SITRANS P measuring instruments for pressure

2/2  Product overview

2/4  Transmitters for gage, absolute and differential pressure
2/4   Z series for gage pressure
2/6   Z series for gage and absolute pressure
2/12  SITRANS P250 for differential pressure
2/17  ZD series for gage and absolute pressure

2/21 Transmitters for food, pharmaceuticals and biotechnology
2/21  SITRANS P Compact for gage and absolute pressure
2/28  SITRANS P300 for gage and absolute pressure

2/47 Transmitters for gage pressure for paper industry
2/47  SITRANS P300 and DS III series with PMC connection
2/47  Technical description
2/52   - DS III series with PMC connection
2/58   - SITRANS P300 with PMC connection

2/63 Transmitters for gage, absolute and differential pressure, flow and level
2/63  DS III, DS III PA and DS III FF series
2/63  Technical description
2/70   - for gage pressure
2/79   - for gage pressure with front-flush diaphragm
2/89   - for absolute pressure (from gage pressure series)
2/98   - for absolute pressure (from differential pressure series)
2/107  - for differential pressure and flow
2/124  - for level

2/134 SITRANS P Accessories
2/134  Supplementary electronics for 4-wire connection
2/136  Accessories/spare parts for SITRANS P, P300 and DS III series
2/142  Factory-mounting of valve manifolds on SITRANS P transmitters

2/146 Transmitters for hydrostatic level
2/146  MPS series (submersible sensor)

2/150 Remote seals for transmitters and pressure gages
2/150  Technical description
2/158  Diaphragm seals of sandwich design
2/161  Diaphragm seals of flange design
2/170  Quick-release diaphragm seals
2/173  Miniature diaphragm seal
2/174  Flushing rings
2/176  Clamp-on seals of flange design
2/179  Quick-release clamp-on seals
2/182  Remote seals - Measuring setups
2/187  Questionnaire

2/190 Fittings
2/190  Technical description
2/191  Selection aid
2/193  Shut-off valves for gage and absolute pressure transmitters
2/194  Shut-off valves to DIN 16270, DIN 16271 and DIN 16272
2/195  Angle adapter
2/196  Double shut-off valves
2/197  Accessories for shut-off valves/double shut-off valves
2/198  2-way valve manifolds DN 5
2/199  Shut-off valves for differential pressure transmitters
2/201  2-, 3- and 5-spindle valve manifolds DN 5
2/204  Multiway cocks PN 100
2/206  3-way and 5-way valve manifolds DN 5
2/209  3-way valve manifold DN 8
2/212  Valve manifold combination DN 5/DN 8
2/214  Valve manifold combination DN 8
2/216  2-, 3- and 5-spindle valve manifolds for installing in protective boxes
2/220  3- and 5-spindle valve manifolds for vertical angular diff. pressure lines
2/223  Low-pressure multiway cock

2/225 Accessories
2/225  Oval flange
2/226  Adapters, connection glands
2/227  Connection parts G½
2/228  Water traps, Sealing rings to EN 837-1
2/229  Pressure surge reducers
2/230  Primary shut-off valves
2/232  Compensation vessels
2/233  Connection parts

You can download all instructions, catalogs and certificates for SITRANS P free of charge at the following Internet address:

www.siemens.com/sitransp

Siemens FI 01 · 2009
### Overview

<table>
<thead>
<tr>
<th>Application</th>
<th>Description</th>
<th>Page</th>
<th>Software for Parameterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS P – measuring instruments for pressure, absolute pressure, differential pressure, flow and level</td>
<td>Two- or three-wire transmitters for measuring gage and absolute pressure</td>
<td>2/4</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>SITRANS P, Z series</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compact single-range transmitters</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Analog electronics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Available ex stock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two- or three-wire transmitters for measuring differential pressure</td>
<td>SITRANS P250</td>
<td>2/12</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Compact single-range transmitters</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Analog electronics</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Available ex stock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two- or three-wire transmitters for measuring gage and absolute pressure</td>
<td>SITRANS P, ZD series</td>
<td>2/17</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Range adjustment: 5 : 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Digital display</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Available ex stock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmitters for gage and absolute pressure for food, pharmaceuticals and biotechnology</td>
<td>SITRANS P Compact</td>
<td>2/21</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Single-range transmitters in 2-wire system</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hygiene-based design with various aseptic connections according to EHEDG, FDA and GMP recommendations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two-wire transmitters for measuring gage and absolute pressure</td>
<td>SITRANS P300</td>
<td>2/28</td>
<td>SIMATIC PDM</td>
</tr>
<tr>
<td></td>
<td>Hygiene-based design according to EHEDG, FDA and GMP</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Parameterization over 3 buttons or communication over HART, PROFIBUS PA or FOUNDATION Fieldbus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Standard process connection G½, ½-NPT and flush-mounted process connections available</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Measuring range adjustment 100 : 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two-wire transmitters for measuring gage pressure</td>
<td>SITRANS P300 and DS III series with PMC connection for the paper industry</td>
<td>2/47</td>
<td>SIMATIC PDM</td>
</tr>
<tr>
<td></td>
<td>Measuring range adjustment 100 : 1</td>
<td></td>
<td></td>
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<td></td>
<td>Process connections for the paper industry</td>
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<td>Parameter assignment over 3 buttons and HART, PROFIBUS PA or FOUNDATION Fieldbus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two-wire transmitters for measuring:</td>
<td>SITRANS P, DS III series</td>
<td>2/63</td>
<td>SIMATIC PDM</td>
</tr>
<tr>
<td></td>
<td>• Gage pressure,</td>
<td></td>
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<td>• Absolute pressure</td>
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<td>• Differential pressure and</td>
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<td>• Flow or</td>
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<td>• Level</td>
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<td></td>
<td>SITRANS P, DS III PA series</td>
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<td>SITRANS P, DS III FF series</td>
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<td>Range adjustment: 100 : 1</td>
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<td>Parameterization using:</td>
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<tr>
<td></td>
<td>• 3 keys and HART for DS III series</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td>• 3 keys and PROFIBUS-PA for DS III PA series</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 3 buttons and FOUNDATION Fieldbus for DS III FF series</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Available ex stock</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplementary electronics for adaptation of two-wire transmitters for four-wire connections</td>
<td>Output: 0 or 4 to 20 mA</td>
<td>2/134</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Power supply: 24 V AC/DC, 230 V AC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Application Description Page Software for Parameterization

<table>
<thead>
<tr>
<th>Application</th>
<th>Description</th>
<th>Page</th>
<th>Software for Parameterization</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-wire transmitter for measuring hydrostatic levels</td>
<td>SITRANS P, MPS series (submersible sensor) For measuring liquid levels in wells, tanks, channels, dams etc.</td>
<td>2/146</td>
<td>–</td>
</tr>
<tr>
<td>Remote seals for measuring viscous, corrosive or fibrous media (as well as media at extreme temperatures)</td>
<td>Remote seals in sandwich and flange designs Quick-release remote seals for the food industry Wide range of diaphragm materials and filling liquids available</td>
<td>2/150</td>
<td>–</td>
</tr>
<tr>
<td>Shutting off the lines for the medium and differential pressure Mounting of transmitter on valve manifold or shut-off fitting</td>
<td>Shut-off fittings and valve manifolds available in steel, brass or stainless steel Valve manifolds available for the various process connections of the SITRANS P transmitters</td>
<td>2/190</td>
<td>–</td>
</tr>
</tbody>
</table>
SITRANS P measuring instruments for pressure

Z series for gage pressure

Overview

The SITRANS P pressure transmitter, Z series (7MF1562-...), measures the gage pressure of aggressive and non-aggressive gases, liquids and vapors.

Benefits

- High measuring accuracy
- Sturdy brass housing
- For aggressive and non-aggressive media
- For measuring the pressure of liquids, gases and vapor
- Temperature-compensated measuring cell
- Compact design

Application

The pressure transmitter of the Z series for gage pressure (7MF1562-...) is used above all in the following industrial areas:
- Power engineering
- Mechanical engineering
- Shipbuilding
- Water supply etc.

A concrete application example is the measurement of compressed air containing oil in compressors or compressor stations.

Design

The main components of the pressure transmitter are:
- Brass housing with silicon measuring cell and electronics plate
- Process connection
- Electrical connection

The silicon measuring cell has a thin-film strain gage which is mounted on a ceramic diaphragm. The ceramic diaphragm can also be used for aggressive media.

The process connection to DIN EN 837-1 is made of brass and has a male thread G½B or a female thread G1/8B.

The electrical connection is made using a plug to DIN 43650 with a M16x1.5 cable inlet.

Function

The pressure transmitters of the Z series for gage pressure measure the pressure of aggressive and non-aggressive gases, liquids and vapors.

The measuring cell is temperature-compensated.

Mode of operation

The thin-film measuring cell has a thin-film resistance bridge at which the operating pressure p is transmitted through a ceramic diaphragm.

The measuring cell output voltage is fed to an amplifier and converted into an output current of 4 to 20 mA. The output current is linearly proportional to the input pressure.
SITRANS P measuring instruments for pressure

**Technical specifications**

**SITRANS P pressure transmitter, Z series for gage pressure**

**Mode of operation**

- Measuring principle: Thin-film strain gage

**Input**

- Measured variable: Relative pressure
- Measured range: 0 to 16 bar g (0 to 232 psi g) or 0 to 25 bar g (0 to 363 psi g)

**Output**

- Current output signal: 4 ... 20 mA

**Measuring accuracy**

To EN 60770-1

- Error in measurement (at 25 °C (77 °F), including conformity error, hysteresis and repeatability): 0.5% of full-scale value-typical
- Response time $T_{99}$: < 0.1 s
- Long-term drift:
  - Start of scale: 0.3% of full-scale value/year - typical
  - Measured span: 0.3% of full-scale value/year - typical

**Influence of ambient temperature**

- Start of scale: 0.3%/10 K (0.3%/10 K) of full-scale value - typical
- Measured span: 0.3%/10 K (0.3%/10 K) of full-scale value - typical

**Rated conditions**

**Medium conditions**

- Process temperature: -30 ... +120 °C (-22 ... +248 °F)
- Degree of protection to EN 60529: IP65

**Ambient conditions**

- Ambient temperature: -25 ... 85 °C (-13 ... +185 °F)
- Storage temperature: -50 ... 100 °C (-58 ... +212 °F)

**Design**

- Weight: 0.2 kg (= 0.44 lb)
- Wetted parts materials:
  - Measuring cell: Al₂O₃ - 96%
  - Process connection: Brass, mat. No. 2.0402
  - Gasket: Viton
- Process connection: Male thread G½B female thread G½B

**Power supply**

- Terminal voltage on pressure transmitter:
  - For current output: 10 to 36 V DC

**Certificate and approvals**

Classification according to pressure equipment directive (DRGL 97/23/EC)

For gases of fluid group 1 and liquids of fluid 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)

**Dimensional drawings**

SITRANS P pressure transmitters, Z series (7MF1562-...), dimensions in mm (inch)

**Schematics**

SITRANS P pressure transmitters, Z series (7MF1562-...), connection diagram

**Selection and Ordering data**

<table>
<thead>
<tr>
<th>SITRANS P pressure transmitters, Z series for pressure 2-wire system, characteristic rising</th>
<th>Order No.</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured range</td>
<td>Max. working pressure</td>
<td></td>
</tr>
<tr>
<td>0 ... 16 bar g (0 ... 232 psi g)</td>
<td>32 bar g (464 psi g)</td>
<td>3 CB</td>
</tr>
<tr>
<td>0 ... 25 bar g (0 ... 363 psi g)</td>
<td>64 bar g (928 psi g)</td>
<td>3 CD</td>
</tr>
<tr>
<td>Other version for measuring range ≥ 1 bar g (≥ 14.5 psi g), add Order code and plain text: Measuring range: ... to ... bar g (psi g)</td>
<td>9 AA</td>
<td>H 1 Y</td>
</tr>
</tbody>
</table>

D) Subject to export regulations AL: N, ECCN: EAR99H.
SITRANS P measuring instruments for pressure
Transmitters for gage and absolute pressure

Z series for gage and absolute pressure

Overview

SITRANS P pressure transmitters, Z series for pressure and absolute pressure (7MF1564-...)

SITRANS P pressure transmitters, Z series (7MF1564-...), measure the gage and absolute pressure as well as the level of liquids and gases.

Benefits
- High measuring accuracy
- Sturdy stainless steel housing
- For aggressive and non-aggressive media
- For measuring the pressure of liquids, gases and vapor
- Temperature-compensated measuring cell
- Compact design

Application
The pressure transmitter of the Z series for gage pressure and absolute pressure (7MF1564-...) is used above all in the following industrial areas:
- Chemical industry
- Pharmaceutical industry
- Food industry
- Mechanical engineering
- Shipbuilding
- Water supply

Design
The design of the pressure transmitter is dependent on the measuring range.

Measuring range <1 bar (<14.5 psi)
Main components:
- Stainless steel housing with piezo-resistive silicon measuring cell (with stainless steel diaphragm, temperature-compensated) and electronics module
- Process connection made of stainless steel in diverse designs (see Selection and Ordering data)
- Electrical connection made using a plug to DIN 43650 with the cable inlet M16 x 1.5, ½-14 NPT or round plug connector M12.

The pressure transmitters with a nominal range < 1 bar g (< 14.5 psi g) are optionally available with or without explosion protection.

Function
The pressure transmitter measures the gage and absolute pressure as well as the level of liquids and gases.

Mode of operation

The pressure transmitter of the Z series (7MF1564-...), functional diagram

The mode of operation of the pressure transmitter is dependent on the measuring range.

Measuring range <1 bar (<14.5 psi)
The silicon measuring cell of the pressure transmitter has a piezo-resistive bridge to which the operating pressure is transmitted through silicone oil and a stainless steel diaphragm.
The measuring cell output voltage is fed to an amplifier and converted into an output current 4 ... 20 mA. The output current is linearly proportional to the input pressure.

Measuring range ≥1 bar (≥14.5 psi)
The thin-film measuring cell has a thin-film resistance bridge to which the operating pressure p is transmitted through a ceramic diaphragm.
The voltage output from the measuring cell is converted by an amplifier into an output current 4 ... 20 mA or an output voltage of 0 ... 10 V DC.
The output current and voltage are linearly proportional to the input pressure.
SITRANS P measuring instruments for pressure
Transmitters for gage and absolute pressure

Technical specifications

SITRANS P pressure transmitters, Z series for gage pressure, absolute pressure and level

Mode of operation
- Measuring range <1 bar (<14.5 psi)
- Measuring range ≥1 bar (≥14.5 psi)

Piezo-resistive
Thin-film strain gage

Input
Measured variable: Gage and absolute pressure

Measured range
- Pressure
  - Metric: 0 ... 400 bar g (0 ... 5802 psi g)
  - US measuring range: 0 ... 6000 psi g
- Absolute pressure
  - Metric: 0 ... 16 bar a (0 ... 232 psi a)
  - US measuring range: 0 ... 300 psi a

Output
Output signal
- Current output signal: 4 ... 20 mA
- Voltage output signal (only measuring range ≥ 1 bar (14.5 psi)): 0 ... 10 V DC

Accuracy
To EN 60770-1
Error in measurement (at 25 °C (77 °F), including conformity error, hysteresis and repeatability)
0.25% of full-scale value – typical

Response time T99 < 0.1 s
Long-term drift
- Start of scale: 0.25% of full scale value/year
- Full-scale value: 0.25% of full scale value/year

Influence of ambient temperature
- Start of scale: 0.25%/10 K (0.25%/10 K) of full-scale value
- Full-scale value: 0.25%/10 K (0.25%/10 K) of full-scale value

Rated operating conditions
Process temperature
-30 ... +120 °C (-22 ... +248 °F)
Ambient temperature
-25 ... +85 °C (-13 ... +185 °F)
Storage temperature
-50 ... +100 °C (-58 ... +212 °F)

Degree of protection to EN 60529
IP65

Design
Weight
0.25 kg (= 0.55 lb)

Wetted parts materials
- Measuring cell
  - Measuring range <1 bar (<14.5 psi): Stainless steel, 1.4571/316Ti
  - Measuring range ≥1 bar (≥14.5 psi): Al₂O₃ – 96%
- Process connection
  - Stainless steel, mat. No. 1.4571/316Ti
- Gasket
  - Viton

Process connection
See Selection and Ordering data

Power supply Uₜ₄
Terminal voltage on pressure transmitter
- For current output: 10 ... 36 V DC
- For voltage output signal (only measuring range ≥ 1 bar (14.5 psi)): 15 ... 36 V DC

Certificate and approvals
Classification according to pressure equipment directive (DRGL 97/23/EC)
For gases of fluid group 1 and liquids of fluid 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)

Explosion protection
- Intrinsic safety "i" (only with current output): TÜV 02 ATEX 1953X
- Identification: Ex II 1/2G EEx ia IIC T4
- Intrinsic safety "T.I.I.S." (only with current output) applied

Lloyds Register of Shipping Certificate No. 03/30003

Dimensional drawings

Pressure transmitter 7MF1564-... with process connection G½" male, dimensions in mm (inch)

Pressure transmitter 7MF1564-... with process connection G¼" male, dimensions in mm (inch)
SITRANS P measuring instruments for pressure
Transmitters for gage and absolute pressure

Z series for gage and absolute pressure

Pressure transmitter 7MF1564-... with process connection 7/16-20 UNF male, dimensions in mm (inch)

Pressure transmitter 7MF1564-... with process connection ¼"-18 NPT male, dimensions in mm (inch)

Pressure transmitter 7MF1564-... with process connection ¼"-18 NPT female, dimensions in mm (inch)

Pressure transmitter 7MF1564-... with process connection G1" male, dimensions in mm (inch)

Pressure transmitter 7MF1564-... with process connection ½"-14 NPT male, dimensions in mm (inch)

Pressure transmitter 7MF1564-... with process connection ½"-14 NPT female, dimensions in mm (inch)

Schematics

SITRANS P pressure transmitters, Z series (7MF1564-...), connection diagram, with current output (top) and voltage output (bottom)
### Selection and Ordering data

**SITRANS P pressure transmitters for pressure, series Z for gage and absolute pressure**

2 or 3-wire system, rising characteristic curve

#### Measuring range

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>perm. working pressure</th>
<th>Burst pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min.</td>
<td>Max.</td>
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</tbody>
</table>

#### Measuring range: 

**With metal measuring cell**

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>perm. working pressure</th>
<th>Burst pressure</th>
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</thead>
<tbody>
<tr>
<td>0 ... 100 mbar g (0 ... 14.5 psi g)</td>
<td>-0.6 bar g (-8.7 psi g)</td>
<td>1 bar g (14.5 psi g)</td>
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<tr>
<td>0 ... 160 mbar g (0 ... 23.2 psi g)</td>
<td>-0.6 bar g (-8.7 psi g)</td>
<td>1 bar g (14.5 psi g)</td>
</tr>
<tr>
<td>0 ... 250 mbar g (0 ... 36.3 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>1.7 bar g (25 psi g)</td>
</tr>
<tr>
<td>0 ... 400 mbar g (0 ... 58.0 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>1.7 bar g (25 psi g)</td>
</tr>
<tr>
<td>0 ... 600 mbar g (0 ... 87.0 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>5 bar g (72 psi g)</td>
</tr>
</tbody>
</table>

Other version for measuring range < 1 bar (< 14.5 psi g), add Order code and plain text:

- 0. . .16 b a r a
- 0. . .10 b a r a
- 0. . .6 b a r a
- 0. . .4 b a r a
- 0. . .2 .5 b a r a
- 0. . .1 b a r a

Other version for measuring range ≥ 1 bar (≥ 14.5 psi g), add Order code and plain text:

- 0 ... 600 mbar g (0 ... 87.0 psi g) | -1 bar g (-14.5 psi g) | 0. . .1 b a r a

**With ceramic measuring cell**

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>perm. working pressure</th>
<th>Burst pressure</th>
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</thead>
<tbody>
<tr>
<td>0 ... 1 bar g (0 ... 14.5 psi g)</td>
<td>-0.4 bar g (-5.8 psi g)</td>
<td>2 bar g (30 psi g)</td>
</tr>
<tr>
<td>0 ... 1.6 bar g (0 ... 23.2 psi g)</td>
<td>-0.4 bar g (-5.8 psi g)</td>
<td>3.2 bar g (45 psi g)</td>
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<tr>
<td>0 ... 2.5 bar g (0 ... 36.3 psi g)</td>
<td>-0.8 bar g (-11.6 psi g)</td>
<td>5 bar g (72 psi g)</td>
</tr>
<tr>
<td>0 ... 4 bar g (0 ... 58.0 psi g)</td>
<td>-0.8 bar g (-11.6 psi g)</td>
<td>8 bar g (115 psi g)</td>
</tr>
<tr>
<td>0 ... 6 bar g (0 ... 87.0 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>12 bar g (175 psi g)</td>
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<td>0 ... 10 bar g (0 ... 145 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>20 bar g (290 psi g)</td>
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<tr>
<td>0 ... 16 bar g (0 ... 232 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>32 bar g (460 psi g)</td>
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<tr>
<td>0 ... 25 bar g (0 ... 363 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>50 bar g (725 psi g)</td>
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<tr>
<td>0 ... 40 bar g (0 ... 580 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>80 bar g (1150 psi g)</td>
</tr>
<tr>
<td>0 ... 60 bar g (0 ... 870 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>120 bar g (1750 psi g)</td>
</tr>
<tr>
<td>0 ... 100 bar g (0 ... 1450 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>200 bar g (2900 psi g)</td>
</tr>
<tr>
<td>0 ... 160 bar g (0 ... 2320 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>320 bar g (4600 psi g)</td>
</tr>
<tr>
<td>0 ... 250 bar g (0 ... 3626 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>500 bar g (7250 psi g)</td>
</tr>
<tr>
<td>0 ... 400 bar g (0 ... 5802 psi g)</td>
<td>-1 bar g (-14.5 psi g)</td>
<td>600 bar g (8700 psi g)</td>
</tr>
</tbody>
</table>

Other version for measuring range ≥ 1 bar (≥ 14.5 psi g), add Order code and plain text:

- 0 ... 600 mbar g (0 ... 87.0 psi g) | -1 bar g (-14.5 psi g) | 0. . .12 b a r a

**For absolute pressure**

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>perm. working pressure</th>
<th>Burst pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ... 1 bar a (0 ... 14.5 psi a)</td>
<td>0 bar a (0 psi a)</td>
<td>3 bar a (43.5 psi a)</td>
</tr>
<tr>
<td>0 ... 1.6 bar a (0 ... 23.2 psi a)</td>
<td>0 bar a (0 psi a)</td>
<td>3.2 bar a (45 psi a)</td>
</tr>
<tr>
<td>0 ... 2.5 bar a (0 ... 36.3 psi a)</td>
<td>0 bar a (0 psi a)</td>
<td>5 bar a (72 psi a)</td>
</tr>
<tr>
<td>0 ... 4 bar a (0 ... 58.0 psi a)</td>
<td>0 bar a (0 psi a)</td>
<td>8 bar a (115 psi a)</td>
</tr>
<tr>
<td>0 ... 6 bar a (0 ... 87.0 psi a)</td>
<td>0 bar a (0 psi a)</td>
<td>12 bar a (175 psi a)</td>
</tr>
<tr>
<td>0 ... 10 bar a (0 ... 145 psi a)</td>
<td>0 bar a (0 psi a)</td>
<td>20 bar a (290 psi a)</td>
</tr>
<tr>
<td>0 ... 16 bar a (0 ... 232 psi a)</td>
<td>0 bar a (0 psi a)</td>
<td>32 bar a (460 psi a)</td>
</tr>
</tbody>
</table>

Other version for measuring range < 1 bar (< 14.5 psi a), add Order code and plain text:

- 0 ... 600 mbar a (0 ... 8.7 psi a) | 0 bar a (0 psi a) | 3 bar a (43.5 psi a) |

### Available ex stock

- D) Subject to export regulations AL: N, ECCN: EAR99H.
- J) Subject to export regulations AL: 9999, ECCN: EAR99.

### Please note:

- It is not possible to have a smaller span than the smallest span of the device of the entire device range.
- The value must not fall below the minimum permissible operating pressure of the special measuring range of the selected measuring cell.
- The required span of the device must lie between the smallest and the largest possible span of the entire device range.
## Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>D)</td>
<td>7 MF 1 5 6 4 -</td>
</tr>
</tbody>
</table>

### SITRANS P pressure transmitters for pressure, series Z for pressure and absolute pressure

2 or 3-wire system, rising characteristic curve

#### Measuring range

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Perm. working pressure</th>
<th>Burst pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>min.</td>
<td>max.</td>
</tr>
</tbody>
</table>

### Measuring ranges for gage pressure (only for US market)

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Perm. working pressure</th>
<th>Burst pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>min.</td>
<td>max.</td>
</tr>
</tbody>
</table>

### Measuring ranges for absolute pressure (only for US market)

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Perm. working pressure</th>
<th>Burst pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>min.</td>
<td>max.</td>
</tr>
</tbody>
</table>

### Other version, add Order code and plain text:

- Measuring range: ... up to ... psi g

### Output signal

- 4 ... 20 mA; C 2-wire system; power supply 10 ... 36 V DC
- 0 ... 10 V; 3-wire system; power supply 15 ... 36 V DC

### Explosion protection

- Without
- With explosion protection Ex II 1/2 G EEx ia IIC T4 (only for version 4 ... 20 mA; 2-wire system; power supply 10 ... 30 V DC)
- With explosion protection "Intrinsic safety T.I.I.S." (available soon)

### Electrical connection

- Plug to DIN 43650, Form A, cable inlet M16 x 1.5
- Round connector M12, IP67
- Plug to DIN 43650, cable inlet ½-14 NPT
- Plug to DIN 43650, cable inlet Pg11
- Cable gland Pg11 with 2 m PE cable, IP68
- Special version (specify Order code and plain text)

### Available ex stock

- D) Subject to export regulations AL: N, ECCN: EAR99H.
- J) Subject to export regulations AL: 99999, ECCN: EAR99.
## Selection and Ordering data

<table>
<thead>
<tr>
<th>SITRANS P pressure transmitters for pressure, series Z for pressure and absolute pressure</th>
<th>Order No.</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 or 3-wire system, rising characteristic curve</td>
<td>D) 7 MF 1 5 6 4 -</td>
<td>-</td>
</tr>
</tbody>
</table>

### Process connection

- G½" male to EN 837-1 (½" BSP male) (standard for metric pressure ranges mbar, bar)
- G½" male thread and G1/8" female thread
- G¼" male to EN837-1 (¼" BSP male)
- 7/16"-20 UNF male
- ¼"-18 NPT male (standard for pressure ranges psi)
- ¼"-18 NPT female
- ½"-14 NPT male
- ½"-14 NPT female
- RC ½" male to JIS B 7505
- G1" male (only for measuring ranges ≥ 1 bar g (14.5 psi g)) and max. permissible working pressure 100 bar g (1450 psi g)
- Special version (specify Order code and plain text)

### Sealing material between sensor and housing

- Viton (standard)
- Neoprene
- Perbunan
- Special version (specify Order code and plain text)

### Further designs

- Quality inspection certificate (Factory calibration) to IEC 60770-2, add "-Z" to Order No. and Order code.

- Oxygen version, oil and grease-free cleaning (only if the sealing material between sensor and housing is Viton and only for measuring ranges ≥ 1 bar g (≥ 14.5 psi g) and ≥ 1 bar a (≥ 14.5 psi a))

### Accessories

- Quality inspection certificate (Factory calibration) to IEC 60770-2 supplied later, specify factory no. of transmitter.

### Available ex stock

D) Subject to export regulations AL: N, ECCN: EAR99H.
Overview

SITRANS P250 transmitter for differential pressure

The SITRANS P250 transmitter measures the differential pressure of liquids and gases.

Benefits

- High measuring accuracy
- Sturdy stainless steel enclosure
- For aggressive and non-aggressive media
- For the measurement of the differential pressure of liquids and gases
- Temperature-compensated measuring cell
- Compact design

Application

The SITRANS P250 transmitter for differential pressure is primarily used in the following industries:

- Chemical industry
- Pharmaceutical industry
- Food industry
- Mechanical engineering
- Shipbuilding
- Water supply

Design

Main components:

- Stainless steel enclosure with piezo-resistive ceramic measuring cell and (temperature-compensated) electronics module.
- Process connection made of stainless steel in diverse designs (see Selection and ordering data)
- Electrical connection through connectors acc. to EN 175301-803-A and round connectors M12, as well as with permanently fixed cable

Function

The pressure transmitter measures the differential pressure of liquids and gases.

Mode of operation

SITRANS P250 pressure transmitter, function diagram

The piezo-resistive ceramic measuring cell (membrane) has a Wheatstone bridge circuit, on which the operating pressure P1 and P2 of the media acts at both ends.

The voltage output from the measuring cell is converted by an amplifier into an output current of 4 to 20 mA or an output voltage of 0 to 5 or 10 V DC.

The output current and voltage are linearly proportional to the input pressure.

