

## Pressure sensor SPAF

**FESTO**



Characteristics

At a glance

The pressure sensor SPAF is designed for automating applications with compressed air and non-corrosive gases in a wide range of situations. These range from network and controller monitoring to vacuum gripping and force control in clamping or pressing applications. Thanks to the protection class IP65, installation in difficult industrial environments is not a problem either. The piezoresistive measuring cell measures the pressure with a high accuracy of 1.5% of the measuring range. The fluid connection is via a QS4 or QS6 plug-in connection or via a G1/8 male thread, enabling the sensor to be aligned at a later stage using a TORX® screwdriver. The sensor can essentially be categorised into two variants. For simple pressure monitoring, a version with an LED switching display and a signal output is available; this can be assigned either via IO-Link® or a digital switching output. The LCD display variant, which is available with two signal outputs, provides a little more flexibility for process monitoring. The SPAF can be flexibly parameterised via IO-Link®, two digital switch outputs or one switching and one analogue output. This offers a solution for all requirements with just one product.

- Compact design with in-line pressure measurement
- Protection class IP65 for harsh industrial environments
- Switching cycle counter for predictive system maintenance
- Fast commissioning thanks to replicator function
- Adjustable switching and analogue outputs
- Fast one-button teach-in

Pressure measuring range

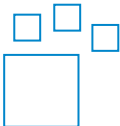
|       |               |       |              |
|-------|---------------|-------|--------------|
| [B11] | -1 ... 10 bar | [P10] | 0 ... 10 bar |
| [V1]  | 0 ... -1 bar  |       |              |

Electrical output 1

|        |                 |
|--------|-----------------|
| [PNLK] | PNP/NPN/IO-Link |
|--------|-----------------|

IO-Link® communication for smart remote parameterisation even in inaccessible places

Ordering data - modular system



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

## Type code

|      |                      |  |
|------|----------------------|--|
| 001  | Series               |  |
| SPAF | Pressure sensor SPAF |  |

|     |                          |  |
|-----|--------------------------|--|
| 002 | Pressure measuring range |  |
| B11 | -1 ... 10 bar            |  |
| P10 | 0 ... 10 bar             |  |
| V1  | 0 ... -1 bar             |  |

|     |                   |  |
|-----|-------------------|--|
| 003 | Pressure inlet    |  |
| R   | Relative pressure |  |

|     |                        |  |
|-----|------------------------|--|
| 004 | Pneumatic connection   |  |
| G18 | G1/8                   |  |
| Q4  | Push-in connector 4 mm |  |
| Q6  | Push-in connector 6 mm |  |

|     |             |  |
|-----|-------------|--|
| 005 | Thread type |  |
|     | None        |  |
| M   | Male        |  |

|     |              |  |
|-----|--------------|--|
| 006 | Display      |  |
| L   | LCD, backlit |  |
| N   | LED          |  |

|      |                     |  |
|------|---------------------|--|
| 007  | Electrical output 1 |  |
| PNLK | PNP/NPN/IO-Link     |  |

|     |                         |  |
|-----|-------------------------|--|
| 008 | Electrical output 2     |  |
|     | None                    |  |
| VB  | 0 ... 10 V or 1 ... 5 V |  |

|     |                       |  |
|-----|-----------------------|--|
| 009 | Electrical connection |  |
| M8  | Plug M8, A-coded      |  |
| M12 | Plug M12, A-coded     |  |

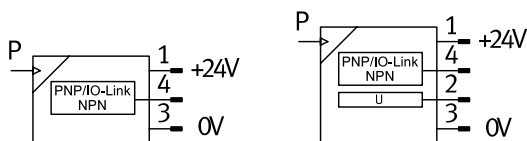
|     |                      |  |
|-----|----------------------|--|
| 010 | Mounting accessories |  |
|     | None                 |  |
| MC  | Mounting clip        |  |

|      |                              |  |
|------|------------------------------|--|
| 011  | Electrical accessories       |  |
|      | None                         |  |
| 2.5A | Angled socket, cable 2.5 m   |  |
| 2.5S | Straight socket, cable 2.5 m |  |
| 5A   | Angled socket, cable 5 m     |  |
| 5S   | Straight socket, cable 5 m   |  |

|     |             |  |
|-----|-------------|--|
| 012 | Certificate |  |
|     | None        |  |
| T   | Test report |  |

## Datasheet

## General technical data



|                                              |                                                           |
|----------------------------------------------|-----------------------------------------------------------|
| Short type code                              | SPAF-                                                     |
| Approval                                     | RCM trademark                                             |
| CE mark (see declaration of conformity)      | To EU EMC Directive, In accordance with EU RoHS Directive |
| UKCA marking (see declaration of conformity) | To UK instructions for EMC, To UK RoHS instructions       |
| Note on materials                            | RoHS-compliant                                            |

## Input signal, measuring element

|                                          |                                                                                                        |              |              |
|------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------|--------------|
| Pressure measuring range                 | -1 ... 10 bar                                                                                          | 0 ... 10 bar | 0 ... -1 bar |
| Measured variable                        | Relative pressure                                                                                      |              |              |
| Measurement method                       | Piezoresistive pressure sensor                                                                         |              |              |
| Start value for pressure measuring range | -0.1 MPa                                                                                               | 0 MPa        |              |
| Start value for pressure measuring range | -1 bar                                                                                                 | 0 bar        |              |
| Start value for pressure measuring range | -14.5 psi                                                                                              | 0 psi        |              |
| End value for pressure measuring range   | 1 MPa                                                                                                  |              | -0.1 MPa     |
| End value for pressure measuring range   | 10 bar                                                                                                 |              | -1 bar       |
| End value for pressure measuring range   | 145 psi                                                                                                |              | -14.5 psi    |
| Overload pressure                        | 1.5 MPa                                                                                                |              | 0.5 MPa      |
| Overload pressure                        | 15 bar                                                                                                 |              | 5 bar        |
| Overload pressure                        | 217.5 psi                                                                                              |              | 72.5 psi     |
| Operating medium                         | Compressed air to ISO 8573-1:2010 [7:4:4], Inert gases                                                 |              |              |
| Note on operating and pilot medium       | Ester oil < 0.1mg/m <sup>3</sup> , according to ISO 8573-1:2010 [---:2], Lubricated operation possible |              |              |
| Media temperature                        | 0 ... 50°C                                                                                             |              |              |
| Ambient temperature                      | 0 ... 50°C                                                                                             |              |              |

