

Pin allocation			
	Pin	Wire colour	Allocation
	1	Brown	Operating voltage +24 V DC
	2	Black	Switching output A / IO-Link
	3	White	Switching output B / analogue output
	4	Blue	0 V DC

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Technical data

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Mechanical components						
SPAN	-G18	-R18	-N18M	-G18F	-M5F	-Q4
Type of mounting	Via thread					–
	Front panel mounting					
	Via wall/surface bracket					
Pneumatic connection	Female thread M5			Female thread G1/8	Female thread M5	Push-in sleeve 4 mm
	Male thread G1/8	Male thread R1/8	Male thread NPT1/8-27	–	–	–
Product weight [g]	45			34		25
Mounting position	Any					
Information on materials - housing	PA reinforced					

Display/operation		
SPAN	-PNLK	-PN
Display type	Illuminated LCD	
Displayable units	MPa	
	Bar	
	InchH ₂ O	
	InchHg	
	kPa	
	kgf/cm ²	
	mmHg	
Setting options	Teach-in	
	IO-Link	–
	Via display and keys	
Protection against tampering	IO-Link	–
	PIN code	
Threshold value setting range [%]	0 ... 100	
Hysteresis setting range [%]	0 ... 90	

Immissions/emissions	
Degree of protection	IP40
Corrosion resistance class CRC ¹⁾	2

- 1) Corrosion resistance class 2 according to Festo standard 940070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with the surrounding industrial environment or media such as coolants or lubricating agents.

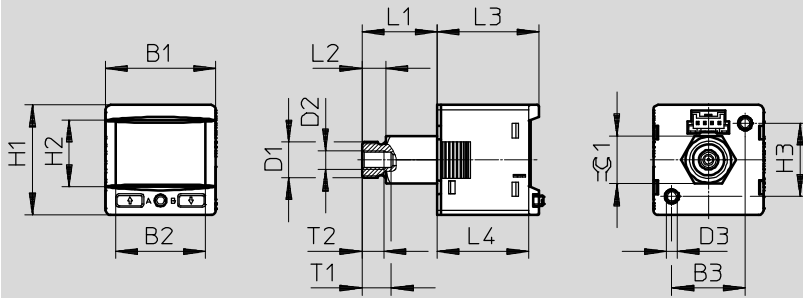
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Technical data

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Dimensions

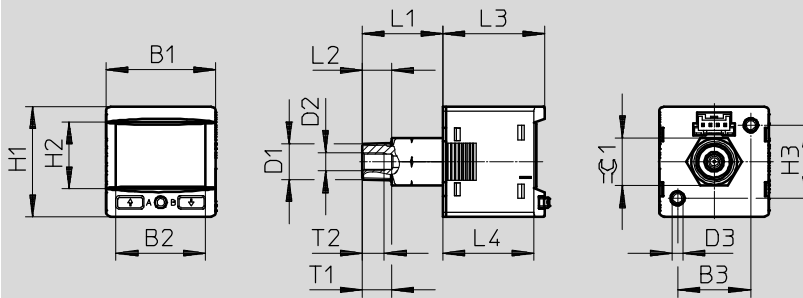
Download CAD data → www.festo.com



Type	B1	B2	B3	D1	D2	D3	H1	H2	H3	L1	L2	L3	L4	T1	T2	⌀1
SPAN- ... -G18M-...	30	24.5	20	G $\frac{1}{8}$	M5	M3	30	18.2	20	20.5	6.5	~27.9	~25.3	8	6	13

Dimensions

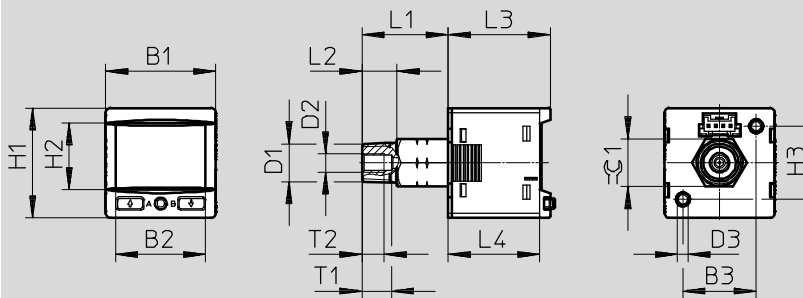
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Type	B1	B2	B3	D1	D2	D3	H1	H2	H3	L1	L2	L3	L4	T1	T2	⌀1
SPAN- ... -R18M-...	30	24.5	20	R $\frac{1}{8}$	M5	M3	30	18.2	20	22	8	~27.9	~25.3	8	6	13

