

Pressure sensors SDE3, with display

FESTO



■ Five pressure measuring ranges

■ Measurement of relative or differential pressure or two independent pressure inputs

■ Switch output 2x PNP or 2x NPN

■ Numerical and graphical pressure display

■ Wide range of connection and mounting options

Specified types in accordance with ATEX directive for potentially explosive atmospheres

➔ www.festo.com/en/ex

A double bonus

The space-optimised pressure sensor SDE3 is positioned between the high-functionality pressure sensor SDE1 and the price-optimised pressure switch SDE5.



Includes 2 pressure switches!



Teach-in!



Slim!

Versatile

Thanks to relative and differential pressure sensing and a high degree of integration – with the option of 2 independent pressure inputs and a 2-colour LCD in one unit!

Fast and convenient

Intuitive operator prompting and fast teach-in option reduce training costs and commissioning time.

Easy to read and reliable

Current pressure values displayed clearly on the large, contrast-optimised backlit LCD. Reliable thanks to alphanumeric pressure display, or bar graphs for dynamic events.

Cost-effective

Festo plug and work®, thanks to super-fast hat-rail and front panel mounting without requiring any small parts.

Ultra-reliable

The SDE3 is suitable for TPM (Total Productive Maintenance) concepts and can thus help guarantee maximum system availability.

Tamper-proof

The coded lock prevents tampering while allowing the settings to be read.

Tailor-made to save money

Thanks to its modular design, you only pay for the functions you need.



The SDE3 is the ideal device to use for:

- Network monitoring: pressure present?
- Regulator monitoring: pressure in desired range?
- Vacuum: parts picked up?
- Leak tests: drop in pressure over time?
- Object registering: back pressure present?
- Differential pressure measurement: valve switched or not?

Technologically ...

- Quicker to install: hat-rail and front panel mounting in a small space
- Quicker to commission: intuitive operator prompting via LCD and 3 keys
- Reliable: contrast-optimised 2-colour backlit LCD, alphanumeric pressure display and bar graph for dynamic events
- Process reliability: alphanumeric coded lock to prevent tampering. The settings can still be displayed without needing a code.
- Super-fast: thanks to teach-in option

... and commercially reliable – the pressure sensor SDE3

- More productive: fully TPM-capable (Total Productive Maintenance)
- More economical: provides relative or differential pressure measurements and 2 independent pressure inputs with 2 switch outputs in one unit. Huge cost savings can be made if more than one pressure switch is required
- Best price/performance ratio in the global market

Pressure sensors SDE3, with display


Product range overview – Pre-assembled pressure sensors

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| Pressure measuring range | Measured variable | | | Display | | Mounting | |
|--------------------------|----------------------|----------------------|-----------------------|---------|-------------------|------------|----------------|
| | Relative pressure | 2x relative pressure | Differential pressure | bar | inches of mercury | Via H-rail | Panel mounting |
| 0 ... -1 bar | Switch output 2x PNP | | | | | | |
| | ■ | – | – | ■ | – | ■ | – |
| | ■ | – | – | – | ■ | ■ | – |
| | ■ | – | – | ■ | – | – | ■ |
| | – | ■ | – | ■ | – | ■ | – |
| | – | ■ | – | – | ■ | ■ | – |
| | – | ■ | – | ■ | – | – | ■ |
| | – | – | ■ | ■ | – | ■ | – |
| | – | – | ■ | – | ■ | ■ | – |
| | – | – | ■ | ■ | – | – | ■ |
| | Switch output 2x NPN | | | | | | |
| | – | – | ■ | ■ | – | ■ | – |

| Pressure measuring range | Measured variable | | | Display | | Mounting | |
|--------------------------|----------------------|----------------------|-----------------------|---------|-------------------|------------|----------------|
| | Relative pressure | 2x relative pressure | Differential pressure | bar | inches of mercury | Via H-rail | Panel mounting |
| 0 ... 2 bar | Switch output 2x PNP | | | | | | |
| | – | ■ | – | ■ | – | ■ | – |
| | – | ■ | – | ■ | – | – | ■ |
| | – | – | ■ | ■ | – | ■ | – |
| | – | – | ■ | ■ | – | – | ■ |