## Output, general

|                                    |               |              |              |
|------------------------------------|---------------|--------------|--------------|
| Pressure measuring range           | -1 ... 10 bar | 0 ... 10 bar | 0 ... -1 bar |
| Accuracy in ± % FS                 | 1.5 %FS       |              |              |
| Repetition accuracy in ± %FS       | 0.3 %FS       |              |              |
| Temperature coefficient in ± %FS/K | 0.05 %FS/K    |              |              |

## Switching output

|                                |                                                                                         |
|--------------------------------|-----------------------------------------------------------------------------------------|
| Switching output <sup>1)</sup> | PNP/NPN, switchable                                                                     |
| Switching function             | Window comparator, Threshold value comparator, Threshold value with variable hysteresis |
| Switching element function     | N/C or N/O contact, switchable                                                          |
| Switch-on time                 | 3 ms                                                                                    |
| Switch-off time                | 3 ms                                                                                    |
| Max. output current            | 100                                                                                     |

1) Second PNP output can only be activated via IO-Link®.

## Datasheet

### Analogue output

|                                         |                   |
|-----------------------------------------|-------------------|
| Analogue output                         | 0 - 10 V, 1 - 5 V |
| Output characteristic curve start value | 0 V               |
| Output characteristic curve end value   | 10 V              |
| Accuracy analogue output in $\pm$ %FS   | 1.5 %FS           |
| Linearity error in $\pm$ %FS            | 0.3               |
| Rise time                               | 6 ms              |
| Min. load resistance voltage output     | 20 kOhm           |

### Measured value display

|                           |         |
|---------------------------|---------|
| Display range start value | 0 %FS   |
| Display range end value   | 100 %FS |

### Output, additional data

|                              |           |
|------------------------------|-----------|
| Short circuit current rating | yes       |
| Overload protection          | Available |

### IO-Link® device to IEC 61131-9

|                                     |                                                                                                                |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Protocol                            | IO-Link®                                                                                                       |
| IO-Link, revision ID                | V1.1                                                                                                           |
| IO-Link, device profile             | Firmware update, Function locator, Function Product URI, Function Quantity detection, Smart sensor - SSP 4.1.1 |
| IO-Link, transmission rate          | COM3                                                                                                           |
| IO-Link, SIO-Mode support           | Yes                                                                                                            |
| IO-Link, port type                  | Class A                                                                                                        |
| IO-Link, process data length output | 0 bit                                                                                                          |
| IO-Link, process data length input  | 32 bit                                                                                                         |
| IO-Link, Process data content IN    | Pressure measured value 16 bit MDC, Pressure monitoring 2 bit SSC                                              |
| IO-Link, Service data IN            | Temperature 16 bit                                                                                             |
| IO-Link, minimum cycle time         | 0.9 ms                                                                                                         |
| IO-Link, Data storage required      | 0.5 KB                                                                                                         |

### Electronics

|                                            |                                |
|--------------------------------------------|--------------------------------|
| Operational voltage range DC <sup>1)</sup> | 15 ... 30 V                    |
| Reverse polarity protection                | For all electrical connections |

1) For IO-Link® 18 - 30 V

### Electromechanics

|                                                      |                                                                          |
|------------------------------------------------------|--------------------------------------------------------------------------|
| Electrical connection 1, connection type             | Plugs                                                                    |
| Electrical connection 1, connector system            | M8x1, A-coded, to EN 61076-2-104                                         |
| Electrical connection 1, number of connections/cores | 3, 4                                                                     |
| Electrical connection 1, type of mounting            | Snap-locking, Screw-type lock, Not rotatable                             |
| Electrical connection 1, compatible type of mounting | Compatible with latching lock, Compatible with rotatable screw-type lock |
| Material connector housing                           | Nickel-plated brass                                                      |

## Datasheet

## Electromechanics

|                                                      |                                           |
|------------------------------------------------------|-------------------------------------------|
| Electrical connection 1, connection type             | Plugs                                     |
| Electrical connection 1, connector system            | M12x1, A-coded to EN 61076-2-101          |
| Electrical connection 1, number of connections/cores | 4                                         |
| Electrical connection 1, type of mounting            | Screw-type lock, Not rotatable            |
| Electrical connection 1, compatible type of mounting | Compatible with rotatable screw-type lock |
| Material connector housing                           | Nickel-plated brass                       |

## Mechanical components

|                                     |                                            |                  |      |
|-------------------------------------|--------------------------------------------|------------------|------|
| Pneumatic connection                | Male thread G1/8                           | QS-4             | QS-6 |
| Type of mounting                    | Either:, Via male thread, With accessories | With accessories |      |
| Mounting position                   | optional                                   |                  |      |
| Product weight                      | 45 g                                       | 30 g             |      |
| Material housing                    | PA-reinforced                              |                  |      |
| Material in contact with the medium | Stainless steel, NBR, PA-reinforced        |                  |      |

## Display, operation

|                               |                                          |                    |
|-------------------------------|------------------------------------------|--------------------|
| Display type                  | Illuminated LCD blue                     | LED indicator      |
| Displayable units             | MPa, bar, kPa, psi                       | –                  |
| Ready status indication       | Through backlighting                     | Green LED          |
| Switching status indication   | –                                        | Yellow LED         |
| Setting options               | IO-Link®, Teach-in, Via display and keys | IO-Link®, Teach-in |
| Protection against tampering  | IO-Link, PIN code                        | IO-Link            |
| Setting range threshold value | 0 ... 100%                               |                    |
| Setting range hysteresis      | 0 ... 90%                                |                    |