Technische Daten

SITRANS P250 differential pressure transmitter

Application

Differential pressure transmitter Liquids and neutral gases

Mode of operation

Measuring principle Piezo-resistive measuring cell (ceramic diaphragm)

Input

Measured variable Differential pressure
Measuring range
0 ... 0.1 to 0 ... 25 bar (0 ... 1.45 to 0 ... 363 psi)
Operating pressure
≤ 25 bar (363 psi) at a differential pressure range < 6 bar (87 psi)
≤ 50 bar (725 psi) at a differential pressure range > 10 bar (145 psi)
Burst pressure 1.5 x operating pressure

Output

Output signal
- Current output signal 4 ... 20 mA
- Voltage output signal 0 ... 5 V and 0 ... 10 V DC
Load
3-wire > 10 kΩ
2-wire ≤ (UH - 11 V) / 0.02 A

Measuring accuracy

Dynamic behavior (at 25°C (77°F), including conformity error, hysteresis and repeatability)
≤ 1 % of typical full-scale value, see "Measuring range" table
Long-term drift acc. to IEC 60770
≤ 0.5 % of full-scale value/year
Influence of ambient temperature
- Start of scale ≤ 0.6 %/10K of full-scale value
  (≤ 1.2 % / 10K for measuring cell 0 ... 0.1 bar (1.45 psi))
- Full-scale value ≤ 0.22 %/10K of full-scale value
  (≤ 0.37 % / 10K for measuring cell 0 ... 0.1 bar (1.45 psi))
Dynamic behavior Suitable for static and dynamic measurements
Response time T99 < 5 ms
Load variation < 50 Hz
SITRANS P measuring instruments for pressure
Transmitters for gage and absolute pressure
Z series for gage and absolute pressure

### Conditions of use

<table>
<thead>
<tr>
<th>Ambient conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Temperature of medium -15 ... + 85 °C (5 ... 185 °F)</td>
</tr>
<tr>
<td>- Ambient temperature -15 ... + 85 °C (5 ... 185 °F)</td>
</tr>
<tr>
<td>- Storage temperature -40 ... + 85 °C (-40 ... +185 °F)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Degree of protection acc. to EN 60529</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP65</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mounting position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting bracket, included in delivery</td>
</tr>
</tbody>
</table>

### Design

<table>
<thead>
<tr>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 430 g (approx. 0.95 lb)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enclosure material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel 1.4305/AISI 303</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electrical connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Plug EN 175301-803-A</td>
</tr>
<tr>
<td>- Circular plug EN 60130-9</td>
</tr>
<tr>
<td>- Cable 1.5 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Hose sleeve Ø 4 mm/6 mm</td>
</tr>
<tr>
<td>- Pipe union Ø 6 mm/8 mm</td>
</tr>
<tr>
<td>- Male thread 7/16-20 UNF, G1/8</td>
</tr>
<tr>
<td>- Female thread 1/8-27 NPT</td>
</tr>
<tr>
<td>- (Standard), G1/8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wetted parts materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel 1.4305/AISI 303, CuZn nickel-plated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 430 g (approx. 0.95 lb)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diaphragm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramic Al₂O₃ (96 %)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sealing material</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPM (standard), EPDM, NBR, MVQ, CR</td>
</tr>
</tbody>
</table>

### Power supply $U_h$

<table>
<thead>
<tr>
<th>Terminal voltage on pressure transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 2-wire, 4 ... 20 mA 11 ... 33 V DC</td>
</tr>
<tr>
<td>- 3-wire, 0 ... 5 V DC/ 24 V AC ± 15 %</td>
</tr>
<tr>
<td>- 3-wire, 0 ... 10 V DC 18 ... 33 V DC/ 24 V AC ± 15 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Current consumption at nominal pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 2-wire &lt; 20 mA</td>
</tr>
<tr>
<td>- 3-wire &lt; 5 mA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Protection against polarity reversal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protected against short-circuit and polarity reversal. Each connection against the other with max. supply voltage.</td>
</tr>
</tbody>
</table>

### Certificates and approvals

<table>
<thead>
<tr>
<th>Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE conformity</td>
</tr>
</tbody>
</table>

### Measuring range

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Max. permissible operating pressure (on either side)</th>
<th>Burst pressure</th>
<th>Max. permissible operating pressure (on one side)</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>[bar] [psi]</td>
<td>[bar] [psi]</td>
<td>[bar] [psi]</td>
<td>[bar] [psi]</td>
<td></td>
</tr>
<tr>
<td>0 ... 0,1</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>0,6 bar (8,7 psi)</td>
<td>≤ 1,0 %</td>
</tr>
<tr>
<td>0 ... 0,2</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>0,6 bar (8,7 psi)</td>
<td>≤ 1,0 %</td>
</tr>
<tr>
<td>0 ... 0,25</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>0,6 bar (8,7 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 0,3</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>0,6 bar (8,7 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 0,4</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>1,2 bar (17,4 psi)</td>
<td>≤ 0,8 %</td>
</tr>
<tr>
<td>0 ... 0,5</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>1,2 bar (17,4 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 0,6</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>1,2 bar (17,4 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 1,0</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>2 bar (29 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 1,6</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>3,2 bar (46,4 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 2,5</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>5 bar (72,5 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 4</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>8 bar (116 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 6</td>
<td>25 bar (363 psi)</td>
<td>37,5 bar (544 psi)</td>
<td>12 bar (174 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 10</td>
<td>50 bar (725 psi)</td>
<td>75 bar (1088 psi)</td>
<td>20 bar (290 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 16</td>
<td>50 bar (725 psi)</td>
<td>75 bar (1088 psi)</td>
<td>32 bar (464 psi)</td>
<td>≤ 0,5 %</td>
</tr>
<tr>
<td>0 ... 25</td>
<td>50 bar (725 psi)</td>
<td>75 bar (1088 psi)</td>
<td>50 bar (725 psi)</td>
<td>≤ 0,5 %</td>
</tr>
</tbody>
</table>

### Schematics

#### Connection with current output 4 ... 20 mA and plug to EN 175301-803-A

#### Connection with current output 4 ... 20 mA and round connector

#### Connection with current output 4 ... 20 mA and permanently fixed cable
SITRANS P measuring instruments for pressure

Transmitters for gage and absolute pressure

Z series for gage and absolute pressure

Connection with voltage output 0 ... 5 V DC (0 ... 10 V DC) and plug to EN 175301-803-A

Connection with voltage output 0 ... 5 V DC (0 ... 10 V DC) and round connector

Connection with voltage output 0 ... 5 V DC (0 ... 10 V DC) and permanently fixed cable

Maßzeichnungen

Socket outlet EN 175301-803-A

Stainless (mounted)

P1

P2

M 4

P2

44 (1.7)

16 (0.63)

X

20 (0.79)

102 (4.02)

~ 138 (5.4)

~ 95 (3.7)

~ 108 (4.3)

~136 (5.4)

SITRANS P250 differential pressure transmitter with socket outlet to EN 175301-803-A, dimensions in mm (inch)

Round connector EN 60130-9

Kabel

~128 (5.0)

SITRANS P250 differential pressure transmitter with round connector to EN 60130-9, dimensions in mm (inch)

SITRANS P250 differential pressure transmitter with cable, dimensions in mm (inch)
## Process connections

<table>
<thead>
<tr>
<th>Process connections</th>
<th>Width across flats</th>
<th>L [mm] [inch]</th>
<th>X [mm] [inch]</th>
</tr>
</thead>
</table>
| Pipe union with screw-in nipple for outer pipe (stainless steel 1.4305/AISI 303) | 6 a = 10 24 65  
8 a = 12 26 67 | | |
| Female thread G1/8 (stainless steel 1.4305/AISI 303) | - a = 14 12 53 | | |
| Pipe union with screw-in nipple for outer pipe (CuZn nickel-plated) | 6 a = 10 24 65  
8 a = 12 25 66 | | |
| Hose connection for hose (CuZn nickel-plated, stainless steel 1.4571/AISI 316Ti) | 4 a = 10 20 61  
6 a = 10 25 66 | | |
| Male thread G1/8 (CuZn nickel-plated) | - a = 10 20 61  
b = 12 | | |
| Male thread G1/8 7/16-20 UNF (CuZn nickel-plated) | - a = 14 18 59 | | |
SITRANS P measuring instruments for pressure

Transmitters for gage and absolute pressure

Z series for gage and absolute pressure

### Selection and ordering data

<table>
<thead>
<tr>
<th>Description</th>
<th>Order No.</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS P 250 pressure transmitter for differential pressure</td>
<td>7 MF 1641</td>
<td>0 0 0 0 0 0</td>
</tr>
</tbody>
</table>

#### Measuring range

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ... 0.1 bar</td>
<td>3 A A</td>
</tr>
<tr>
<td>0 ... 0.2 bar</td>
<td>3 A C</td>
</tr>
<tr>
<td>0 ... 0.25 bar</td>
<td>3 A D</td>
</tr>
<tr>
<td>0 ... 0.3 bar</td>
<td>3 A E</td>
</tr>
<tr>
<td>0 ... 0.4 bar</td>
<td>3 A F</td>
</tr>
<tr>
<td>0 ... 0.5 bar</td>
<td>3 A G</td>
</tr>
<tr>
<td>0 ... 0.6 bar</td>
<td>3 A H</td>
</tr>
<tr>
<td>0 ... 1.0 bar</td>
<td>3 B A</td>
</tr>
<tr>
<td>0 ... 1.6 bar</td>
<td>3 B B</td>
</tr>
<tr>
<td>0 ... 2.5 bar</td>
<td>3 B D</td>
</tr>
<tr>
<td>0 ... 4.0 bar</td>
<td>3 B E</td>
</tr>
<tr>
<td>0 ... 6.0 bar</td>
<td>3 B G</td>
</tr>
<tr>
<td>0 ... 10.0 bar</td>
<td>3 C A</td>
</tr>
<tr>
<td>0 ... 16.0 bar</td>
<td>3 C B</td>
</tr>
<tr>
<td>0 ... 25.0 bar</td>
<td>3 C D</td>
</tr>
</tbody>
</table>

#### Output signal

<table>
<thead>
<tr>
<th>Output signal</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ... 20 mA</td>
<td>0</td>
</tr>
<tr>
<td>0 ... 5 V DC</td>
<td>1</td>
</tr>
<tr>
<td>0 ... 10 V DC</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Electrical connection

- Plug acc. to EN 175 301-803-A (suitable coupling included in scope of delivery) 1
- Round connector acc. to EN 60139-9 2
- Cable 1.5 m with cable gland 3

#### Process connection

- Without connections, female thread 1/8-27 NPT  A
- Hose connection
  - CuZn nickel-plated, for hose Ø 4 mm  B
  - CuZn nickel-plated, for hose Ø 6 mm  C
  - PVDF, for hose Ø 6 mm  D
- Pipe union
  - CuZn nickel-plated, for pipe Ø 6 mm  E
  - Stainless steel 1.4304, for pipe Ø 6 mm  F
  - CuZn nickel-plated, for pipe Ø 8 mm  G
  - Stainless steel 1.4304, for pipe Ø 8 mm  H
- Male thread, 7/16-20 UNF (CuZn nickel-plated)  L
- Adapter
  - Inner, G1/8 (stainless steel), for pipe Ø 6 mm  M
  - Outer, with union nut, for pipe Ø 6 mm  N

#### Sealing material

- Fluoro rubber (Viton/FPM)  A
- Ethylene propylene diene monomer rubber (EPDM)  B
- Nitrile butadiene rubber (NBR)  C
- Silicone rubber (MVQ)  D
- Neoprene (CR)  E

### Weitere Ausführungen

Please add “-Z” to Order No. and specify Order code(s).

Quality inspection certificate (Factory calibration) to IEC 60770-2 supplied  C11

Available ex stock
SITRANS P pressure transmitters, ZD series, are used in the following industrial areas for example:

- Chemical industry
- Mechanical engineering
- Food industry
- Pharmaceutical industry
- Shipbuilding
- Water supply

They are used to indicate and monitor the pressure measured at the point of installation. ZD pressure transmitters are available in an axial and a radial version.

Benefits

- Robust stainless steel housing with 2 connection versions
- Integrated display with status messages
- Thin-film measuring cell with ceramic diaphragm
- 2-wire system, 4 ... 20 mA
- Parameterizable using keys underneath the housing cover
- Range adjustment 1:5 (max. 1:10)
- Measuring accuracy < 0.25% (typical)

Application

The ZD is a configurable pressure transmitter for measuring the gage and absolute pressure of gases, liquids and vapor.

It is equipped with a display for indicating the pressure value at the point of installation.

SITRANS P pressure transmitters, ZD series, are used in the following industrial areas for example:

- Chemical industry
- Mechanical engineering
- Food industry
- Pharmaceutical industry
- Shipbuilding
- Water supply

Design

The pressure transmitter is comprised of a thin-film measuring cell with a ceramic diaphragm, an electronics board and a digital indicator.

All parts are accommodated in a stainless steel field housing (Ø 80 mm) with a glass cover and stainless steel process connection.

Overview

SITRANS P measuring instruments for pressure

Transmitters for gage and absolute pressure

ZD series for gage and absolute pressure

At the rear of the housing is the electrical connection for the voltage supply using a current loop 4 ... 20 mA. The connection is made with a plug connector.

At the front of the housing is the 5-digit display behind a glass cover. Underneath the display are the 3 keys for parameterizing the pressure transmitter. Above the display are a green and a red LED for indicating the operating status.

The ZD pressure transmitter is available in two versions (see "Dimension drawing"): In the radial version (type A) the display is fitted in parallel with the process connection. The display can be rotated by up to ±120° relative to the process connection.

In the axial version (type B) the display is at right angles to the process connection. The display can be rotated by 360° relative to the process connection.

Function

SITRANS P pressure transmitters, ZD series, mode of operation

Mode of operation

The ZD pressure transmitter has a thin-film strain gage which is mounted on a ceramic diaphragm.

The measuring cell is temperature-compensated.

Functions

The ZD pressure transmitter has a 5-digit display behind a glass cover. The following data are shown on the display:

- Measured pressure
- Technical pressure dimension (default setting: bar)
- Limit violation in upward or downward direction, indicated by LED and arrow symbols in the display

The pressure transmitter is set using the 3 input keys behind the display. Above the display are a green and a red LED for indicating the operating status.

The key “M” is used to select the operating mode. Following modes of operation are available:

- Measured value
- Password
- Dimension
- Start and end of scale
- Upper and lower limit value
- Zero adjustment
SITRANS P measuring instruments for pressure
Transmitters for gage and absolute pressure

ZD series for gage and absolute pressure

- Upper and lower current saturation limit
- Electrical damping

The other two keys are used to set the values in the individual operating modes.
Two LED indicators are fitted above the display to monitor the set range and the status.
The green LED signals that the measured pressure lies within the set limits. The red LED lights up when the measured pressure lies outside the set limits and when there is an error.

## Technical specifications

**SITRANS P pressure transmitters, ZD series**

| Mode of operation | Thin-film gage
|---|---
| Measuring principle | Gage and absolute pressure
| Measured variable | Resolution
| 0 ... 2 bar (0 ... 29 psi) | 0.6 mbar (0.008 psi)
| 0 ... 10 bar (0 ... 145 psi) | 3 mbar (0.044 psi)
| 0 ... 50 bar (0 ... 725 psi) | 15 mbar (0.218 psi)
| 0 ... 200 bar (0 ... 2900 psi) | 60 mbar (0.9 psi)
| 0 ... 400 bar (0 ... 5800 psi) | 120 mbar (1.8 psi)
| Measured range | Overload limit
| 0 ... 2 bar (0 ... 29 psi) | 5 bar (72.5 psi)
| 0 ... 10 bar (0 ... 145 psi) | 25 bar (363 psi)
| 0 ... 50 bar (0 ... 725 psi) | 120 bar (1740 psi)
| 0 ... 200 bar (0 ... 2900 psi) | 500 bar (7250 psi)
| 0 ... 400 bar (0 ... 5800 psi) | 600 bar (8700 psi)
| Range adjustment (turdown) | 5:1

| Output | 4 ... 20 mA
|---|---
| Lower current limit | min. 3.6 mA
| Upper current limit | max. 23 mA
| Output protected against | Reversal polarity, overvoltage and short-circuiting
| Max. load | \( R_B = \left( \frac{U_H}{12V} \right) / 0.023 \) A
| Voltage measurement | Linear rising

**Measuring accuracy**

Error in measurement (including non-linearity, hysteresis and repeatability, at 25 °C (77 °F))

- < 0.25% of full-scale value (typical), max. 0.5%
- < 100 ms
- 0.25% of full scale value/year
- < ±0.25%/10 K (± ±0.25%/10 K) of full-scale value
- 0.05%/g to 500 Hz in all directions (to IEC 68-2-64)
- < ±0.01%/V of full-scale value

| Rated conditions | Ambient conditions
|---|---
| \(-25 \ldots +85 \) °C (-13 \ldots +185 \) °F
| Storage temperature | \(-40 \ldots +85 \) °C (-40 \ldots +185 \) °F
| Medium conditions | \(-30 \ldots +100 \) °C (-22 \ldots +212 \) °F
| Degree of protection | IP65 to EN 60529
| Electromagnetic compatibility | To EN 61326/A1 appendix A (1998)

**Displays and controls**

- LCD, max. 5 digits, digit height 9 mm

**Design**

- Weight: ≈ 0.6 kg (≈ 1.32 lb)

**Electrical connection**

- Using 2-pole plug connector with M16x1.5-Cable inlet to EN 175301-803A, plastic

**Process connection**

- Male thread G½B and female thread G1/8B
- G½B to EN 837-1
- Female thread: ½-14 NPT

| Version of housing/process connection | Radial (type A), can be swiveled by max. ±120° (α)
|---|---
| Axial (type B), can be swiveled by max. ±360°

**Material**

- Non-wetted parts materials
  - Field housing: Ø 80 mm (3.15 inch), stainless steel mat. No. 1.4016
  - Cover: Stainless steel, mat. No. 1.4016 with glass

- Wetted parts materials
  - Measuring cell: Al₂O₃
  - Gasket: Viton
  - Process connection: Stainless steel, mat. No. 1.4571/316Ti

**Power supply**

- Terminal voltage on pressure transmitter: Uₚ = 12 ... 30 V DC

**Certificate and approvals**

- Classification according to pressure equipment directive 97/23/EC
  - For gases of fluid group 1 and liquids of fluid 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)
SITRANS P measuring instruments for pressure
Transmitters for gage and absolute pressure

ZD series for gage and absolute pressure

Dimensional drawings

SITRANS P pressure transmitters, ZD series, dimensional drawing, dimensions in mm (inch)

Schematics

SITRANS P pressure transmitters, ZD series, connection diagram

Ub: Power supply
Rl: Load
Io: Output current
SITRANS P measuring instruments for pressure

Transmitters for gage and absolute pressure

### ZD series for gage and absolute pressure

#### Selection and Ordering data

<table>
<thead>
<tr>
<th>Input variable</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gage pressure</td>
<td>7MF 1 5 8 0 - 0</td>
</tr>
<tr>
<td>Absolute pressure</td>
<td>7MF 1 5 8 0 - 2</td>
</tr>
</tbody>
</table>

**Measured range**

<table>
<thead>
<tr>
<th>Measured range</th>
<th>Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ... 2 bar</td>
<td>0 ... 0.4 / 2 bar (0 ... 29 psi)</td>
</tr>
<tr>
<td>0 ... 10 bar</td>
<td>0 ... 2 / 10 bar (0 ... 145 psi)</td>
</tr>
<tr>
<td>0 ... 50 bar</td>
<td>0 ... 10 / 50 bar (0 ... 725 psi)</td>
</tr>
<tr>
<td>0 ... 200 bar</td>
<td>0 ... 40 / 200 bar (0 ... 2900 psi)</td>
</tr>
<tr>
<td>0 ... 400 bar</td>
<td>0 ... 80 / 400 bar (0 ... 5800 psi)</td>
</tr>
</tbody>
</table>

**Additional data**

- Add Order Code and plain text:
  - Process connection: ............
  - Process connection vertically downwards, thread in connector M16x1.5
  - Process connection horizontally to rear, thread in connector M16x1.5
  - Process connection vertically downwards, thread in connector ½"-14 NPT
  - Process connection horizontally to rear, thread in connector ½"-14 NPT

**Design**

- G½B male thread and G½B female thread
- G½B to EN 837-1
- Female thread ½-14 NPT
- G 1" male thread

**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality inspection certificate (Factory calibration) to IEC 60770-2 supplied</td>
<td>C11</td>
</tr>
<tr>
<td>Factory certificate to EN 10204-2.2 supplied</td>
<td>C14</td>
</tr>
<tr>
<td>Oxygen application, oil and grease-free cleaned</td>
<td>E10</td>
</tr>
</tbody>
</table>

**Sealing material FEP between sensor and housing, instead of Viton**

- Max. operating pressure 15 bar (218 psi), max. measuring temperature -10 ... +50 °C

**Additional data**

- Please add “Z” to Order No. and specify Order code(s) and plain text.

**Measuring range to be set**

- Y01: ... up to ... mbar, bar, kPa, MPa, psi

**TAG number made of stainless steel**

- Y15

**Accessories**

| Quality inspection certificate (Factory calibration) to IEC 60770-2 supplied later, specify factory of transmitter. | 7MF1564-8CC11 |

- Available ex stock

F) Subject to export regulations AL: 91999, ECCN: N.
Overview

The SITRANS P Compact pressure transmitter is designed for the special requirements of the food, pharmaceutical and biotechnology industries.

The use of high-grade materials guarantees compliance with hygiene regulations.

Particular value has been placed on a high surface quality. It is therefore possible, for example, to guarantee roughness values down to $R_a = 0.4 \, \mu m$ ($1.57 \cdot 10^{-5} \, \text{inch}$) in the wetted area ($welded \, \text{seam} \, R_a < 0.8 \, \mu m$ ($3.15 \cdot 10^{-5} \, \text{inch}$)). The system can be electropolished in addition.

A further important feature is the hygiene-based design of the process connection by means of various aseptic connections.

The completely welded stainless steel housing can be designed up to degree of protection IP67.

Using appropriate thermal decouplers, the SITRANS P Compact pressure transmitter can be used for process temperatures up to 200 °C (392 °F).

Benefits

- Measuring ranges from 0 to 160 mbar (0 to 2.32 psi) to 0 to 40 bar (0 to 580 psi)
- Linearity error including hysteresis < +0.2% of full-scale value
- Piezo-resistive measurement system, vacuum-proof and overload-proof
- Hygiene-based design according to EHEDG, FDA and GMP recommendations
- Material and surface quality according to hygiene requirements
- Wetted parts made of stainless steel; completely welded
- Signal output 4 to 20 mA (0 to 20 mA as option)
- Stainless steel housing with degree of protection IP65 (IP67 as option)
- Process temperature up to 200 °C (392 °F)
- Explosion protection II 2G Ex [ib] IIIC T6 to ATEX
- Easy and safe to clean

Application

The SITRANS P Compact pressure transmitter is designed for the special requirements of the food, pharmaceutical and biotechnology industries.
SITRANS P measuring instruments for pressure
Transmitters for food, pharmaceuticals and biotechnology

SITRANS P Compact
for gage and absolute pressure

Function

The process pressure acts on a piezo-resistive semiconductor measuring bridge through a remote seal and a transmission liquid. The pressure transmitter converts the pressure values into a load-independent current.

A compensation network makes the output signal largely independent of the ambient temperature. As a result of a specially adapted remote seal connection with minimized volume, the influence of the process temperature on the output signal is greatly reduced compared to a conventional screw connection.

The pressure transmitters can be powered with a non-regulated DC voltage of 10 to 30 V. Output signals common to measuring technology are available.

Technical specifications

Pressure transmitters for food, pharmaceuticals and biotechnology

Mode of operation

| Measuring principle | Piezo-resistive |

Input

| Measured variable       | Gage or absolute pressure |
| Measured range          | 0 ... 160 mbar (0 ... 2.32 psi) |
|                        | 0 ... 40 bar (0 ... 580 psi) |

Output

<table>
<thead>
<tr>
<th>Output signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-wire system 4 ... 20 mA</td>
</tr>
<tr>
<td>Three-wire system 0 ... 20 mA</td>
</tr>
</tbody>
</table>

Measuring accuracy

| Linearity error including hysteresis | ≤ 0.2% of full-scale value |
| Adjustment accuracy                  | ≤ ± 0.2% of full-scale value |
| Adjustment time                      | < 20 ms |
| Influence of ambient temperature     | |

On the enclosure

| Zero                                   | < 0.2%/10 K of full-scale value |
| Measured span                         | < 0.2%/10 K of full-scale value |

On the process connection (remote seal)

<table>
<thead>
<tr>
<th>Flange remote seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>- DN 25 / 1”</td>
</tr>
<tr>
<td>- DN 32 / 1¼”</td>
</tr>
<tr>
<td>- DN 40 / 1½”</td>
</tr>
<tr>
<td>- DN 50 / 2”</td>
</tr>
<tr>
<td>Clamp-on seal</td>
</tr>
<tr>
<td>- DN 25 / 1”</td>
</tr>
<tr>
<td>- DN 32 / 1¼”</td>
</tr>
<tr>
<td>- DN 40 / 1½”</td>
</tr>
<tr>
<td>- DN 50 / 2”</td>
</tr>
</tbody>
</table>

The zero error specified for the process connection should be considered as a guideline for a standard design. We will produce a detailed system calculation on request. Systems with reduced remote seal errors are available on request.

Rated conditions

<table>
<thead>
<tr>
<th>Installation conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any, vertical as standard</td>
</tr>
</tbody>
</table>

Ambient conditions

| Ambient temperature                    | -10 ... +70 °C (14 ... 158 °F) |
| Storage temperature                    | -10 ... +90 °C (14 ... 194 °F) |
| Process temperature                    | Max. 200 °C (392 °F), depends on design |
| Degree of protection (to EN 60529)     | IP65, optional IP67 |
| Electromagnetic compatibility         | |
| - Emitted interference                 | To EN 50081 Part 1, issue 1993 (residential and industrial areas). The unit has no own emissions. |
| - Interference immunity to             | EN 50082 Part 2, issue March 1995 (industrial areas) |

Design

Weight (without remote seal)

| Field housing                          | 460 g (≈ 1.01 lb) |
| Housing with plug                      | 200 g (≈ 0.44 lb) |

Housing

<table>
<thead>
<tr>
<th>Designs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field housing IP65 or IP67, with screwed gland</td>
</tr>
<tr>
<td>Angled plug DIN 43650, IP65</td>
</tr>
<tr>
<td>Cable connection, IP67</td>
</tr>
<tr>
<td>Round plug connector M12, IP65</td>
</tr>
</tbody>
</table>

Material

| Stainless steel, mat. No. 1.4404/1.4305 |

Material of union nut

| Polyamide (with electrical connection using plug or cable) |
| Electronics unit potted with silicone |
| Internal ventilation for measuring ranges < 16 bar (< 232 psi), through housing thread or connection cable depending on design |

Process connection

| See Ordering data                        |

Material of coupling

| Stainless steel, mat. No. 1.4404/1.4305 |

Power supply

| Terminal voltage on transmitter          | 10 ... 30 V DC |
| Rated voltage                           | 24 V DC |

Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)

For gases of fluid group 1 and liquids of fluid group 1; complies with the requirements of article 3, paragraph 1 (appendix 1); assigned to category III, conformity evaluation module H by the TÜV Nord

Explosion protection

| Intrinsic safety “i”                      |
| Identification                            |
| TÜV 03 ATEX 2099 X                       |
| Ex II 2G EEx ib IIC T6                   |
## Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Ord. code</th>
</tr>
</thead>
<tbody>
<tr>
<td>7M68010</td>
<td>-</td>
</tr>
</tbody>
</table>

### SITRANS P Compact pressure transmitters for pressure and absolute pressure with diaphragm flush at front

- **2-wire system**
- **Process temperature** up to 140 °C (284 °F)
- **Accuracy**: 0.2% of full-scale value
- **Output**: 4 ... 20 mA

### Diaphragm seal with quick-release clamp

- Milk pipe union to DIN 11851 with slotted union nut
  - DN 25
  - DN 32
  - DN 40
  - DN 50
  - DN 65
- Milk pipe union to DIN 11851 with threaded socket
  - DN 25
  - DN 32
  - DN 40
  - DN 50
- Clamp connection to DIN 32676
  - DN 25
  - DN 40
  - DN 50
- Clamp connection to ISO 2852
  - 1 inch
  - 1½ inch
  - 2 inch
  - 2½ inch
- IDF standard with slotted union nut
  - 1 inch
  - 1½ inch
  - 2 inch
- Aseptic screwed gland to DIN 11864-1, form A
  - 1 inch
  - 1½ inch
  - 2 inch
  - 2½ inch
- Aseptic screwed gland to DIN 11864-1, form A
  - 1 inch
  - 1½ inch
  - 2 inch
  - 2½ inch
- Aseptic screwed NEUMO with threaded socket
  - 1 inch
  - 1½ inch
  - 2 inch
  - 2½ inch
- Aseptic screwed NEUMO with clamp connection, form R
  - 1 inch
  - 1½ inch
  - 2 inch
  - 2½ inch
- Aseptic screwed NEUMO with clamp connection, form V
  - 1 inch
  - 1½ inch
  - 2 inch
  - 2½ inch
- Special version (add Order code and plain text)

### Filling liquid

- Vegetable oil
- Medicinal white oil
- Food oil, FDA-listed
- Special version (add Order code and plain text)

### Output signal

- 4 ... 20 mA
- Special version (add Order code and plain text)

---

1) Please specify as well:

- Connections for pipes: R01, R02 or R03, see table “Further designs” on next page
SITRANS P Compact pressure transmitters for gage and absolute pressure

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Ord. code</th>
<th>SITRANS P Compact pressure transmitters for pressure and absolute pressure with diaphragm flush at front</th>
</tr>
</thead>
</table>
| 7 MF 8 0 1 0 | - | 2-wire system  
Process temperature up to 140 °C (284 °F)  
Accuracy: 0.2% of full-scale value  
Output 4 ... 20 mA  

**Housing design (stainless steel mat. No. 1.4404/316L) / elec. connection**

- Housing with angled plug to DIN 43650, IP65  
- Housing with round plug M12, IP65, union nut made of polyamide  
- Stainless steel field housing (small) with cable gland, IP65  
- Stainless steel field housing (small) with cable gland, IP67  