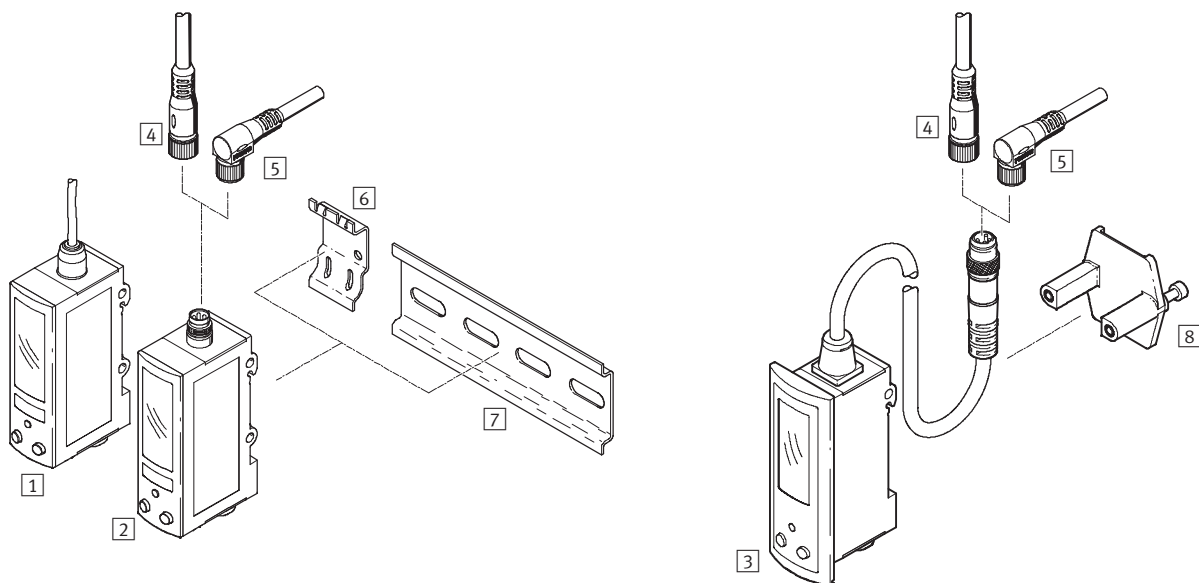
| Pressure measuring range | Measured variable | | | Display | | Mounting | |
|--------------------------|----------------------|----------------------|-----------------------|---------|-------------------|------------|----------------|
| | Relative pressure | 2x relative pressure | Differential pressure | bar | inches of mercury | Via H-rail | Panel mounting |
| 0 ... 10 bar | Switch output 2x PNP | | | | | | |
| | ■ | – | – | ■ | – | ■ | – |
| | ■ | – | – | ■ | – | – | ■ |
| | – | ■ | – | ■ | – | ■ | – |
| | – | ■ | – | ■ | – | – | ■ |
| | – | – | ■ | ■ | – | ■ | – |
| | – | – | ■ | ■ | – | – | ■ |
| | Switch output 2x NPN | | | | | | |
| | – | – | ■ | ■ | – | ■ | – |
| | – | – | ■ | ■ | – | – | ■ |

 Note

Additional variants and accessories can be configured and ordered through the SDE3 modular system
➔ 4 / 8.2-110.

Pressure sensors SDE3, with display

Peripherals overview



| Accessories | | Brief description | → Page |
|-------------------------|----------------------|---|-------------|
| Pressure sensors | | | |
| 1 | SDE3-...-...-K | Mounting via H-rail or wall/surface bracket, with cable | 4 / 8.2-107 |
| 2 | SDE3-...-...-M8 | Mounting via H-rail or wall/surface bracket, with plug M8x1 | |
| 3 | SDE3-...-F...-M8 | For panel mounting, with cable and plug M8x1 | |
| | | | |
| Plug sockets with cable | | | |
| 4 | SIM-M8-4GD-... | Straight socket, M8x1, 4-pin | 4 / 8.2-111 |
| 5 | SIM-M8-4WD-... | Angled socket, M8x1, 4-pin | |
| | | | |
| Mounting attachments | | | |
| 6 | Adapter plate SXE3-W | Included in the scope of delivery with SDE3-...-W... | 4 / 8.2-111 |
| 7 | Mounting rail | To DIN EN 50022 | – |
| 8 | Clamping plate | Included in the scope of delivery with SDE3-...-F... | – |

