

## Pressure transmitter SPTW

**FESTO**



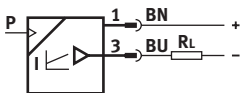
## Characteristics

### At a glance

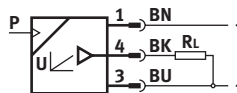
- Sensor versions: piezoresistive pressure sensor or metal thin-film pressure sensor
- Measured variable: Relative pressure
- Operating medium: Liquid media and gaseous media
- Sealing-free: Pressure measuring cell and interfaces in stainless steel
- Degree of protection IP67

### Electrical output 1

[A] 4 ... 20 mA



[VD] 0.1 ... 10 V



## Type code

|      |                      |  |
|------|----------------------|--|
| 001  | Series               |  |
| SPTW | Pressure transmitter |  |

|      |                          |  |
|------|--------------------------|--|
| 002  | Pressure measuring range |  |
| B2   | -1 ... 1 bar             |  |
| B11  | -1 ... 10 bar            |  |
| P2   | 0 ... 2 bar              |  |
| P6   | 0 ... 6 bar              |  |
| P10  | 0 ... 10 bar             |  |
| P16  | 0 ... 16 bar             |  |
| P25  | 0 ... 25 bar             |  |
| P50  | 0 ... 50 bar             |  |
| P100 | 0 ... 100 bar            |  |

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

|     |                      |  |
|-----|----------------------|--|
| 004 | Pneumatic connection |  |
| G14 | G1/4                 |  |

|     |                     |  |
|-----|---------------------|--|
| 005 | Electrical output 1 |  |
| A   | 4 ... 20 mA         |  |
| VD  | 0.1 ... 10 V        |  |

|     |                       |  |
|-----|-----------------------|--|
| 006 | Electrical connection |  |
| M12 | Plug M12, A-coded     |  |

## Datasheet

## General technical data

|                                                          |                                                     |
|----------------------------------------------------------|-----------------------------------------------------|
| Certification                                            | RCM compliance mark, c UL us - Listed (OL)          |
| CE marking (see declaration of conformity) <sup>1)</sup> | As per EU EMC directive, As per EU RoHS directive   |
| UKCA marking (see declaration of conformity)             | To UK instructions for EMC, To UK RoHS instructions |
| Note on materials                                        | RoHS compliant                                      |

1) For information about the area of use, see the declaration of conformity at: [www.festo.com/catalogue/sptw](http://www.festo.com/catalogue/sptw) → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or industrial environments as well as in small businesses, additional measures for reducing the emitted interference may be necessary.

## Input signal, measuring element

| Pressure measuring range               | -1 ... 1 bar                                                             | -1 ... 10 bar                   | 0 ... 2 bar                    | 0 ... 6 bar | 0 ... 10 bar                    | 0 ... 16 bar | 0 ... 25 bar | 0 ... 50 bar | 0 ... 100 bar |
|----------------------------------------|--------------------------------------------------------------------------|---------------------------------|--------------------------------|-------------|---------------------------------|--------------|--------------|--------------|---------------|
| Measured variable                      | Relative pressure                                                        |                                 |                                |             |                                 |              |              |              |               |
| Method of measurement                  | Piezoresistive pressure sensor                                           | Metal thin-film pressure sensor | Piezoresistive pressure sensor |             | Metal thin-film pressure sensor |              |              |              |               |
| Pressure measuring range initial value | -0.1 MPa                                                                 |                                 | 0 MPa                          |             |                                 |              |              |              |               |
| Pressure measuring range initial value | -1 bar                                                                   |                                 | 0 bar                          |             |                                 |              |              |              |               |
| Pressure measuring range initial value | -14.5 psi                                                                |                                 | 0 psi                          |             |                                 |              |              |              |               |
| Pressure measuring range end value     | 0.1 MPa                                                                  | 1 MPa                           | 0.2 MPa                        | 0.6 MPa     | 1 MPa                           | 1.6 MPa      | 2.5 MPa      | 5 MPa        | 10 MPa        |
| Pressure measuring range end value     | 1 bar                                                                    | 10 bar                          | 2 bar                          | 6 bar       | 10 bar                          | 16 bar       | 25 bar       | 50 bar       | 100 bar       |
| Pressure measuring range end value     | 14.5 psi                                                                 | 145 psi                         | 29 psi                         | 87 psi      | 145 psi                         | 232 psi      | 362.5 psi    | 725 psi      | 1,450 psi     |
| Max. overload pressure                 | 2 bar                                                                    | 20 bar                          | 4 bar                          | 12 bar      | 20 bar                          | 32 bar       | 50 bar       | 100 bar      | 200 bar       |
| Overload pressure                      | 0.2 MPa                                                                  | 2 MPa                           | 0.4 MPa                        | 1.2 MPa     | 2 MPa                           | 3.2 MPa      | 5 MPa        | 10 MPa       | 20 MPa        |
| Overload pressure                      | 2 bar                                                                    | 20 bar                          | 4 bar                          | 12 bar      | 20 bar                          | 32 bar       | 50 bar       | 100 bar      | 200 bar       |
| Overload pressure                      | 29 psi                                                                   | 290 psi                         | 58 psi                         | 174 psi     | 290 psi                         | 464 psi      | 725 psi      | 1,450 psi    | 2,900 psi     |
| Operating medium                       | Compressed air as per ISO 8573-1:2010 [---], Liquid media, Gaseous media |                                 |                                |             |                                 |              |              |              |               |
| Temperature of medium                  | 0 ... 80°C                                                               |                                 |                                |             |                                 |              |              |              |               |
| Ambient temperature                    | 0 ... 80°C                                                               |                                 |                                |             |                                 |              |              |              |               |