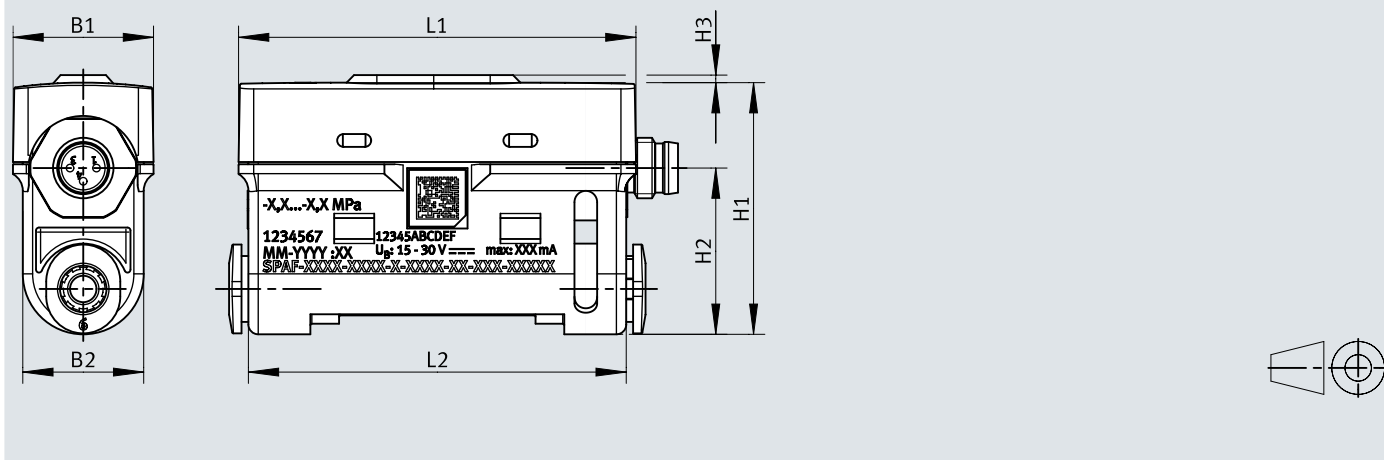
## Immission, emission

|                                                    |                                                                                                                                                       |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Degree of protection                               | IP65                                                                                                                                                  |
| Corrosion resistance class CRC <sup>1)</sup>       | 2 - Moderate corrosion stress                                                                                                                         |
| LABS (PWIS) conformity                             | VDMA24364-B1/B2-L                                                                                                                                     |
| Suitability for the production of Li-ion batteries | Metals with more than 1% by mass of copper are excluded from use. Exceptions are printed circuit boards, cables, electrical plug connectors and coils |
| Cleanroom class                                    | Class 4 according to ISO 14644-1                                                                                                                      |

1) More information [www.festo.com/x/topic/kbk](http://www.festo.com/x/topic/kbk)

## Dimensions

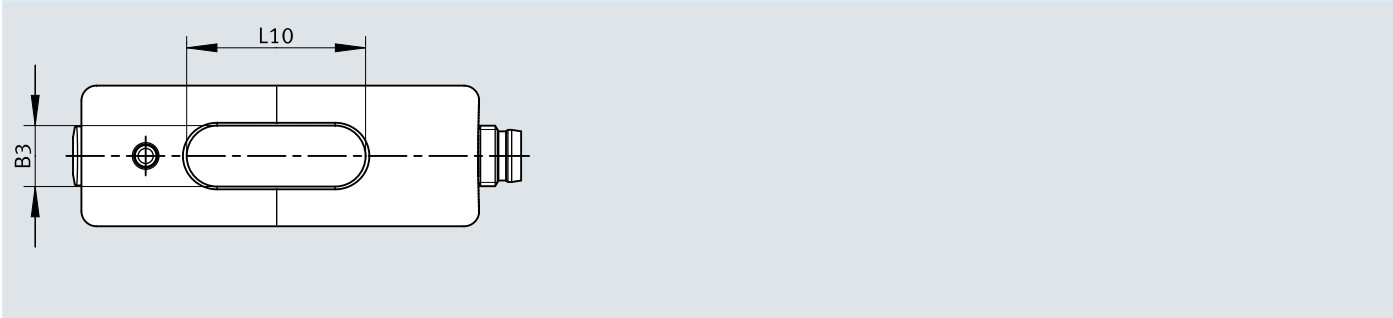
Dimensions – SPAF-...

Download CAD data [www.festo.com](http://www.festo.com)

|          | B1   | B2 | H1   | H2 | H3 | L1   | L2 |
|----------|------|----|------|----|----|------|----|
| SPAF-... | 18,6 | 16 | 52,6 | 50 | 1  | 52,6 | 50 |

Dimensions

Dimensions – SPAF-...-L-... [Download CAD data](#) [www.festo.com](http://www.festo.com)



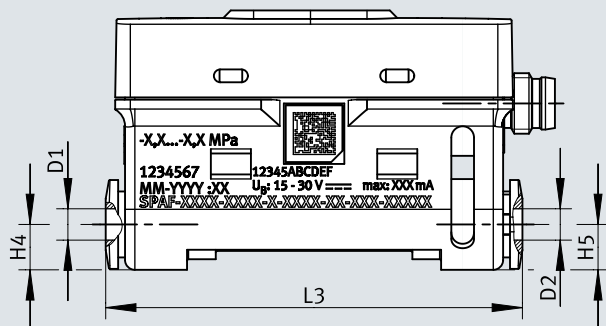
|                | B3 | L10 |
|----------------|----|-----|
| SPAF-...-L-... | 8  | 24  |



## Dimensions

Dimensions – SPAF-...-Q-...-...