**Internal ventilation for measuring ranges < 10 bar (< 145 psi)**

<table>
<thead>
<tr>
<th>Measured range</th>
<th>Overload pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ... 160 mbar g</td>
<td>2 bar g</td>
</tr>
<tr>
<td>(0 ... 2.32 psi g)</td>
<td>(29 psi g)</td>
</tr>
<tr>
<td>0 ... 250 mbar g</td>
<td>2 bar g</td>
</tr>
<tr>
<td>(0 ... 3.63 psi g)</td>
<td>(29 psi g)</td>
</tr>
<tr>
<td>0 ... 400 mbar g</td>
<td>6 bar g</td>
</tr>
<tr>
<td>(0 ... 5.8 psi g)</td>
<td>(87 psi g)</td>
</tr>
<tr>
<td>0 ... 600 mbar g</td>
<td>6 bar g</td>
</tr>
<tr>
<td>(0 ... 8.7 psi g)</td>
<td>(87 psi g)</td>
</tr>
<tr>
<td>0 ... 1 bar g</td>
<td>10 bar g</td>
</tr>
<tr>
<td>(0 ... 14.5 psi g)</td>
<td>(145 psi g)</td>
</tr>
<tr>
<td>0 ... 1.6 bar g</td>
<td>10 bar g</td>
</tr>
<tr>
<td>(0 ... 23.2 psi g)</td>
<td>(145 psi g)</td>
</tr>
<tr>
<td>0 ... 2.5 bar g</td>
<td>16 bar g</td>
</tr>
<tr>
<td>(0 ... 36.3 psi g)</td>
<td>(232 psi g)</td>
</tr>
<tr>
<td>0 ... 4 bar g</td>
<td>16 bar g</td>
</tr>
<tr>
<td>(0 ... 58 psi g)</td>
<td>(232 psi g)</td>
</tr>
<tr>
<td>0 ... 6 bar g</td>
<td>30 bar g</td>
</tr>
<tr>
<td>(0 ... 87 psi g)</td>
<td>(435 psi g)</td>
</tr>
<tr>
<td>0 ... 10 bar g</td>
<td>30 bar g</td>
</tr>
<tr>
<td>(0 ... 145 psi g)</td>
<td>(435 psi g)</td>
</tr>
<tr>
<td>0 ... 16 bar g</td>
<td>50 bar g</td>
</tr>
<tr>
<td>(0 ... 232 psi g)</td>
<td>(725 psi g)</td>
</tr>
<tr>
<td>0 ... 25 bar g</td>
<td>50 bar g</td>
</tr>
<tr>
<td>(0 ... 363 psi g)</td>
<td>(725 psi g)</td>
</tr>
<tr>
<td>0 ... 40 bar g</td>
<td>70 bar g</td>
</tr>
<tr>
<td>(0 ... 580 psi g)</td>
<td>(1015 psi g)</td>
</tr>
<tr>
<td>0 ... 600 mbar g</td>
<td>2 bar g</td>
</tr>
<tr>
<td>(0 ... 2.32 psi g)</td>
<td>(29 psi g)</td>
</tr>
<tr>
<td>0 ... 250 mbar g</td>
<td>2 bar g</td>
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<td>(0 ... 14.5 psi g)</td>
<td>(145 psi g)</td>
</tr>
<tr>
<td>0 ... 1.6 bar g</td>
<td>10 bar g</td>
</tr>
<tr>
<td>(0 ... 23.2 psi g)</td>
<td>(145 psi g)</td>
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<tr>
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<td>(232 psi g)</td>
</tr>
<tr>
<td>0 ... 4 bar g</td>
<td>16 bar g</td>
</tr>
<tr>
<td>(0 ... 58 psi g)</td>
<td>(232 psi g)</td>
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<tr>
<td>0 ... 6 bar g</td>
<td>30 bar g</td>
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<tr>
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<td>(435 psi g)</td>
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<tr>
<td>(0 ... 232 psi g)</td>
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</tr>
<tr>
<td>(0 ... 580 psi g)</td>
<td>(1015 psi g)</td>
</tr>
</tbody>
</table>

**Measured range Overload pressure**

(continued)

<table>
<thead>
<tr>
<th>Measured range</th>
<th>Overload pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ... 1 bar g</td>
<td>10 bar a</td>
</tr>
<tr>
<td>(0 ... 14.5 psi a)</td>
<td>(145 psi a)</td>
</tr>
<tr>
<td>0 ... 1.6 bar a</td>
<td>10 bar a</td>
</tr>
<tr>
<td>(0 ... 23.2 psi a)</td>
<td>(145 psi a)</td>
</tr>
<tr>
<td>0 ... 2.5 bar a</td>
<td>16 bar a</td>
</tr>
<tr>
<td>(0 ... 36.3 psi a)</td>
<td>(232 psi a)</td>
</tr>
<tr>
<td>0 ... 4 bar a</td>
<td>16 bar a</td>
</tr>
<tr>
<td>(0 ... 58 psi a)</td>
<td>(232 psi a)</td>
</tr>
<tr>
<td>0 ... 6 bar a</td>
<td>30 bar a</td>
</tr>
<tr>
<td>(0 ... 87 psi a)</td>
<td>(435 psi a)</td>
</tr>
<tr>
<td>0 ... 10 bar a</td>
<td>30 bar a</td>
</tr>
<tr>
<td>(0 ... 145 psi a)</td>
<td>(435 psi a)</td>
</tr>
</tbody>
</table>

**Special version**

- F) Subject to export regulations AL: 9I999, ECCN: N.
- with, to ATEX 100a, II 2 G, EEx ib IIC T6

**Further designs**

- F) Please add “-Z” to Order No. and specify Order code

**Hygiene version**

- Roughness of process connection:
  - Foil Ra < 0.8 µm (3.15·10⁻⁸ inch);
  - Welded seams Ra < 1.5 µm (5.9·10⁻⁸ inch)

**Integral cooling element**

- Process temperature max. 200 °C (392 °F) instead of 140 °C (284 °F)

**Connections for pipe**

- Pipes to DIN 11850
- ISO pipes to DIN 2463
- Pipes to O. D. Tubing "BS 4825 Part 1"

**Certificates**

- Quality inspection certificate (Factory calibration) to IEC 60770-2
- Acceptance test certificate to EN 10204-3.1
- Use of FDA-listed remote seal filling liquids certified by factory certificate to EN 10204-2.2
- Roughness depth measurement Ra certified by factory certificate to EN 10204-3.1
- Certification to EHEDG for clamp-on seals with aseptic screwed gland to DIN 11864

- F) Subject to export regulations AL: 9I999, ECCN: N.
## Selection and Ordering data

<table>
<thead>
<tr>
<th>SITRANS P Compact pressure transmitters for pressure and absolute pressure with clamp-on remote seal</th>
<th>Order No.</th>
<th>Ord. code</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-wire system</td>
<td>7MF8010</td>
<td>-</td>
</tr>
<tr>
<td>Process temperature up to 140 °C (284 °F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy: 0.2% of full-scale value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output 4 ... 20 mA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Clamp-on remote seal (screwed gland at both ends) with quick-release clamps

Milk pipe union to DIN 11851 with threaded socket:
- DN 25
- DN 32
- DN 40
- DN 50
- DN 65

Clamp connection to DIN 32676:
- DN 25
- DN 32
- DN 40
- DN 50
- DN 65

Clamp connection to ISO 28521:
- 1 inch
- 1½ inch
- 2 inch
- 2½ inch

Special version (add Order code and plain text)

### Filling liquid

- Vegetable oil
- Medicinal white oil
- Food oil, FDA-listed

Special version (add Order code and plain text)

### Output signal

- 4 ... 20 mA

Special version (add Order code and plain text)

---

1) Please note the internal diameter of the pipe. Please specify pipe classes (see “Further designs”)

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order No.</th>
<th>Ord. code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS P Compact pressure transmitters for pressure and absolute pressure with clamp-on remote seal</td>
<td>7MF8010</td>
<td>-</td>
</tr>
<tr>
<td>2-wire system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process temperature up to 140 °C (284 °F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accuracy: 0.2% of full-scale value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output 4 ... 20 mA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Clamp-on seal with aseptic connection

Aseptic screwed gland to DIN 11864-1, form A with threaded socket:
- DN 25
- DN 32
- DN 40
- DN 50
- DN 65

Aseptic screwed NEUMO with threaded socket:
- DN 25
- DN 32
- DN 40
- DN 50

Aseptic screwed NEUMO with clamp connection, form R:
- DN 25
- DN 32
- DN 40
- DN 50

Aseptic screwed gland SÜDMO with clamp connection W 501:
- 1 inch
- 1½ inch
- 2 inch

Special version (add Order code and plain text)

### Filling liquid

- Vegetable oil
- Medicinal white oil
- Food oil, FDA-listed

Special version (add Order code and plain text)

### Output signal

- 4 ... 20 mA

Special version (add Order code and plain text)

---

1) Please specify as well: Connections for pipes: R01, R02 or R03, see table “Further designs” on next page
### Selection and Ordering data

**SITRANS P Compact pressure transmitters for gage and absolute pressure**

**Order No.**

<table>
<thead>
<tr>
<th>Measured range</th>
<th>Overload pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ... 160 mbar g</td>
<td>2 bar g</td>
</tr>
<tr>
<td>(0 ... 58 psi g)</td>
<td>(29 psi g)</td>
</tr>
<tr>
<td>0 ... 250 mbar g</td>
<td>2 bar g</td>
</tr>
<tr>
<td>(0 ... 137.9 psi g)</td>
<td>(29 psi g)</td>
</tr>
<tr>
<td>0 ... 400 mbar g</td>
<td>6 bar g</td>
</tr>
<tr>
<td>(0 ... 29.7 psi g)</td>
<td>(87 psi g)</td>
</tr>
<tr>
<td>0 ... 600 mbar g</td>
<td>6 bar g</td>
</tr>
<tr>
<td>(0 ... 8.7 psi g)</td>
<td>(87 psi g)</td>
</tr>
<tr>
<td>0 ... 1 bar g</td>
<td>10 bar g</td>
</tr>
<tr>
<td>(0 ... 14.5 psi g)</td>
<td>(145 psi g)</td>
</tr>
<tr>
<td>0 ... 1.6 bar g</td>
<td>16 bar g</td>
</tr>
<tr>
<td>(0 ... 36.3 psi g)</td>
<td>(232 psi g)</td>
</tr>
<tr>
<td>0 ... 4 bar g</td>
<td>16 bar g</td>
</tr>
<tr>
<td>(0 ... 58 psi g)</td>
<td>(232 psi g)</td>
</tr>
<tr>
<td>0 ... 6 bar g</td>
<td>30 bar g</td>
</tr>
<tr>
<td>(0 ... 87 psi g)</td>
<td>(435 psi g)</td>
</tr>
<tr>
<td>0 ... 10 bar g</td>
<td>30 bar g</td>
</tr>
<tr>
<td>(0 ... 145 psi g)</td>
<td>(435 psi g)</td>
</tr>
<tr>
<td>0 ... 16 bar g</td>
<td>50 bar g</td>
</tr>
<tr>
<td>(0 ... 232 psi g)</td>
<td>(725 psi g)</td>
</tr>
<tr>
<td>0 ... 25 bar g</td>
<td>50 bar g</td>
</tr>
<tr>
<td>(0 ... 363 psi g)</td>
<td>(725 psi g)</td>
</tr>
<tr>
<td>0 ... 40 bar g</td>
<td>70 bar g</td>
</tr>
<tr>
<td>(0 ... 580 psi g)</td>
<td>(1015 psi g)</td>
</tr>
<tr>
<td>0 ... 160 mbar g</td>
<td>2 bar g</td>
</tr>
<tr>
<td>(-2.32 ... 0 psi g)</td>
<td>(29 psi g)</td>
</tr>
<tr>
<td>0 ... 250 mbar g</td>
<td>2 bar g</td>
</tr>
<tr>
<td>(-3.63 ... 0 psi g)</td>
<td>(29 psi g)</td>
</tr>
<tr>
<td>0 ... 400 mbar g</td>
<td>6 bar g</td>
</tr>
<tr>
<td>(-5.8 ... 0 psi g)</td>
<td>(87 psi g)</td>
</tr>
<tr>
<td>0 ... 600 mbar g</td>
<td>6 bar g</td>
</tr>
<tr>
<td>(-8.7 ... 0 psi g)</td>
<td>(87 psi g)</td>
</tr>
<tr>
<td>0 ... 1 bar g</td>
<td>10 bar g</td>
</tr>
<tr>
<td>(-14.5 ... 0 psi g)</td>
<td>(145 psi g)</td>
</tr>
<tr>
<td>0 ... 1.6 bar g</td>
<td>16 bar g</td>
</tr>
<tr>
<td>(-14.5 ... 232 psi g)</td>
<td>(232 psi g)</td>
</tr>
<tr>
<td>0 ... 3 bar g</td>
<td>16 bar g</td>
</tr>
<tr>
<td>(-14.5 ... 43.5 psi g)</td>
<td>(232 psi g)</td>
</tr>
<tr>
<td>0 ... 5 bar g</td>
<td>30 bar g</td>
</tr>
<tr>
<td>(-14.5 ... 72.5 psi g)</td>
<td>(435 psi g)</td>
</tr>
</tbody>
</table>

**Order code**

Further designs

- Please add "-Z" to Order No. and specify Order code

**Explosion protection**

- with, to ATEX 100a, II 2 G, Ex ib IIC T6

- F)

**Hygiene version**

- Roughness of process connection: Foil Ra < 0.8 µm (3.15·10⁻⁸ inch);
- Welded seams Ra < 1.5 mm (5.9·10⁻⁶ inch)

**Integral cooling element**

- Process temperature max. 200 °C (392 °F) instead of 140 °C (284 °F)

**Connections for pipe**

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- Roughness depth measurement Ra certified by factory certificate to EN 10204-3.1
- Certification to EHEDG for clamp-on seals with aseptic screwed gland to DIN 11864

**Special version**

- (add Order code and plain text)

- F)

F) Subject to export regulations AL: 99999, ECCN: N.
### SITRANS P measuring instruments for pressure
Transmitters for food, pharmaceuticals and biotechnology

#### SITRANS P Compact
for gage and absolute pressure

---

**Dimensional drawings**

**Housing**
- Field housing: stainless steel, Degree of protection IP65, IP67 as alternative
- Angled plug to DIN 43 650, Degree of protection IP67
- Cable connection: Degree of protection IP67 (cable ventilation)
- Round plug with screw connection M12, Degree of protection IP65

**Process connections**
- Standard
  - Food screwed gland
    - Union nut
    - to DIN 11 851
    - DN 25 ... 65
  - Clamp connection
    - to DIN 32 676
    - ISO 2852
    - DN 25 ... 65
    - 1" ... 2½"
  - Pipe-screwed gland (food)
    - Round thread
    - to DIN 11 851
    - DN 25 ... 65

- Aseptic
  - Aseptic screwed gland
    - Round thread
    - Neumo, Südmo, Guth
    - DIN 11 854-1
    - DN 25 ... 65
    - 1" ...
  - Clamp connection
    - Neumo, Südmo, Guth
    - DN 25 ... 50
    - 1" ...
  - Pipe-screwed gland (aseptic)
    - Round thread
    - DIN 11 894-1
    - Neumo, Südmo, Guth
    - DN 25 ... 65
    - 1" ...
  - Pipe clamp connection
    - Neumo, Südmo, Guth
    - DN 25 ... 65
    - 1" ...

**Schematics**

**Field housing**
- Two-wire system
  - Field housing
    - 0 V
    - 9 V
    - 24 V

**Angled plug**
- 0 V
- 24 V
- brown
- yellow
- green

**Cable connection**
- 0 V
- 24 V
- brown
- yellow
- green

**Round plug**
- 4 black
- 1 brown
- 2 white

---

SITRANS P, dimensions in mm (inch)

---

SITRANS P Compact, connection diagram
**Overview**

The SITRANS P300 is a digital pressure transmitter for gage and absolute pressure. All conventional thread versions are available as process connections. In addition, various hygiene-based connections and flange connections with front-flush diaphragms meet the requirements of a dead space free process connection.

The output signal is a load-independent direct current from 4 to 20 mA or a PROFIBUS PA signal, which is linearly proportional to the input pressure. Communication is over HART protocol or over PROFIBUS PA interface. Convenient buttons for easy local operation of the basic settings of the pressure transmitter.

The SITRANS P300 has a single-chamber stainless steel casing. The pressure transmitter is approved with “intrinsically safe” type of protection. It can be used in zone 1 or zone 0.

**Benefits**
- High quality and long life
- High reliability even under extreme chemical and mechanical loads
- Extensive diagnosis and simulation functions
- Minimum conformity error
- Small long-term drift
- Wetted parts made of high-grade materials (such as stainless steel, Hastelloy)
- Measuring range 8 mbar to 400 bar
- High measuring accuracy
- Parameterization over control keys and HART communication or PROFIBUS PA communication

**Application**

The pressure transmitter is available in versions for gage pressure and for absolute pressure. The output signal is always a load-independent direct current from 4 to 20 mA or a PROFIBUS PA signal, which is linearly proportional to the input pressure. The pressure transmitter measures aggressive, non-aggressive and hazardous gases, as well as vapors and liquids.

It can be used for the following measurement types:
- Gage pressure
- Absolute pressure

With appropriate parameter settings, it can also be used for the following additional measurement types:
- Level
- Volume
- Mass

The “intrinsically-safe” EEx version of the transmitter can be installed in hazardous areas (zone 1). The transmitters are provided with an EC type examination certificate and comply with the respective harmonized European standards of ATEX.

**Gage pressure**

This variant measures aggressive, non-aggressive and hazardous gases, vapors and liquids.

The smallest measuring span is 10 mbar g, the largest 400 bar g.

**Level**

With appropriate parameter settings, the gage pressure variant measures the level of aggressive, non-aggressive and hazardous liquids.

For measuring the level in an open container you require one device; for measuring the level in a closed container, you require two devices and a process control system.

**Absolute pressure**

This variant measures the absolute pressure of aggressive, non-aggressive and hazardous gases, vapors and liquids.

The smallest measuring span is 8 mbar a, the largest 30 bar a.
The device comprises:

- Electronics
- Housing
- Measuring cell

Perspective view of the SITRANS P300

The housing has a screw-on cover (3), with or without an inspection window depending on the version. The electrical terminal housing, the buttons for operation of the device and, depending on the version, the digital display are located under this cover. The connections for the auxiliary power UH and the shield are in the terminal housing. The cable gland is mounted on the side of the housing. The measuring cell with the process connection (5) is located on the underside of the housing. Depending on the version of the device, the measuring cell with the process connection may differ from the one shown in the diagram.

Function diagram of electronics

The input pressure is converted into an electrical signal by the sensor (1). This signal is amplified by the measuring amplifier (2) and digitalized in an analog to digital converter (3). The digital signal is analyzed in a microcontroller (4) and corrected with regard to linearity and thermal characteristics. In a digital to analog converter (5) it is then converted into the output current of 4 to 20 mA. A diode circuit provides reverse voltage protection. You can make an uninterrupted current measurement with a low-ohm ammeter at the connection (10). The data specific to the measuring cell, the electronic data and parameter settings are stored in two non-volatile memories (6). The first memory is linked with the measuring cell, the second with the electronics.

The buttons (8) can be used to call up individual functions, so-called modes. If you have a device with a digital display (9), you can use this to track mode settings and other messages. The basic mode settings can be changed with a computer via the HART modem (7).
The input pressure is converted into an electrical signal by the sensor (1). This signal is amplified by the measuring amplifier (2) and digitized in an analog to digital converter (3). The digital signal is analyzed in a microcontroller (4) and corrected with regard to linearity and thermal characteristics. It is then made available at the PROFIBUS PA over an electrically isolated PROFIBUS interface (7). The data specific to the measuring cell, the electronic data, and parameter settings are stored in two non-volatile memories (6). The first memory is linked with the measuring cell, the second with the electronics.

The buttons (8) can be used to call up individual functions, so-called modes. If you have a device with a digital display (9), you can use this to track mode settings and other messages. The basic mode settings can be changed with a computer over the bus master (12).

The bridge output voltage created by the sensor (1, Figure “Function diagram of electronics”) is amplified by the instrument amplifier (2) and digitized in the analog-to-digital converter (3). The digital information is evaluated in the microcontroller, its linearity and temperature response corrected, and provided on the FOUNDATION Fieldbus through an electrically isolated FOUNDATION Fieldbus Interface (7).

The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced separately from each other.

Using the three input keys (8) you can parameterize the pressure transmitter directly at the point of measurement. The input keys can also be used to control the view of the results, the error messages and the operating modes on the digital display (9).

The results with status values and diagnostic values are transferred by cyclic data transmission on the FOUNDATION Fieldbus. Parameterization data and error messages are transferred by acyclic data transmission. Special software such as National Instruments Configurator is required for this.

Mode of operation of the measuring cells

The process connections available include the following:

- G½
- ½-14 NPT
- Front-flush diaphragm:
  - Flanges to EN
  - Flanges to ASME
  - NuG and pharmaceutical connections
Measuring cell for gage pressure

The input pressure \( (p_e) \) is transferred to the gage pressure sensor (6) via the seal diaphragm (4) and the filling liquid (5), displacing its measuring diaphragm. The displacement changes the resistance value of the four piezo resistors in the measuring diaphragm in a bridge circuit. The change in the resistance causes a bridge output voltage proportional to the input pressure.

The transmitters with spans \( \leq 63 \text{ bar} \) measure the input pressure against atmosphere, those with spans \( \geq 160 \text{ bar} \) against vacuum.

Measuring cell for absolute pressure

The input pressure \( (p_e) \) is transferred to the absolute pressure sensor (5) via the seal diaphragm (3) and the filling liquid (4), displacing its measuring diaphragm. The displacement changes the resistance value of the four piezo resistors in the measuring diaphragm in a bridge circuit. The change in the resistance causes a bridge output voltage proportional to the input pressure.

Measuring cell for gage pressure, front-flush diaphragm

The input pressure \( (p_e) \) is transferred to the gage pressure sensor (6) via the seal diaphragm (4) and the filling liquid (5), displacing its measuring diaphragm. The displacement changes the resistance value of the four piezo resistors in the measuring diaphragm in a bridge circuit. The change in the resistance causes a bridge output voltage proportional to the input pressure.

The transmitters with spans \( \leq 63 \text{ bar} \) measure the input pressure against atmosphere, those with spans \( \geq 160 \text{ bar} \) against vacuum.

Measuring cell for absolute pressure, front-flush diaphragm

The input pressure \( (p_e) \) is transferred to the absolute pressure sensor (5) via the seal diaphragm (3) and the filling liquid (4), displacing its measuring diaphragm. The displacement changes the resistance value of the four piezo resistors in the measuring diaphragm in a bridge circuit. The change in the resistance causes a bridge output voltage proportional to the input pressure.
displacing its measuring diaphragm. The displacement changes the resistance value of the four piezo resistors in the measuring diaphragm in a bridge circuit. The change in the resistance causes a bridge output voltage proportional to the input pressure.

Parameterization of SITRANS P300

Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

Parameterization using the input keys (local operation)

With the input keys you can easily set the most important parameters without any additional equipment.

Parameterization using HART communication

Parameterization using HART communication is performed with a HART communicator or a PC.

Communication between a HART communicator and a pressure transmitter

When parameterizing with the HART communicator, the connection is made directly to the 2-wire system.

HART communication between a PC communicator and a pressure transmitter

When parameterizing with a PC, the connection is made through a HART modem.

The signals needed for communication in conformity with the HART 5.x or 6.x protocols are superimposed on the output current using the Frequency Shift Keying (FSK) method.

Adjustable parameters on SITRANS P300 with HART communication

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Input keys</th>
<th>HART communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of scale</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Full-scale value</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Electrical damping</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Start-of-scale value without application of a pressure (“Blind setting”)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Full-scale value without application of a pressure (“Blind setting”)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Zero adjustment</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Current transmitter</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Fault current</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Disabling of keys, write protection</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

1) Cancel apart from write protection

Diagnostic functions for SITRANS P300 with HART communication

- Zero correction display
- Event counter
- Limit transmitter
- Saturation alarm
- Slave pointer
- Simulation functions
- Maintenance timer

Available physical units of display for SITRANS P300 with HART communication

<table>
<thead>
<tr>
<th>Physical variable</th>
<th>Physical dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure (setting can also be made in the factory)</td>
<td>Pa, MPa, kPa, bar, mbar, torr, atm, psi, g/cm², kgf/cm², inH₂O, inH₂O (4 °C), mmH₂O, ftH₂O (20 °C), inHg, mmHg</td>
</tr>
<tr>
<td>Level (height data)</td>
<td>m, cm, mm, ft, in</td>
</tr>
<tr>
<td>Volume</td>
<td>m³, dm³, hl, yd³, ft³, in³, US gallon, Imp. gallon, bushel, barrel, barrel liquid</td>
</tr>
<tr>
<td>Mass</td>
<td>g, kg, t, lb, Ston, Lton, oz</td>
</tr>
<tr>
<td>Temperature</td>
<td>K, °C, °F, °R</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>%, mA</td>
</tr>
</tbody>
</table>
Parameterization through PROFIBUS PA interface

Fully digital communication through PROFIBUS PA, profile 3.0, is particularly user-friendly. The PROFIBUS puts the DS III PA in connection with a process control system, e.g. SIMATIC PSC 7. Communication is possible even in a potentially explosive environment.

For parameterization through PROFIBUS you need suitable software, e.g. SIMATIC PDM (Process Device Manager).

Parameterization through FOUNDATION Fieldbus Interface

Fully digital communication through FOUNDATION Fieldbus is particularly user-friendly. Through the FOUNDATION Fieldbus the P300 FF is connected to a process control system. Communication is possible even in a potentially explosive environment.

For parameterization through the FOUNDATION Fieldbus you need suitable software, e.g. National Instruments Configurator.

Adjustable parameters for P300 PA and FF

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Input keys</th>
<th>PROFIBUS PA and FOUNDATION Fieldbus interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical damping</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Zero adjustment (correction of position)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Key and/or function disabling</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Source of measured-value display</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Physical dimension of display</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Position of decimal point</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Bus address</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Adjustment of characteristic</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Input of characteristic</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Freely-programmable LCD</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Diagnostics functions</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Diagnostic functions for P300 PA and FF
- Event counter
- Slave pointer
- Maintenance timer
- Simulation functions
- Display of zero correction
- Limit transmitter
- Saturation alarm

Physical dimensions available for the display

<table>
<thead>
<tr>
<th>Physical variable</th>
<th>Physical dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure (setting can also be made in the factory)</td>
<td>MPa, kPa, Pa, bar, mbar, torr, atm, psi, g/cm², kg/cm², mmH₂O, mmH₂O (4 °C), inH₂O, inH₂O (4 °C), ftH₂O (20 °C), mmHg, inHg</td>
</tr>
<tr>
<td>Level (height data)</td>
<td>m, cm, mm, ft, in, yd</td>
</tr>
<tr>
<td>Volume</td>
<td>m³, dm³, hl, yd³, ft³, in³, US gallon, Imp. gallon, bushel, barrel, barrel liquid</td>
</tr>
<tr>
<td>Volume flow</td>
<td>m³/s, m³/min, m³/d, l/s, l/min, l/h, l/d, M³/d, ft³/s, ft³/min, ft³/h, ft³/d, US gallon/s, US gallon/min, US gallon/h, US gallon/d, bbl/s, bbl/min, bbl/h, bbl/d</td>
</tr>
<tr>
<td>Mass flow</td>
<td>g/s, g/min, g/h, kg/d, kg/s, kg/min, kg/h, kg/d, t/s, t/min, t/h, t/d, lb/s, lb/min, lb/h, lb/d, STon/s, STon/min, STon/h, STon/d, LTon/s, LTon/min, LTon/h, LTon/d</td>
</tr>
<tr>
<td>Total mass flow</td>
<td>t, kg, g, lb, oz, STon</td>
</tr>
<tr>
<td>Temperature</td>
<td>°K, °C, °F, °R</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>%</td>
</tr>
</tbody>
</table>

Hygiene version

In the case of the SITRANS P300 with 7MF812.---- front-flush diaphragm, selected connections comply with the requirements of the EHEDG or 3A. You will find further details in the order form. Please note in particular that the seal materials used must comply with the requirements of 3A. Similarly, the filling liquids used must be FDA-compliant.
### Technical specifications

#### SITRANS P300 for gage pressure and absolute pressure

<table>
<thead>
<tr>
<th>Measured variable</th>
<th>Input</th>
<th>Nominal measuring range</th>
<th>Max. perm. test pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gage pressure input</strong></td>
<td>Gage pressure</td>
<td>Span: 0.01 ... 1 bar g (0.145 ... 14.5 psi g)</td>
<td>1 bar g (14.5 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 0.04 ... 4 bar g (0.58 ... 58 psi g)</td>
<td>4 bar g (58 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 0.16 ... 16 bar g (2.3 ... 232 psi g)</td>
<td>16 bar g (232 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 0.6 ... 63 bar g (9.1 ... 914 psi g)</td>
<td>63 bar g (914 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 1.6 ... 160 bar g (23.2 ... 2321 psi g)</td>
<td>160 bar g (2321 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 4.0 ... 400 bar g (58 ... 5802 psi g)</td>
<td>400 bar g (5802 psi g)</td>
</tr>
<tr>
<td><strong>Absolute pressure input</strong></td>
<td>Absolute pressure</td>
<td>Span: 8 ... 250 mbar a (0.12 ... 3.6 psi a)</td>
<td>250 mbar a (3.6 psi a)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 0.043 ... 1.30 bar a (0.62 ... 19 psi a)</td>
<td>1.30 bar a (19 psi a)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 0.16 ... 5 bar a (2.3 ... 73 psi a)</td>
<td>5 bar a (73 psi a)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 1 ... 30 bar a (14.5 ... 435 psi a)</td>
<td>30 bar a (435 psi a)</td>
</tr>
<tr>
<td><strong>Input of gage pressure, with front-flush diaphragm</strong></td>
<td>Gage pressure, front-flush</td>
<td>Span: 0.01 ... 1 bar g (0.145 ... 14.5 psi g)</td>
<td>1 bar g (14.5 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 0.04 ... 4 bar g (0.58 ... 58 psi g)</td>
<td>4 bar g (58 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 0.16 ... 16 bar g (2.3 ... 232 psi g)</td>
<td>16 bar g (232 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: 0.6 ... 63 bar g (9.14 ... 914 psi g)</td>
<td>63 bar g (914 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Span: -100 mbar g (-1.45 psi g)</td>
<td></td>
</tr>
</tbody>
</table>

**Lower measuring limit**
- Measuring cell with silicone oil: 30 mbar a (0.44 psi a)
- Measuring cell with silicone oil: 100% of the max. nominal measuring range

**Upper measuring limit**
- Measuring cell with silicone oil: 100% of the max. nominal measuring range

- Measuring cell with silicone oil: 100% of the max. nominal measuring range
### SITRANS P300 for gage pressure and absolute pressure

#### Input of absolute pressure, with front-flush diaphragm

<table>
<thead>
<tr>
<th>Measured variable</th>
<th>Absolute pressure (front-flush)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure</td>
<td>Nominal measuring range and max. perm. test pressure</td>
</tr>
<tr>
<td>43 ... 1300 mbar a (0.62 ... 18.9 psi a)</td>
<td>10 bar a (145 psi a)</td>
</tr>
<tr>
<td>0.16 ... 5 bar a (2.32 ... 72.5 psi a)</td>
<td>30 bar a (435 psi a)</td>
</tr>
<tr>
<td>1 ... 30 bar a (14.5 ... 435 psi a)</td>
<td>100 bar a (1450 psi a)</td>
</tr>
</tbody>
</table>

- Depending on the process connection, the span may differ from these values
- Depending on the process connection, the nominal measuring range may differ from these values

#### Output

- **Output signal**: 4 ... 20 mA
- **Physical bus**: Digital PROFIBUS PA signal
- **With polarity reversal protection**: No
- **Electrical damping T₆₃ (step width 0.1 s)**: No

#### Accuracy

- **Reference conditions**: Increasing characteristic, start-of-scale value 0 bar, stainless steel seal diaphragm, measuring cell with silicone oil, room temperature 25 °C (77 °F), span ratio (r = max. span / set span)
- **Measurement deviation with cut-off point setting, including hysteresis and repeatability.**