Pressure sensors SDE3, with display

Type codes

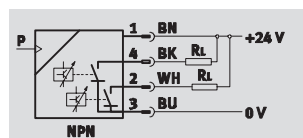
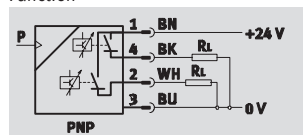
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| | | | | | | | | | | | | | | | |
|---|---|------|---|-----|---|---|---|---|-----|---|----|---|----|---|--|
| | | SDE3 | - | D10 | S | - | B | - | HQ4 | - | 2P | - | M8 | - | |
| Sensor function | | | | | | | | | | | | | | | |
| SDE3 | Piezoresistive pressure sensor with display | | | | | | | | | | | | | | |
| Pressure measuring range | | | | | | | | | | | | | | | |
| V1 | 0 ... -1 bar | | | | | | | | | | | | | | |
| B2 | -1 ... +1 bar | | | | | | | | | | | | | | |
| D2 | 0 ... 2 bar | | | | | | | | | | | | | | |
| D6 | 0 ... 6 bar | | | | | | | | | | | | | | |
| D10 | 0 ... 10 bar | | | | | | | | | | | | | | |
| Measured variable | | | | | | | | | | | | | | | |
| S | 1x relative pressure | | | | | | | | | | | | | | |
| D | 2x relative pressure | | | | | | | | | | | | | | |
| Z | 1x differential pressure | | | | | | | | | | | | | | |
| Display | | | | | | | | | | | | | | | |
| B | Display in bar | | | | | | | | | | | | | | |
| P | Display in psi | | | | | | | | | | | | | | |
| K | Display in kPa | | | | | | | | | | | | | | |
| H | Display in inches of mercury | | | | | | | | | | | | | | |
| W | Display in inches of water | | | | | | | | | | | | | | |
| Mounting/pneumatic connection | | | | | | | | | | | | | | | |
| HQ4 | Via H-rail, push-in fitting 4 mm | | | | | | | | | | | | | | |
| WQ4 | Wall mounting, push-in fitting 4 mm | | | | | | | | | | | | | | |
| FQ4 | Panel mounting, push-in fitting 4 mm | | | | | | | | | | | | | | |
| Electrical output | | | | | | | | | | | | | | | |
| 2P | 2 switch outputs PNP | | | | | | | | | | | | | | |
| 2N | 2 switch outputs NPN | | | | | | | | | | | | | | |
| Electrical connection | | | | | | | | | | | | | | | |
| M8 | Plug M8x1 | | | | | | | | | | | | | | |
| K | Cable, 2.5 m long | | | | | | | | | | | | | | |
| Connecting cable | | | | | | | | | | | | | | | |
| SIM cable with straight connection socket | | | | | | | | | | | | | | | |
| G | 2.5 m long | | | | | | | | | | | | | | |
| G5 | 5 m long | | | | | | | | | | | | | | |
| SIM cable with angled connection socket | | | | | | | | | | | | | | | |
| W | 2.5 m long | | | | | | | | | | | | | | |
| W5 | 5 m long | | | | | | | | | | | | | | |