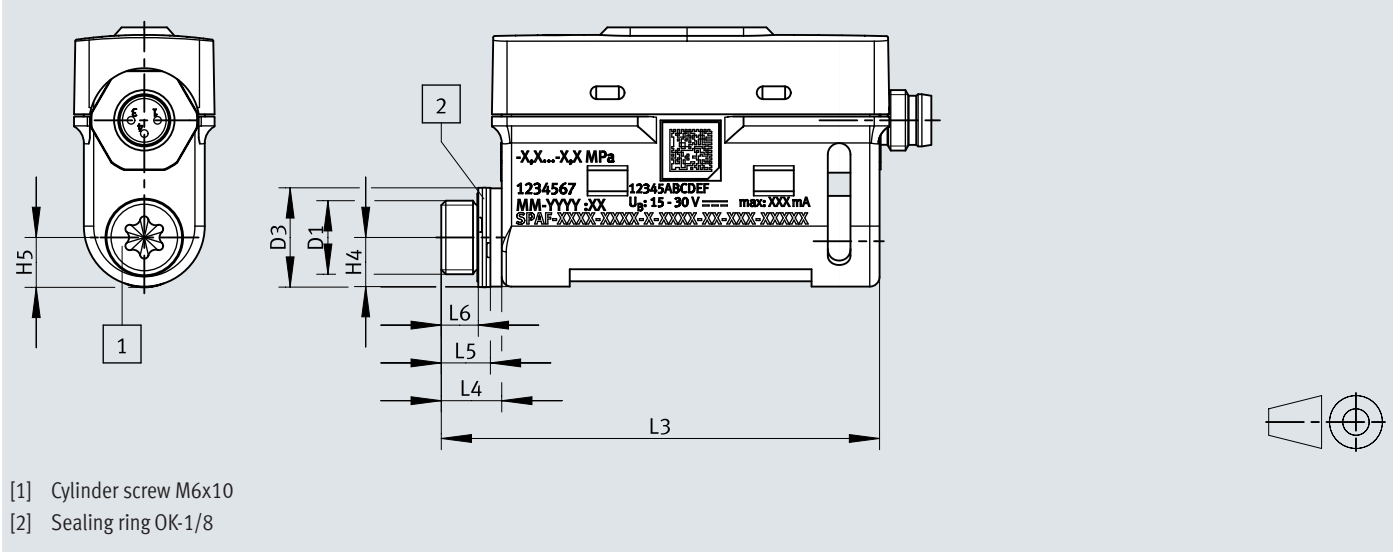
Download CAD data [www.festo.com](http://www.festo.com)



|                 | D1 | D2 | H4 | H5 | L3   |
|-----------------|----|----|----|----|------|
| SPAF-...-Q4-... | 4  | 4  | 6  | 6  | 54,4 |
| SPAF-...-Q6-... | 6  | 6  |    |    |      |

Dimensions

Dimensions – SPAF-...-G18M-... Download CAD data [www.festo.com](http://www.festo.com)

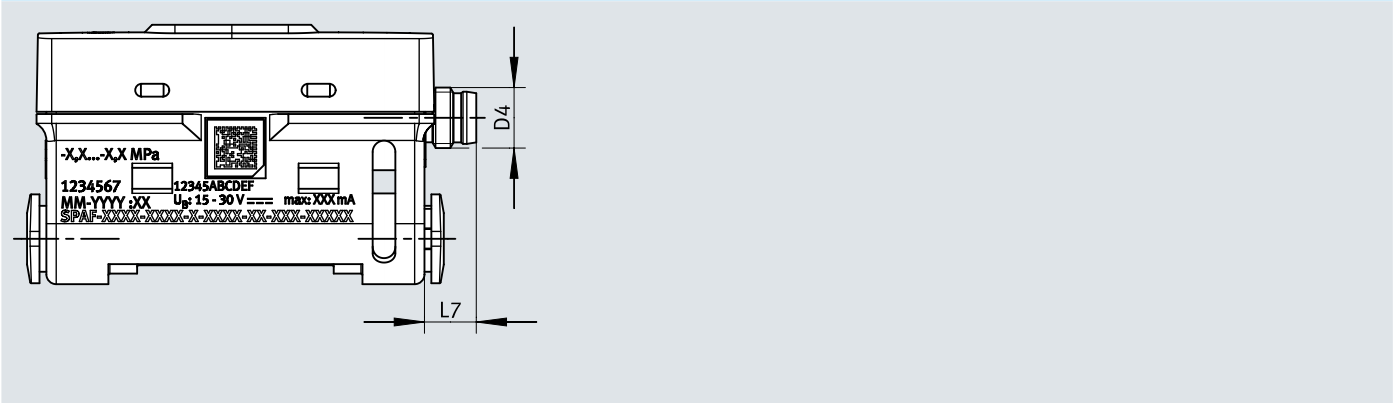


|                   | D1   | D3<br>ø | H4  | H5  | L3 | L4 | L5  | L6  |
|-------------------|------|---------|-----|-----|----|----|-----|-----|
| SPAF-...-G18M-... | G1/8 | 13,2    | 6,5 | 6,5 | 58 | 8  | 6,5 | 4,9 |

Dimensions

Dimensions – SPAF-...-M8-...

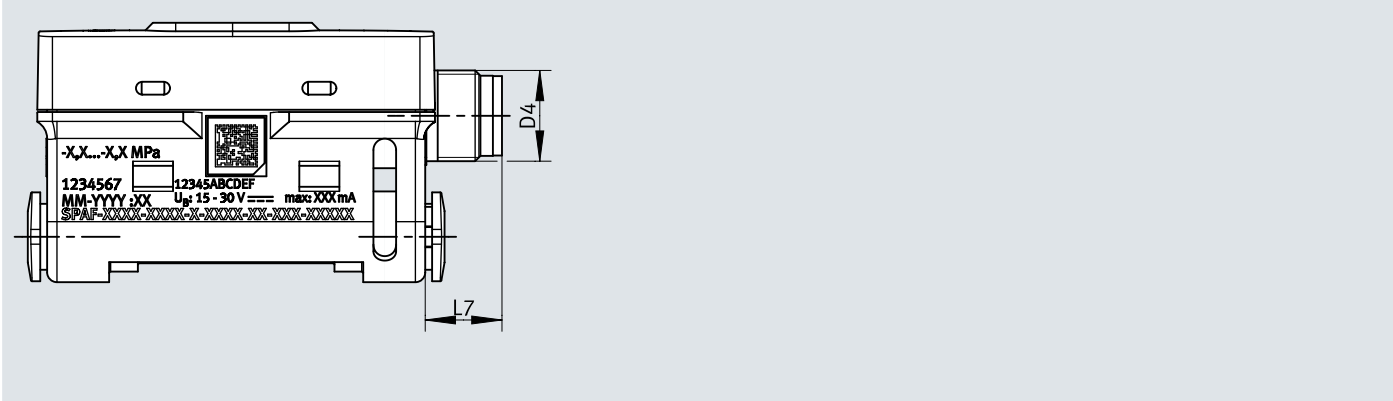
Download CAD data [www.festo.com](http://www.festo.com)



|                 | D4   | L7  |
|-----------------|------|-----|
| SPAF-...-M8-... | M8x1 | 6,9 |

Dimensions

Dimensions – SPAF-...-M12-... [Download CAD data](#) [www.festo.com](http://www.festo.com)