<table>
<thead>
<tr>
<th>Linear characteristic curve</th>
<th>Gage pressure</th>
<th>Absolute pressure</th>
<th>Gage pressure</th>
<th>Absolute pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Absolute pressure, front-flushed)</td>
<td>≤ 0.075%</td>
<td>≤ 0.1%</td>
<td>≤ 0.2%</td>
</tr>
<tr>
<td>r ≤ 10</td>
<td>≤ (0.0029 ⋅ r + 0.071)%</td>
<td>≤ 0.1%</td>
<td>≤ 0.2%</td>
<td></td>
</tr>
<tr>
<td>10 &lt; r ≤ 30</td>
<td>≤ (0.0045 ⋅ r + 0.071)%</td>
<td>≤ 0.2%</td>
<td>≤ 0.4%</td>
<td></td>
</tr>
<tr>
<td>30 &lt; r ≤ 100</td>
<td>≤ (0.0065 ⋅ r + 0.05)%</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

- **Setting time T₆₃ without electrical damping**: Approx. 0.2 s
- **Long-term drift at ± 30 °C (± 54 °F)**: ≤ (0.25 ⋅ r)%/5 years ≤ (0.1 ⋅ r)%/year ≤ 0.25%/5 years ≤ 0.1%/year
- **Influence of ambient temperature**
  - at -10 ... +60 °C (14 ... 140 °F): ≤ (0.1 ⋅ r + 0.2)% ≤ (0.2 ⋅ r + 0.3)% ≤ 0.3% ≤ 0.5%
  - at -40 ... -10 °C and +60 ... +85 °C (-40 ... 14 °F and 140 ... 185 °F): ≤ (0.1 ⋅ r + 0.15)% / 10 K ≤ (0.2 ⋅ r + 0.3)% / 10 K ≤ 0.25%/10 K ≤ 0.5%/10 K
- **Temperature difference between medium temperature and ambient temperature**: 3 mbar/10 K (0.04 psi/10 K)
## SITRANS P300 for gage pressure and absolute pressure

### Rated operating conditions

<table>
<thead>
<tr>
<th>Installation conditions</th>
<th>HART</th>
<th>PROFIBUS PA and FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>Observe the temperature class in areas subject to explosion hazard.</td>
<td></td>
</tr>
<tr>
<td>Measuring cell with silicone oil</td>
<td>-40 ... +100 °C (-40 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>Measuring cell with Neobee oil (with front-flush diaphragm)</td>
<td>-40 ... +150 °C (-40 ... +302 °F)</td>
<td></td>
</tr>
<tr>
<td>Measuring cell with inert liquid (not with front-flush diaphragm)</td>
<td>-20 ... +200 °C (-40 ... +392 °F)</td>
<td></td>
</tr>
<tr>
<td>Digital display</td>
<td>-30 ... +85 °C (-22 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-50 ... +85 °C (-58 ... +185 °F) (with Neobee: -20 ... +85 °C (-4 ... +185 °F)</td>
<td></td>
</tr>
</tbody>
</table>

### Climatic class

<table>
<thead>
<tr>
<th>Condensation</th>
<th>Permissible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of protection to EN 60529</td>
<td>IP65, IP68, NEMA X, enclosure cleaning, resistant to lyes, steam to 150° C (302 °F)</td>
</tr>
</tbody>
</table>

### Medium conditions

<table>
<thead>
<tr>
<th>Medium condition</th>
<th>HART</th>
<th>PROFIBUS PA and FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process temperature</td>
<td>-40 ... +100 °C (-40 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>Measuring cell with silicone oil (with front-flush diaphragm)</td>
<td>-40 ... +150 °C (-40 ... +302 °F)</td>
<td></td>
</tr>
<tr>
<td>Measuring cell with Neobee oil (with front-flush diaphragm)</td>
<td>-40 ... +200 °C (-40 ... +392 °F)</td>
<td></td>
</tr>
<tr>
<td>Measuring cell with silicone oil, with temperature isolator (only with front-flush diaphragm)</td>
<td>-40 ... +200 °C (-40 ... +392 °F)</td>
<td></td>
</tr>
<tr>
<td>Measuring cell with inert liquid</td>
<td>-20 ... +100 °C (-4 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>Measuring cell with high temperature oil</td>
<td>-10 ... +250 °C (14 ... +482 °F)</td>
<td></td>
</tr>
</tbody>
</table>

### Design (standard version)

<table>
<thead>
<tr>
<th>Weight (without options)</th>
<th>Approx. 800 g (1.8 lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing material</td>
<td>Stainless steel, mat. No. 1.4301/304</td>
</tr>
<tr>
<td>Material of parts in contact with the medium</td>
<td>Stainless steel, mat. No. 1.4404/316L or Hastelloy C276, mat. No. 2.4819</td>
</tr>
<tr>
<td>Connection shank</td>
<td>Stainless steel, mat. No. 1.4404/316L</td>
</tr>
<tr>
<td>Oval flange</td>
<td>Stainless steel, mat. No. 1.4404/316L</td>
</tr>
<tr>
<td>Seal diaphragm</td>
<td>Stainless steel, mat. No. 1.4404/316L or Hastelloy C276, mat. No. 2.4819</td>
</tr>
<tr>
<td>Measuring cell filling</td>
<td>Silicone oil</td>
</tr>
<tr>
<td></td>
<td>Inert filling liquid</td>
</tr>
<tr>
<td>Process connection</td>
<td>G3/4B to DIN EN 837-1</td>
</tr>
<tr>
<td></td>
<td>Female thread ½-14 NPT</td>
</tr>
<tr>
<td></td>
<td>Oval flange PN 160 (MWP 2320 psi) with fastening thread:</td>
</tr>
<tr>
<td></td>
<td>- 1/16-20 UNF to IEC 61518</td>
</tr>
<tr>
<td></td>
<td>- M10 as per DIN 19213</td>
</tr>
</tbody>
</table>

### Design (version with front-flush diaphragm)

<table>
<thead>
<tr>
<th>Weight (without options)</th>
<th>Approx. 1 ... 13 kg (2.2 ... 29 lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing material</td>
<td>Stainless steel, mat. No. 1.4301/304</td>
</tr>
<tr>
<td>Material of parts in contact with the medium</td>
<td>Stainless steel, mat. No. 1.4404/316L</td>
</tr>
<tr>
<td>Process connection</td>
<td>Stainless steel, mat. No. 1.4404/316L</td>
</tr>
<tr>
<td>Seal diaphragm</td>
<td>Stainless steel, mat. No. 1.4404/316L</td>
</tr>
<tr>
<td>Measuring cell filling</td>
<td>Silicone oil</td>
</tr>
<tr>
<td></td>
<td>Inert filling liquid</td>
</tr>
<tr>
<td></td>
<td>FDA compliant fill fluid (Neobee oil)</td>
</tr>
<tr>
<td>Process connection</td>
<td>Flanges as per EN and ASME</td>
</tr>
<tr>
<td></td>
<td>F&amp;B and pharmaceutical flanges</td>
</tr>
</tbody>
</table>
## SITRANS P300 for gage pressure and absolute pressure

<table>
<thead>
<tr>
<th>Power supply $U_H$</th>
<th>HART</th>
<th>PROFIBUS PA and FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal voltage on transmitter</td>
<td>$10.5 \ldots 42$ V DC</td>
<td>Supplied through bus</td>
</tr>
<tr>
<td>Separate power supply</td>
<td>-</td>
<td>Not necessary</td>
</tr>
<tr>
<td>Bus voltage</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>• Without EEx</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>• For intrinsically-safe operation</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Current consumption</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>• Max. basic current</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>• Startup current ≤ basic current</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>• Max. fault current in the event of a fault</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fault disconnection electronics (FDE)</td>
<td>-</td>
<td>Available</td>
</tr>
</tbody>
</table>

## Certificate and approvals

<table>
<thead>
<tr>
<th>Classification according to pressure equipment directive (DRGL 97/23/EC)</th>
<th>For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water, waste water</td>
<td>Available soon</td>
</tr>
<tr>
<td>Intrinsic safety &quot;i&quot;</td>
<td>PTB 05 ATEX 2048</td>
</tr>
<tr>
<td>Identification</td>
<td>Ex II 1/2 G EEx ia/IIB T4, T5, T6</td>
</tr>
<tr>
<td>Permissible ambient temperature</td>
<td></td>
</tr>
<tr>
<td>• Temperature class T4</td>
<td>$-40 \ldots +85$ °C ($-40 \ldots +185$ °F)</td>
</tr>
<tr>
<td>• Temperature class T5</td>
<td>$-40 \ldots +70$ °C ($-40 \ldots +158$ °F)</td>
</tr>
<tr>
<td>• Temperature class T6</td>
<td>$-40 \ldots +60$ °C ($-40 \ldots +140$ °F)</td>
</tr>
<tr>
<td>Connection</td>
<td>To certified intrinsically-safe circuits with maximum values: $U_i = 30$ V, $I_i = 100$ mA, $P_i = 750$ mW, $R_i = 300$ Ω</td>
</tr>
<tr>
<td>To certified intrinsically-safe circuits with maximum values:</td>
<td></td>
</tr>
<tr>
<td>FISCO supply unit:</td>
<td>$U_i = 17.5$ V, $I_i = 380$ mA, $P_i = 5.32$ W</td>
</tr>
<tr>
<td>Linear barrier:</td>
<td>$U_i = 24$ V, $I_i = 250$ mA, $P_i = 1.2$ W</td>
</tr>
<tr>
<td>Effective inner capacitance:</td>
<td>$C_i = 6$ nF</td>
</tr>
<tr>
<td>Effective inner inductance:</td>
<td>$L_i = 0.4$ mH</td>
</tr>
<tr>
<td>Explosion protection to FM for USA and Canada (cFMUS)</td>
<td>Certificate of Compliance 3025099</td>
</tr>
<tr>
<td>• Identification (DIP) or (IS); (NI)</td>
<td>CL I, DIV 1, GP ABCD T4 \ldots T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4 \ldots T6; CL I, DIV 2, GP ABCD T4 \ldots T6; CL II, DIV 2, GP FG; CL III</td>
</tr>
<tr>
<td>• Identification (DIP) or (IS)</td>
<td>Certificate of Compliance 3025099C</td>
</tr>
<tr>
<td></td>
<td>CL I, DIV 1, GP ABCD T4 \ldots T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC 4 \ldots T6; CL I, DIV 2, GP ABCD T4 \ldots T6; CL II, DIV 2, GP FG; CL III</td>
</tr>
</tbody>
</table>
**SITRANS P measuring instruments for pressure**

**Transmitters for gage and absolute pressure**

### SITRANS P300

<table>
<thead>
<tr>
<th><strong>HART communication</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HART communication</td>
<td>230 ... 1100 Ω</td>
</tr>
<tr>
<td>Protocol</td>
<td>HART Version 5.x</td>
</tr>
<tr>
<td>Software for computer</td>
<td>SIMATIC PDM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PROFIBUS PA communication</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Simultaneous communication with master class 2 (max.)</td>
<td>4</td>
</tr>
<tr>
<td>The address can be set using</td>
<td>Configuration tool or local operation (standard setting address 126)</td>
</tr>
<tr>
<td>Cyclic data usage</td>
<td></td>
</tr>
<tr>
<td>• Output byte</td>
<td>5 (one measuring value) or 10 (two measuring values)</td>
</tr>
<tr>
<td>• Input byte</td>
<td>0, 1, or 2 (register operating mode and reset function for metering)</td>
</tr>
<tr>
<td>Internal preprocessing</td>
<td></td>
</tr>
<tr>
<td>Device profile</td>
<td>PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function blocks</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Analog input</td>
<td></td>
</tr>
<tr>
<td>- Adaptation to customer-specific process variables</td>
<td>Yes, linearly rising or falling characteristic</td>
</tr>
<tr>
<td>- Electrical damping $T_{63}$, adjustable</td>
<td>0 ... 100 s</td>
</tr>
<tr>
<td>- Simulation function</td>
<td>Input /Output</td>
</tr>
<tr>
<td>- Failure mode</td>
<td>Can be parameterized (last good value, substitute value, incorrect value)</td>
</tr>
<tr>
<td>- Limit monitoring</td>
<td>Yes, one upper and lower warning limit and one alarm limit respectively</td>
</tr>
<tr>
<td>• Register (totalizer)</td>
<td></td>
</tr>
<tr>
<td>- Failure mode</td>
<td>Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)</td>
</tr>
<tr>
<td>- Limit monitoring</td>
<td>One upper and lower warning limit and one alarm limit respectively</td>
</tr>
<tr>
<td>• Physical block</td>
<td>1</td>
</tr>
<tr>
<td>Transducer blocks</td>
<td>2</td>
</tr>
<tr>
<td>• Pressure transducer block</td>
<td></td>
</tr>
<tr>
<td>- Can be calibrated by applying two pressures</td>
<td>Yes</td>
</tr>
<tr>
<td>- Monitoring of sensor limits</td>
<td>Yes</td>
</tr>
<tr>
<td>- Specification of a container characteristic with</td>
<td>Max. 30 nodes</td>
</tr>
<tr>
<td>- Square-rooted characteristic for flow measurement</td>
<td>Yes</td>
</tr>
<tr>
<td>- Gradual volume suppression and implementation point of square-root extraction</td>
<td>Parameterizable</td>
</tr>
<tr>
<td>- Simulation function for measured pressure value and sensor temperature</td>
<td>Constant value or over parameterizable ramp function</td>
</tr>
</tbody>
</table>

### Communication FOUNDATION Fieldbus

<table>
<thead>
<tr>
<th>Function blocks</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 function block analog input, 1 function block PID</td>
<td></td>
</tr>
<tr>
<td>• Analog input</td>
<td></td>
</tr>
<tr>
<td>- Adaptation to customer-specific process variables</td>
<td>Yes, linearly rising or falling characteristic</td>
</tr>
<tr>
<td>- Electrical damping $T_{63}$, adjustable</td>
<td>0 ... 100 s</td>
</tr>
<tr>
<td>- Simulation function</td>
<td>Output/input (can be locked within the device with a bridge)</td>
</tr>
<tr>
<td>- Failure mode</td>
<td>Can be parameterized (last good value, substitute value, incorrect value)</td>
</tr>
<tr>
<td>- Limit monitoring</td>
<td>Yes, one upper and lower warning limit and one alarm limit respectively</td>
</tr>
<tr>
<td>- Square-rooted characteristic for flow measurement</td>
<td>Yes</td>
</tr>
<tr>
<td>• PID</td>
<td>Standard FF function block</td>
</tr>
<tr>
<td>• Physical block</td>
<td>1 Resource block</td>
</tr>
<tr>
<td>Transducer blocks</td>
<td>1 transducer block Pressure with calibration, 1 transducer block LCD</td>
</tr>
<tr>
<td>• Pressure transducer block</td>
<td></td>
</tr>
<tr>
<td>- Can be calibrated by applying two pressures</td>
<td>Yes</td>
</tr>
<tr>
<td>- Monitoring of sensor limits</td>
<td>Yes</td>
</tr>
<tr>
<td>- Simulation function: Measured pressure value, sensor temperature and electronics temperature</td>
<td>Constant value or over parameterizable ramp function</td>
</tr>
</tbody>
</table>
### Selection and Ordering data

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS P300 pressure transmitters for gage and absolute pressure, single-chamber measuring housing, rating plate inscription in English</td>
<td>7MF 8023 -</td>
</tr>
<tr>
<td>PROFIBUS PA</td>
<td>7MF 8024 -</td>
</tr>
<tr>
<td>FOUNDATION Fieldbus (FF)</td>
<td>7MF 8025 -</td>
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</table>

#### Measuring cell filling

<table>
<thead>
<tr>
<th>Measuring cell filling</th>
<th>Measuring cell cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>Standard</td>
</tr>
<tr>
<td>Inert liquid</td>
<td>Cleanliness level 2 to DIN 25410</td>
</tr>
</tbody>
</table>

#### max. span

<table>
<thead>
<tr>
<th>Max. span</th>
<th>Measuring cell filling</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,01 ... 1 bar g</td>
<td>(0.145 ... 14.5 psi g)</td>
</tr>
<tr>
<td>0,04 ... 4 bar g</td>
<td>(0.58 ... 58 psi g)</td>
</tr>
<tr>
<td>0,16 ... 16 bar g</td>
<td>(2.32 ... 232 psi g)</td>
</tr>
<tr>
<td>0,63 ... 63 bar g</td>
<td>(9.14 ... 914 psi g)</td>
</tr>
<tr>
<td>1,6 ... 160 bar g</td>
<td>(23.2 ... 2330 psi g)</td>
</tr>
<tr>
<td>4 ... 400 bar g</td>
<td>(58 ... 5800 psi g)</td>
</tr>
<tr>
<td>2,5 ... 25 mbar a</td>
<td>(0.036 ... 3.63 psi a)</td>
</tr>
<tr>
<td>13 ... 1300 mbar a</td>
<td>(0.19 ... 18.9 psi a)</td>
</tr>
<tr>
<td>0,05 ... 5 mbar a</td>
<td>(0.7 ... 72.5 psi a)</td>
</tr>
<tr>
<td>0,3 ... 30 mbar a</td>
<td>(4.35 ... 435 psi a)</td>
</tr>
</tbody>
</table>

#### Wetted parts materials

<table>
<thead>
<tr>
<th>Seal diaphragm</th>
<th>Measuring cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Hastelloy</td>
<td>Hastelloy</td>
</tr>
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</table>

#### Process connection

<table>
<thead>
<tr>
<th>Process connection</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1/2 to EN 837-1</td>
<td>0</td>
</tr>
<tr>
<td>1/2-14 NPT</td>
<td>1</td>
</tr>
<tr>
<td>Oval flange made of stainless steel</td>
<td>2</td>
</tr>
<tr>
<td>- Mounting thread</td>
<td>3</td>
</tr>
<tr>
<td>- Mounting thread M12 to D19213</td>
<td>4</td>
</tr>
<tr>
<td>Male thread M20 x 1.5</td>
<td>5</td>
</tr>
<tr>
<td>Male thread 1/2-14 NPT</td>
<td>6</td>
</tr>
</tbody>
</table>

#### Non-wetted parts materials

| St. steel, deep-drawn and electrolytically polished | 4 |

#### Version

<table>
<thead>
<tr>
<th>Version</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard version</td>
<td>1</td>
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</table>

#### Explosion protection

<table>
<thead>
<tr>
<th>Explosion protection</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without</td>
<td>A</td>
</tr>
<tr>
<td>With ATEX, Type of protection:</td>
<td>B</td>
</tr>
<tr>
<td>- &quot;Intrinsic safety (EEx ia)&quot;</td>
<td></td>
</tr>
<tr>
<td>Zone 20/21/22</td>
<td>C</td>
</tr>
<tr>
<td>Ex nAHL (zone 2)</td>
<td>E</td>
</tr>
<tr>
<td>With FM „Intrinsic safe“ (cFMUS)</td>
<td>M</td>
</tr>
</tbody>
</table>

#### Electrical connection / cable entry

<table>
<thead>
<tr>
<th>Electrical connection / cable entry</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screwed gland M20x1.5 (Polyamide)</td>
<td>A</td>
</tr>
<tr>
<td>Screwed gland M20x1.5 (metal)</td>
<td>B</td>
</tr>
<tr>
<td>Screwed gland M20x1.5 (stainless steel)</td>
<td>F</td>
</tr>
<tr>
<td>M12 connector (metal, without cable socket)</td>
<td>G</td>
</tr>
<tr>
<td>M12 connector (stainless steel, without cable socket)</td>
<td>H</td>
</tr>
<tr>
<td>1/2-14 NPT thread, metal</td>
<td>I</td>
</tr>
<tr>
<td>1/2-14 NPT thread, stainless steel</td>
<td>J</td>
</tr>
</tbody>
</table>

### Display

- Without display, with keys, closed lid 5)
- With display and keys, closed lid
- With display and keys, lid with macrolon washer (setting on HART devices: mA, on PROFIBUS PA and FOUNDATION Fieldbus devices: pressure units)
- With display (setting acc. to specifications, Order code “Y21” or “Y22” required), lid with macrolon washer
- With display and keys, lid with glass pane (setting on HART devices: mA, on PROFIBUS PA and FOUNDATION Fieldbus devices: pressure units)
- With display (setting acc. to specifications, Order code “Y21” or “Y22” required), lid with glass pane

### Factory-mounting of shut-off valves and valve manifolds

See page 2/142.

### Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation

1) When the manufacture’s certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

2) When the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.

3) Can only be ordered in conjunction with electrical connection Option A.

4) Can only be ordered in conjunction with electrical connection Option B, C, F or G.

5) Only together with HART electronics.

6) Without cable gland.

F) Subject to export regulations AL: 9I999, ECCN: N.
### SITRANS P300

#### Selection and Ordering data

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<thead>
<tr>
<th>Measuring cell filling</th>
<th>Measuring cell cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>Standard</td>
</tr>
<tr>
<td>Inert liquid</td>
<td>Cleanliness level 2 to DIN 25410</td>
</tr>
<tr>
<td>FDA compliant fill fluid</td>
<td>Neobee oil Standard</td>
</tr>
<tr>
<td>max. span</td>
<td></td>
</tr>
<tr>
<td>0,01 ... 1 bar g</td>
<td>(0.15 ... 14.5 psi g)</td>
</tr>
<tr>
<td>0,04 ... 4 bar g</td>
<td>(0.58 ... 58 psi g)</td>
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<td>(2.32 ... 232 psi g)</td>
</tr>
<tr>
<td>0,63 ... 63 bar g</td>
<td>(9.14 ... 914 psi g)</td>
</tr>
<tr>
<td>13 ... 1300 mbar a1)</td>
<td>(0.19 ... 18.9 psi a)</td>
</tr>
<tr>
<td>0,05 ... 5 bar a1)</td>
<td>(0.7 ... 72.5 psi a)</td>
</tr>
<tr>
<td>0,03 ... 30 bar a1)</td>
<td>(4.35 ... 435 psi a)</td>
</tr>
</tbody>
</table>

#### Wetted parts materials

<table>
<thead>
<tr>
<th>Seal diaphragm</th>
<th>Measuring cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Stainless steel</td>
</tr>
</tbody>
</table>

#### Process connection

- Flange version with Order code M., N., R., or Q. (see “Further designs”)

#### Non-wetted parts materials

- Stainless steel, deep-drawn and electrolytically polished

#### Version

- Standard version

#### Explosion protection

- Without
- With ATEX, Type of protection:
  - "Intrinsic safety (Ex ia)"
  - Zone 20/21/222)
  - Ex nA/nL (zone 2)3)
  - With FM “Intrinsic safe” (cFMUS)

#### Electrical connection / cable entry

- Screwed gland M20x1.5 (Polyamide)4)
- Screwed gland M20x1.5 (metal)
- Screwed gland M20x1.5 (stainless steel)
- M12 connector (without cable socket)
- M12 connector (stainless steel, without cable socket)
- ½-14 NPT thread, metal5)
- ½-14 NPT thread, stainless steel5)

#### Display

- Without display, with keys, closed lid4)
- With display and keys, closed lid
- With display and keys, lid with macrolon washer (setting on HART devices: mA, on PROFIBUS PA and FOUNDATION Fieldbus devices: pressure units)
- With display (setting acc. to specifications, Order code “Y21” or “Y22” required), lid with macrolon washer
- With display and keys, lid with glass pane (setting on HART devices: mA, on PROFIBUS PA and FOUNDATION Fieldbus devices: pressure units)
- With display (setting acc. to specifications, Order code “Y21” or “Y22” required), lid with glass pane

Power supply units see “SITRANS I power supply units and isol. amplifiers”.

Included in delivery of the device:
- Brief instructions (Leporello)
- CD-ROM with detailed documentation

1) Not with temperature decoupler P00 and P10, not for process connections R02, R04, R10 and R11, and can only be ordered in conjunction with silicone oil.

2) Can only be ordered in conjunction with electrical connection Option A.

3) Can only be ordered in conjunction with electrical connection Option B, C, F or G.

4) Only together with HART electronics.

5) Without cable gland.

F) Subject to export regulations AL: 9I999, ECCN: N.
### Selection and Ordering data

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
<th>HART</th>
<th>PA</th>
<th>FF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mounting bracket</td>
<td>A02</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>made completely of stainless steel, for wall or pipe mounting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable socket for M12 plug</td>
<td>Metal</td>
<td>A50</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>A51</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Rating plate inscription</td>
<td>(instead of English)</td>
<td>German</td>
<td>B10</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>French</td>
<td>B12</td>
<td>✓</td>
<td>✓</td>
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<td></td>
<td>Spanish</td>
<td>B13</td>
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<td>✓</td>
</tr>
<tr>
<td></td>
<td>Italian</td>
<td>B14</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>English rating plate</td>
<td>B21</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Pressure units in inH₂O or psi</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality inspection certificate (Factory calibration) to IEC 60770-2</td>
<td>C11</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>to IEC 60770-2</td>
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<tr>
<td>Acceptance test certificate</td>
<td>C12</td>
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<td>✓</td>
</tr>
<tr>
<td>to EN 10204-3.1</td>
<td></td>
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<tr>
<td>Factory certificate</td>
<td>C14</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>to EN 10204-2.2</td>
<td></td>
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</tr>
<tr>
<td>Type of protection IP68</td>
<td>D12</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Only for SITRANS P300 with front-flush diaphragm (7MF61-...-...)</td>
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<td></td>
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<tr>
<td>Flange to EN 1092-1, form B1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• DN 25, PN 40³</td>
<td>M11</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>• DN 25, PN 100³</td>
<td>M21</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>• DN 40, PN 40</td>
<td>M13</td>
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<td>• DN 40, PN 100</td>
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<tr>
<td>• DN 50, PN 16</td>
<td>M04</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>• DN 50, PN 40</td>
<td>M14</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>• DN 80, PN 25</td>
<td>M06</td>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>• DN 80, PN 40</td>
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<tr>
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<td>M41</td>
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<tr>
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<td>Threaded connection acc. to DIN 3852-2, Form A</td>
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<tr>
<td>• G ¾&quot;-A, flush-mounted⁴</td>
<td>R01</td>
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<tr>
<td>• G 1½&quot;-A, flush-mounted⁴</td>
<td>R02</td>
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<tr>
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<td>Tank connection⁵</td>
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<td>Sealing is included in delivery</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>certified to 3A³</td>
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<td></td>
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<td>• DN 50, PN 25</td>
<td>N04</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>• DN 80, PN 25</td>
<td>N06</td>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>Tri-Clamp connection according DIN 32876/ISO 2852</td>
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<tr>
<td>certified to 3A⁶</td>
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<td></td>
</tr>
<tr>
<td>• DN 50/2&quot;, PN 16</td>
<td>N14</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>• DN 65/3&quot;, PN 10</td>
<td>N15</td>
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<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
<th>HART</th>
<th>PA</th>
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</thead>
<tbody>
<tr>
<td>Mounting bracket</td>
<td>A02</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>made completely of stainless steel, for wall or pipe mounting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cable socket for M12 plug</td>
<td>Metal</td>
<td>A50</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>A51</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Rating plate inscription</td>
<td>(instead of English)</td>
<td>German</td>
<td>B10</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>French</td>
<td>B12</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
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<td>Spanish</td>
<td>B13</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Italian</td>
<td>B14</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>English rating plate</td>
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<td>✓</td>
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<td>Pressure units in inH₂O or psi</td>
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<tr>
<td>• DN 40, PN 40</td>
<td>M13</td>
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<td>✓</td>
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<tr>
<td>• DN 40, PN 100</td>
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<td>✓</td>
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<tr>
<td>• DN 50, PN 16</td>
<td>M04</td>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>• DN 50, PN 40</td>
<td>M14</td>
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<td>• DN 80, PN 25</td>
<td>M06</td>
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<td>• DN 80, PN 40</td>
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<td>✓</td>
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<td>• TG 52/150, PN 40</td>
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<td>Sanitary process connection according DIN 11851 (Dairy connection)</td>
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<tr>
<td>certified to 3A³</td>
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<td>• DN 50, PN 25</td>
<td>N04</td>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>• DN 80, PN 25</td>
<td>N06</td>
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<td>✓</td>
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</table>
SITRANS P measuring instruments for pressure
Transmitters for gage and absolute pressure

SITRANS P300

Selection and Ordering data

<table>
<thead>
<tr>
<th>Code</th>
<th>Code</th>
<th>Code</th>
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<tbody>
<tr>
<td>HART</td>
<td>PA</td>
<td>FF</td>
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</table>

Further designs
Add "-Z" to Order No. and specify Order code.

Sanitary process connection to
NEUMO Connect flange connection certified to 3A and EHEDG

- DN 50, PN 16
- DN 65, PN 10
- DN 80, PN 10
- DN 100, PN 10
- DN 2", PN 16
- DN 2½", PN 10
- DN 3", PN 10
- DN 4", PN 10

Aseptic threaded socket to DIN 11864-1
Form A

- DN 50, PN 25
- DN 65, PN 25
- DN 80, PN 25
- DN 100, PN 25

Aseptic flange with notch to DIN 11864-2
Form A

- DN 50, PN 16
- DN 65, PN 16
- DN 80, PN 16
- DN 100, PN 16

Aseptic flange with groove to DIN 11864-2
Form A

- DN 50, PN 16
- DN 65, PN 16
- DN 80, PN 16
- DN 100, PN 16

Aseptic clamp with groove to DIN 11864-3
Form A

- DN 50, PN 25
- DN 65, PN 25
- DN 80, PN 16
- DN 100, PN 16

Additional data
Add "-Z" to Order No. and specify Order code.

Measuring range to be set
Specify in plain text V (max. 5 digits):
Y01: ... up to ... mbar, bar, kPa, MPa, psi

Measuring point number (TAG No.)
Max. 16 characters, specify in plain text:
Y15: ...........................................

Measuring point text
Max. 27 characters, specify in plain text:
Y16: ...........................................

Entry of HART TAG
Max. 8 characters, specify in plain text:
Y17: ...........................................

Setting of pressure indication in pressure units
Specify in plain text (standard setting: mA):
Y21: mbar, bar, kPa, MPa, psi, ...

Note:
The following pressure units can be selected:
bar, mbar, mm H2O*, inH2O*, ftH2O*, mmHg, inHg, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or %

*) ref. temperature 20 °C

Setting of pressure indicator in non-pressure units
Y22
Specify in text:
Y22: ..... up to ..... l, m³, m, USg, ...

Preset bus address
Y25
possible between 1 ... 126)
Specify in plain text:
Y25: .....................

Only "Y01" and "Y21" can be factory preset
✓ = available

Ordering example
Item line: 7MF8023-1DB24-1AB7-Z
B line: A02 + Y01 + Y21
C line: Y01: 1 ... 10 bar (14.5 ... 145 psi)
C line: Y21: bar (psi)

1) When the manufacturer’s certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

2) When the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.

3) Special Viton seal included in delivery.

4) Lower measuring limit -100 mbar g (1.45 psi g).