Dimensions

Download CAD data → www.festo.com



Type	B1	B2	B3	D1	D2	D3	H1	H2	H3	L1	L2	L3	L4	T1	T2	⌀1
SPAN- ... -N18M-...	30	24.5	20	NPT $\frac{1}{8}$	M5	M3	30	18.2	20	23.5	9.5	~27.9	~25.3	8	6	13

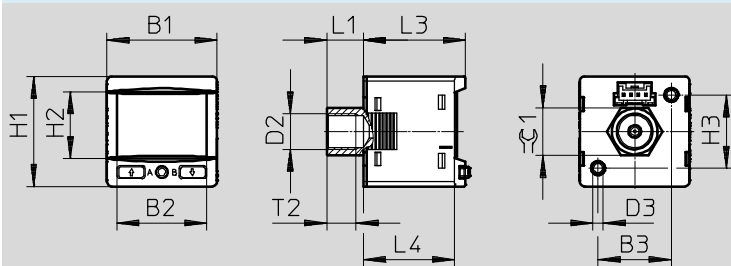
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Technical data

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Dimensions

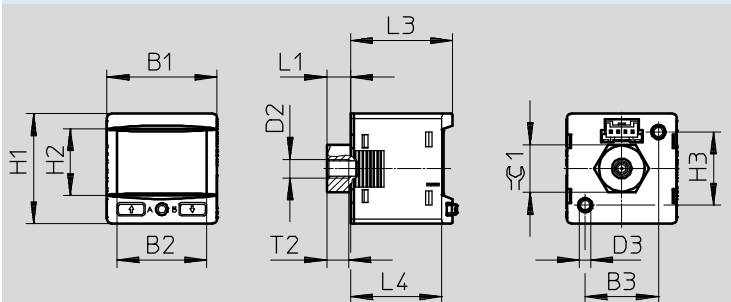
Download CAD data → www.festo.com



Type	B1	B2	B3	D2	D3	H1	H2	H3	L1	L3	L4	T2	≈C1
SPAN- ... -G18F...	30	24.5	20	G1/8	M3	30	18.2	20	10	~27.9	~25.3	8	13

Dimensions

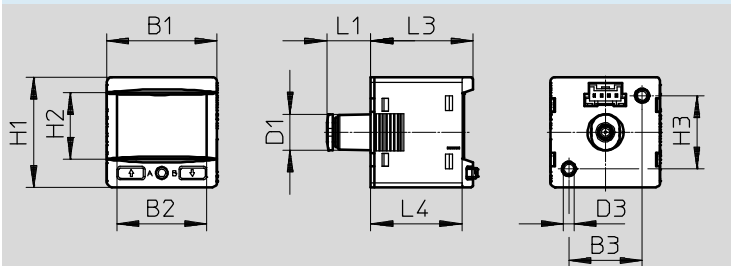
Download CAD data → www.festo.com



Type	B1	B2	B3	D2	D3	H1	H2	H3	L1	L3	L4	T2	≈C1
SPAN- ... -M5F...	30	24.5	20	M5	M3	30	18.2	20	6.5	~27.9	~25.3	6	13

Dimensions

Download CAD data → www.festo.com



Type	B1	B2	B3	D1	D3	H1	H2	H3	L1	L3	L4
SPAN- ... -Q4...	30	24.5	20	9.8	M3	30	18.2	20	12	~27.9	~25.3

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Technical data

Ordering data					
Electrical output			Pneumatic connection	Part No.	Type
Switching output	Analogue output	Serial interface			
Pressure measuring range 0 ... –1 bar					
2 x PNP/NPN Switchable	–	–	G¼ external, M5 internal	8035546	SPAN-V1R-G18M-PN-PN-L1
			R¼ external, M5 internal	8035549	SPAN-V1R-R18M-PN-PN-L1
			Push-in connector 4 mm	8035554	SPAN-V1R-Q4-PN-PN-L1
	0 ... 10 V, 1 ... 5 V 4 ... 20 mA Switchable	IO-Link	G¼ external, M5 internal	8035535	SPAN-V1R-G18M-PNLK-PNVBA-L1
			R¼ external, M5 internal	8035538	SPAN-V1R-R18M-PNLK-PNVBA-L1
			Push-in connector 4 mm	8035543	SPAN-V1R-Q4-PNLK-PNVBA-L1