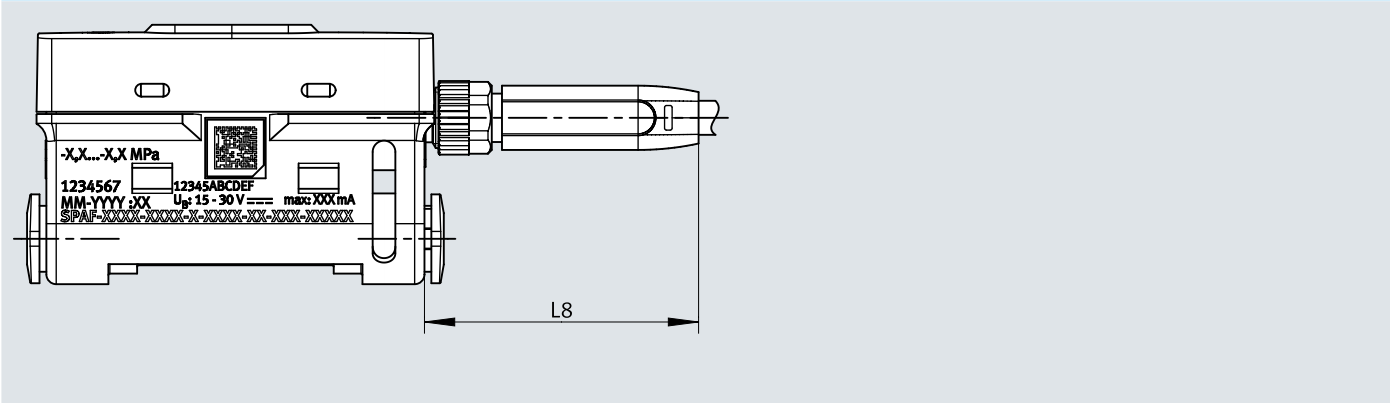


|                  | D4    | L7   |
|------------------|-------|------|
| SPAF-...-M12-... | M12x1 | 10,2 |

Dimensions

Dimensions – SPAF-...-M8-...S

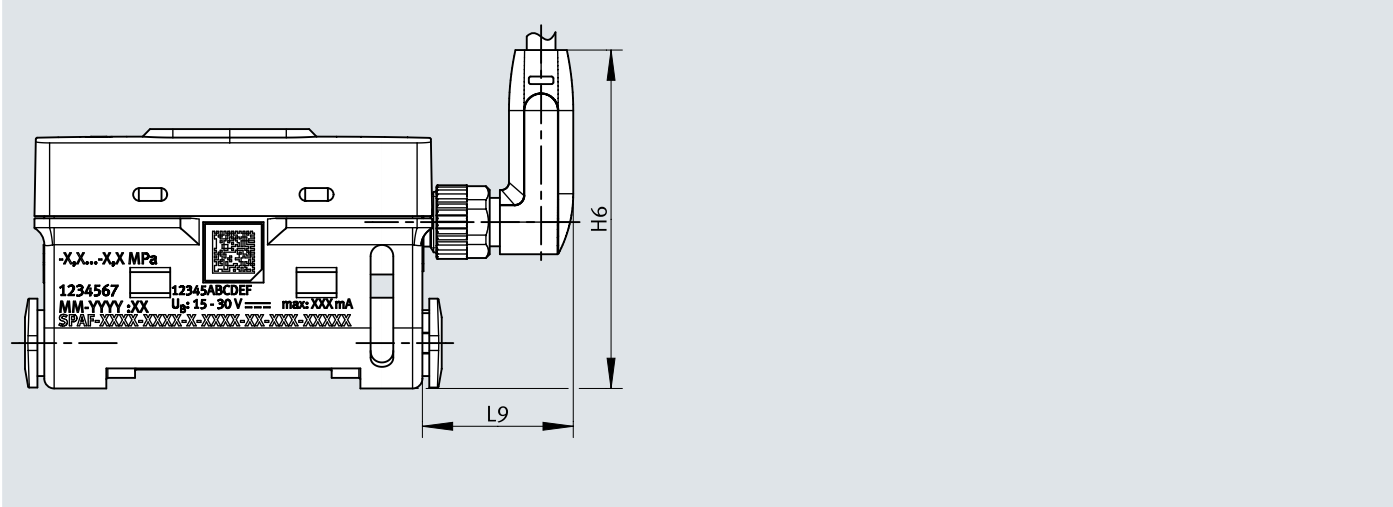
Download CAD data [www.festo.com](http://www.festo.com)



|                  |    |
|------------------|----|
|                  | L8 |
| SPAF-...-M8-...S | 36 |

Dimensions

Dimensions – SPAF-...-M8-...A Download CAD data [www.festo.com](http://www.festo.com)