Pressure sensors SDE3, with display

Technical data

Function



 Voltage
15 ... 30 V DC

 Pressure
-1 ... +10 bar

 Temperature range
0 ... 50°C



| General technical data | | | | | | | |
|--|--|---------|--|-----------|---------|---------|----------|
| Pressure measuring range | | [bar] | 0 ... -1 | -1 ... +1 | 0 ... 2 | 0 ... 6 | 0 ... 10 |
| Mechanical | | | | | | | |
| Method of measurement | | | Piezoresistive pressure sensor with display | | | | |
| Pneumatic connection | | | QS-4 | | | | |
| Measured variable | | | Relative pressure | | | | |
| | | | 2x relative pressure | | | | |
| | | | Differential pressure | | | | |
| Accuracy FS ¹⁾ | | | ±2% | | | | |
| Reproducibility of switching point | | | 0.3% | | | | |
| Electrical connection | | | Plug M8x1, 4-pin, round design to EN 60 947-5-2 | | | | |
| | | | Cable | | | | |
| | | | Cable with plug M8x1, 4-pin, round design to EN 60 947-5-2 | | | | |
| Type of display | | | Illuminated LCD | | | | |
| Setting | | | Teach-In | | | | |
| Protection against manipulation | | | PIN-Code | | | | |
| Switching status display | | | Yellow LED | | | | |
| Type of mounting | | | Panel mounting | | | | |
| | | | Via H-rail | | | | |
| | | | Via through-holes | | | | |
| | | | Via wall/surface bracket | | | | |
| Material | | Housing | Polyamide, reinforced | | | | |
| | | | Polycarbonate | | | | |
| Material note | | | Free of copper and PTFE | | | | |
| Mounting position | | | Any ²⁾ | | | | |
| | | | | | | | |
| Electrical | | | | | | | |
| Operating voltage range | | [V DC] | 15 ... 30 | | | | |
| Max. output current | | [mA] | 100 | | | | |
| Protection against short circuit | | | Pulsed | | | | |
| Protection against polarity reversal | | | For all electrical connections | | | | |
| Switch output | | | 2x PNP | | | | |
| | | | 2x NPN | | | | |
| Switching element function | | | Switchable | | | | |
| Switching function | | | Freely programmable | | | | |
| CE marking symbol (see conformity declaration) | | | As per EU EMC directive | | | | |

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

2) The collection of condensate in the sensor should be prevented.

Pressure sensors SDE3, with display

Technical data

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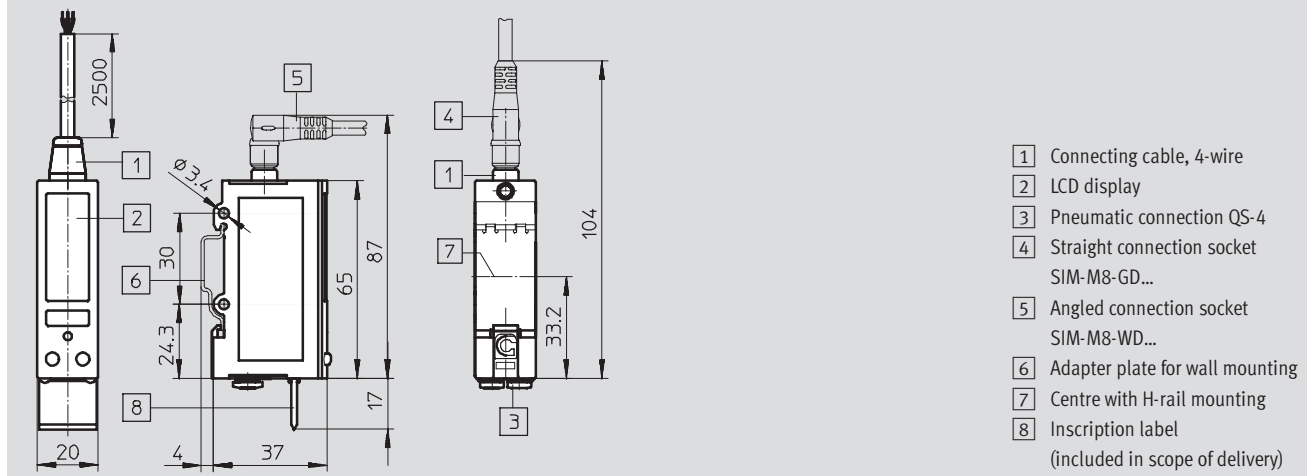
| Operating and environmental conditions | | | | | | |
|--|-------|--|-----------|---------|---------|----------|
| Pressure measuring range | [bar] | 0 ... -1 | -1 ... +1 | 0 ... 2 | 0 ... 6 | 0 ... 10 |
| Operating pressure | [bar] | 0 ... -1 | -1 ... +1 | 0 ... 2 | 0 ... 6 | 0 ... 10 |
| Threshold value setting range | [%] | 0 ... 100 | | | | |
| Hysteresis setting range | [%] | 0 ... 90 | | | | |
| Operating medium | | Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm | | | | |
| Ambient temperature | [°C] | 0 ... 50 | | | | |
| Temperature of medium | [°C] | 0 ... 50 | | | | |
| Corrosion resistance class CRC ¹⁾ | | 2 | | | | |
| Protection class to EN 60 529 | | IP 65 | | | | |