Pressure measuring range –1 ... +1 bar					
2 x PNP/NPN Switchable	–	–	G¼ external, M5 internal	8035545	SPAN-B2R-G18M-PN-PN-L1
			R¼ external, M5 internal	8035548	SPAN-B2R-R18M-PN-PN-L1
			M5 internal	8035551	SPAN-B2R-M5F-PN-PN-L1
			Push-in connector 4 mm	8035553	SPAN-B2R-Q4-PN-PN-L1
	0 ... 10 V, 1 ... 5 V 4 ... 20 mA Switchable	IO-Link	G¼ external, M5 internal	8035534	SPAN-B2R-G18M-PNLK-PNVBA-L1
			R¼ external, M5 internal	8035537	SPAN-B2R-R18M-PNLK-PNVBA-L1
			M5 internal	8035540	SPAN-B2R-M5F-PNLK-PNVBA-L1
			Push-in connector 4 mm	8035542	SPAN-B2R-Q4-PNLK-PNVBA-L1
Pressure measuring range 0 ... +10 bar					
2 x PNP/NPN Switchable	–	–	G¼ external, M5 internal	8035544	SPAN-P10R-G18M-PN-PN-L1
			R¼ external, M5 internal	8035547	SPAN-P10R-R18M-PN-PN-L1
			M5 internal	8035550	SPAN-P10R-M5F-PN-PN-L1
			Push-in connector 4 mm	8035552	SPAN-P10R-Q4-PN-PN-L1
	0 ... 10 V, 1 ... 5 V 4 ... 20 mA Switchable	IO-Link	G¼ external, M5 internal	8035533	SPAN-P10R-G18M-PNLK-PNVBA-L1
			R¼ external, M5 internal	8035536	SPAN-P10R-R18M-PNLK-PNVBA-L1
			M5 internal	8035539	SPAN-P10R-M5F-PNLK-PNVBA-L1
			Push-in connector 4 mm	8035541	SPAN-P10R-Q4-PNLK-PNVBA-L1

Pressure sensors SPAN

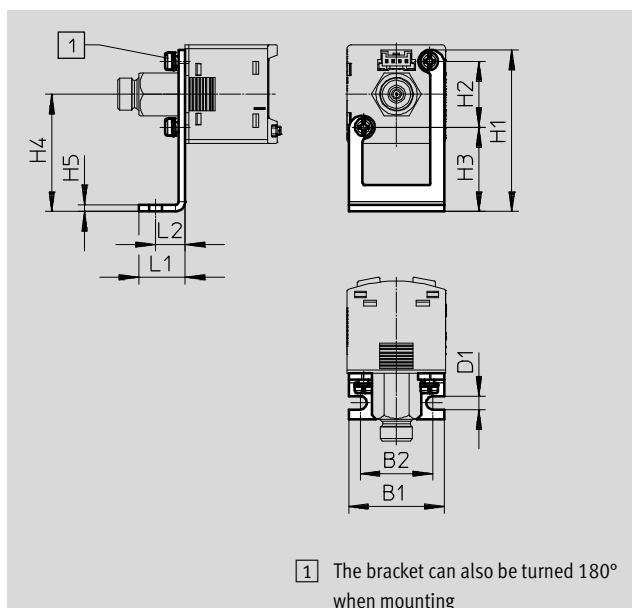
Accessories – Ordering data

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Mounting bracket SAMH-PU-A

Material: High-alloy stainless steel

Note on materials: RoHS compliant



Ordering data															
Type	B1	B2	B3	D1	D2 Ø	H1	H2	L1	L2	L3	L4	L5	CRC ¹⁾	Part No.	Type
SAMH-PU-A	29	20	22	M3x8	4	14	9	49	25.6	20	8.6	2	2	8003354	SAMH-PU-A