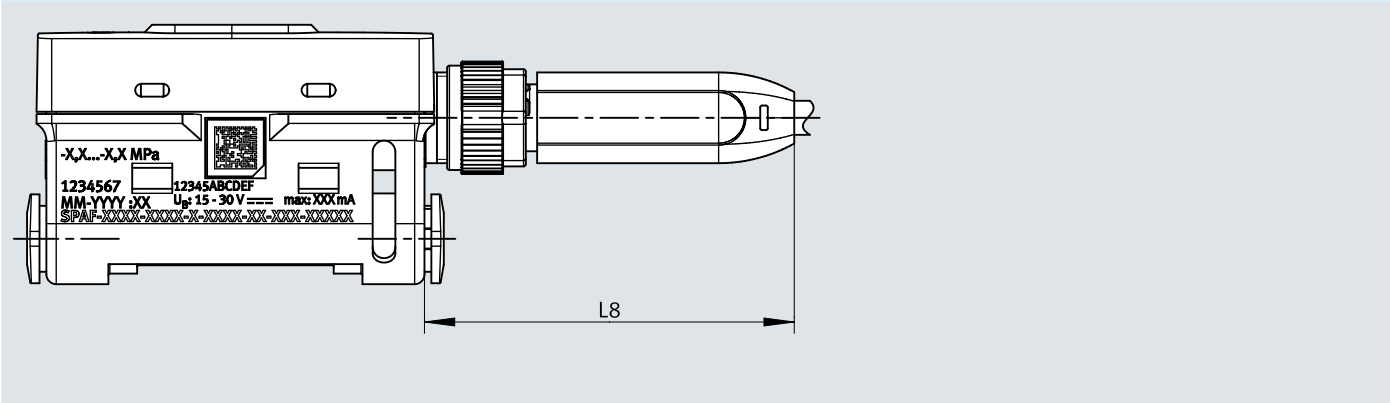


|                  | H6   | L9 |
|------------------|------|----|
| SPAF-...-M8-...A | 44,8 | 20 |

Dimensions

Dimensions – SPAF-...-M12-...S

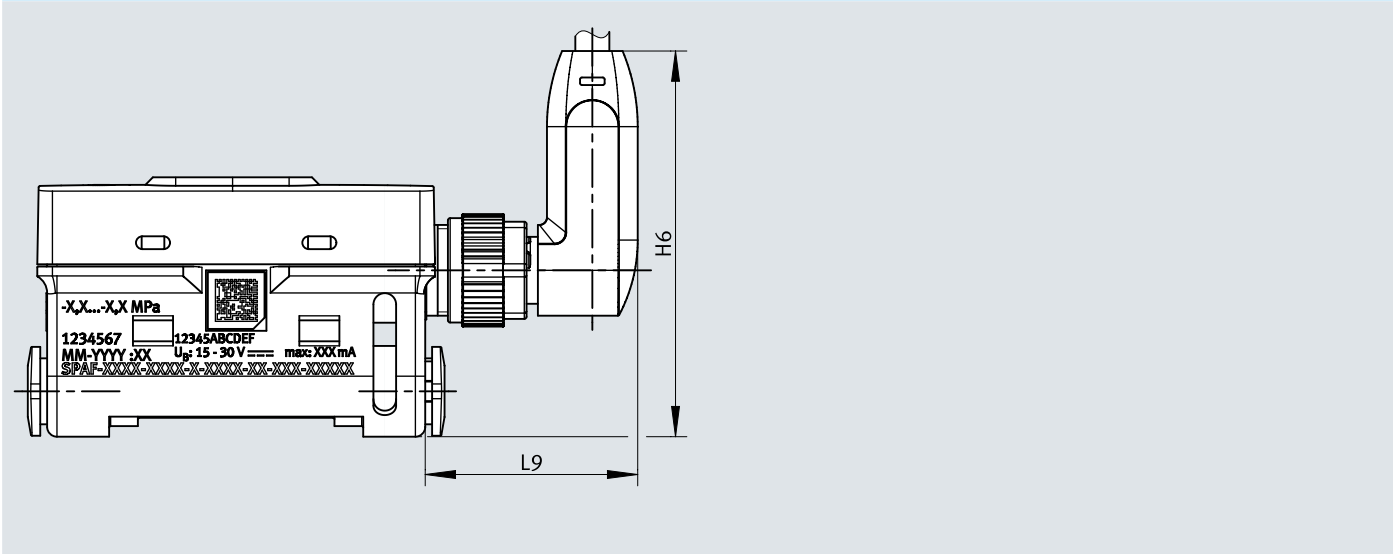
Download CAD data [www.festo.com](http://www.festo.com)



|                   |    |
|-------------------|----|
|                   | L8 |
| SPAF-...-M12-...S | 49 |

Dimensions

Dimensions – SPAF-...-M12-...A Download CAD data [www.festo.com](http://www.festo.com)



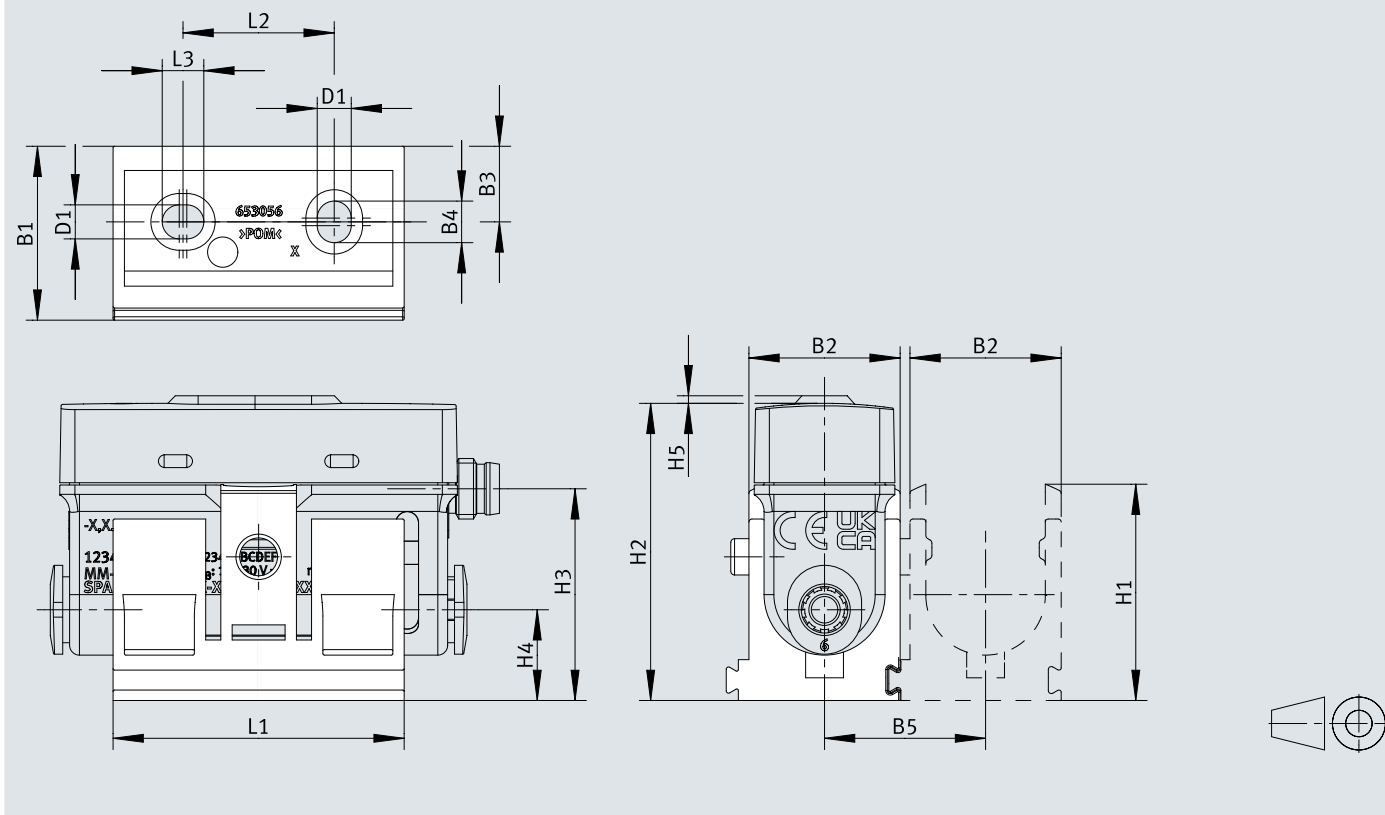
|                   |    |    |
|-------------------|----|----|
|                   | H6 | L9 |
| SPAF-...-M12-...A | 51 | 28 |



## Dimensions

Dimensions – SPAF-...-MC-...