5) The weldable socket can be ordered under accessories.

6) Certified to 3A.

The maximum temperatures of the medium depend on the respective cell fillings.

7) 3A certification only if used in conjunction with 3A-compliant sealing rings.
Dimensional drawings

SITRANS P300, with oval flange, dimensions in mm (inch)

SITRANS P300, process connection M20 x 1.5, with mounted mounting bracket, dimensions in mm (inch)
SITRANS P measuring instruments for pressure
Transmitters for gage and absolute pressure

SITRANS P300

SITRANS P300, front-flush, dimensions in mm (inch)

The diagram shows a SITRANS P300 with an example of a flange. In this drawing the height is subdivided into \( H_1 \) and \( H_2 \).

\( H_1 \) = Height of the SITRANS P300 up to a defined cross-section
\( H_2 \) = Height of the flange up to this defined cross-section

Only the height \( H_2 \) is indicated in the dimensions of the flanges.
**Flanges to EN and ASME**

### Flanges to EN

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD (in mm)</th>
<th>H₂ (in mm)</th>
</tr>
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<tbody>
<tr>
<td>25</td>
<td>40</td>
<td>115 (4.5&quot;)</td>
<td>Approx. 52</td>
</tr>
<tr>
<td>25</td>
<td>100</td>
<td>140 (5.5&quot;)</td>
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<td>40</td>
<td>40</td>
<td>150 (5.9&quot;)</td>
<td></td>
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<tr>
<td>40</td>
<td>100</td>
<td>170 (6.7&quot;)</td>
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<tr>
<td>50</td>
<td>16</td>
<td>165 (6.5&quot;)</td>
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<td>165 (6.5&quot;)</td>
<td></td>
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<tr>
<td>80</td>
<td>16</td>
<td>200 (7.9&quot;)</td>
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<tr>
<td>80</td>
<td>40</td>
<td>200 (7.9&quot;)</td>
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### Flanges to ASME

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<th>ØD (in mm)</th>
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<tbody>
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<td>1&quot;</td>
<td>150</td>
<td>110 (4.3&quot;)</td>
<td>Approx. 52</td>
</tr>
<tr>
<td>1½&quot;</td>
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<td>125 (4.9&quot;)</td>
<td></td>
</tr>
<tr>
<td>1½&quot;</td>
<td>300</td>
<td>155 (6.1&quot;)</td>
<td></td>
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<tr>
<td>2&quot;</td>
<td>150</td>
<td>150 (5.9&quot;)</td>
<td></td>
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<tr>
<td>2&quot;</td>
<td>300</td>
<td>165 (6.5&quot;)</td>
<td></td>
</tr>
<tr>
<td>3&quot;</td>
<td>150</td>
<td>190 (7.5&quot;)</td>
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</tr>
<tr>
<td>3&quot;</td>
<td>300</td>
<td>210 (8.1&quot;)</td>
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<td>230 (9.1&quot;)</td>
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<tr>
<td>4&quot;</td>
<td>300</td>
<td>255 (10.0&quot;)</td>
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### NuG and pharmaceutical connections

#### Connections to DIN

**DIN 11851 (Dairy connection)**

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<tr>
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**Tri-Clamp according DIN 32676**

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<td>65</td>
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### Other connections

#### Varivent connection

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<td>84 (3.3&quot;)</td>
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#### Bio-Control connection

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<tr>
<td>65</td>
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**Sanitary process connection to DRD**

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**Sanitary process screw connection to NEUMO Bio-Connect**

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<td>Approx. 52</td>
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<tr>
<td>65</td>
<td>16</td>
<td>105 (4.1&quot;)</td>
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<tr>
<td>80</td>
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<td>115 (4.5&quot;)</td>
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</tr>
<tr>
<td>100</td>
<td>16</td>
<td>145 (5.7&quot;)</td>
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<tr>
<td>2&quot;</td>
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<td>82 (3.2&quot;)</td>
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<td>2½&quot;</td>
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<td>4&quot;</td>
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<td>145 (5.7&quot;)</td>
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**Sanitary connection to NEUMO Bio-Connect flange connection**

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<td>50</td>
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<td>Approx. 52</td>
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<tr>
<td>65</td>
<td>16</td>
<td>140 (5.5&quot;)</td>
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<tr>
<td>80</td>
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<tr>
<td>100</td>
<td>16</td>
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<tr>
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<td>2½&quot;</td>
<td>16</td>
<td>110 (4.3&quot;)</td>
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<td>3&quot;</td>
<td>16</td>
<td>140 (5.5&quot;)</td>
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<tr>
<td>4&quot;</td>
<td>16</td>
<td>175 (6.9&quot;)</td>
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**Sanitary connection to NEUMO Bio-Connect clamp connection**

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<th>H₂ (in mm)</th>
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<tbody>
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<td>77.4 (3.0&quot;)</td>
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<td>90.9 (3.6&quot;)</td>
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<tr>
<td>80</td>
<td>10</td>
<td>106 (4.2&quot;)</td>
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<td>16</td>
<td>64 (2.5&quot;)</td>
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<tr>
<td>2½&quot;</td>
<td>16</td>
<td>77.4 (3.0&quot;)</td>
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<td>3&quot;</td>
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<td>90.9 (3.6&quot;)</td>
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<td>4&quot;</td>
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**Sanitary connection to NEUMO Bio-Connect S flange connection**

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<td>125 (4.9&quot;)</td>
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<tr>
<td>65</td>
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<td>135 (5.3&quot;)</td>
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<td>3&quot;</td>
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<td>4&quot;</td>
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SITRANS P measuring instruments for pressure
Transmitters for gage and absolute pressure

**SITRANS P300**

### Thread connection G¾”, G1” and G2” to DIN 3852

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<td>37 mm (1.5”)</td>
<td>Approx. 45 mm (1.8”)</td>
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<tr>
<td>1”</td>
<td>63</td>
<td>48 mm (1.9”)</td>
<td>Approx. 47 mm (1.9”)</td>
</tr>
<tr>
<td>2”</td>
<td>63</td>
<td>78 mm (3.1”)</td>
<td>Approx. 52 mm (2”)</td>
</tr>
</tbody>
</table>

### Tank connection TG52/50 und TG52/150

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>40</td>
<td>63 mm (2.5”)</td>
<td>Approx. 63 mm (2.5”)</td>
</tr>
<tr>
<td>25</td>
<td>40</td>
<td>63 mm (2.5”)</td>
<td>Approx. 170 mm (6.7”)</td>
</tr>
</tbody>
</table>

### SMS socket with union nut

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>25</td>
<td>84 mm (3.3”)</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>2½”</td>
<td>25</td>
<td>100 mm (3.9”)</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>3”</td>
<td>25</td>
<td>114 mm (4.5”)</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
</tbody>
</table>

### SMS threaded socket

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
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<tbody>
<tr>
<td>2”</td>
<td>25</td>
<td>70 x 1/6 mm</td>
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</tr>
<tr>
<td>2½”</td>
<td>25</td>
<td>85 x 1/6 mm</td>
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</tr>
<tr>
<td>3”</td>
<td>25</td>
<td>98 x 1/6 mm</td>
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</table>

### IDF socket with union nut

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>25</td>
<td>77 mm (3”)</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>2½”</td>
<td>25</td>
<td>91 mm (3.6”)</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>3”</td>
<td>25</td>
<td>106 mm (4.2”)</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
</tbody>
</table>

### IDF threaded socket

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>25</td>
<td>64 mm (2.5”)</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>2½”</td>
<td>25</td>
<td>77,5 mm (3.1”)</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>3”</td>
<td>25</td>
<td>91 mm (3.6”)</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
</tbody>
</table>

### Aseptic threaded socket to DIN 11864-1 Form A

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>25</td>
<td>78 x 1/6”</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>65</td>
<td>25</td>
<td>95 x 1/6”</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>80</td>
<td>25</td>
<td>110 x ¾”</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>100</td>
<td>25</td>
<td>130 x ¾”</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
</tbody>
</table>

### Aseptic flange with notch to DIN 11864-2 Form A

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16</td>
<td>94</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>65</td>
<td>16</td>
<td>113</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>80</td>
<td>16</td>
<td>133</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>100</td>
<td>16</td>
<td>159</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
</tbody>
</table>

### Aseptic flange with groove to DIN 11864-2 Form A

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16</td>
<td>94</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>65</td>
<td>16</td>
<td>113</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>80</td>
<td>16</td>
<td>133</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>100</td>
<td>16</td>
<td>159</td>
<td>Approx. 52 mm (2.1”)</td>
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</tbody>
</table>

### Aseptic clamp with groove to DIN 11864-3 Form A

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>25</td>
<td>77,5</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>65</td>
<td>25</td>
<td>91</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>80</td>
<td>16</td>
<td>106</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
<tr>
<td>100</td>
<td>16</td>
<td>130</td>
<td>Approx. 52 mm (2.1”)</td>
</tr>
</tbody>
</table>
Overview

The SITRANS P300 and DS III pressure transmitters have been fitted with special process connections for the paper industry. With the two process connection threads 1½” and 1” flush at the front, the SITRANS P300 and DS III transmitters can be used for all processes in the paper industry.

SITRANS P300 and DS III series pressure transmitters are digital pressure transmitters featuring extensive user-friendliness and high accuracy. The parameterization is performed using control keys, over HART communication, PROFIBUS PA or FOUNDATION Fieldbus interface (DS III only).

Extensive functionality enables the pressure transmitter to be precisely adapted to the plant’s requirements. Operation is very simple in spite of the numerous setting options.

Transmitters with type of protection “Intrinsic safety” and “Explosion-proof” may be installed within potentially explosive atmospheres (zone 1) or in zone 0. The pressure transmitters are provided with an EC type examination certificate and comply with the corresponding harmonized European standards (ATEX).

Various versions of the pressure transmitters are available for measuring:

- Gage pressure
- Filling level
- Volume level
- Mass level

Benefits

- High quality and long life
- High reliability even under extreme chemical and mechanical loads, e.g. abrasion.
- For aggressive and non-aggressive gases, vapors and liquids
- Extensive diagnosis and simulation functions
- Minimum conformity error

Application

The pressure transmitters of the DS III series, can be used in industrial areas with extreme chemical and mechanical loads. Electromagnetic compatibility in the range 10 kHz ... 1 GHz makes the DS III pressure transmitters suitable for locations with high electromagnetic emissions.

Pressure transmitters with type of protection “Intrinsic safety” and “Explosion-proof” may be installed within potentially explosive atmospheres (zone 1) or in zone 0. The pressure transmitters are provided with an EC type examination certificate and comply with the corresponding harmonized European standards (ATEX).

Pressure transmitters with the type of protection “Intrinsic safety” for use in zone 0 may be operated with power supply units of category “ia” and “ib”.

The transmitters can be equipped with various designs of remote seals for special applications such as the measurement of highly viscous substances.

The pressure transmitter can be operated locally over 3 control keys or programmed externally over HART communication or over PROFIBUS PA or FOUNDATION Fieldbus interface (only DS III).

SITRANS P, DS III series

Measured variable: Gage pressure of aggressive and non-aggressive gases, vapors and liquids.

Span (infinitely adjustable)
For DS III HART: 0.03 ... 16 bar g (0.433 ... 232 psi g)
Nominal measuring range
For DS III PA and FF: 1 ... 16 bar g (14.5 ... 232 psi g)

SITRANS P300

Span (infinitely adjustable)
For DS III HART: 0.03 ... 16 bar g (0.433 ... 232 psi g)
Nominal measuring range
For DS III PA: 1 ... 16 bar g (14.5 ... 232 psi g)
Design

SITRANS P, DS III series

The transmitter comprises a range of different components, depending on the order specifications. The various options are listed in the ordering information. The components described below are the same for all transmitters.

The rating plate (3, Figure "Front view") with the Order No. is located on the side of the housing. The specified number together with the ordering information provide details on the optional design details and on the possible measuring range (physical properties of built-in sensor element).

The approval label is located on the opposite side.

The housing is made of die-cast aluminium or stainless steel precision casting. A round cover is screwed on at the front and rear of the housing. The front cover (6) can be fitted with a viewing pane so that the measured values can be read directly on the digital display. The inlet (4) for the electrical connection is located either on the left or right side. The unused opening on the opposite side is sealed by a blanking plug. The protective earth connection is located on the rear of the housing.

The electrical connections for the power supply and screen are accessible by unscrewing the rear cover. The bottom part of the housing contains the measuring cell with process connection (1). The measuring cell is prevented from rotating by a locking screw (8). As the result of this modular design, the measuring cell and the electronics can be replaced separately from each other. The set parameter data are retained.

At the top of the housing is a plastic cover (5), which hides the input keys.

SITRANS P300

The device comprises:

- Electronics
- Housing
- Measuring cell

Perspective view of the SITRANS P300

The housing has a screwable cover (3), with or without an inspection window depending on the version. The electrical terminal housing, the buttons for operation of the device and, depending on the version, the digital display are located under this cover. The connections for the auxiliary power UH and the shield are in the terminal housing. The cable gland is on the side of the housing. The measuring cell with the process connection (5) is located on the underside of the housing. Depending on the version of the device, the measuring cell with the process connection may differ from the one shown in the diagram.
Using the three input keys (8) you can parameterize the pressure electronics and the measuring cell can be replaced separately from the electronics. As a result of this modular design, the parameter data are stored in the two non-volatile memories. The diode circuit (10) protects against incorrect polarity.

The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The first memory is linked with the measuring cell, the second with the electronics. This modular design means that the electronics and the measuring cell can be replaced separately from one another.

Using the three input keys (8) you can parameterize the pressure transmitter directly at the point of measurement. The input keys can also be used to control the view of the results, the error messages and the operating modes on the digital display (9).

The HART modem (7) permits parameterization using a protocol according to the HART specification.

The pressure transmitters with spans ≤ 63 bar g measure the input pressure compared to atmosphere, transmitters with spans ≥ 160 bar g compared to vacuum.
Parameterization using the input keys (local operation)

Parameterization using HART communication

Parameterization using HART communication is performed with a HART communicator or a PC.

Communication between a HART communicator and a pressure transmitter

When parameterizing with the HART communicator, the connection is made directly to the 2-wire system.

The pressure $p_e$ is applied through the process connection (2, Figure “Measuring cell for gage pressure, with front-flush diaphragm for paper industry, function diagram”) to the measuring cell (1). This pressure is subsequently transmitted further through the seal diaphragm (3) and the filling liquid (4) to the silicon pressure sensor (5) whose measuring diaphragm is then flexed. This changes the resistance of the four piezo-resistors fitted in the diaphragm in a bridge circuit. This change in resistance results in a bridge output voltage proportional to the input pressure.

Function diagram of electronics

The bridge output voltage created by the sensor (1, Figure "Function diagram of electronics") is amplified by the instrument amplifier (2) and digitized in the analog-to-digital converter (3). The digital information is evaluated in the microcontroller, its linearity and temperature response corrected, and provided on the FOUNDATION Fieldbus through an electrically isolated FOUNDATION Fieldbus Interface (7).

The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As a result of this modular design, the electronics and the measuring cell can be replaced separately from each other.

Using the three input keys (8) you can parameterize the pressure transmitter directly at the point of measurement. The input keys can also be used to control the view of the results, the error messages and the operating modes on the digital display (9).

The results with status values and diagnostic values are transferred by cyclic data transmission on the FOUNDATION Fieldbus. Parameterization data and error messages are transferred by acyclic data transmission. Special software such as National Instruments Configurator is required for this.
HART communication between a PC communicator and a pressure transmitter

When parameterizing with a PC, the connection is made through a HART modem.

The signals needed for communication in conformity with the HART 5.x or 6.x protocols are superimposed on the output current using the Frequency Shift Keying (FSK) method.

Adjustable parameters for DS III HART and P300 HART:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Input keys</th>
<th>HART communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of scale</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Full-scale value</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Electrical damping</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Start-of-scale value without application of a pressure (“Blind setting”)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Full-scale value without application of a pressure (“Blind setting”)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Zero adjustment</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Current transmitter</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Fault current</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Disabling of keys, write protection</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Type of dimension and actual dimension</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Characteristic (linear)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Input of characteristic</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Freely-programmable LCD</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Diagnostics functions</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

1) Cancel apart from write protection

Diagnostic functions for DS III HART and P300 HART:
- Zero correction display
- Event counter
- Limit transmitter
- Saturation alarm
- Slave pointer
- Simulation functions
- Maintenance timer

Available physical units of display for DS III HART and P300 HART:

Physical variable | Physical dimensions
--- | ---
Pressure (setting can also be made in the factory) | Pa, MPa, kPa, bar, mbar, torr, atm, psi, g/cm², kg/cm², mmH₂O, inH₂O (4 °C), mmH₂O, ftH₂O (20 °C), inHg, mmHg
Level (height data) | m, cm, mm, ft, in
Volume | m³, dm³, hl, yd³, ft³, m³, US gallon, Imp. gallon, bushel, barrel, barrel liquid
Mass | g, kg, t, lb, Ston, Lton, oz
Temperature | K, °C, °F, °R
Miscellaneous | %, mA

Parameterization through PROFIBUS PA interface

Fully digital communication through PROFIBUS PA, profile 3.0, is particularly user-friendly. The PROFIBUS puts the DS III PA in connection with a process control system, e.g. SIMATIC PSC 7. Communication is possible even in a potentially explosive environment.

For parameterization through PROFIBUS you need suitable software, e.g. SIMATIC PDM (Process Device Manager).

Parameterization through FOUNDATION Fieldbus Interface

Fully digital communication through FOUNDATION Fieldbus is particularly user-friendly. Through the FOUNDATION Fieldbus the DS III FF is connected to a process control system. Communication is possible even in a potentially explosive environment.

For parameterization through the FOUNDATION Fieldbus you need suitable software, e.g. National Instruments Configurator.

Adjustable parameters for DS III PA and FF and P300 PA and FF:

<table>
<thead>
<tr>
<th>Adjustable parameters</th>
<th>Input keys</th>
<th>PROFIBUS PA and FOUNDATION Fieldbus interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical damping</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Zero adjustment (correction of position)</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Key and/or function disabling</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Source of measured-value display</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Physical dimension of display</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Position of decimal point</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Bus address</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Adjustment of characteristic</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Input of characteristic</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Freely-programmable LCD</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Diagnostic functions</td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

Diagnostic functions for DS III PA and FF and P300 PA and FF:
- Event counter
- Slave pointer
- Maintenance timer
- Simulation functions
- Display of zero correction
- Limit transmitter
- Saturation alarm

Physical dimensions available for the display:

<table>
<thead>
<tr>
<th>Physical variable</th>
<th>Physical dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure (setting can also be made in the factory)</td>
<td>MPa, kPa, Pa, bar, mbar, torr, atm, psi, g/cm², kg/cm², mmH₂O, inH₂O (4 °C), mmH₂O, inH₂O (4 °C), ftH₂O (20 °C), inHg, mmHg</td>
</tr>
<tr>
<td>Level (height data)</td>
<td>m, cm, mm, ft, in</td>
</tr>
<tr>
<td>Mass</td>
<td>g, kg, t, lb, Ston, Lton, oz</td>
</tr>
<tr>
<td>Volume</td>
<td>m³, dm³, hl, yd³, ft³, m³, US gallon, Imp. gallon, bushel, barrel, barrel liquid</td>
</tr>
<tr>
<td>Temperature</td>
<td>K, °C, °F, °R</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>%, mA</td>
</tr>
</tbody>
</table>
### Technical specifications

**SITRANS P, DS III series for gage pressure with PMC connection for the paper industry**

**Input**

<table>
<thead>
<tr>
<th>Measured variable</th>
<th>HART PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gage pressure</td>
<td></td>
</tr>
</tbody>
</table>

**Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure**

<table>
<thead>
<tr>
<th>Span</th>
<th>Max. perm. test pressure</th>
<th>Nominal measuring range</th>
<th>Max. perm. test pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01 ... 1 bar g (0.145 ... 14.5 psi g)</td>
<td>6 bar g (87 psi g)</td>
<td>1 bar g (14.5 psi g)</td>
<td>6 bar g (87 psi g)</td>
</tr>
<tr>
<td>0.04 ... 4 bar g (0.58 ... 58 psi g)</td>
<td>10 bar g (145 psi g)</td>
<td>4 bar g (58 psi g)</td>
<td>10 bar g (145 psi g)</td>
</tr>
<tr>
<td>0.16 ... 16 bar g (2.23 ... 232 psi g)</td>
<td>32 bar g (464 psi g)</td>
<td>16 bar g (232 psi g)</td>
<td>32 bar g (464 psi g)</td>
</tr>
</tbody>
</table>

**Output**

<table>
<thead>
<tr>
<th>Output signal</th>
<th>4 ... 20 mA</th>
<th>Digital PROFIBUS PA or FOUNDATION Fieldbus signal</th>
</tr>
</thead>
</table>

**Load**

- Without HART communication: $R_B \leq \frac{(U_H - 10.5\ V)}{0.023\ A}$ in $\Omega$
- With HART communication: $R_B = 230 \ldots 500\ \Omega$ (SIMATIC PDM) or $R_B = 230 \ldots 1100\ \Omega$ (HART Communicator)

**Accuracy**

- Reference conditions: Increasing characteristic, start-of-scale value 0 bar, stainless steel seal diaphragm, silicone oil filling, room temperature 25 °C (77 °F)
- Error in measurement and fixed-point setting: To EN 60770-1

#### Error in measurement and fixed-point setting (including hysteresis and repeatability)

- **Linear characteristic**
  - $r \leq 10$: $\leq (0.0029 \cdot r + 0.071)\%$
  - $10 < r \leq 30$: $\leq (0.0045 \cdot r + 0.071)\%$
  - $30 < r \leq 100$: $\leq (0.005 \cdot r + 0.05)\%$

- **Long-term drift (temperature change ± 30 °C (± 54 °F))**
  - $\leq (0.25 \cdot r)\%$ every 5 years
  - $\leq 0.25%$ every 5 years

- **Influence of ambient temperature**
  - at -10 ... +60 °C (14 ... 140 °F): $\leq (0.08 \cdot r + 0.1)%$
  - at -40 ... -10 °C and +60 ... +85 °C (-40 ... +14 °F and 140 ... 185 °F): $\leq (0.1 \cdot r + 0.15)%/10 K$
  - $\leq 0.3%$
  - $\leq 0.25%/10 K$

- **Influence of medium temperature**
  - $3\ mbar/10 K$ (0.04 psi/10 K)

- **Influence of mounting position**
  - $\leq 0.1\ mbar\ g$ (0.00145 psi g) per 10° inclination

**Measured Value Resolution**

- $3 \cdot 10^{-5}$ of nominal measuring range
### Rated operating conditions

<table>
<thead>
<tr>
<th>Parameter</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of protection (to EN 60529)</td>
<td>IP65, IP68, NEMA X, enclosure cleaning, resistant to lyes, steam to 150° C (302 °F)</td>
<td></td>
</tr>
<tr>
<td>Process temperature</td>
<td>-20 … +100 °C (-4 … +212 °F)</td>
<td></td>
</tr>
<tr>
<td>Ambient conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ambient temperature</td>
<td>-20 … +85 °C (-4 … +185 °F)</td>
<td></td>
</tr>
<tr>
<td>• Storage temperature</td>
<td>-50 … +85 °C (-58 … +185 °F)</td>
<td></td>
</tr>
<tr>
<td>• Climatic class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Condensation</td>
<td>Permissible</td>
<td></td>
</tr>
<tr>
<td>• Electromagnetic compatibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Emitted interference and interference immunity</td>
<td>To EN 61326 and NAMUR NE 21</td>
<td></td>
</tr>
</tbody>
</table>

### Design

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (without options)</td>
<td>≈ 1.5 kg (= 3.3 lb)</td>
</tr>
<tr>
<td>Housing material</td>
<td>Poor in copper die-cast aluminium, GD-AlSi12</td>
</tr>
<tr>
<td>Wetted parts materials</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>• Gasket (standard)</td>
<td>PTFE flat gasket</td>
</tr>
<tr>
<td>• O-ring (minibolt)</td>
<td>FPM (Viton) or optionally: FFPM or NBR</td>
</tr>
<tr>
<td>Measuring cell filling</td>
<td>Silicone oil or inert filling liquid</td>
</tr>
<tr>
<td>Process connection (standard)</td>
<td>Front-flush, 1½&quot;, PMC Standard design</td>
</tr>
<tr>
<td>Process connection (minibolt)</td>
<td>Front-flush, 1&quot;, minibolt design</td>
</tr>
</tbody>
</table>

### Power supply $U_H$

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal voltage on transmitter</td>
<td>10.5 ... 45 V DC</td>
</tr>
<tr>
<td>Separate 24 V power supply necessary</td>
<td>-</td>
</tr>
<tr>
<td>Bus voltage</td>
<td></td>
</tr>
<tr>
<td>• Not Ex</td>
<td>-</td>
</tr>
<tr>
<td>• With intrinsically-safe operation</td>
<td>-</td>
</tr>
<tr>
<td>Current consumption</td>
<td></td>
</tr>
<tr>
<td>• Basic current (max.)</td>
<td>-</td>
</tr>
<tr>
<td>• Startup current ≤ basic current</td>
<td>-</td>
</tr>
<tr>
<td>• Max. current in event of fault</td>
<td>-</td>
</tr>
<tr>
<td>Fault disconnection electronics (FDE) available</td>
<td>-</td>
</tr>
</tbody>
</table>

### Certificate and approvals

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification according to pressure equipment directive (DRGL 97/23/EC)</td>
<td>For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)</td>
</tr>
</tbody>
</table>
### DS III series with PMC connection

#### SITRANS P, DS III series for gage pressure with PMC connection for the paper industry

<table>
<thead>
<tr>
<th>SITRANS P measuring instruments for pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmitters for gage pressure for the paper industry</td>
</tr>
<tr>
<td>DS III series with PMC connection</td>
</tr>
</tbody>
</table>

**HART communication**
- HART communication: 230 ... 1100 Ω
- Protocol: HART Version 5.x
- Software for computer: SIMATIC PDM

**PROFIBUS PA communication**
- Simultaneous communication with master class 2 (max.)
- The address can be set using Configuration tool or local operation (standard setting address 126)
- Cyclic data usage
  - Output byte: 5 (one measuring value) or 10 (two measuring values)
  - Input byte: 0, 1, or 2 (register operating mode and reset function for metering)
- Internal preprocessing
- Device profile: PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B

**Function blocks**
- Analog input
  - Adaptation to customer-specific process variables: Yes, linearly rising or falling characteristic
  - Electrical damping $T_{63}$, adjustable: 0 ... 100 s
  - Simulation function: Input /Output
  - Failure mode: Can be parameterized (last good value, substitute value, incorrect value)
  - Limit monitoring: Yes, one upper and lower warning limit and one alarm limit respectively
- Register (totalizer)
  - Can be reset, preset, optional direction of counting, simulation function of register output
  - Failure mode: Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)
  - Limit monitoring: One upper and lower warning limit and one alarm limit respectively
- Physical block
  - 1
- Transducer blocks
  - 2

**Communication FOUNDATION Fieldbus**
- Function blocks: 3 function blocks analog input, 1 function block PID
- Analog input
  - Can be calibrated by applying two pressures: Yes
  - Monitoring of sensor limits: Yes
  - Simulation function: Measured pressure value, sensor temperature and electronics temperature: Constant value or over parameterizable ramp function

**PID**
- Standard FF function block
- Physical block
- Resource block: 1
- Transducer blocks
  - 1 transducer block Pressure with calibration, 1 transducer block LCD

**Pressure transducer block**
- Can be calibrated by applying two pressures: Yes
- Monitoring of sensor limits: Yes
- Simulation function: Measured pressure value, sensor temperature and electronics temperature: Constant value or over parameterizable ramp function
### Selection and Ordering data

<table>
<thead>
<tr>
<th>Measuring cell filling</th>
<th>Measuring cell cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>Standard</td>
</tr>
<tr>
<td>Inert liquid</td>
<td>Grease-free</td>
</tr>
</tbody>
</table>

#### Span

- 0.01 ... 1 bar g¹) (0.15 ... 14.5 psi g)¹)
- 0.04 ... 4 bar g (0.58 ... 58 psi g)
- 0.16 ... 16 bar g (2.32 ... 232 psi g)

### Wetted parts materials

- Seal diaphragm: Connection shank
- Hastelloy: Stainless steel

### Process connection

- PMC Style Standard: Thread 1½”
- PMC Style Mini bolt: 1” front-flush (min. span: 500 mbar (7.25 psi), can not be ordered with mit 1-bar (14.5 psi) measuring cell (Option B))

#### Non-wetted parts materials

- Housing made of die-cast aluminum
- Housing stainless steel precision casting

### Version

- Standard version
- International version, English label inscriptions, documentation in 5 languages on CD

### Explosion protection

- None

### Electrical connection / cable entry

- Female thread M20x1.5
- Female thread ½-14 NPT
- M12 connectors (metal)

### Display

- Without indicator
- Without visible digital indicator (digital indicator hidden, setting: mA)
- With visible digital indication, setting: mA
- With customer-specific digital indication (setting as specified, Order code “Y21” or “Y22” required)

### Power supply units

Included in delivery of the device:
- Brief instructions (Leporelo)
- CD-ROM with detailed documentation
- Sealing ring

¹) Only with “PMC Style Standard” process connection

F) Subject to export regulations AL: 9I999, ECCN: N.