## Output, general

|                                  |         |
|----------------------------------|---------|
| Accuracy in ± % FS <sup>1)</sup> | 1 %FS   |
| Repetition accuracy in ± %FS     | 0.1 %FS |

1) % FS = % of the measuring range (full scale)

## Analog output

|                                         |                 |                   |
|-----------------------------------------|-----------------|-------------------|
| Electrical output 1                     | 4 ... 20 mA [A] | 0.1 ... 10 V [VD] |
| Analog output                           | 4 - 20 mA       | 0.1 - 10 V        |
| Linearity error in ± % FS <sup>1)</sup> | 0.5 %FS         |                   |

1) % FS = % of the measuring range (full scale)

## Output, additional data

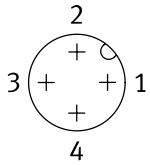
|                          |     |
|--------------------------|-----|
| Short-circuit protection | Yes |
|--------------------------|-----|

## Electronics

|                             |                       |                   |
|-----------------------------|-----------------------|-------------------|
| Electrical output 1         | 4 ... 20 mA [A]       | 0.1 ... 10 V [VD] |
| DC operating voltage range  | 8 ... 30 V            | 14 ... 30 V       |
| Reverse polarity protection | For operating voltage |                   |

## Datasheet

### Electromechanics



SPTW-...-A  
 1: UB (operating voltage/signal+)  
 3: 0V / (signal -)

SPTW-...-VD  
 1: UB (operating voltage)  
 3: 0V (0V)  
 4: Out (Analogue output)

|                                                |                                           |
|------------------------------------------------|-------------------------------------------|
| Electrical connection 1, connection type       | Plug                                      |
| Electrical connection 1, connection technology | M12x1 A-coded as per EN 61076-2-101       |
| Electrical connection 1, number of pins/wires  | 4                                         |
| Electrical connection 1, occupied pins/wires   | 2 ... 3                                   |
| Electrical connection 1, type of mounting      | Screw-type lock, not rotatable            |
| Electrical connection 1, type of mounting      | Compatible with rotatable screw-type lock |
| Material of plug housing                       | PA                                        |

### Mechanics

|                                                   |                                                |
|---------------------------------------------------|------------------------------------------------|
| Type of mounting                                  | With internal thread, With accessories         |
| Mounting position                                 | Any                                            |
| Pneumatic connection                              | G1/4                                           |
| Product weight                                    | 80 g                                           |
| Housing material                                  | PA, VMQ (silicone), high-alloy stainless steel |
| Materials in contact with the media <sup>1)</sup> | high-alloy stainless steel                     |

1) Group CrNiMo: 316L, from measuring range 10 bar the diaphragm consists of 13-8-PH