Download CAD data [www.festo.com](http://www.festo.com)

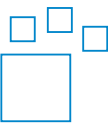


|                 | B1 | B2 | B3 | B4  | B5   | D1  | H1   | H2   | H3 | H4 | H5 | L1   | L2 | L3  |
|-----------------|----|----|----|-----|------|-----|------|------|----|----|----|------|----|-----|
| SPAF-...-MC-... | 23 | 20 | 10 | 5,5 | 21,3 | 4,5 | 28,6 | 39,3 | 28 | 12 | 1  | 38,5 | 20 | 5,5 |

## Ordering data

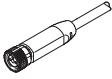
| Ordering data with LCD display                                                   |                                           |                      |                     |                                            |                  |                              |
|----------------------------------------------------------------------------------|-------------------------------------------|----------------------|---------------------|--------------------------------------------|------------------|------------------------------|
|                                                                                  | Electrical connection 1, connector system | Pneumatic connection | Switching output    | Type of mounting                           | Part no.         | Type                         |
|  | M12x1, A-coded to EN 61076-2-101          | Male thread G1/8     | PNP/NPN, switchable | Either:, Via male thread, With accessories | 8181237          | SPAF-P10R-G18M-L-PNLK-VB-M12 |
|                                                                                  |                                           |                      |                     |                                            | 8181238          | SPAF-B11R-G18M-L-PNLK-VB-M12 |
|                                                                                  |                                           |                      |                     |                                            | 8181236          | SPAF-V1R-G18M-L-PNLK-VB-M12  |
|                                                                                  |                                           | QS-4                 |                     | With accessories                           | 8181230          | SPAF-V1R-Q4-L-PNLK-VB-M12    |
|                                                                                  |                                           |                      |                     |                                            | 8181232          | SPAF-B11R-Q4-L-PNLK-VB-M12   |
|                                                                                  |                                           |                      |                     |                                            | 8181231          | SPAF-P10R-Q4-L-PNLK-VB-M12   |
|                                                                                  |                                           |                      |                     |                                            | 8181235          | SPAF-B11R-Q6-L-PNLK-VB-M12   |
|                                                                                  |                                           |                      |                     |                                            | 8181233          | SPAF-V1R-Q6-L-PNLK-VB-M12    |
|                                                                                  |                                           |                      |                     |                                            | 8181234          | SPAF-P10R-Q6-L-PNLK-VB-M12   |
|                                                                                  | M8x1, A-coded, to EN 61076-2-104          | Male thread G1/8     |                     | Either:, Via male thread, With accessories | 8181228          | SPAF-P10R-G18M-L-PNLK-VB-M8  |
|                                                                                  |                                           |                      |                     |                                            | 8181227          | SPAF-V1R-G18M-L-PNLK-VB-M8   |
|                                                                                  |                                           |                      |                     | Via male thread                            | With accessories | 8181229                      |
|                                                                                  |                                           | 8181223              |                     |                                            |                  | SPAF-B11R-Q4-L-PNLK-VB-M8    |
|                                                                                  |                                           | 8181222              |                     |                                            |                  | SPAF-P10R-Q4-L-PNLK-VB-M8    |
|                                                                                  |                                           | 8181221              |                     |                                            |                  | SPAF-V1R-Q4-L-PNLK-VB-M8     |
|                                                                                  |                                           | 8181226              |                     |                                            |                  | SPAF-B11R-Q6-L-PNLK-VB-M8    |
|                                                                                  |                                           | 8181225              |                     |                                            |                  | SPAF-P10R-Q6-L-PNLK-VB-M8    |
|                                                                                  |                                           | 8181224              |                     |                                            |                  | SPAF-V1R-Q6-L-PNLK-VB-M8     |

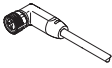
| Ordering information with LED display                                              |                                           |                      |                     |                                            |                         |                           |
|------------------------------------------------------------------------------------|-------------------------------------------|----------------------|---------------------|--------------------------------------------|-------------------------|---------------------------|
|                                                                                    | Electrical connection 1, connector system | Pneumatic connection | Switching output    | Type of mounting                           | Part no.                | Type                      |
|  | M12x1, A-coded to EN 61076-2-101          | Male thread G1/8     | PNP/NPN, switchable | Either:, Via male thread, With accessories | 8181220                 | SPAF-B11R-G18M-N-PNLK-M12 |
|                                                                                    |                                           |                      |                     |                                            | 8181218                 | SPAF-V1R-G18M-N-PNLK-M12  |
|                                                                                    |                                           |                      |                     | Via male thread With accessories           | 8181219                 | SPAF-P10R-G18M-N-PNLK-M12 |
|                                                                                    |                                           | 8181213              |                     |                                            | SPAF-P10R-Q4-N-PNLK-M12 |                           |
|                                                                                    |                                           | 8181214              |                     |                                            | SPAF-B11R-Q4-N-PNLK-M12 |                           |
|                                                                                    |                                           | 8181212              |                     |                                            | SPAF-V1R-Q4-N-PNLK-M12  |                           |
|                                                                                    |                                           | 8181217              |                     |                                            | SPAF-B11R-Q6-N-PNLK-M12 |                           |
|                                                                                    |                                           | 8181216              |                     |                                            | SPAF-P10R-Q6-N-PNLK-M12 |                           |
|                                                                                    |                                           | 8181215              |                     |                                            | SPAF-V1R-Q6-N-PNLK-M12  |                           |
|                                                                                    | M8x1, A-coded, to EN 61076-2-104          | Male thread G1/8     |                     | Either:, Via male thread, With accessories | 8181209                 | SPAF-V1R-G18M-N-PNLK-M8   |
|                                                                                    |                                           |                      |                     |                                            | 8181210                 | SPAF-P10R-G18M-N-PNLK-M8  |
|                                                                                    |                                           |                      |                     | Via male thread With accessories           | 8181211                 | SPAF-B11R-G18M-N-PNLK-M8  |
|                                                                                    |                                           | 8181205              |                     |                                            | SPAF-B11R-Q4-N-PNLK-M8  |                           |
|                                                                                    |                                           | 8181204              |                     |                                            | SPAF-P10R-Q4-N-PNLK-M8  |                           |
|                                                                                    |                                           | 8181203              |                     |                                            | SPAF-V1R-Q4-N-PNLK-M8   |                           |
|                                                                                    |                                           | 8181207              |                     |                                            | SPAF-P10R-Q6-N-PNLK-M8  |                           |
|                                                                                    |                                           | 8181206              |                     |                                            | SPAF-V1R-Q6-N-PNLK-M8   |                           |
|                                                                                    |                                           | 8181208              |                     |                                            | SPAF-B11R-Q6-N-PNLK-M8  |                           |