---

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7MF4133</td>
</tr>
</tbody>
</table>

### DS III series with PMC connection

---

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7MF4134</td>
</tr>
</tbody>
</table>

### DS III PA (PROFIBUS PA) series

#### Measuring cell filling

- Silicone oil: Standard
- Inert liquid: Grease-free

#### Nominal measuring range

- 1 bar g¹) (14.5 psi g)¹)
- 4 bar g (58 psi g)
- 16 bar g (232 psi g)

### Wetted parts materials

- Seal diaphragm: Connection shank
- Hastelloy: Stainless steel

### Process connection

- PMC Style Standard: front-flush 1½”
- PMC Style Mini bolt: front-flush 1” (min. span: 500 mbar (7.25 psi), can not be ordered with mit 1-bar (14.5 psi) measuring cell (Option B))

### Non-wetted parts materials

- Housing made of die-cast aluminum
- Housing stainless steel precision casting

### Version

- Standard version
- International version, English label inscriptions, documentation in 5 languages on CD

### Explosion protection

- None

### Electrical connection / cable entry

- Screwed gland M20x1.5
- Screwed gland ½-14 NPT
- M12 connectors (metal)

### Display

- Without indicator
- Without visible digital indicator (digital indicator hidden, setting: mA)
- With visible digital display
- With customer-specific digital display (setting as specified, Order code “Y21” or required)

---

F) Subject to export regulations AL: 9I999, ECCN: N.
## Selection and Ordering data

### Order code

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add &quot;-Z&quot; to Order No. and specify Order code.</td>
<td></td>
</tr>
<tr>
<td>M12 cable sockets (metal)</td>
<td>A50 ✓ ✓ ✓</td>
</tr>
<tr>
<td>Rating plate inscription (instead of German)</td>
<td>B11 ✓ ✓ ✓</td>
</tr>
<tr>
<td>• English</td>
<td>B11 ✓ ✓ ✓</td>
</tr>
<tr>
<td>• French</td>
<td>B12 ✓ ✓ ✓</td>
</tr>
<tr>
<td>• Spanish</td>
<td>B13 ✓ ✓ ✓</td>
</tr>
<tr>
<td>• Italian</td>
<td>B14 ✓ ✓ ✓</td>
</tr>
<tr>
<td>English rating plate</td>
<td>B21 ✓ ✓ ✓</td>
</tr>
<tr>
<td>Pressure units in inH₂O or psi</td>
<td></td>
</tr>
<tr>
<td>Quality inspection certificate (Factory calibration) to IEC 60770-2</td>
<td>C11 ✓ ✓ ✓</td>
</tr>
<tr>
<td>Acceptance test certificate To EN 10204-3.1</td>
<td>C12 ✓ ✓ ✓</td>
</tr>
<tr>
<td>Factory certificate To EN 10204-2.2</td>
<td>C14 ✓ ✓ ✓</td>
</tr>
<tr>
<td>Output signal can be set to upper limit of 22.0 mA</td>
<td>D05 ✓ ✓ ✓</td>
</tr>
<tr>
<td>Mounting</td>
<td></td>
</tr>
<tr>
<td>• Weldable sockets for standard 1⅜&quot; threaded connection</td>
<td>P01 ✓ ✓ ✓</td>
</tr>
<tr>
<td>• Weldable socket for mini bolt connection 1&quot; (incl. screw 5/16-18 UNC-2B and washer)</td>
<td>P02 ✓ ✓ ✓</td>
</tr>
<tr>
<td>Rating plate inscription (instead of German)</td>
<td>B11 ✓ ✓ ✓</td>
</tr>
</tbody>
</table>

### Additional data

<table>
<thead>
<tr>
<th>Additional data</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add &quot;-Z&quot; to Order No. and specify Order code.</td>
<td></td>
</tr>
<tr>
<td>Measuring range to be set</td>
<td>Y01 ✓</td>
</tr>
<tr>
<td>Specify in plain text (max. 5 digits): Y01: ... up to ... mbar, bar, kPa, MPa, psi</td>
<td></td>
</tr>
<tr>
<td>Measuring point number (TAG No.)</td>
<td>Y15 ✓ ✓ ✓</td>
</tr>
<tr>
<td>Max. 16 characters, specify in plain text: Y15: ...............................</td>
<td></td>
</tr>
<tr>
<td>Measuring point text</td>
<td>Y16 ✓ ✓ ✓</td>
</tr>
<tr>
<td>Max. 27 characters, specify in plain text: Y16: ...............................</td>
<td></td>
</tr>
<tr>
<td>Entry of HART address (TAG)</td>
<td>Y17 ✓</td>
</tr>
<tr>
<td>Max. 8 characters, specify in plain text: Y17: ...............................</td>
<td></td>
</tr>
<tr>
<td>Setting of pressure indication in pressure units</td>
<td>Y21 ✓ ✓ ✓</td>
</tr>
<tr>
<td>Specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi, ...</td>
<td></td>
</tr>
<tr>
<td>Note: The following pressure units can be selected: bar, mbar, mm H₂O, inH₂O, ftH₂O, mmHg, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or %</td>
<td></td>
</tr>
<tr>
<td>only &quot;Y01&quot; and &quot;Y21&quot; can be factory preset</td>
<td></td>
</tr>
<tr>
<td>Preset bus address</td>
<td>Y25 ✓ ✓</td>
</tr>
<tr>
<td>Max. 8 characters, specify in plain text: Y25: ...........</td>
<td></td>
</tr>
<tr>
<td>Only &quot;Y01&quot; and &quot;Y21&quot; can be factory preset</td>
<td></td>
</tr>
</tbody>
</table>

### Ordering example

- Item line: 7MF4133-1DB20-1AB7-Z
- B line: A22 + Y01 + Y21
- C line: Y01: 1 ... 10 bar (14.5 ... 145 psi)
- C line: Y21: bar (psi)
SITRANS P measuring instruments for pressure
Transmitters for gage pressure for the paper industry

DS III series with PMC connection

Dimensional drawings

The diagram shows a SITRANS P DS III with an example of a flange. In this drawing the height is subdivided into H1 and H2.

H1 = Height of the SITRANS P DS III up to a defined cross-section
H2 = Height of the flange up to this defined cross-section

Only the height H2 is indicated in the dimensions of the flanges.

SITRANS P DS III pressure transmitters for gage pressure, with PMC connection, dimensions in mm (inch)

Material: Stainless steel, mat. No. 1.4404 / 316L

PMC Style standard

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H2</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.9 mm (1.6”)</td>
<td>Approx. 36.8 mm (1.4”)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PMC Style minibolt

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H2</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.3 mm (1.0”)</td>
<td>Approx. 33.1 mm (1.3”)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) O-ring surface (bore hole Ø 8 mm (0.3”) without burr)
## Technical specifications

### SITRANS P300 for gage pressure with PMC connection for the paper industry

#### Input

<table>
<thead>
<tr>
<th>Measured variable</th>
<th>Gage pressure (flush-mounted)</th>
<th>Span</th>
<th>Max. perm. test pressure</th>
<th>Nominal measuring range</th>
<th>Max. perm. test pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.01 ... 1 bar g (0.15 ... 14.5 psi g)</td>
<td>6 bar g (87 psi g)</td>
<td>1 bar g (14.5 psi g)</td>
<td>6 bar g (87 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.04 ... 4 bar g (0.58 ... 58 psi g)</td>
<td>10 bar g (145 psi g)</td>
<td>4 bar g (58 psi g)</td>
<td>10 bar g (145 psi g)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.16 ... 16 bar g (2.3 ... 232 psi g)</td>
<td>32 bar g (464 psi g)</td>
<td>16 bar g (232 psi g)</td>
<td>32 bar g (464 psi g)</td>
</tr>
<tr>
<td>Lower measuring limit</td>
<td>Measuring cell with silicone oil</td>
<td>100 mbar a (1.45 psi a)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper measuring limit</td>
<td>Measuring cell with silicone oil</td>
<td>100% of max. span</td>
<td></td>
<td></td>
<td>100% of the max. nominal measuring range</td>
</tr>
</tbody>
</table>

#### Output

<table>
<thead>
<tr>
<th>Output signal</th>
<th>4 ... 20 mA</th>
<th>Digital PROFIBUS PA signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical bus</td>
<td>-</td>
<td>IEC 61158-2</td>
</tr>
<tr>
<td>With polarity reversal protection</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Electrical damping $T_{63}$ (step width 0.1 s)</td>
<td>Set to 0.1 s (0 ... 100 s)</td>
<td></td>
</tr>
</tbody>
</table>

#### Accuracy

### Reference conditions

(All error data refer always refer to the set span)

#### Measurement deviation with cut-off point setting, including hysteresis and repeatability.

- **Linear characteristic curve**
  - $r \leq 10$:
    - $\leq (0.0029 \cdot r + 0.071)\%$
  - $10 < r \leq 30$:
    - $\leq (0.0045 \cdot r + 0.071)\%$
  - $30 < r \leq 100$:
    - $\leq (0.005 \cdot r + 0.05)\%$

- **Settling time $T_{63}$ without electrical damping**
  - Approx. 0.2 s
- **Long-term drift at $\pm 30 ^\circ C$ ($\pm 54 ^\circ F$)**
  - $\leq (0.25 \cdot r)/5$ years
  - $\leq 0.25%/5$ years
- **Influence of ambient temperature**
  - at $-10 \ldots +60 ^\circ C$ ($14 \ldots 140 ^\circ F$):
    - $\leq (0.1 \cdot r + 0.2)\%$
  - at $-40 \ldots -10 ^\circ C$ and $+60 \ldots +85 ^\circ C$ ($-40 \ldots -14 ^\circ F$ and $140 \ldots 185 ^\circ F$):
    - $\leq (0.1 \cdot r + 0.15)%/10$ K
  - $\leq 0.25%/10$ K
- **Influence of the medium temperature (only with front-flush diaphragm)**
  - $\leq 3$ mbar/10 K (0.04 psi/10 K)

### Rated operating conditions

#### Installation conditions

- **Ambient temperature**: Observe the temperature class in areas subject to explosion hazard.
  - $-40 \ldots +85 ^\circ C$ ($-40 \ldots +185 ^\circ F$)
  - $-30 \ldots +85 ^\circ C$ ($-22 \ldots +185 ^\circ F$)
- **Measuring cell with silicone oil**: |
- **Digital display**: |
- **Storage temperature**: |
- **Climatic class**: |
- **Condensation**: Permissible
- **Degree of protection to EN 60529**: IP65, IP68, NEMA X, enclosure cleaning, resistant to lyes, steam to $150 ^\circ C$ ($302 ^\circ F$)
- **Electromagnetic compatibility**: |
- **Medium conditions**: To EN 61326 and NAMUR NE 21
- **Process temperature**: |
SITRANS P300 for gage pressure with PMC connection for the paper industry

**Design**
- **Measuring cell with silicone oil:** -40 ... +100 °C (-40 ... +212 °F)
- **Weight (without options):** Approx. 1 kg (2.2 lb)
- **Housing material:** Stainless steel, mat. No. 1.4301/304
- **Material of parts in contact with the medium:**
  - Seal diaphragm: Hastelloy C276, mat. No. 2.4819
  - Measuring cell filling: Silicone oil

**Power supply $U_H$**
- **Terminal voltage on transmitter:** 10.5 ... 42 V DC
  - for intrinsically safe operation: 10.5 ... 30 V DC
- **Separate power supply:** Not necessary
- **Bus voltage:**
  - Without EEx: 9 ... 32 V
  - For intrinsically-safe operation: 9 ... 24 V
- **Current consumption**
  - Max. basic current: 12.5 mA
  - Startup current ≤ basic current: Yes
  - Max. fault current in the event of a fault: 15.5 mA
  - Fault disconnection electronics (FDE): Available

**Certificate and approvals**
- **Classification according to pressure equipment directive (DRGL 97/23/EC):**
  - For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)
- **Explosion protection**
  - **Intrinsic safety "i"**
    - PTB 05 ATEX 2048
  - **Identification**
    - Ex II 1/2 G EEEx ia/ib IIB/IIC T4, T5, T6
  - **Permissible ambient temperature**
    - Temperature class T4: -40 ... +85 °C (-40 ... +185 °F)
    - Temperature class T5: -40 ... +70 °C (-40 ... +158 °F)
    - Temperature class T6: -40 ... +60 °C (-40 ... +140 °F)
  - **Connection**
    - To certified intrinsically-safe circuits with maximum values:
      - $U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$
      - $P_i = 750 \text{ mW}$, $R_i = 300 \Omega$
    - FISCO supply unit:
      - $U_i = 17.5 \text{ V}$, $I_i = 380 \text{ mA}$, $P_i = 5.32 \text{ W}$
    - Linear barrier:
      - $U_i = 24 \text{ V}$, $I_i = 250 \text{ mA}$, $P_i = 1.2 \text{ W}$

- **Effective inner capacitance:** $C_i = 6 \text{ nF}$
- **Effective inner inductance:** $L_i = 0.4 \text{ mH}$
- **Explosion protection for USA and Canada (cFMUS):**
  - Identification (DIP) or (IS); (NI) Certificate of Compliance 3025099
    - CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4 ... T6;
    - CL I, DIV 2; GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
  - Identification (DIP) or (IS) Certificate of Compliance 3025099C
    - CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC 4 ... T6;
    - CL I, DIV 2; GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III
### SITRANS P measuring instruments for pressure

**Transmitters for gage pressure for the paper industry**

## SITRANS P300 with PMC connection

### SITRANS P300 for gage pressure with PMC connection for the paper industry

#### HART communication

<table>
<thead>
<tr>
<th>Protocol</th>
<th>HART Version 5.x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software for computer</td>
<td>SIMATIC PDM</td>
</tr>
</tbody>
</table>

#### PROFIBUS PA communication

<table>
<thead>
<tr>
<th>Simultaneous communication with master class 2 (max.)</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>The address can be set using configuration tool</td>
<td></td>
</tr>
<tr>
<td>Local operation</td>
<td></td>
</tr>
<tr>
<td>(standard setting Address 126)</td>
<td></td>
</tr>
</tbody>
</table>

**Cyclic data usage**

**Output byte**
- One measuring value: 5 bytes
- Two measuring values: 10 bytes

**Input byte**
- Register operating mode: 1 bytes
- Reset function due to metering: 1 bytes

**Device profile**
- PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B

**Function blocks**
- 2

**Analog input**
- Adaptation to customer-specific process variables
- Electrical damping $T_{63}$: 0 ... 100 s adjustable
- Simulation function
- Limit monitoring: One upper and lower warning limit and one alarm limit respectively

**Register (totalizer)**
- Can be reset and preset
- Optional direction of counting
- Simulation function of the register output
- Limit monitoring: One upper and lower warning limit and one alarm limit respectively

**Physical block**
- 1

**Transducer blocks**
- 2

**Pressure transducer block**
- Monitoring of sensor limits: Yes
- Specification of a container characteristic with: Max. 31 nodes
- Characteristic: Linear
- Simulation function: Available

**Transducer block “Electronic temperature”**
- Simulation function: Available
### Selection and Ordering data

#### SITRANS P300 pressure transmitters with PMC connection
- Single-chamber measuring housing, rating plate inscription in English

**Order No.**

<table>
<thead>
<tr>
<th>Order code</th>
<th>HART</th>
<th>PA</th>
<th>FF</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 MF 8 1 2 3 -</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7 MF 8 1 2 4 -</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7 MF 8 1 2 5 -</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

#### Measuring cell filling
- Silicone oil
- Inert liquid

#### Measuring cell cleaning
- Standard
- Cleanliness level 2 to DIN 25410

#### Span
- 1 bar g: (14.5 psi g)
- 4 bar g: (58 psi g)
- 16 bar g: (232 psi g)

#### Wetted parts materials
- Seal diaphragm
- Measuring cell
- Hastelloy
- Stainless steel

#### Process connection
- PMC Style Standard: Thread 1¼"
- PMC Style Mini bolt: 1¼" front-flush (min. span: 500 mbar (7.25 psi), cannot be ordered with mit 1-bar (14.5 psi) measuring cell (Option B))
- Weldable socket for mini bolt connection 1¼" (incl. screw 5/16-18 UNC-2B and washer)
- Weldable sockets for standard 1¼" threaded connection
- Weldable socket for M12 plug

#### Explosion protection
- None
- Intrinsic safety (EEx ia)
- Zone 2 (Ex nA/nL)

#### Electrical connection / cable entry
- Screwed gland M20x1.5 (Polyamide)
- Screwed gland M20x1.5 (metal)
- M12 connector (without cable socket)
- M12 connector (stainless steel, without cable socket)
- ½-14 NPT thread, metal
- ½-14 NPT thread, stainless steel

#### Display
- Without display, with keys, closed lid
- With display and keys, closed lid
- With display and keys, lid with glass pane (setting on HART devices: mA, on PROFIBUS PA and FOUNDATION Fieldbus devices: pressure unit)
- With display (setting acc. to specifications, Order code "Y21" or "Y22" required), lid with glass pane

#### Power supply units
- See "SITRANS I power supply units and isolation amplifiers".

#### Additional data
- Subject to export regulations AL: 91999, ECCN: N.

### Selection and Ordering data

#### Order code

<table>
<thead>
<tr>
<th>F) Subject to export regulations AL: 91999, ECCN: N.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable socket for M12 plug</td>
</tr>
<tr>
<td>- Metal</td>
</tr>
<tr>
<td>- Stainless steel</td>
</tr>
</tbody>
</table>

#### Rating plate inscription
- (instead of English)
- German
- French
- Spanish
- Italian

#### English rating plate
- Pressure units in inH₂O or psi

#### Quality inspection certificate (Factory calibration) to IEC 60770-2
- To EN 10204-3.1

#### Acceptance test certificate
- To EN 10204-2.2

#### Factory certificate
- To EN 10204-3.1

#### Set output signal to upper limit of 22.0 mA
- D05

#### Type of protection IP68
- D12

#### Mounting
- Weldable sockets for standard 1¼" threaded connection
- Weldable socket for mini bolt connection 1¼" (incl. screw 5/16-18 UNC-2B and washer)

### Further designs

#### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order code</th>
<th>HART</th>
<th>PA</th>
<th>FF</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 MF 8 1 2 3 -</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7 MF 8 1 2 4 -</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7 MF 8 1 2 5 -</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

#### Measuring range to be set
- Specify in plain text (max. 5 digits): Y01: ... up to ... mbar, bar, kPa, MPa, psi |

#### Measuring point number (TAG No.)
- Max. 16 characters, specify in plain text: Y15: ......

#### Measuring point text
- Max. 27 characters, specify in plain text: Y01: ... up to ... mbar, bar, kPa, MPa, psi

#### Entry of HART address (TAG)
- Max. 8 characters, specify in plain text: Y17: .........................

#### Setting of pressure indication in pressure units
- Specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi, ...
- Note: The following pressure units can be selected:
  - bar, mbar, mm H₂O, inH₂O, ftH₂O, mmHg, inHg, psi, Pa, kPa, MPa, g/c㎡, kg/c㎡, Torr, ATM or %
- *) ref. temperature 20 °C

#### Setting of pressure indication in non-pressure units
- Specify in plain text: Y22: ... up to ...... l, m³, l, USg, ...

#### Preset bus address
- Y25

---

1) Can only be ordered in conjunction with electrical connection Option A.
2) Can only be ordered in conjunction with electrical connection Option B, C, or D.
3) Only together with HART electronics.
4) Without cable gland.
SITRANS P300 pressure transmitters for gage pressure, with PMC connection, dimensions in mm (inch)

The diagram shows a SITRANS P300 with an example of a flange. In this drawing the height is subdivided into \( H_1 \) and \( H_2 \):

- \( H_1 \) = Height of the SITRANS P300 up to a defined cross-section
- \( H_2 \) = Height of the flange up to this defined cross-section

Only the height \( H_2 \) is indicated in the dimensions of the flanges.

**PMC Style Standard**

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>( H_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.4 mm (1.6”)</td>
<td>Approx. 36.8 mm (1.4”)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PMC Style Minibolt**

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>( H_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.3 mm (1.0”)</td>
<td>Approx. 33.1 mm (1.3”)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PMC Style Standard (left) and PMC Style Minibolt (right) weldable sockets, dimensions in mm (inch)

Material: Stainless steel, mat. No. 1.4404 / 316L
Overview

SITRANS P pressure transmitters, DS III series, are digital pressure transmitters featuring extensive user-friendliness and high accuracy. The parameterization is performed using control keys, over HART communication, PROFIBUS-PA or FOUNDATION Fieldbus interface.

Extensive functionality enables the pressure transmitter to be precisely adapted to the plant's requirements. Operation is very simple in spite of the numerous setting options.

Transmitters with type of protection "Intrinsic safety" and "Explosion-proof" may be installed within potentially explosive atmospheres (zone 1) or in zone 0. The transmitters are provided with an EC type examination certificate and comply with the corresponding harmonized European standards (ATEX).

The transmitters can be equipped with various designs of remote seals for special applications such as the measurement of highly viscous substances.

Various versions of the DS III pressure transmitters are available for measuring:
- Gage pressure
- Absolute pressure
- For differential pressure transmitters
- Filling level
- Mass level
- Volume level
- Volume flow
- Mass flow

Benefits

- High quality and long life
- High reliability even under extreme chemical and mechanical loads
- For aggressive and non-aggressive gases, vapors and liquids
- Extensive diagnosis and simulation functions
- Separate replacement of measuring cell and electronics without recalibration
- Minimum conformity error
- Small long-term drift
- Wetted parts made of high-grade materials (e.g. stainless steel, Hastelloy, gold, Monel, tantalum)

Application

The pressure transmitters of the DS III series, can be used in industrial areas with extreme chemical and mechanical loads. Electromagnetic compatibility in the range 10 kHz to 1 GHz makes the DS III pressure transmitters suitable for locations with high electromagnetic emissions.

Pressure transmitters with type of protection "Intrinsic safety" and "Explosion-proof" may be installed within potentially explosive atmospheres (zone 1) or in zone 0. The pressure transmitters are provided with an EC type examination certificate and comply with the corresponding harmonized European standards (ATEX).

Pressure transmitters with the type of protection "Intrinsic safety" for use in zone 0 may be operated with power supply units of category "ia" and "ib".

The transmitters can be equipped with various designs of remote seals for special applications such as the measurement of highly viscous substances.

The pressure transmitter can be operated locally over 3 control keys or programmed externally over HART communication, PROFIBUS PA communication or FOUNDATION Fieldbus interface.
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

**DS III series**
**Technical description**

**Pressure transmitter for gage pressure**
- Measured variable: Gage pressure of aggressive and non-aggressive gases, vapors and liquids.
- Span (infinitely adjustable)
  - for DS III HART: 0.01 ... 400 bar g (0.145 ... 5802 psi g)
- Nominal measuring range
  - for DS III PA and FF: 1 ... 400 bar g (14.5 ... 5802 psi g)

**Pressure transmitters for absolute pressure**
- Measured variable: Absolute pressure of aggressive and non-aggressive gases, vapors and liquids.
- Span (infinitely adjustable)
  - for DS III HART: 8.3 mbar a ... 100 bar a (0.12 ... 1450 psi a)
- Nominal measuring range
  - for DS III PA and FF: 250 mbar a ... 100 bar a (3.63 ... 1450 psi a)
- There are two series:
  - Gage pressure series
  - Differential pressure series

**Pressure transmitters for differential pressure and flow**
- Measured variables:
  - Differential pressure
  - Small positive or negative pressure
  - Flow \( q \sim \sqrt{\Delta p} \) (together with a primary differential pressure device (see Chapter "Flow Meters"))
- Span (infinitely adjustable)
  - for DS III HART: 1 mbar ... 30 bar (0.0145 ... 435 psi)
- Nominal measuring range
  - for DS III PA and FF: 20 mbar ... 30 bar (0.29 ... 435 psi)

**Pressure transmitters for level**
- Measured variable: Level of aggressive and non-aggressive liquids in open and closed vessels.
- Span (infinitely adjustable)
  - for DS III HART: 25 mbar ... 5 bar (0.363 ... 72.5 psi)
- Nominal measuring range
  - for DS III PA and FF: 250 mbar ... 5 bar (3.63 ... 72.5 psi)
- Nominal diameter of the mounting flange
  - DN 80 or DN 100
  - 3 inch or 4 inch
- In the case of level measurements in open containers, the low-pressure connection of the measuring cell remains open (measurement "compared to atmospheric").
- In the case of measurements in closed containers, the low-pressure connection has to be connected to the container in order to compensate the static pressure.
- The wetted parts are made from a variety of materials, depending on the degree of corrosion resistance required.

**Design**

Front view
The transmitter consists of various components depending on the order. The possible versions are listed in the ordering information. The components described below are the same for all transmitters.

- The rating plate (3, Figure "Front view") with the Order No. is located on the side of the housing. The specified number together with the ordering information provide details on the optional design details and on the possible measuring range (physical properties of built-in sensor element).
- The approval label is located on the opposite side.
- The housing is made of die-cast aluminium or stainless steel precision casting. A round cover is screwed on at the front and rear of the housing. The front cover (6) can be fitted with a viewing pane so that the measured values can be read directly on the digital display. The inlet (4) for the electrical connection is located either on the left or right side. The unused opening on the opposite side is sealed by a blanking plug. The protective earth connection is located on the rear of the housing.
- The electrical connections for the power supply and screen are accessible by unscrewing the rear cover. The bottom part of the housing contains the measuring cell with process connection (1). The measuring cell is prevented from rotating by a locking screw (8). As the result of this modular design, the measuring cell and the electronics can be replaced separately from each other. The set parameter data are retained.
- At the top of the housing is a plastic cover (5), which hides the input keys.
Function of the electronics with PROFIBUS PA communication

The bridge output voltage created by the sensor (1, Figure "Function diagram of the electronics") is amplified by the instrument amplifier (2) and digitized in the analog-to-digital converter (3). The digital information is evaluated in the microcontroller, its linearity and temperature response corrected, and converted in a digital-to-analog converter (5) into an output current of 4 to 20 mA.

The diode circuit (10) protects against incorrect polarity.

The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced separately from each other.

Using the 3 input keys (8) you can parameterize the pressure transmitter directly at the point of measurement. The input keys can also be used to control the view of the results, the error messages and the operating modes on the digital display (9).

The HART modem (7) permits parameterization using a protocol according to the HART specification.

The pressure transmitters with spans ≤ 63 bar measure the input pressure compared to atmosphere, transmitters with spans ≥ 160 bar compared to vacuum.
The digital information is evaluated in the microcontroller, its amplifier (2) and digitized in the analog-to-digital converter (3). The bridge output voltage created by the sensor (1, Figure "Function diagram of the electronics") is amplified by the instrument amplifier (2) and digitized in the analog-to-digital converter (3). The digital information is evaluated in the microcontroller, its linearity and temperature response corrected, and provided on the FOUNDATION Fieldbus through an electrically isolated FOUNDATION Fieldbus Interface (7).

The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced separately from each other.

Using the three input keys (8) you can parameterize the pressure transmitter directly at the point of measurement. The input keys can also be used to control the view of the results, the error messages and the operating modes on the digital display (9).

The results with status values and diagnostic values are transferred by cyclic data transmission on the FOUNDATION Fieldbus. Parameterization data and error messages are transferred by acyclic data transmission. Special software such as National Instruments Configurator is required for this.

Measuring cell for gage pressure, function diagram

The pressure $p_e$ is applied through the process connection (2, Figure "Measuring cell for gage pressure, function diagram") to the measuring cell (1). This pressure is subsequently transmitted further through the seal diaphragm (3) and the filling liquid (4) to the silicon pressure sensor (5) whose measuring diaphragm is then flexed. This changes the resistance of the four piezo-resistors fitted in the diaphragm in a bridge circuit. This change in resistance results in a bridge output voltage proportional to the input pressure.

Measuring cell for gage pressure, with front-flush diaphragm for paper industry

The pressure $p_e$ is applied through the process connection (2, Figure "Measuring cell for gage pressure, with front-flush diaphragm for paper industry") to the measuring cell (1). This pressure is subsequently transmitted further through the seal diaphragm (3) and the filling liquid (4) to the silicon pressure sensor (5) whose measuring diaphragm is then flexed. This changes the resistance of the four piezo-resistors fitted in the diaphragm in a bridge circuit. This change in resistance results in a bridge output voltage proportional to the input pressure.
The absolute pressure measuring cell for absolute pressure from the pressure series, function of the measuring cell (7), thus protecting the silicon pressure diaphragm (2) is flexed until the seal diaphragm rests on the body put voltage proportional to the absolute pressure.

The difference in pressure between the input pressure $p_e$ and the reference vacuum (1) on the low-pressure side of the measuring cell through the seal diaphragm on the mounting flange. This change in resistance results in a bridge output voltage proportional to the absolute pressure.

An overload diaphragm is installed to provide protection from overloads. If the measuring limits are exceeded, the overload diaphragm (2) is flexed until the seal diaphragm rests on the body of the measuring cell (7), thus protecting the silicon pressure sensor from overloads.

The differential pressure is transmitted through the seal diaphragms (1, Figure "Measuring cell for differential pressure and flow, function diagram") and the filling liquid (7) to the silicon pressure sensor (4).

The measuring diaphragm is flexed by the applied differential pressure. This changes the resistance of the four piezo-resistors fitted in the diaphragm in a bridge circuit. This change in resistance results in a bridge output voltage proportional to the absolute pressure.

An overload diaphragm is installed to provide protection from overloads. If the measuring limits are exceeded, the overload diaphragm (2) is flexed until the seal diaphragm rests on the body of the measuring cell (7), thus protecting the silicon pressure sensor from overloads.

The input pressure (hydrostatic pressure) acts hydraulically on the measuring cell through the seal diaphragm on the mounting flange (2, Figure "Measuring cell for level, function diagram"). This differential pressure is subsequently transmitted further through the measuring cell (3) and the filling liquid (9) to the silicon pressure sensor (6) whose measuring diaphragm is then flexed.

This changes the resistance of the four piezo-resistors fitted in the diaphragm in a bridge circuit. This change in resistance results in a bridge output voltage proportional to the differential pressure.

An overload diaphragm is installed to provide protection from overloads. If the measuring limits are exceeded, the overload diaphragm (2) is flexed until the seal diaphragm rests on the body of the measuring cell (7), thus protecting the silicon pressure sensor from overloads.
Parameterization DS III

Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

Parameterization using the input keys (local operation)

With the input keys you can easily set the most important parameters without any additional equipment.

Parameterization using HART communication

Parameterization using HART communication is performed with a HART communicator or a PC.

Communication between a HART communicator and a pressure transm.

When parameterizing with the HART communicator, the connection is made directly to the 2-wire system.

Parameterization through PROFIBUS Interface

Fully digital communication through PROFIBUS PA, profile 3.0, is particularly user-friendly. The PROFIBUS puts the DS III PA is in connection with a process control system, e.g. SIMATIC PSC 7. Communication is possible even in a potentially explosive environment.

For parameterization through PROFIBUS you need suitable software, e.g. SIMATIC PDM (Process Device Manager).

Parameterization through FOUNDATION Fieldbus Interface

Fully digital communication through FOUNDATION Fieldbus is particularly user-friendly. Through the FOUNDATION Fieldbus the DS III FF is connected to a process control system. Communication is possible even in a potentially explosive environment.

For parameterization through the FOUNDATION Fieldbus you need suitable software, e.g. National Instruments Configurator.