1) Corrosion resistance class 2 according to Festo standard 940 070

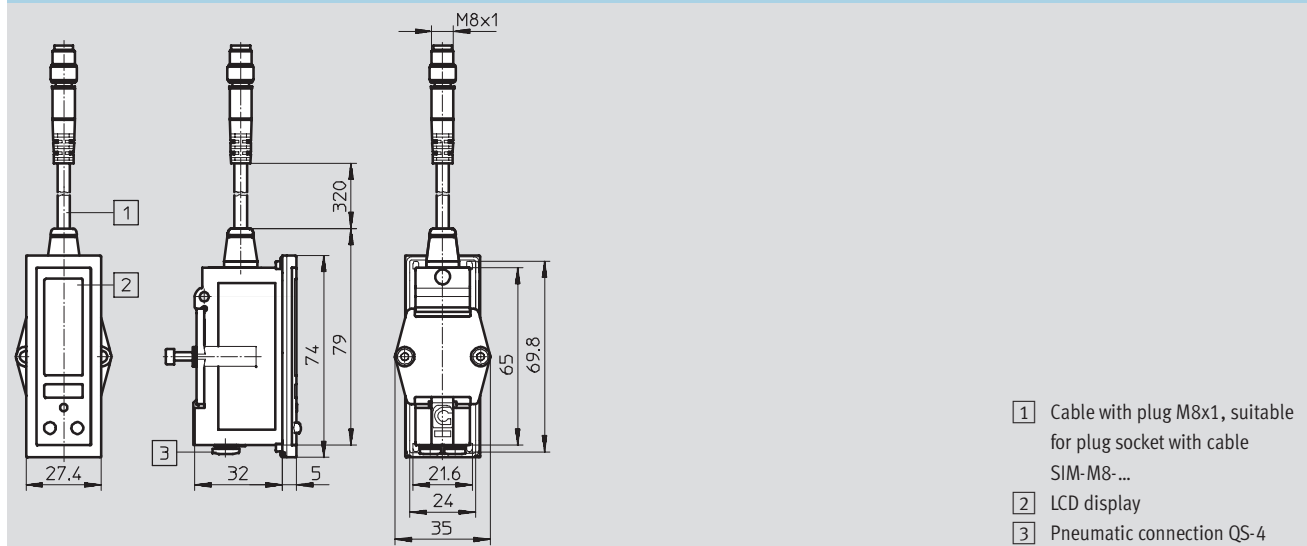
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

| Weights [g] | | |
|-------------|----------------------------------|----------------|
| | H-rail, wall or surface mounting | Panel mounting |
| | 37 | 61 |

Dimensions – H-rail, wall or surface mounting



Dimensions – Panel mounting



Pressure sensors SDE3, with display

Technical data

| Ordering data – Pressure measuring range 0 ... –1 bar | | | | | | | | |
|---|----------------------|-----------------------|---------|-------------------|------------|----------------|----------|----------------------|
| Measured variable | | | Display | | Mounting | | Part No. | Type ¹⁾ |
| Relative pressure | 2x relative pressure | Differential pressure | bar | inches of mercury | Via H-rail | Panel mounting | | |
| Switch output 2x PNP | | | | | | | | |
| ■ | – | – | ■ | – | ■ | – | 540 193 | SDE3-V1S-B-HQ4-2P-M8 |
| ■ | – | – | – | ■ | ■ | – | 540 194 | SDE3-V1S-H-HQ4-2P-M8 |
| ■ | – | – | ■ | – | – | ■ | 540 195 | SDE3-V1S-B-FQ4-2P-M8 |
| – | ■ | – | ■ | – | ■ | – | 540 196 | SDE3-V1D-B-HQ4-2P-M8 |
| – | ■ | – | – | ■ | ■ | – | 540 197 | SDE3-V1D-H-HQ4-2P-M8 |
| – | ■ | – | ■ | – | – | ■ | 540 198 | SDE3-V1D-B-FQ4-2P-M8 |
| – | – | ■ | ■ | – | ■ | – | 540 199 | SDE3-V1Z-B-HQ4-2P-M8 |
| – | – | ■ | – | ■ | ■ | – | 540 200 | SDE3-V1Z-H-HQ4-2P-M8 |
| – | – | ■ | ■ | – | – | ■ | 540 201 | SDE3-V1Z-B-FQ4-2P-M8 |
| Switch output 2x NPN | | | | | | | | |
| – | – | ■ | ■ | – | ■ | – | 540 202 | SDE3-V1Z-B-HQ4-2N-M8 |