| Ordering information – Modular product system                                      |                                        |                   |                                                                    |                              |          |       |
|------------------------------------------------------------------------------------|----------------------------------------|-------------------|--------------------------------------------------------------------|------------------------------|----------|-------|
|                                                                                    | End value for pressure measuring range | Analogue output   | Electrical connection 1, connector system                          | Pneumatic connection         | Part no. | Type  |
|  | 10 bar                                 | 0 - 10 V, 1 - 5 V | M12x1, A-coded to EN 61076-2-101, M8x1, A-coded, to EN 61076-2-104 | Male thread G1/8, QS-4, QS-6 | 8181300  | SPAF- |

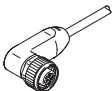
## Accessories

| Mounting clip SAMH                                                                |                               |                          |                   |                                                                                                                                                       |          |              |
|-----------------------------------------------------------------------------------|-------------------------------|--------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------|
|                                                                                   | Type of mounting              | Information on materials | Note on materials | Suitability for the production of Li-ion batteries                                                                                                    | Part no. | Type         |
|  | Via through-hole for M4 screw | POM                      | RoHS-compliant    | Metals with more than 1% by mass of copper are excluded from use. Exceptions are printed circuit boards, cables, electrical plug connectors and coils | 8181299  | SAMH-PF-MC-1 |
|                                                                                   |                               |                          |                   |                                                                                                                                                       |          |              |

| Connecting cable M8x1, straight socket                                            |                          |              |                |          |                       |  |
|-----------------------------------------------------------------------------------|--------------------------|--------------|----------------|----------|-----------------------|--|
|                                                                                   | Cable structure          | Cable length | Product weight | Part no. | Type                  |  |
|  | 3 x 0.25 mm <sup>2</sup> | 2.5 m        | 50 g           | 8078223  | NEBA-M8G3-U-2.5-N-LE3 |  |
|                                                                                   |                          | 5 m          | 96 g           | 8078224  | NEBA-M8G3-U-5-N-LE3   |  |
|                                                                                   | 4 x 0.25 mm <sup>2</sup> | 2.5 m        | 66 g           | 8078227  | NEBA-M8G4-U-2.5-N-LE4 |  |
|                                                                                   |                          | 5 m          | 129 g          | 8078228  | NEBA-M8G4-U-5-N-LE4   |  |

| Connecting cable M8x1, angled socket                                                |                          |              |                |          |                       |  |
|-------------------------------------------------------------------------------------|--------------------------|--------------|----------------|----------|-----------------------|--|
|                                                                                     | Cable structure          | Cable length | Product weight | Part no. | Type                  |  |
|  | 3 x 0.25 mm <sup>2</sup> | 2.5 m        | 50 g           | 8078230  | NEBA-M8W3-U-2.5-N-LE3 |  |
|                                                                                     |                          | 5 m          | 96 g           | 8078231  | NEBA-M8W3-U-5-N-LE3   |  |
|                                                                                     | 4 x 0.25 mm <sup>2</sup> | 2.5 m        | 66 g           | 8078233  | NEBA-M8W4-U-2.5-N-LE4 |  |
|                                                                                     |                          | 5 m          | 129 g          | 8078234  | NEBA-M8W4-U-5-N-LE4   |  |

| Connecting cable M12x1, straight socket                                             |                          |              |                |          |                        |  |
|-------------------------------------------------------------------------------------|--------------------------|--------------|----------------|----------|------------------------|--|
|                                                                                     | Cable structure          | Cable length | Product weight | Part no. | Type                   |  |
|  | 3 x 0.25 mm <sup>2</sup> | 2.5 m        | 55 g           | 8078236  | NEBA-M12G5-U-2.5-N-LE3 |  |
|                                                                                     |                          | 5 m          | 102 g          | 8078237  | NEBA-M12G5-U-5-N-LE3   |  |
|                                                                                     | 4 x 0.25 mm <sup>2</sup> | 2.5 m        | 72 g           | 8078239  | NEBA-M12G5-U-2.5-N-LE4 |  |
|                                                                                     |                          | 5 m          | 134 g          | 8078240  | NEBA-M12G5-U-5-N-LE4   |  |

| Connecting cable M12x1, angled socket                                               |                          |              |                |          |                        |  |
|-------------------------------------------------------------------------------------|--------------------------|--------------|----------------|----------|------------------------|--|
|                                                                                     | Cable structure          | Cable length | Product weight | Part no. | Type                   |  |
|  | 3 x 0.25 mm <sup>2</sup> | 2.5 m        | 56 g           | 8078245  | NEBA-M12W5-U-2.5-N-LE3 |  |
|                                                                                     |                          | 5 m          | 103 g          | 8078246  | NEBA-M12W5-U-5-N-LE3   |  |
|                                                                                     | 4 x 0.25 mm <sup>2</sup> | 2.5 m        | 73 g           | 8078248  | NEBA-M12W5-U-2.5-N-LE4 |  |
|                                                                                     |                          | 5 m          | 135 g          | 8078249  | NEBA-M12W5-U-5-N-LE4   |  |