Adjustable parameters, DS III HART

Diagnostic functions for DS III HART

- Zero correction display
- Event counter
- Limit transmitter
- Saturation alarm
- Slave pointer
- Simulation functions
- Maintenance timer

Available physical units of display for DS III HART

Table style: Technical specifications 2

<table>
<thead>
<tr>
<th>Physical variable</th>
<th>Physical dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure</td>
<td>Pa, MPa, kPa, bar, mbar, torr, atm, psi, g/cm², kg/cm², inH₂O, inH₂O (4 °C), mmH₂O, ftH₂O (20 °C), inHg, mmHg</td>
</tr>
<tr>
<td>Level (height data)</td>
<td>m, cm, mm, ft, in</td>
</tr>
<tr>
<td>Volume</td>
<td>m³, dm³, hl, yd³, ft³, in³, US gallon, Imp. gallon, bushel, barrel, barrel liquid</td>
</tr>
<tr>
<td>Mass</td>
<td>g, kg, t, lb, Ston, Lton, oz</td>
</tr>
<tr>
<td>Volume flow</td>
<td>m³/d, m³/h, m³/s, l/min, l/s, ft³/d, ft³/min, ft³/s, US gallon/min, US gallon/s</td>
</tr>
<tr>
<td>Mass flow</td>
<td>t/d, t/h, t/min, kg/d, kg/h, kg/min, kg/s, g/d, g/h, g/min, g/s, lb/d, lb/h, lb/min, lb/s, LTon/d, LTon/h, STon/d, STon/h, STon/min</td>
</tr>
<tr>
<td>Temperature</td>
<td>K, °C, °F, °R</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>%, mA</td>
</tr>
</tbody>
</table>

Parameters Input keys (DS III HART) HART communication

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Start of scale</th>
<th>Full-scale value</th>
<th>Electrical damping</th>
<th>Start-of-scale value without application of a pressure (&quot;Blind setting&quot;)</th>
<th>Full-scale value without application of a pressure (&quot;Blind setting&quot;)</th>
<th>Zero adjustment</th>
<th>Current transmitter</th>
<th>Fault current</th>
<th>Disabling of keys, write protection</th>
<th>Type of dimension and actual dimension</th>
<th>Characteristic (linear / square-rooted)</th>
<th>Input of characteristic</th>
<th>Freely-programmable LCD</th>
<th>Diagnostics functions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x (1)</td>
<td>x (1)</td>
<td>x (2)</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

(1) Cancel apart from write protection

(2) Only differential pressure
Diagnostic functions for DS III PA and FF

- Event counter
- Slave pointer
- Maintenance timer
- Simulation functions
- Display of zero correction
- Limit transmitter
- Saturation alarm

Physical dimensions available for the display

<table>
<thead>
<tr>
<th>Physical variable</th>
<th>Physical dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure (setting can also be made in the factory)</td>
<td>MPa, kPa, Pa, bar, mbar, torr, atm, psi, g/cm², kg/cm², mmH₂O, mmH₂O (4 °C), inH₂O, inH₂O (4 °C), ftH₂O (20 °C), mmHg, inHg</td>
</tr>
<tr>
<td>Level (height data)</td>
<td>m, cm, mm, ft, in, yd</td>
</tr>
<tr>
<td>Volume</td>
<td>m³, dm³, hl, yd³, ft³, in³, US gallon, Imp. gallon, bushel, barrel, barrel liquid</td>
</tr>
<tr>
<td>Volume flow</td>
<td>m³/s, m³/min, m³/d, l/s, l/min, l/h, l/d, Ml/d, ft³/s, ft³/min, ft³/h, ft³/d, US gallon/s, US gallon/min, US gallon/h, US gallon/d, bbl/s, bbl/min, bbl/h, bbl/d</td>
</tr>
<tr>
<td>Mass flow</td>
<td>g/s, g/min, qh, g/d, kg/s, kg/min, kg/h, kg/d, t/s, t/min, t/h, t/d, lb/s, lb/min, lb/h, lb/d, STon/s, STon/min, STon/h, STon/d, LTON/s, LTON/min, LTON/h, LTON/d</td>
</tr>
<tr>
<td>Total mass flow</td>
<td>t, kg, g, lb, oz, LTON, STon</td>
</tr>
<tr>
<td>Temperature</td>
<td>K, °C, °F, °R</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>%</td>
</tr>
</tbody>
</table>
## Technical specifications

**SITRANS P, DS III series for gage pressure**

<table>
<thead>
<tr>
<th>Input</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured variable</td>
<td>Gage pressure</td>
<td></td>
</tr>
<tr>
<td>Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure</td>
<td>Span: 0.01 ... 1 bar g (0.145 ... 14.5 psi g)</td>
<td>Nominal measuring range: 0 bar</td>
</tr>
<tr>
<td></td>
<td>Max. perm. test pressure: 6 bar g (87 psi g)</td>
<td>Max. perm. test pressure: 6 bar g (87 psi g)</td>
</tr>
<tr>
<td></td>
<td>0.04 ... 4 bar g (0.58 ... 58 psi g)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.16 ... 16 bar g (2.23 ... 232 psi g)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.6 ... 63 bar g (9.14 ... 914 psi g)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.6 ... 160 bar g (23.2 ... 2320 psi g)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.0 ... 400 bar g (58 ... 5802 psi g)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.0 ... 700 bar g (102 ... 10153 psi g)</td>
<td></td>
</tr>
</tbody>
</table>

**Output**

<table>
<thead>
<tr>
<th>Output signal</th>
<th>4 ... 20 mA</th>
<th>Digital PROFIBUS PA or FOUNDATION Fieldbus signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower limit (infinitely adjustable)</td>
<td>3.55 mA, factory preset to 3.84 mA</td>
<td>-</td>
</tr>
<tr>
<td>Upper limit (infinitely adjustable)</td>
<td>23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA</td>
<td>-</td>
</tr>
</tbody>
</table>

**Load**

- Without HART communication: \( R_B \leq \frac{(U_H - 10.5 V)/0.023}{A} \) in \( \Omega \)
  \( U_H \): Power supply in V
- With HART communication: \( R_B \leq 230 ... 500 \Omega \) (SIMATIC PDM) or \( R_B \leq 230 ... 1100 \Omega \) (HART Communicator)

**Physical bus**

- IEC 61158-2

**With polarity reversal protection**

- Yes

**Accuracy**

Reference conditions: To EN 60770-1

Increasing characteristic, start-of-scale value 0 bar, stainless steel seal diaphragm, silicone oil filling, room temperature 25 °C (77 °F) \( r \): Span ratio \( r = \text{max. span/set span} \)

- Linear characteristic:
  - \( r \leq 10 \) \( \leq (0.0029 \cdot r + 0.071)\% \)
  - \( 10 < r \leq 30 \) \( \leq (0.0045 \cdot r + 0.071)\% \)
  - \( 30 < r \leq 100 \) \( \leq (0.005 \cdot r + 0.05)\% \)

- Long-term drift (temperature change ±30 °C (±54 °F))
  - \( \leq (0.25 - r)\% \) every 5 years
  - \( \leq 0.25\% \) every 5 years

- Influence of ambient temperature
  - \( \text{at } -10 \ldots +60 \degree \text{C (14 \ldots 140 \degree \text{F})} \) \( \leq (0.08 \cdot r + 0.1)\% \)
  - \( \leq 0.3\% \)
  - \( \text{at } -40 \ldots +10 \degree \text{C and } +60 \ldots +85 \degree \text{C (}-40 \ldots +14 \degree \text{F and } 140 \ldots 185 \degree \text{F}) \) \( \leq (0.1 \cdot r + 0.15)\%/10 \text{K} \)
  - \( \leq 0.25\%/10 \text{K} \)

- Measured Value Resolution
  - \( 3 \cdot 10^{-5} \) of nominal measuring range
## Rated operating conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of protection (to EN 60529)</td>
<td>IP65</td>
<td></td>
</tr>
<tr>
<td>Process temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Measuring cell with silicone oil filling</td>
<td>-40 ... +100 °C (-40 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>• Measuring cell with inert filling liquid</td>
<td>-20 ... +100 °C (-4 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>• In conjunction with dust explosion protec-</td>
<td>-20 ... +60 °C (-4 ... +140 °F)</td>
<td></td>
</tr>
<tr>
<td>tion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ambient temperature</td>
<td>-30 ... +85 °C (-22 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>• Storage temperature</td>
<td>-50 ... +85 °C (-58 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>• Climatic class</td>
<td></td>
<td>Permissible</td>
</tr>
<tr>
<td>• Condensation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Electromagnetic compatibility</td>
<td></td>
<td>To EN 61326 and NAMUR NE 21</td>
</tr>
<tr>
<td>• Emitted interference and interference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>immunity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Design

| Weight (without options)                      | ≈ 1.5 kg (= 3.3 lb)          |
| Housing material                              | Poor in copper die-cast aluminium, GD-AISi12 or stainless steel precision casting, mat. No. 1.4408 |
| Wetted parts materials                        |                             |
| • Connection shank                            | Stainless steel, mat. No. 1.4404/316L or Hastelloy C4, mat. No. 2.4610 |
| • Oval flange                                 | Stainless steel, mat. No. 1.4404/316L |
| • Seal diaphragm                              | Stainless steel, mat. No. 1.4404/316L or Hastelloy C276, mat. No. 2.4819 |
| Measuring cell filling                        | Silicone oil or inert filling liquid (max. 160 bar (2320 psi g) with oxygen measurement) |
| Process connection                            | Connection shank G½A to DIN EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MWP 2320 psi g)) to DIN 19213 with mounting thread M10 or 1/16-20 UNF to EN 61518 |
| Material of the mounting bracket              |                             |
| • Steel                                       | Sheet steel, Mat. No. 1.0330, chrome-plated |
| • Stainless steel                             | Stainless steel, Mat. No. 1.4301 (SS304) |

## Power supply $U_i$

<table>
<thead>
<tr>
<th>Condition</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal voltage on transmitter</td>
<td>10.5 ... 45 V DC</td>
<td>Supplied through bus</td>
</tr>
<tr>
<td>Separate 24 V power supply necessary</td>
<td>10.5 ... 30 V DC in intrinsically-safe mode</td>
<td>-</td>
</tr>
<tr>
<td>Bus voltage</td>
<td>-</td>
<td>No</td>
</tr>
<tr>
<td>• Not Ex</td>
<td>-</td>
<td>9 ...32 V</td>
</tr>
<tr>
<td>• With intrinsically-safe operation</td>
<td>-</td>
<td>9 ...24 V</td>
</tr>
<tr>
<td>Current consumption</td>
<td>-</td>
<td>12.5 mA</td>
</tr>
<tr>
<td>• Basic current (max.)</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>• Startup current ≤ basic current</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>• Max. current in event of fault</td>
<td>-</td>
<td>15.5 mA</td>
</tr>
<tr>
<td>Fault disconnection electronics (FDE) available</td>
<td>-</td>
<td>Yes</td>
</tr>
</tbody>
</table>
## Certificate and approvals

<table>
<thead>
<tr>
<th>Description</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification according to pressure equipment directive (DRGL 97/23/EC)</td>
<td>For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)</td>
<td></td>
</tr>
<tr>
<td>Explosion protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Intrinsic safety ‘i’</td>
<td>PTB 99 ATEX 2122</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 1/2 G Ex ia/ib IIB/IIC T6</td>
<td></td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F) temperature class T4;</td>
<td>FISCO supply unit:</td>
</tr>
<tr>
<td></td>
<td>-40 ... +70 °C (-40 ... +158 °F) temperature class T5;</td>
<td>$U_i = 17.5 \text{ V}, I_i = 380 \text{ mA}, P_i = 5.32 \text{ W}$</td>
</tr>
<tr>
<td></td>
<td>-40 ... +60 °C (-40 ... +140 °F) temperature class T6</td>
<td>Linear barrier: $U_i = 24 \text{ V}, I_i = 250 \text{ mA}, P_i = 1.2 \text{ W}$</td>
</tr>
<tr>
<td>- Connection</td>
<td>To certified intrinsically-safe circuits with maximum values:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$U_i = 30 \text{ V}, I_i = 100 \text{ mA}, R_i = 750 \text{ mW}, R_i = 300 \Omega$</td>
<td>$L_i = 7 \mu \text{ H}, C_i = 1.1 \text{ nF}$</td>
</tr>
<tr>
<td>- Effective internal inductance/capacitance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Explosion-proof &quot;d&quot;</td>
<td>PTB 99 ATEX 1160</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 1/2 G EEx d IIC T4/T6</td>
<td></td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F) temperature class T4;</td>
<td>To circuits with values: $U_i = 10.5 ... 45 \text{ V DC}$</td>
</tr>
<tr>
<td></td>
<td>-40 ... +60 °C (-40 ... +140 °F) temperature class T6</td>
<td></td>
</tr>
<tr>
<td>- Connection</td>
<td>To circuits with values: $U_i = 9 ... 32 \text{ V DC}$</td>
<td></td>
</tr>
<tr>
<td>• Dust explosion protection for zone 20</td>
<td>PTB 01 ATEX 2055</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 1 D IP65 T 120 °C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ex II 1/2 D IP65 T 120 °C</td>
<td></td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>- Max. surface temperature</td>
<td>120 °C (248 °F)</td>
<td></td>
</tr>
<tr>
<td>- Connection</td>
<td>To certified intrinsically-safe circuits with maximum values:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$U_i = 30 \text{ V}, I_i = 100 \text{ mA}, R_i = 750 \text{ mW}, R_i = 300 \Omega$</td>
<td>$L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$</td>
</tr>
<tr>
<td>- Effective internal inductance/capacitance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Dust explosion protection for zone 21/22</td>
<td>PTB 01 ATEX 2055</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 2 D IP65 T 120 °C</td>
<td></td>
</tr>
<tr>
<td>- Connection</td>
<td>To circuits with values: $U_i = 10.5 ... 45 \text{ V DC}$; $P_{max} = 1.2 \text{ W}$</td>
<td>To circuits with values: $U_i = 9 ... 32 \text{ V DC}$; $P_{max} = 1.2 \text{ W}$</td>
</tr>
<tr>
<td>• Type of protection ‘n’ (zone 2)</td>
<td>TÜV 01 ATEX 1696 X</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 3 G EEx nA L IIC T4/T5/T6</td>
<td></td>
</tr>
<tr>
<td>• Explosion protection to FM</td>
<td>Certificate of Compliance 3008490</td>
<td></td>
</tr>
<tr>
<td>- Identification (XP/DIP) or (IS); (NI)</td>
<td>CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Cl I, ZN 01 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III</td>
<td></td>
</tr>
<tr>
<td>• Explosion protection to CSA</td>
<td>Certificate of Compliance 1153651</td>
<td></td>
</tr>
<tr>
<td>- Identification (XP/DIP) or (IS)</td>
<td>CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III</td>
<td></td>
</tr>
</tbody>
</table>
### SITRANS P measuring instruments for pressure
**Transmitters for gage, absolute and differential pressure, flow and level**

#### DS III series for gage pressure

<table>
<thead>
<tr>
<th><strong>HART communication</strong></th>
<th><strong>Communication FOUNDATION Fieldbus</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>HART communication</td>
<td>230 ... 1100 Ω</td>
</tr>
<tr>
<td>Protocol</td>
<td>HART Version 5.x</td>
</tr>
<tr>
<td>Software for computer</td>
<td>SIMATIC PDM</td>
</tr>
<tr>
<td><strong>PROFIBUS PA communication</strong></td>
<td></td>
</tr>
<tr>
<td>Simultaneous communication with master class 2 (max.)</td>
<td>4</td>
</tr>
<tr>
<td>The address can be set using</td>
<td>Configuration tool or local operation (standard setting address 126)</td>
</tr>
<tr>
<td><strong>Cyclic data usage</strong></td>
<td></td>
</tr>
<tr>
<td>• Output byte</td>
<td>5 (one measuring value) or 10 (two measuring values)</td>
</tr>
<tr>
<td>• Input byte</td>
<td>0, 1, or 2 (register operating mode and reset function for metering)</td>
</tr>
<tr>
<td><strong>Internal preprocessing</strong></td>
<td></td>
</tr>
<tr>
<td>Device profile</td>
<td>PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B</td>
</tr>
<tr>
<td>Function blocks</td>
<td>2</td>
</tr>
<tr>
<td>• Analog input</td>
<td></td>
</tr>
<tr>
<td>- Adaptation to customer-specific process variables</td>
<td>Yes, linearly rising or falling characteristic</td>
</tr>
<tr>
<td>- Electrical damping T₆₃, adjustable</td>
<td>0 ... 100 s</td>
</tr>
<tr>
<td>- Simulation function</td>
<td>Input /Output</td>
</tr>
<tr>
<td>- Failure mode</td>
<td>Can be parameterized (last good value, substitute value, incorrect value)</td>
</tr>
<tr>
<td>- Limit monitoring</td>
<td>Yes, one upper and lower warning limit and one alarm limit respectively</td>
</tr>
<tr>
<td>• Register (totalizer)</td>
<td>Can be reset, preset, optional direction of counting, simulation function of register output</td>
</tr>
<tr>
<td>- Failure mode</td>
<td>Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)</td>
</tr>
<tr>
<td>- Limit monitoring</td>
<td>One upper and lower warning limit and one alarm limit respectively</td>
</tr>
<tr>
<td>• Physical block</td>
<td>1</td>
</tr>
<tr>
<td>Transducer blocks</td>
<td>2</td>
</tr>
<tr>
<td>• Pressure transducer block</td>
<td></td>
</tr>
<tr>
<td>- Can be calibrated by applying two pressures</td>
<td>Yes</td>
</tr>
<tr>
<td>- Monitoring of sensor limits</td>
<td>Yes</td>
</tr>
<tr>
<td>- Specification of a container characteristic with</td>
<td>Max. 30 nodes</td>
</tr>
<tr>
<td>- Square-rooted characteristic for flow measurement</td>
<td>Yes</td>
</tr>
<tr>
<td>- Gradual volume suppression and implementation point of square-root extraction</td>
<td>Parameterizable</td>
</tr>
<tr>
<td>- Simulation function for measured pressure value and sensor temperature</td>
<td>Constant value or over parameterizable ramp function</td>
</tr>
</tbody>
</table>

#### Protocol HART Version 5.x
- **Software for computer**
- **Siemens FI 01 · 2009**

- **HART communication** 230 ... 1100 Ω
- **Protocol** HART Version 5.x
- **Software for computer** SIMATIC PDM

- **Profibus PA communication**
  - The address can be set using Configuration tool or local operation (standard setting address 126)

- **Cyclic data usage**
  - Output byte: 5 (one measuring value) or 10 (two measuring values)
  - Input byte: 0, 1, or 2 (register operating mode and reset function for metering)

- **Internal preprocessing**
  - Device profile: PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B

- **Function blocks**
  - Analog input:
    - Adaptation to customer-specific process variables
    - Electrical damping T₆₃, adjustable
    - Simulation function
    - Failure mode
    - Limit monitoring
  - Register (totalizer):
    - Failure mode
    - Limit monitoring
  - Physical block:
    - Failure mode
  - Pressure transducer block:
    - Can be calibrated by applying two pressures
    - Monitoring of sensor limits
    - Specification of a container characteristic with
    - Square-rooted characteristic for flow measurement
    - Gradual volume suppression and implementation point of square-root extraction
    - Simulation function for measured pressure value and sensor temperature

- **Communication FOUNDATION Fieldbus**
  - Function blocks: 3 function blocks analog input, 1 function block PID
  - Analog input:
    - Adaptation to customer-specific process variables
    - Electrical damping T₆₃, adjustable
  - Simulation function
  - Failure mode
  - Limit monitoring
  - Square-rooted characteristic for flow measurement
  - PID:
    - Standard FF function block
  - Physical block:
    - Standard FF function block
  - Transducer blocks:
    - Standard FF function block
      - Pressure transducer block:
        - Can be calibrated by applying two pressures
        - Monitoring of sensor limits
      - Monitoring of sensor limits
      - Specification of a container characteristic with
      - Square-rooted characteristic for flow measurement
      - Gradual volume suppression and implementation point of square-root extraction
      - Simulation function for measured pressure value and sensor temperature
      - Constant value or over parameterizable ramp function
## SITRANS P measuring instruments for pressure

### Transmitters for gage, absolute and differential pressure, flow and level

#### DS III series

**for gage pressure**

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>SITRANS P pressure transmitters for gage pressure, series DS III HART</th>
<th>7 MF 4 0 3 3 -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring cell filling</td>
<td>Measuring cell cleaning</td>
<td></td>
</tr>
<tr>
<td>Silicone oil</td>
<td>Standard</td>
<td>1</td>
</tr>
<tr>
<td>Inert liquid</td>
<td>Grease-free</td>
<td>3</td>
</tr>
<tr>
<td>Span</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.01 ... 1 bar g</td>
<td>(0.15 ... 14.5 psi g)</td>
<td>B</td>
</tr>
<tr>
<td>0.04 ... 4 bar g</td>
<td>(0.58 ... 58 psi g)</td>
<td>C</td>
</tr>
<tr>
<td>0.16 ... 16 bar g</td>
<td>(2.32 ... 232 psi g)</td>
<td>D</td>
</tr>
<tr>
<td>0.63 ... 63 bar g</td>
<td>(9.14 ... 914 psi g)</td>
<td>E</td>
</tr>
<tr>
<td>1.6 ... 160 bar g</td>
<td>(23.2 ... 2320 psi g)</td>
<td>F</td>
</tr>
<tr>
<td>4.0 ... 400 bar g</td>
<td>(58.0 ... 5802 psi g)</td>
<td>G</td>
</tr>
<tr>
<td>7.0 ... 700 bar g</td>
<td>(102.0 ... 10153 psi g)</td>
<td>J</td>
</tr>
<tr>
<td>Wetted parts materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seal diaphragm</td>
<td>Process connection</td>
<td></td>
</tr>
<tr>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>A</td>
</tr>
<tr>
<td>Hastelloy</td>
<td>Stainless steel</td>
<td>B</td>
</tr>
<tr>
<td>Version as diaphragm seal</td>
<td>1) 2)</td>
<td>Y</td>
</tr>
<tr>
<td>Process connection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Connection shank G½B to EN 837-1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>• Female thread ½-14 NPT</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>• Oval flange made of stainless steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mounting thread M20 UNF to EN 61518</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>- Mounting thread M10 to DIN 19213</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>- Mounting thread M12 to DIN 19213</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>• Male thread M20 x 1.5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>• Male thread ½-14 NPT</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Non-wetted parts materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Housing made of die-cast aluminium</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>• Housing stainless steel precision casting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Version</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Standard version</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>• International version, English label inscriptions, documentation in 5 languages on CD</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Explosion protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Without</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>• With ATEX, Type of protection:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- &quot;Intrinsic safety (EEEx ia)&quot; 3)</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>- &quot;Explosion-proof (EEEx d)&quot; 5)</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>- &quot;Intrinsic safety and explosion-proof enclosure (EEEx ia + EEEx d)&quot; 6)</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>- &quot;Ex nA/L (zone 2)&quot;</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>- &quot;Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEEx ia + EEEx d + Zone 1D/2D)&quot; 6)</td>
<td>R</td>
<td></td>
</tr>
<tr>
<td>• With FM + CSA, Type of protection:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- &quot;Intrinsic safety and explosion-proof (is + xp)&quot; 5)</td>
<td>NC</td>
<td></td>
</tr>
<tr>
<td>Electrical connection / cable entry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Screwed gland Pg 13.5 (adapter) 7)</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>• Screwed gland M20x1.5</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>• Screwed gland ½-14 NPT</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>• Han 7D plug (plastic housing) incl. mating connector</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>• M12 connector (metall) 8)</td>
<td>F</td>
<td></td>
</tr>
</tbody>
</table>

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>SITRANS P pressure transmitters for gage pressure, series DS III HART</th>
<th>7 MF 4 0 3 3 -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Without indicator</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>• Without visible digital indicator (digital indicator hidden, setting: mA)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>• With visible digital indicator, setting: mA</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>• with customer-specific digital indicator (setting as specified, Order code “Y21” or “Y22” required)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Power supply units see “SITRANS I power supply units and isolation amplifiers”.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factory-mounting of shut-off valves and valve manifolds see page 2/142.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Included in delivery of the device:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Brief instructions (Leporello)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CD-ROM with detailed documentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) For oxygen application, add Order code E10.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) When the manufacture’s certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Whe the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Not together with Electrical connection „Screwed gland Pg 13.5” and „Han7D plug”.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Without cable gland, with blanking plug</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) With enclosed cable gland EEEx ia and blanking plug</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Not together with type of protection “Explosion-proof” and type of protection “Ex nA”.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Cannot be used together with the following types of protection: “Explosion-proof” and “Intrinsic safety and explosion-proof”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F) Subject to export regulations AL: 9I999, ECCN: N.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Order No.</th>
<th>SITRANS P pressure transmitters for gage pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DS III PA (PROFIBUS PA) series</td>
</tr>
<tr>
<td></td>
<td>DS III FF series (FOUNDATION Fieldbus)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measuring cell filling</th>
<th>Measuring cell cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>Standard</td>
</tr>
<tr>
<td>Inert liquid¹</td>
<td>Grease-free</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nominal measuring range</th>
<th>Cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 bar g (14.5 psi g)</td>
<td>B</td>
</tr>
<tr>
<td>4 bar g (58 psi g)</td>
<td>C</td>
</tr>
<tr>
<td>16 bar g (232 psi g)</td>
<td>D</td>
</tr>
<tr>
<td>63 bar g (914 psi g)</td>
<td>E</td>
</tr>
<tr>
<td>160 bar g (2320 psi g)</td>
<td>F</td>
</tr>
<tr>
<td>400 bar g (5802 psi g)</td>
<td>G</td>
</tr>
<tr>
<td>700 bar g (10153 psi g)</td>
<td>J</td>
</tr>
</tbody>
</table>

**Wetted parts materials**

<table>
<thead>
<tr>
<th>Seal diaphragm</th>
<th>Process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Hastelloy</td>
<td>Hastelloy</td>
</tr>
<tr>
<td>Version as diaphragm seal</td>
<td>Usage code</td>
</tr>
</tbody>
</table>

**Process connection**

- Connection shank 1/2A to EN 837-1 (0)
- Female thread ½-14 NPT (1)
- Oval flange made of stainless steel (2)
- Mounting thread 1/4-20 UNF to EN 61518 (3)
- Mounting thread M10 to DIN 19213 (4)
- Mounting thread M12 nach DIN 19213 (5)
- Male thread M20 x 1.5 (6)
- Male thread ½-14 NPT (7)

**Non-wetted parts materials**

- Housing made of die-cast aluminium (0)
- Housing stainless steel precision casting (3)

**Version**

- Standard version (1)
- International version, English label inscriptions, documentation in 5 languages on CD (2)

**Explosion protection**

- Without (A)
- With ATEX, Type of protection:
  - "Intrinsic safety (EEx ia)" (B)
  - "Explosion-proof (EEx d)"  (C)
  - "Intrinsic safety and explosion-proof enclosure (EEx ia + EEx d)" (D)
  - "Ex nA/nL, (zone 2)" (E)
  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)" (F)
- With FM + CSA, Type of protection:
  - "Intrinsic safety and explosion-proof (is + xp)" (G)

**Electrical connection / cable entry**

- Screwed gland M20x1.5 (B)
- Screwed gland ½-14 NPT (C)
- Plug M12 (metal) (D)

---

¹ For oxygen application, add Order code E10.
² When the manufacture's certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
³ When the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
⁴ Without cable gland, with blanking plug.
⁵ With enclosed cable gland EEx ia and blanking plug.
⁶ Cannot be used together with the following types of protection: "Explosion-proof" and "Intrinsic safety and explosion-proof"
F) Subject to export regulations AL: 9I999, ECCN: N.
## Selection and Ordering data

### Add "Z" to Order No. and specify Order code.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A01</td>
<td>Steel</td>
</tr>
<tr>
<td>A02</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>A30</td>
<td>Han 7D (metal, gray)</td>
</tr>
<tr>
<td>A31</td>
<td>Han 8U (instead of Han 7D)</td>
</tr>
<tr>
<td>A50</td>
<td>Cable sockets for M12 connectors (metal)</td>
</tr>
<tr>
<td>B11</td>
<td>English rating plate (instead of German)</td>
</tr>
<tr>
<td>B12</td>
<td>French rating plate (instead of German)</td>
</tr>
<tr>
<td>B13</td>
<td>Spanish rating plate (instead of German)</td>
</tr>
<tr>
<td>B14</td>
<td>Italian rating plate (instead of German)</td>
</tr>
<tr>
<td>B21</td>
<td>English rating plate</td>
</tr>
<tr>
<td>B22</td>
<td>French rating plate</td>
</tr>
<tr>
<td>B23</td>
<td>Spanish rating plate</td>
</tr>
<tr>
<td>B24</td>
<td>Italian rating plate</td>
</tr>
<tr>
<td>C11</td>
<td>Factory certificate to EN 10204-3.1</td>
</tr>
<tr>
<td>C12</td>
<td>&quot;Functional Safety (SIL)&quot; certificate</td>
</tr>
<tr>
<td>C13</td>
<td>&quot;PROFIsafe&quot; certificate and protocol</td>
</tr>
<tr>
<td>D05</td>
<td>Setting of upper limit of output signal to 22.0 mA</td>
</tr>
<tr>
<td>D12</td>
<td>Type of protection IP68 (not together with 7D/ Han 8U plug, cable gland Pg 13.5)</td>
</tr>
<tr>
<td>D27</td>
<td>Digital indicator alongside the input keys (only together with the devices 7MF4033-....-A.6 or -A.7-Z, Y21 or Y22 + Y01)</td>
</tr>
<tr>
<td>D37</td>
<td>Supplied with oval flange (1 item), PTFE packing and screws in thread of oval flange</td>
</tr>
<tr>
<td>E01</td>
<td>Use in or on zone 1D/2D (only together with type of protection &quot;Intrinsic safety (EEEx ia)&quot;)</td>
</tr>
<tr>
<td>E02</td>
<td>Use on zone 0 (only together with type of protection &quot;Intrinsic safety (EEEx ia)&quot;)</td>
</tr>
<tr>
<td>E10</td>
<td>Oxygen application (max. 120 bar g (1740 psi g) at 60°C (140 °F) for oxygen measurement and inert liquid)</td>
</tr>
<tr>
<td>E25</td>
<td>Explosion-proof &quot;Intrinsic safety&quot; to INMETRO (Brazil) (only for transmitter 7MF4-...-..-..-B..)</td>
</tr>
<tr>
<td>E55</td>
<td>Explosion-proof &quot;Intrinsic safety&quot; to NEPSI (China) (only for transmitter 7MF4-...-..-..-B..)</td>
</tr>
<tr>
<td>E56</td>
<td>Explosion protection &quot;Explosion-proof&quot; to NEPSI (China) (only for transmitter 7MF4-...-..-..-D..)</td>
</tr>
<tr>
<td>E57</td>
<td>Explosion-proof &quot;Zone 2&quot; to NEPSI (China) (only for transmitter 7MF4-...-..-..-E..)</td>
</tr>
<tr>
<td>Y01</td>
<td>Measuring range to be set (specify in plain text (max. 5 digits): Y01: ... up to ... mbar, bar, kPa, MPa, psi</td>
</tr>
<tr>
<td>Y15</td>
<td>Measuring point number (TAG No.) (max. 16 characters, specify in plain text: Y15: ..................)</td>
</tr>
<tr>
<td>Y16</td>
<td>Measuring point text (max. 27 characters, specify in plain text: Y16: ..................)</td>
</tr>
<tr>
<td>Y21</td>
<td>Setting of pressure indication in pressure units (specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi, ... Note: The following pressure units can be selected: bar, mbar, mm H₂O, inH₂O, ftH₂O, mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM oder %)</td>
</tr>
<tr>
<td>Y22 + Y01</td>
<td>Setting of pressure indication in non-pressure units (specify in plain text: Y22: .... up to ..... l/min, m³/h, m, USgpm, ... (specification of measuring range in pressure units &quot;Y01&quot; is essential, unit with max. 5 characters)</td>
</tr>
<tr>
<td>Y25</td>
<td>Preset bus address (possible between 1 and 126) (Specify in plain text: Y25: ..................)</td>
</tr>
</tbody>
</table>