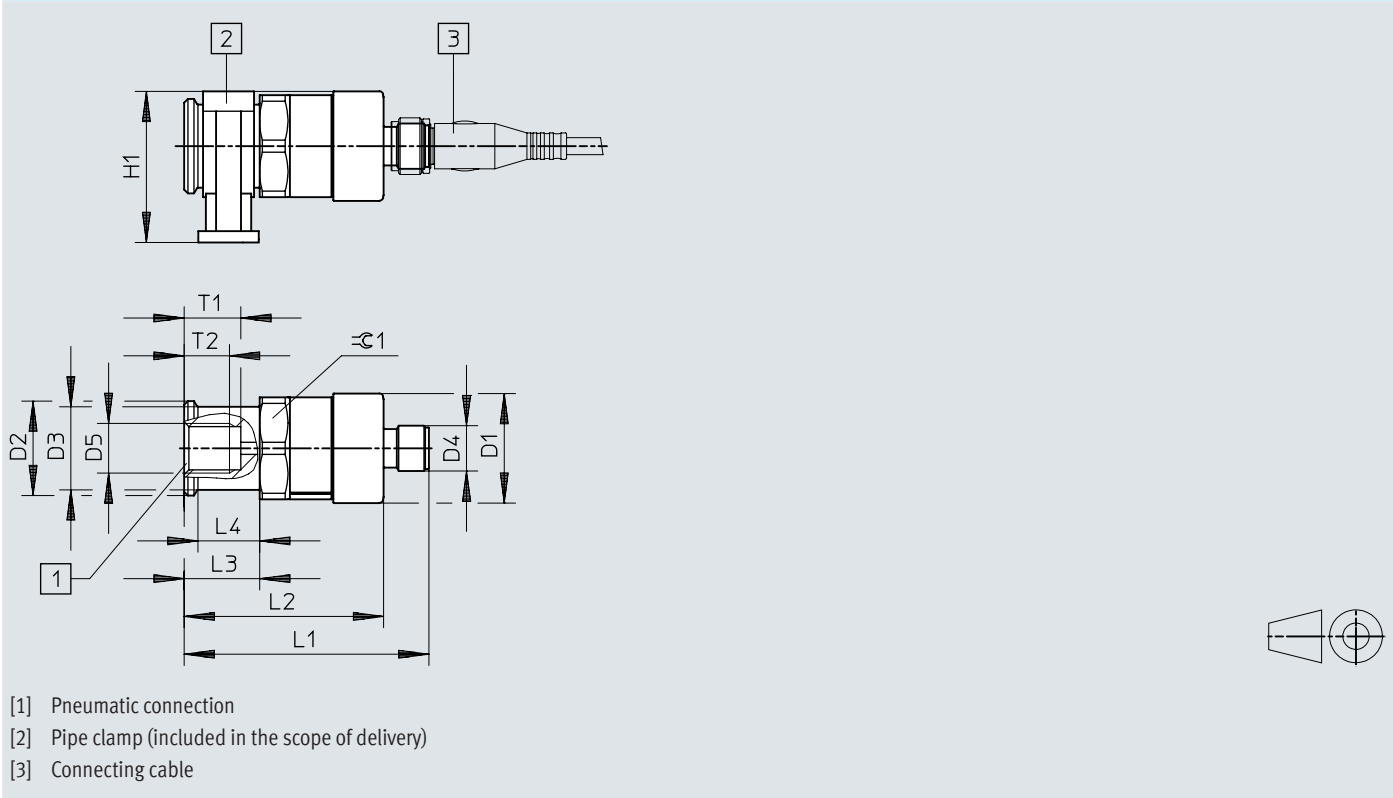
### Immission, emission

|                                                |                                        |
|------------------------------------------------|----------------------------------------|
| Degree of protection                           | IP67                                   |
| Corrosion resistance class (CRC) <sup>1)</sup> | 4 - Particularly high corrosion stress |
| LABS (PWIS) conformity                         | VDMA24364 Zone III                     |

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

Dimensions

Dimensions – Pressure transmitter Download CAD data [www.festo.com](http://www.festo.com)