| Ordering data – Pressure measuring range 0 ... 2 bar | | | | | | | | |
|--|----------------------|-----------------------|---------|-------------------|------------|----------------|----------|----------------------|
| Measured variable | | | Display | | Mounting | | Part No. | Type ¹⁾ |
| Relative pressure | 2x relative pressure | Differential pressure | bar | inches of mercury | Via H-rail | Panel mounting | | |
| Switch output 2x PNP | | | | | | | | |
| – | ■ | – | ■ | – | ■ | – | 540 203 | SDE3-D2D-B-HQ4-2P-M8 |
| – | ■ | – | ■ | – | – | ■ | 540 204 | SDE3-D2D-B-FQ4-2P-M8 |
| – | – | ■ | ■ | – | ■ | – | 540 205 | SDE3-D2Z-B-HQ4-2P-M8 |
| – | – | ■ | ■ | – | – | ■ | 540 206 | SDE3-D2Z-B-FQ4-2P-M8 |

| Ordering data – Pressure measuring range 0 ... 10 bar | | | | | | | | |
|---|----------------------|-----------------------|---------|-------------------|------------|----------------|----------|-----------------------|
| Measured variable | | | Display | | Mounting | | Part No. | Type ¹⁾ |
| Relative pressure | 2x relative pressure | Differential pressure | bar | inches of mercury | Via H-rail | Panel mounting | | |
| Switch output 2x PNP | | | | | | | | |
| ■ | – | – | ■ | – | ■ | – | 540 207 | SDE3-D10S-B-HQ4-2P-M8 |
| ■ | – | – | ■ | – | – | ■ | 540 208 | SDE3-D10S-B-FQ4-2P-M8 |
| – | ■ | – | ■ | – | ■ | – | 540 209 | SDE3-D10D-B-HQ4-2P-M8 |
| – | ■ | – | ■ | – | – | ■ | 540 210 | SDE3-D10D-B-FQ4-2P-M8 |
| – | – | ■ | ■ | – | ■ | – | 540 211 | SDE3-D10Z-B-HQ4-2P-M8 |
| – | – | ■ | ■ | – | – | ■ | 540 212 | SDE3-D10Z-B-FQ4-2P-M8 |
| | | | | | | | | |
| Switch output 2x NPN | | | | | | | | |
| – | – | ■ | ■ | – | ■ | – | 540 213 | SDE3-D10Z-B-HQ4-2N-M8 |

1) Explanation of the order code → Type code 4 / 8.2-106


Note

Additional variants and accessories can be configured and ordered through the SDE3 modular system → 4 / 8.2-110.

Pressure sensors SDE3, with display

Ordering data – Modular products

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| [M] Mandatory data | | | | | | | | [O] Options |
|-------------------------|----------|-----------------------------|----------------|-----------------------|-------------------------------|-------------------|-----------------------|------------------------------|
| Module No. | Function | Pressure measuring range | Pressure input | Display | Mounting/pneumatic connection | Electrical output | Electrical connection | Connecting cable (accessory) |
| 539 679 | SDE3 | V1 B2 D2 D6 D10 | S D Z | B P K H W | HQ4 WQ4 FQ4 | 2P 2N | M8 K | G W G5 W5 |
| Ordering example | | | | | | | | |
| 539 679 | SDE3 | - D6 | D | - B | - WQ4 | - 2N | - K | - W5 |