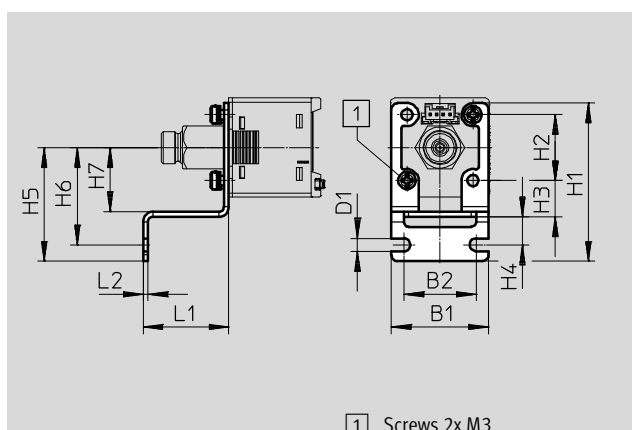
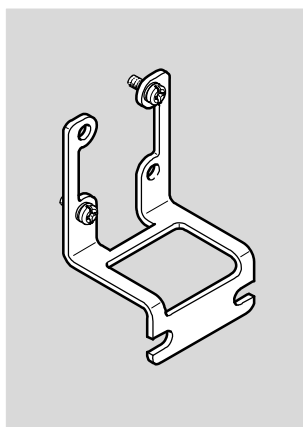
1) Corrosion resistance class 2 to Festo standard 940070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with the surrounding industrial environment or media such as coolants or lubricating agents.

Wall mounting SAMH-PN-W

Material: High-alloy stainless steel

Note on materials: RoHS compliant



Dimensions and ordering data															
Type	B1	B2	D1 Ø	H1	H2	H3	H4	H5	H6	H7	L1	L2	CRC ¹⁾	Part No.	Type
SAMH-PN-W	29.5	22	4	48	20	11	8.5	34.5	29.5	19.5	26	1.5	2	8035563	SAMH-PN-W

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 the surrounding industrial environment or media such as coolants or lubricating agents.

Pressure sensors SPAN

Accessories – Ordering data

Safety guard

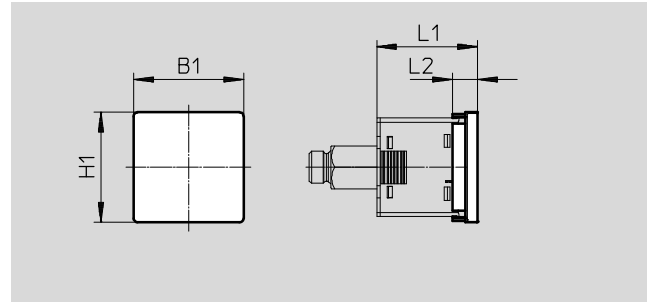
SACC-PN-G

For protecting the display and operator control element

Material: PA

Note on materials:

RoHS compliant



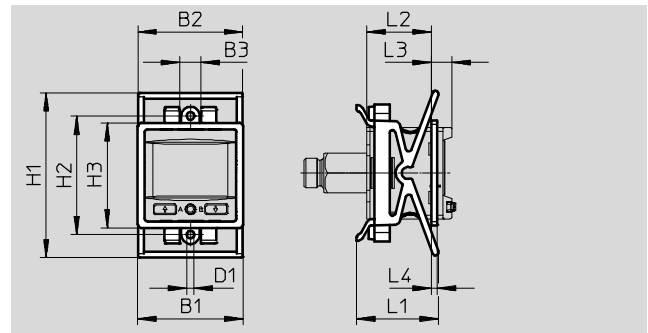
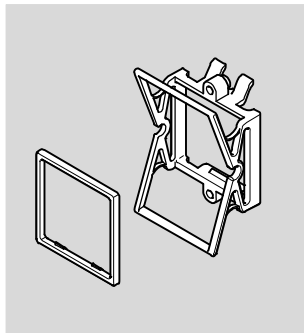
Dimensions and ordering data						
Type	B1	H1	L1	L2	Part No.	Type
SACC-PN-G	33.5	33.5	~31	7.7	8035560	SACC-PN-G

Front panel mounting kit

SAMH-PN-F

Mounting kit for front panel

Material: PA, POM



Dimensions and ordering data														
Type	B1	B2	B3	D1 Ø	H1 Min. Max.		H2	H3	L1	L2	L3	L4	Part No.	Type
SAMH-PN-F	34.5	34.3	7	2.5	54	57.5	38.9	34.5	26.8	~21.2	~6.7	2	8035561	SAMH-PN-F