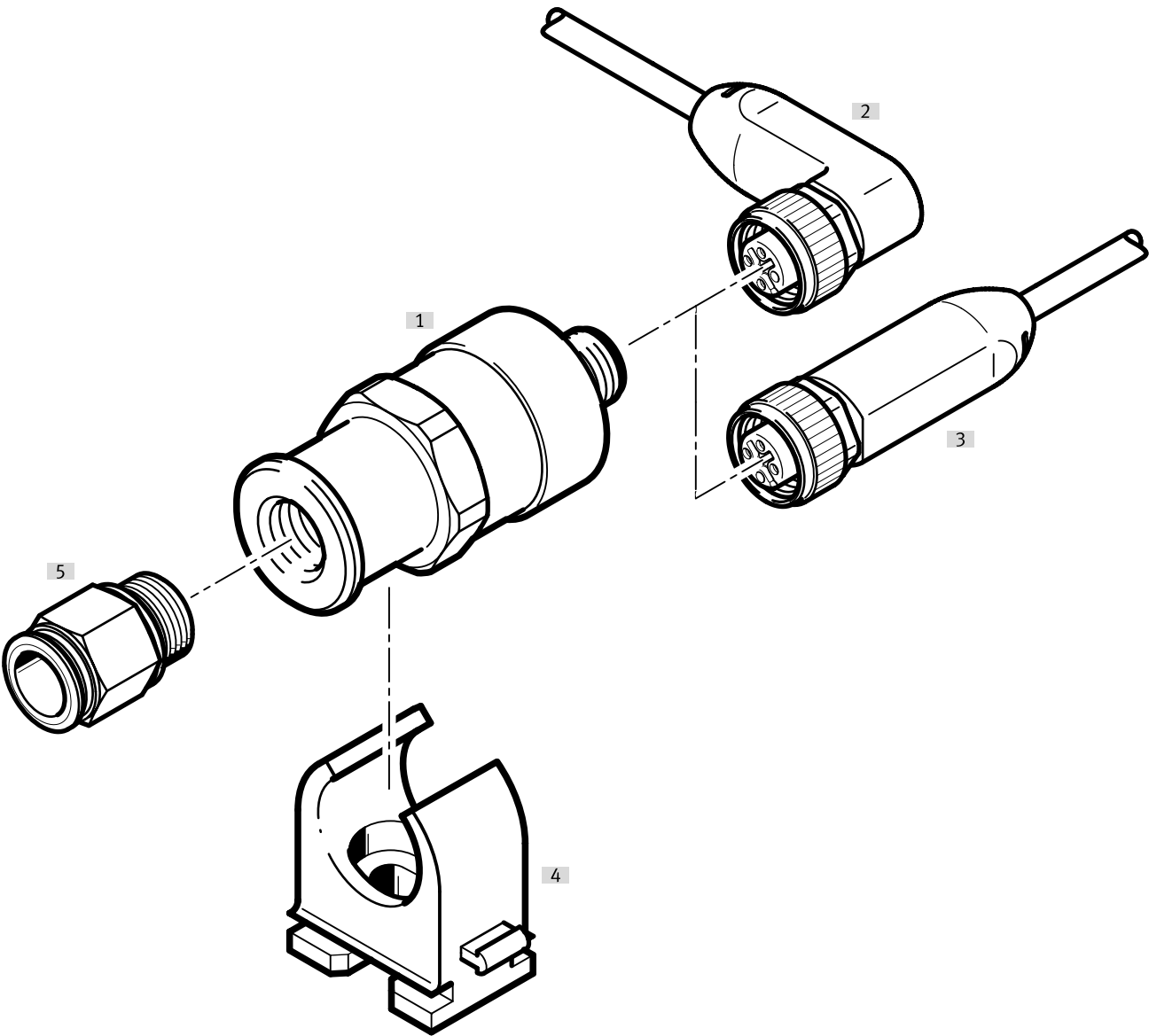
|      | D1<br>Ø | D2<br>Ø | D3<br>Ø | D4    | D5   | H1 | L1   | L2   | L3 | L4   | T1 | T2 | ≈C |
|------|---------|---------|---------|-------|------|----|------|------|----|------|----|----|----|
| SPTW | 29      | 25      | 22      | M12x1 | G1/4 | 40 | 64,8 | 52,8 | 20 | 16,5 | 15 | 12 | 27 |