| Ordering table | | | | | | |
|----------------|-------------------------------|--------------------------------------|-----------------|------|---------------|--|
| | | | Condi- tions | Code | Enter code | |
| [M] | Module No. | 539 679 | | | | |
| | Sensor function | Pressure sensor | | SDE3 | SDE3 | |
| | Pressure measuring range | [bar] | 0 ... -1 | -V1 | | |
| | | [bar] | -1 ... +1 | -B2 | | |
| | | [bar] | 0 ... 2 | -D2 | | |
| | | [bar] | 0 ... 6 | -D6 | | |
| | | [bar] | 0 ... 10 | -D10 | | |
| | Pressure input | 1x relative pressure | | S | | |
| | | 2x relative pressure, independent | | D | | |
| | | 1x differential pressure | | Z | | |
| | Display | Values in bar | | -B | | |
| | | Values in psi | | -P | | |
| | | Values in kPa | | -K | | |
| | | Values in inches of mercury | | -H | | |
| | | Values in inches of water | | -W | | |
| | Mounting/pneumatic connection | Via H-rail, push-in fitting 4 mm | | -HQ4 | | |
| | | Wall mounting, push-in fitting 4 mm | | -WQ4 | | |
| | | Panel mounting, push-in fitting 4 mm | | -FQ4 | | |
| | Electrical output | 2 switch outputs PNP | | -2P | | |
| | | 2 switch outputs NPN | | -2N | | |
| | Electrical connection | Plug M8x1 | | -M8 | | |
| | | Cable, 2.5 m | | -K | | |
| [O] | Connecting cable (accessory) | Straight socket, 2.5 m | | -G | | |
| | | Angled socket, 2.5 m | | -W | | |
| | | Straight socket, 5 m | | -G5 | | |
| | | Angled socket, 5 m | | -W5 | | |

Transfer order code

539 679 SDE3 - - - - - -

Pressure sensors SDE3, with display

Accessories

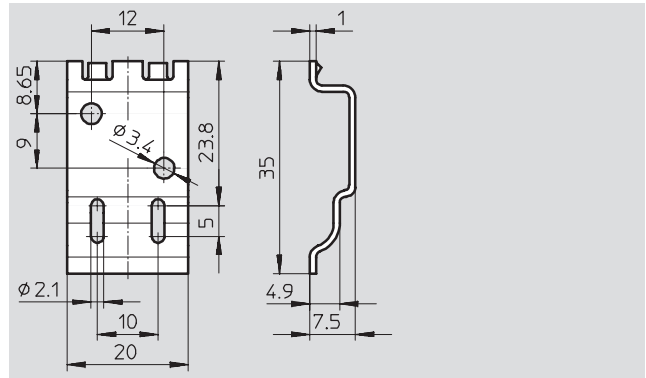
FESTO

Adapter plate SXE3-W

for wall or surface mounting



Material:

Steel



| Ordering data | | | Part No. | Type |
|-----------------------------|--|--|----------|--------|
| Adapter plate ¹⁾ | | | 540 214 | SXE3-W |

1) Included in the scope of delivery with SDE3-...-W...

| Ordering data – Plug sockets with cable M8x1 | | | | | | Technical data ➔ 4 / 8.3-24 | |
|---|----------------|------------|--------------------------|--------------------------|---------------------|-----------------------------|-------------------|
| | Assembly | Connection | Switch output | | Cable length [m] | Part No. | Type |
| | | | PNP | NPN | | | |
| Straight socket | | | | | | | |
|  | Union nut M8x1 | 4-pin | <input type="checkbox"/> | <input type="checkbox"/> | 2.5 | 158 960 | SIM-M8-4GD-2,5-PU |
| | | | | | 5 | 158 961 | SIM-M8-4GD-5-PU |
| Angled socket | | | | | | | |
|  | Union nut M8x1 | 4-pin | <input type="checkbox"/> | <input type="checkbox"/> | 2.5 | 158 962 | SIM-M8-4WD-2,5-PU |
| | | | | | 5 | 158 963 | SIM-M8-4WD-5-PU |