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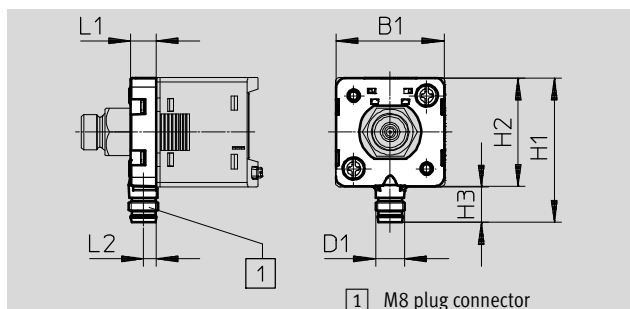
Accessories – Ordering data

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Electrical adapter SASC-P4-A-M8-A

For downward outlet direction

Material of housing: Reinforced PA
Plug connector housing: Nickel-plated brass
Note on materials: RoHS compliant



Dimensions and ordering data									
Type	B1	D1	H1	H2	H3	L1	L2	CRC ¹⁾	Part No. Type
SASC-P4-A-M8-A	29.6	M8x1	39.5	29.6	9.7	7	3.5	2	8000326 SASC-P4-A-M8-A

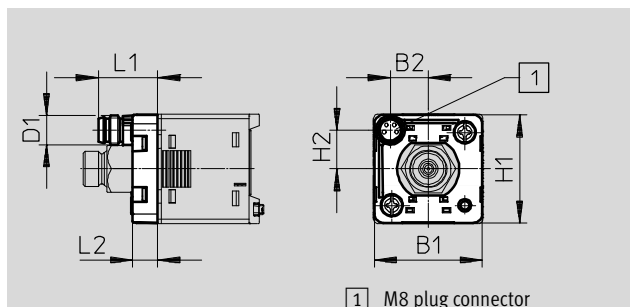
- 1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial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

Pin allocation			
Plug connector M8x1, 4-pin			
Round design	Pin	Core colour	Allocation
	1	Brown	Operating voltage: +24 V DC
	2	White	Switching output B / analogue output
	3	Blue	0 V DC
	4	Black	Switching output A / IO-Link

Electrical adapter SASC-P4-A-M8-S

For outlet direction to rear

Material of housing: Reinforced PA
Plug connector housing: Nickel-plated brass
Note on materials: RoHS compliant



Dimensions and ordering data									
Type	B1	B2	D1	H1	H2	L1	L2	CRC ¹⁾	Part No. Type
SASC-P4-A-M8-S	29.6	10.4	M8x1	29.6	10.6	16.3	7	2	8000327 SASC-P4-A-M8-S

- 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 connector, 4-pin, M8x1			
Round design	Pin	Core colour	Allocation
	1	Brown	Operating voltage +24V DC
	2	White	Switching output B / analogue output
	3	Blue	0 V DC
	4	Black	Switching output A / IO-Link

Pressure sensors SPAN

Accessories – Ordering data

Ordering data Connecting cables				
	Number of wires	Cable length [m]	Part No.	Type
Socket, rectangular design L1			Technical data ➔ Internet: nebs	
	4	2.5	572576	NEBS-L1G4-K-2,5-LE4
		5	572577	NEBS-L1G4-K-5-LE4
M8x1, straight socket			Technical data ➔ Internet: nebu	
	4	2.5	541342	NEBU-M8G4-K-2.5-LE4
		5	541343	NEBU-M8G4-K-5-LE4
M8x1, angled socket				
	4	2.5	541344	NEBU-M8W4-K-2.5-LE4
		5	541345	NEBU-M8W4-K-5-LE4

Ordering data Push-in fittings			Technical data → Internet: qs	
	Pneumatic connection O.D.	For tubing O.D.	Part No.	Type
Straight connection				
	M5	4 mm	153304	QSM-M5-4
		6 mm	153306	QSM-M5-6
	G1/8	4 mm	186264	QSM-G1/8-4
		6 mm	186265	QSM-G1/8-6
90° connection				
	M5	4 mm	153333	QSML-5-4
		6 mm	153335	QSML-5-6
	G1/8	4 mm	186268	QSML-G1/8-4
		6 mm	186269	QSML-G1/8-6
90° connection			Technical data → Internet: npfc	
	G1/8	G1/8 internal to G1/8 internal	8030209	NPFC-L-2G18-F
	R1/8	R1/8 external to R1/8 external	8030223	NPFC-L-2R18-M
	M5	M5 internal to M5 internal	8030215	NPFC-L-2M5-MF