## Ordering data

| Ordering data                                                                     |                          |               |                      |                                          |          |                       |
|-----------------------------------------------------------------------------------|--------------------------|---------------|----------------------|------------------------------------------|----------|-----------------------|
|                                                                                   | Pressure measuring range | Analog output | Pneumatic connection | Electrical connection 1, connection type | Part no. | Type                  |
|  | -1 ... 1 bar             | 0.1 - 10 V    | G1/4                 | Plug                                     | 8000109  | SPTW-B2R-G14-VD-M12   |
|                                                                                   |                          | 4 - 20 mA     |                      |                                          | 8000100  | SPTW-B2R-G14-A-M12    |
|                                                                                   | -1 ... 10 bar            | 0.1 - 10 V    |                      |                                          | 8000110  | SPTW-B11R-G14-VD-M12  |
|                                                                                   |                          | 4 - 20 mA     |                      |                                          | 8000101  | SPTW-B11R-G14-A-M12   |
|                                                                                   | 0 ... 2 bar              | 0.1 - 10 V    |                      |                                          | 8000111  | SPTW-P2R-G14-VD-M12   |
|                                                                                   |                          | 4 - 20 mA     |                      |                                          | 8000102  | SPTW-P2R-G14-A-M12    |
|                                                                                   | 0 ... 6 bar              | 0.1 - 10 V    |                      |                                          | 8000112  | SPTW-P6R-G14-VD-M12   |
|                                                                                   |                          | 4 - 20 mA     |                      |                                          | 8000103  | SPTW-P6R-G14-A-M12    |
|                                                                                   | 0 ... 10 bar             | 0.1 - 10 V    |                      |                                          | 8000113  | SPTW-P10R-G14-VD-M12  |
|                                                                                   |                          | 4 - 20 mA     |                      |                                          | 8000104  | SPTW-P10R-G14-A-M12   |
|                                                                                   | 0 ... 16 bar             | 0.1 - 10 V    |                      |                                          | 8000114  | SPTW-P16R-G14-VD-M12  |
|                                                                                   |                          | 4 - 20 mA     |                      |                                          | 8000105  | SPTW-P16R-G14-A-M12   |
|                                                                                   | 0 ... 25 bar             | 0.1 - 10 V    |                      |                                          | 8000115  | SPTW-P25R-G14-VD-M12  |
|                                                                                   |                          | 4 - 20 mA     |                      |                                          | 8000106  | SPTW-P25R-G14-A-M12   |
|                                                                                   | 0 ... 50 bar             | 0.1 - 10 V    |                      |                                          | 8000116  | SPTW-P50R-G14-VD-M12  |
|                                                                                   |                          | 4 - 20 mA     |                      |                                          | 8000107  | SPTW-P50R-G14-A-M12   |
|                                                                                   | 0 ... 100 bar            | 0.1 - 10 V    |                      |                                          | 8000117  | SPTW-P100R-G14-VD-M12 |
|                                                                                   |                          | 4 - 20 mA     |                      |                                          | 8000108  | SPTW-P100R-G14-A-M12  |

Peripherals overview

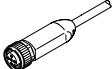
Peripherals overview



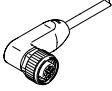
| Accessories     |                           |                                   | → Page/Internet      |
|-----------------|---------------------------|-----------------------------------|----------------------|
| Type/order code | Description               |                                   |                      |
| [1]             | Pressure transmitter      | SPTW                              | <a href="#">sptw</a> |
| [2]             | Connecting cable NEBA M12 | Angled socket                     | <a href="#">9</a>    |
| [3]             | Connecting cable NEBA M12 | Straight socket                   | <a href="#">9</a>    |
| [4]             | Pipe clamp                | Included in the scope of delivery | <a href="#">9</a>    |
| [5]             | Push-in fitting QS-1/4    | –                                 | <a href="#">9</a>    |

## Accessories

## Connecting cable M12x1 straight socket

|                                                                                   | Cable design             | 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   |
|                                                                                   | 5 x 0.25 mm <sup>2</sup> | 2.5 m        | 85 g           | 8078242  | NEBA-M12G5-U-2.5-N-LE5 |
|                                                                                   |                          | 5 m          | 142 g          | 8078243  | NEBA-M12G5-U-5-N-LE5   |

## Connecting cable M12x1 angled socket

|                                                                                   | Cable design             | 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   |

## Push-in fittings

|                                                                                   | Pneumatic connection 2 <sup>1)</sup>       | Pneumatic connection 1 | Type of mounting      | Part no. | Type     |
|-----------------------------------------------------------------------------------|--------------------------------------------|------------------------|-----------------------|----------|----------|
|  | for pneumatic tubing outside diameter 4 mm | External thread R1/4   | External hexagon SW14 | 190644   | QS-1/4-4 |
|                                                                                   | for pneumatic tubing outside diameter 6 mm |                        |                       | 153003   | QS-1/4-6 |
|                                                                                   | for pneumatic tubing outside diameter 8 mm |                        |                       | 153005   | QS-1/4-8 |

1) Temperature-dependent operating pressure -0.95 ... 14 bar

## Pipe clamp

|                                                                                     | Nominal width | Ambient temperature | Product weight | Pack size | Part no. | Type       |
|-------------------------------------------------------------------------------------|---------------|---------------------|----------------|-----------|----------|------------|
|  | 22 mm         | -25 ... 85 °C       | 5.1 g          | 10        | 550598   | PQ-RK-22-B |