### Additional data

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y01</td>
<td>Measuring range to be set</td>
</tr>
<tr>
<td>Y15</td>
<td>Measuring point number (TAG No.)</td>
</tr>
<tr>
<td>Y16</td>
<td>Measuring point text</td>
</tr>
<tr>
<td>Y21</td>
<td>Setting of pressure indication in pressure units</td>
</tr>
<tr>
<td>Y22 + Y01</td>
<td>Setting of pressure indication in non-pressure units</td>
</tr>
<tr>
<td>Y25</td>
<td>Preset bus address</td>
</tr>
</tbody>
</table>

#### Note:

When the manufacturer’s certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

When the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y01, Y21, Y22, Y25 and &quot;D05&quot; can be factory preset</td>
<td></td>
</tr>
</tbody>
</table>

### Ordering example

**Item line:** 7MF4033-1EA00-1AA7-Z  
**B line:** A01 + Y01 + Y21  
**C line:** Y01: 10 ... 20 bar (145 ... 290 psi)  
**C line:** Y21: bar (psi)
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series
for gage pressure

Dimensional drawings

SITRANS P pressure transmitters, DS III HART series for gage pressure, dimensions in mm (inch)
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series
for gage pressure

1 Process connection:
   - ½-14 NPT,
   - connection shank G½B or
   - oval flange
2 Blanking plug
3 Electrical connection:
   - screwed gland Pg 13,5 (adapter) 2)
   - screwed gland M20x1,5 3)
   - screwed gland ½-14 NPT or
   - Han 7D/ Han 8U 2) 3) plug
4 Terminal side
5 Electronic side, digital display (longer overall length for cover with window)
6 Protective cover over keys
7 Mounting bracket (option)
8 Screw cover - safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "Explosion-proof enclosure"
3) Not with type of protection "FM + CSA [is + xp]"
4) For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
5) Minimum distance for rotating

SITRANS P pressure transmitters, DS III PA and FF series for gage pressure, dimensions in mm (inch)
## Technical specifications

### SITRANS P, DS III series for gage and absolute pressure, with front-flush diaphragm

<table>
<thead>
<tr>
<th>Input gage pressure, with front-flush diaphragm</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured variable</td>
<td>Gage pressure, flush-mounted</td>
<td>Nominal measuring range</td>
</tr>
<tr>
<td>Span</td>
<td>Max. perm. test pressure</td>
<td>Max. perm. test pressure</td>
</tr>
<tr>
<td>0.01 ... 1 bar g</td>
<td>6 bar g</td>
<td>1 bar g</td>
</tr>
<tr>
<td>(0.145 ... 14.5 psi g)</td>
<td>(87 psi g)</td>
<td>(14.5 psi g)</td>
</tr>
<tr>
<td>0.04 ... 4 bar g</td>
<td>10 bar g</td>
<td>4 bar g</td>
</tr>
<tr>
<td>(0.58 ... 58 psi g)</td>
<td>(145 psi g)</td>
<td>(58 psi g)</td>
</tr>
<tr>
<td>0.16 ... 16 bar g</td>
<td>32 bar g</td>
<td>16 bar g</td>
</tr>
<tr>
<td>(2.23 ... 232 psi g)</td>
<td>(464 psi g)</td>
<td>(232 psi g)</td>
</tr>
<tr>
<td>0.6 ... 63 bar g</td>
<td>100 bar g</td>
<td>63 bar g</td>
</tr>
<tr>
<td>(9.14 ... 914 psi g)</td>
<td>(1450 psi g)</td>
<td>(914 psi g)</td>
</tr>
<tr>
<td>Lower measuring limit</td>
<td>-100 mbar a (-1.45 psi a)</td>
<td>100% of max. span</td>
</tr>
<tr>
<td>Upper measuring limit</td>
<td>100% of max. span</td>
<td>100% of nominal measuring range</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input absolute pressure, with front-flush diaphragm</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured variable</td>
<td>Absolute pressure, flush-mounted</td>
<td>Nominal measuring range</td>
</tr>
<tr>
<td>Span</td>
<td>Max. perm. test pressure</td>
<td>Max. perm. test pressure</td>
</tr>
<tr>
<td>43 ... 1300 mbar a</td>
<td>10 bar a</td>
<td>10 bar a</td>
</tr>
<tr>
<td>(0.62 ... 18.9 psi a)</td>
<td>(145 psi a)</td>
<td>(14.5 psi a)</td>
</tr>
<tr>
<td>0.16 ... 5 bar a</td>
<td>30 bar a</td>
<td>5 bar a</td>
</tr>
<tr>
<td>(2.32 ... 72.5 psi a)</td>
<td>(435 psi a)</td>
<td>(72.5 psi a)</td>
</tr>
<tr>
<td>1 ... 30 bar a</td>
<td>100 bar a</td>
<td>30 bar a</td>
</tr>
<tr>
<td>(14.5 ... 435 psi a)</td>
<td>(1450 psi a)</td>
<td>(435 psi a)</td>
</tr>
<tr>
<td>Depending on the process connection, the span may differ from these values</td>
<td>Je nach Prozessanschluss kann die Messspanne von diesen Werten abweichen</td>
<td></td>
</tr>
<tr>
<td>Lower measuring limit</td>
<td>100 mbar a (1.45 psi a)</td>
<td>100% of max. span</td>
</tr>
<tr>
<td>Upper measuring limit</td>
<td>100% of max. span</td>
<td>100% of nominal measuring range</td>
</tr>
</tbody>
</table>

### Output

<table>
<thead>
<tr>
<th>Output</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output signal</td>
<td>4 ... 20 mA</td>
<td>Digital PROFIBUS PA or FOUNDATION Fieldbus signal</td>
</tr>
<tr>
<td>• Lower limit (infinitely adjustable)</td>
<td>3.55 mA, factory preset to 3.84 mA</td>
<td>-</td>
</tr>
<tr>
<td>• Upper limit (infinitely adjustable)</td>
<td>23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA</td>
<td>-</td>
</tr>
<tr>
<td>Load</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>• Without HART communication</td>
<td>( R_b \leq (U_H - 10.5 \text{ V})/0.023 \text{ A in } \Omega )</td>
<td>-</td>
</tr>
<tr>
<td>( U_H ): Power supply in V</td>
<td>( R_b ):</td>
<td>-</td>
</tr>
<tr>
<td>• With HART communication</td>
<td>( R_b = 230 \ldots 500 \text{ } \Omega ) (SIMATIC PDM)</td>
<td>-</td>
</tr>
<tr>
<td>( R_b = 230 \ldots 1100 \text{ } \Omega ) (HART Communicator)</td>
<td>IEC 61158-2</td>
<td></td>
</tr>
<tr>
<td>Physical bus</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>With polarity reversal protection</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Accuracy

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>To EN 60770-1</td>
<td>Increasing characteristic, start-of-scale value 0 bar, stainless steel seal diaphragm, silicone oil filling, room temperature 25 °C (77 °F); r: Span ratio (r = max. span/set span)</td>
<td></td>
</tr>
<tr>
<td>Reference conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error in measurement and fixed-point setting (including hysteresis and repeatability)</td>
<td>Gage pressure, front-flushed</td>
<td>Absolute pressure, front-flushed</td>
</tr>
<tr>
<td>• Linear characteristic</td>
<td>Gage pressure, front-flushed</td>
<td>Absolute pressure, front-flushed</td>
</tr>
<tr>
<td>(- r \leq 10)</td>
<td>(- 0.0029 \cdot r + 0.071)%</td>
<td>(- 0.0029 \cdot r + 0.071)%</td>
</tr>
<tr>
<td>(- 10 &lt; r \leq 30)</td>
<td>(- 0.0045 \cdot r + 0.071)%</td>
<td>(- 0.0045 \cdot r + 0.071)%</td>
</tr>
<tr>
<td>(- 30 &lt; r \leq 100)</td>
<td>(- 0.005 \cdot r + 0.095)%</td>
<td>(- 0.005 \cdot r + 0.095)%</td>
</tr>
<tr>
<td>Long-term drift (temperature change ±30 °C (±54 °F))</td>
<td>(- 0.25 \cdot r)% every 5 years</td>
<td>(- 0.25 \cdot r)% every 5 years</td>
</tr>
<tr>
<td>Influence of ambient temperature</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SITRANS P, DS III series for gage and absolute pressure, with front-flush diaphragm

<table>
<thead>
<tr>
<th>Measuring Instruments</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>• at -10 ... +60 °C (14 ... 140 °F)</td>
<td>( \leq (0.1 \cdot r + 0.2)% )</td>
<td>( \leq (0.2 \cdot r + 0.3)% )</td>
</tr>
<tr>
<td>• at -40 ... -10 °C and +60 ... +85 °C ((-40 \ldots +14 \text{ °F and 140 \ldots 185 °F}))</td>
<td>( \leq (0.1 \cdot r + 0.15)%/10 \text{ K} )</td>
<td>( \leq (0.2 \cdot r + 0.3)%/10 \text{ K} )</td>
</tr>
<tr>
<td>Influence of mounting position</td>
<td>0.1 mbar g (0.00145 psi g) per 10° inclination</td>
<td>( 3 \cdot 10^{-5} ) of nominal measuring range</td>
</tr>
<tr>
<td>Measured Value Resolution</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Influence of the medium temperature (only with front-flush diaphragm)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>• Temperature difference between medium temperature and ambient temperature</td>
<td>3 mbar/10 K (0.04 psi/10 K)</td>
<td>-</td>
</tr>
</tbody>
</table>

### Rated operating conditions

#### Installation conditions

<table>
<thead>
<tr>
<th>Ambient temperature</th>
<th>Observe the temperature class in areas subject to explosion hazard.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Measuring cell with silicone oil</td>
<td>-40 ... +85 °C ((-40 \ldots +185 \text{ °F}))</td>
</tr>
<tr>
<td>• Measuring cell with Neobee oil (with front-flush diaphragm)</td>
<td>-10 ... +85 °C ((-14 \ldots +185 \text{ °F}))</td>
</tr>
<tr>
<td>• Measuring cell with inert liquid (not with front-flush diaphragm)</td>
<td>-20 ... +85 °C ((-4 \ldots +185 \text{ °F}))</td>
</tr>
<tr>
<td>• Digital display</td>
<td>-30 ... +85 °C ((-22 \ldots +185 \text{ °F}))</td>
</tr>
<tr>
<td>• Storage temperature</td>
<td>-50 ... +85 °C ((-58 \ldots +185 \text{ °F})) (with Neobee: -20 ... +85 °C ((-4 \ldots +185 \text{ °F}))</td>
</tr>
</tbody>
</table>

#### Climatic class

<table>
<thead>
<tr>
<th>Condensation</th>
<th>Permissible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of protection to EN 60529</td>
<td>IP65, IP68, NEMA X, enclosure cleaning, resistant to lyes, steam to 150°C (302°F)</td>
</tr>
<tr>
<td>Electromagnetic compatibility</td>
<td>To EN 61326 and NAMUR NE 21</td>
</tr>
<tr>
<td>• Emitted interference and interference immunity</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Medium conditions

<table>
<thead>
<tr>
<th>Process temperature</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Measuring cell with silicone oil</td>
<td>-40 ... +100 °C ((-40 \ldots +212 \text{ °F}))</td>
</tr>
<tr>
<td>• Measuring cell with silicone oil (with front-flush diaphragm)</td>
<td>-40 ... +150 °C ((-40 \ldots +302 \text{ °F}))</td>
</tr>
<tr>
<td>• Measuring cell with Neobee oil (with front-flush diaphragm)</td>
<td>-40 ... +150 °C ((-40 \ldots +302 \text{ °F}))</td>
</tr>
<tr>
<td>• Measuring cell with silicone oil, with temperature isolator (only with front-flush diaphragm)</td>
<td>-40 ... +200 °C ((-40 \ldots +392 \text{ °F}))</td>
</tr>
<tr>
<td>• Measuring cell with inert liquid</td>
<td>-20 ... +100 °C ((-4 \ldots +212 \text{ °F}))</td>
</tr>
<tr>
<td>• Measuring cell with high temperature oil</td>
<td>-10 ... +250 °C ((14 \ldots +482 \text{ °F}))</td>
</tr>
</tbody>
</table>

#### Design

<table>
<thead>
<tr>
<th>Weight (without options)</th>
<th>≈ 1.5 kg (= 3.3 lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing material</td>
<td>Poor in copper die-cast aluminium, GD-AISi12 or stainless steel precision casting, mat. No. 1.4408</td>
</tr>
<tr>
<td>Wetted parts materials</td>
<td>Stainless steel, mat. No. 1.4404/316L</td>
</tr>
<tr>
<td>Measuring cell filling</td>
<td>Silicone oil or inert filling liquid</td>
</tr>
</tbody>
</table>
### Hygiene version

In the case of SITRANS P DSIII with 7MF413x front-flush diaphragm, selected connections comply with the requirements of EHEDG.

---

**SITRANS P, DS III series for gage and absolute pressure, with front-flush diaphragm**

<table>
<thead>
<tr>
<th>Power supply $U_{H}$</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal voltage on transmitter</td>
<td>10.5 ... 45 V DC</td>
<td>Supplied through bus</td>
</tr>
<tr>
<td></td>
<td>10.5 ... 30 V DC in intrinsically-safe mode</td>
<td>-</td>
</tr>
<tr>
<td>Separate 24 V power supply necessary</td>
<td>-</td>
<td>No</td>
</tr>
<tr>
<td>Bus voltage</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- Not Ex</td>
<td>-</td>
<td>9 ... 32 V</td>
</tr>
<tr>
<td>- With intrinsically-safe operation</td>
<td>-</td>
<td>9 ... 24 V</td>
</tr>
<tr>
<td>Current consumption</td>
<td>-</td>
<td>12.5 mA</td>
</tr>
<tr>
<td>- Basic current (max.)</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>- Startup current ≤ basic current</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>- Max. current in event of fault</td>
<td>-</td>
<td>15.5 mA</td>
</tr>
<tr>
<td>Fault disconnection electronics (FDE) available</td>
<td>-</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Certificate and approvals**

Classification according to pressure equipment directive (DRGL 97/23/EC) For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)
SIITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

**DS III series for gage and absolute pressure, with front-flush diaphragm**

**HART communication**
- HART communication: 230 ... 1100 Ω
- Protocol: HART Version 5.x
- Software for computer: SIMATIC PDM

**PROFIBUS PA communication**
- Simultaneous communication with master class 2 (max.)
- The address can be set using: Configuration tool or local operation (standard setting address 126)
- Cyclic data usage:
  - Output byte: 5 (one measuring value) or 10 (two measuring values)
  - Input byte: 0, 1, or 2 (register operating mode and reset function for metering)
- Internal preprocessing
  - Device profile: PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
- Function blocks: 2
  - Analog input
    - Adaptation to customer-specific process variables: Yes, linearly rising or falling characteristic
    - Electrical damping $T_{63}$, adjustable: 0 ... 100 s
    - Simulation function: Input/Output
    - Failure mode: Can be parameterized (last good value, substitute value, incorrect value)
    - Limit monitoring: Yes, one upper and lower warning limit and one alarm limit respectively
  - Register (totalizer)
    - Can be reset, preset, optional direction of counting, simulation function of register output
    - Failure mode: Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)
    - Limit monitoring: One upper and lower warning limit and one alarm limit respectively
  - Physical block
    - Transducer blocks: 1
      - Pressure transducer block
        - Can be calibrated by applying two pressures: Yes
        - Monitoring of sensor limits: Yes
        - Specification of a container characteristic with: Max. 30 nodes
        - Square-rooted characteristic for flow measurement: Yes
        - Gradual volume suppression and implementation point of square-root extraction: Parameterizable
        - Simulation function for measured pressure value and sensor temperature: Constant value or over parametrizable ramp function

**Communication FOUNDATION Fieldbus**
- Function blocks: 3 function blocks analog input, 1 function block PID
  - Analog input
    - Adaptation to customer-specific process variables: Yes, linearly rising or falling characteristic
    - Electrical damping $T_{63}$, adjustable: 0 ... 100 s
    - Simulation function: Output/input (can be locked within the device with a bridge)
    - Failure mode: Can be parameterized (last good value, substitute value, incorrect value)
    - Limit monitoring: Yes, one upper and lower warning limit and one alarm limit respectively
    - Square-rooted characteristic for flow measurement: Yes
  - PID
  - Physical block
    - Transducer blocks: 1 transducer block Pressure with calibration, 1 transducer block LCD
  - Pressure transducer block
    - Can be calibrated by applying two pressures: Yes
    - Monitoring of sensor limits: Yes
    - Simulation function: Measured pressure value, sensor temperature and electronics temperature
    - Constant value or over parametrizable ramp function
### Selection and Ordering data

<table>
<thead>
<tr>
<th>SITRANS P pressure transmitters for gage and absolute pressure, front-flush membrane, series DS III HART</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow transmitter</td>
<td>7MF 413 3 -</td>
</tr>
</tbody>
</table>

#### Measuring cell filling Measuring cell cleaning
- Silicone oil
- Inert liquid
- FDA compliant fill fluid
- Neobee oil

#### Span
- 0.01 ... 1 bar g
- 0.04 ... 4 bar g
- 0.16 ... 16 bar g
- 0.63 ... 63 bar g
- 13 ... 1300 mbar a
- 0.05 ... 5 bar a
- 3 ... 30 bar a

#### Wetted parts materials
- Seal diaphragm: Stainless steel
- Connection shank: Stainless steel

#### Process connection
- Flange version with Order code M., N., R., or Q., or
- Non-wetted parts materials
  - Housing made of die-cast aluminium
  - Housing stainless steel precision casting

#### Version
- Standard version
- International version, English label inscriptions, documentation in 5 languages on CD

#### Explosion protection
- Without
- With ATEX, Type of protection:
  - "Intrinsic safety (EEx ia)"
  - "Explosion-proof (EEx d)"
- With FM + CSA, Type of protection:
  - "Intrinsic safety and explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)"

#### Electrical connection / cable entry
- Inner thread M20x1.5
- Female thread ½-14 NPT
- M12 connectors (metal) (available soon)

#### Display
- Without (digital indicator hidden, setting: mA)
- With visible digital indication, setting: mA
- With customer-specific digital indication (setting as specified, Order code "Y21" or "Y22" required)

Power supply units see "SITRANS P power supply units and isolation amplifiers".

Included in delivery of the device:
- Brief instructions (Leporello)
- CD-ROM with detailed documentation

### Selection and Ordering data

<table>
<thead>
<tr>
<th>SITRANS P pressure transmitters for gage pressure, front-flush membrane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow transmitter</td>
</tr>
</tbody>
</table>

#### Measuring cell filling Measuring cell cleaning
- Silicone oil
- Inert liquid
- FDA compliant fill fluid
- Neobee oil

#### Nominal measuring range
- 1 bar g
- 4 bar g
- 16 bar g
- 63 bar g
- 1300 mbar a
- 5 bar a
- 30 bar a

#### Wetted parts materials
- Seal diaphragm: Stainless steel
- Connection shank: Stainless steel

#### Process connection
- Flange version with Order code M., N., R., or Q., or
- Non-wetted parts materials
  - Housing made of die-cast aluminium
  - Housing stainless steel precision casting

#### Version
- Standard version
- International version, English label inscriptions, documentation in 5 languages on CD

#### Explosion protection
- Without
- With ATEX, Type of protection:
  - "Intrinsic safety (EEx ia)"
  - "Explosion-proof (EEx d)"
- With FM + CSA, Type of protection:
  - "Intrinsic safety and explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)"

#### Electrical connection / cable entry
- Screwed gland M20x1.5
- Screwed gland ½-14 NPT
- M12 connectors (metal) (available soon)

#### Display
- Without (digital display hidden)
- With visible digital display
- With customer-specific digital display (setting as specified, Order code "Y21" or required)

Included in delivery of the device:
- Brief instructions (Leporello)
- CD-ROM with detailed documentation

1) Only with "Standard" process connection
2) Not with temperature decoupler P00 and P10, not for process connections R02, R04, R10 and R11, and can only be ordered in conjunction with silicon oil.
3) Without cable gland, with blanking plug.
4) With enclosed cable gland EEx ia and blanking plug.
5) Cannot be used together with the following types of protection: "Explosion-proof" and "Intrinsic safety and explosion-proof"
6) Subject to export regulations AL: 91999, ECCN: N.
### Selection and Ordering data

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add &quot;Z&quot; to Order No. and specify Order code.</td>
<td></td>
</tr>
<tr>
<td>Cable sockets for M12 connectors (metal)</td>
<td>A50</td>
</tr>
<tr>
<td>Rating plate inscription</td>
<td></td>
</tr>
<tr>
<td>(instead of German)</td>
<td></td>
</tr>
<tr>
<td>• English</td>
<td>B11</td>
</tr>
<tr>
<td>• French</td>
<td>B12</td>
</tr>
<tr>
<td>• Spanish</td>
<td>B13</td>
</tr>
<tr>
<td>• Italian</td>
<td>B14</td>
</tr>
<tr>
<td>English rating plate</td>
<td>B21</td>
</tr>
<tr>
<td>Pressure units in inH₂O or psi</td>
<td></td>
</tr>
<tr>
<td>Quality inspection certificate (Factory calibration) to IEC 60770-2</td>
<td>C11</td>
</tr>
<tr>
<td>Acceptance test certificate</td>
<td>C12</td>
</tr>
<tr>
<td>To EN 10204-3.1</td>
<td></td>
</tr>
<tr>
<td>Factory certificate</td>
<td>C14</td>
</tr>
<tr>
<td>To EN 10204-2.2</td>
<td></td>
</tr>
<tr>
<td>&quot;PROFIsafe&quot; certificate and protocol</td>
<td>C21</td>
</tr>
</tbody>
</table>

### Flanges to EN 1092-1

| Flanges to ASME B16.5 | | |
|------------------------|------------|
| • Stainless steel flange 1” class 150 | M40 |
| • Stainless steel flange 1½” class 150 | M41 |
| • Stainless steel flange 2” class 150 | M42 |
| • Stainless steel flange 2½” class 150 | M43 |
| • Stainless steel flange 3” class 150 | M44 |
| • Stainless steel flange 1” class 300 | M45 |
| • Stainless steel flange 1½” class 300 | M46 |
| • Stainless steel flange 1” class 300 | M47 |
| • Stainless steel flange 2” class 300 | M48 |
| • Stainless steel flange 2½” class 300 | M49 |

### Threaded connection acc. to DIN 3852-2, Form A

| Threaded connection acc. to DIN 3852-2, Form A | | |
|-----------------------------------------------|------------|
| • G ¾”, flush-mounted(2) | R01 |
| • G 1”, flush-mounted(2) | R02 |
| • G 2”, flush-mounted(2) | R04 |

### Tank connection(3)

| Tank connection(3) | | |
|-------------------|------------|
| Sealing is included in delivery | | |
| • TG 52/50, PN 40 | R10 |
| • TG 52/150, PN 40 | R11 |

### Sanitary process connection according DIN 11851 (Dairy connection)

| Sanitary process connection according DIN 11851 (Dairy connection) | | |
|------------------------------------------------------------------|------------|
| • DN 50, PN 25 | N04 |
| • DN 80, PN 25 | N06 |

### Tri-Clamp connection according DIN 32676/ISO 2852

| Tri-Clamp connection according DIN 32676/ISO 2852 | | |
|--------------------------------------------------|------------|
| • DN 50/2”, PN 16 | N14 |
| • DN 65/3”, PN 10 | N15 |

### Varivent connection certified to EHEDG

| Varivent connection certified to EHEDG | | |
|----------------------------------------|------------|
| • Type N = 88 for Varivent housing | N28 |
| DN 40 ... 125 and 1½” ... 6”, PN 40 | | |
**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sanitary process connection to NEUMO</strong></td>
<td></td>
</tr>
<tr>
<td>Connect S flange connection certified to EHEDG</td>
<td></td>
</tr>
<tr>
<td>• DN 50, PN 10</td>
<td>Q63</td>
</tr>
<tr>
<td>• DN 65, PN 10</td>
<td>Q64</td>
</tr>
<tr>
<td>• DN 80, PN 10</td>
<td>Q65</td>
</tr>
<tr>
<td>• DN 100, PN 10</td>
<td>Q66</td>
</tr>
<tr>
<td>• DN 2&quot;, PN 16</td>
<td>Q72</td>
</tr>
<tr>
<td>• DN 2½&quot;, PN 10</td>
<td>Q73</td>
</tr>
<tr>
<td>• DN 3&quot;, PN 10</td>
<td>Q74</td>
</tr>
<tr>
<td>• DN 4&quot;, PN 10</td>
<td>Q75</td>
</tr>
<tr>
<td><strong>Aseptic threaded socket to DIN 11864-1 Form A</strong></td>
<td></td>
</tr>
<tr>
<td>• DN 50, PN 25</td>
<td>N33</td>
</tr>
<tr>
<td>• DN 65, PN 25</td>
<td>N34</td>
</tr>
<tr>
<td>• DN 80, PN 25</td>
<td>N35</td>
</tr>
<tr>
<td>• DN 100, PN 25</td>
<td>N36</td>
</tr>
<tr>
<td><strong>Aseptic flange with notch to DIN 11864-2 Form A</strong></td>
<td></td>
</tr>
<tr>
<td>• DN 50, PN 16</td>
<td>N43</td>
</tr>
<tr>
<td>• DN 65, PN 16</td>
<td>N44</td>
</tr>
<tr>
<td>• DN 80, PN 16</td>
<td>N45</td>
</tr>
<tr>
<td>• DN 100, PN 16</td>
<td>N46</td>
</tr>
<tr>
<td><strong>Aseptic flange with groove to DIN 11864-2 Form A</strong></td>
<td></td>
</tr>
<tr>
<td>• DN 50, PN 16</td>
<td>N43 + P11</td>
</tr>
<tr>
<td>• DN 65, PN 16</td>
<td>N44 + P11</td>
</tr>
<tr>
<td>• DN 80, PN 16</td>
<td>N45 + P11</td>
</tr>
<tr>
<td>• DN 100, PN 16</td>
<td>N46 + P11</td>
</tr>
<tr>
<td><strong>Aseptic clamp with groove to DIN 11864-3 Form A</strong></td>
<td></td>
</tr>
<tr>
<td>• DN 50, PN 25</td>
<td>N53</td>
</tr>
<tr>
<td>• DN 65, PN 25</td>
<td>N54</td>
</tr>
<tr>
<td>• DN 80, PN 16</td>
<td>N55</td>
</tr>
<tr>
<td>• DN 100, PN 16</td>
<td>N56</td>
</tr>
</tbody>
</table>

---

1) Special Viton seal included in delivery.
2) Lower measuring limit -100 mbar g (1.45 psi g).
3) The weldable socket can be ordered under accessories.
4) The maximum temperatures of the medium depend on the respective cell fillings.
SITRANS P measuring instruments for pressure

Transmitters for gage, absolute and differential pressure, flow and level

DS III series for gage and absolute pressure, with front-flush diaphragm

**Dimensional drawings**

The diagram shows a SITRANS P DS III with an example of a flange. In this drawing the height is subdivided into \( H_1 \) and \( H_2 \).

- \( H_1 \): Height of the SITRANS DS III up to a defined cross-section.
- \( H_2 \): Height of the flange up to this defined cross-section.

Only the height \( H_2 \) is indicated in the dimensions of the flanges.

**Flanges to EN and ASME**

**Flanges to EN**

**EN 1092-1**

- **NuG and pharmaceutical connections**

**Connections to DIN**

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>( H_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>25</td>
<td>92 mm (3.6&quot;)</td>
<td>Approx. 52 mm (2&quot;)</td>
</tr>
<tr>
<td>80</td>
<td>25</td>
<td>127 mm (5.0&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

**Tri-Clamp according DIN 32676**

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>( H_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16</td>
<td>64 mm (2.5&quot;)</td>
<td>Approx. 52 mm (2&quot;)</td>
</tr>
<tr>
<td>65</td>
<td>16</td>
<td>91 mm (3.6&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

**Other connections**

**Varvent connection**

<table>
<thead>
<tr>
<th>DN class</th>
<th>ØD</th>
<th>( H_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td>150</td>
<td>110 mm (4.3&quot;)</td>
</tr>
<tr>
<td>1½&quot;</td>
<td>300</td>
<td>125 mm (4.9&quot;)</td>
</tr>
<tr>
<td>1½&quot;</td>
<td>300</td>
<td>155 mm (6.1&quot;)</td>
</tr>
<tr>
<td>2&quot;</td>
<td>150</td>
<td>150 mm (5.9&quot;)</td>
</tr>
<tr>
<td>2&quot;</td>
<td>300</td>
<td>165 mm (6.5&quot;)</td>
</tr>
<tr>
<td>3&quot;</td>
<td>150</td>
<td>190 mm (7.5&quot;)</td>
</tr>
<tr>
<td>3&quot;</td>
<td>300</td>
<td>210 mm (8.3&quot;)</td>
</tr>
<tr>
<td>4&quot;</td>
<td>150</td>
<td>230 mm (9.1&quot;)</td>
</tr>
<tr>
<td>4&quot;</td>
<td>300</td>
<td>255 mm (10.0&quot;)</td>
</tr>
</tbody>
</table>

**Bio-Control connection**

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>( H_2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16</td>
<td>90 mm (3.5&quot;)</td>
<td>Approx. 52 mm (2&quot;)</td>
</tr>
<tr>
<td>65</td>
<td>16</td>
<td>120 mm (4.7&quot;)</td>
<td></td>
</tr>
</tbody>
</table>
### SITRANS P measuring instruments for pressure

**Transmitters for gage, absolute and differential pressure, flow and level**

#### DS III series for gage and absolute pressure, with front-flush diaphragm

**Sanitary process connection to DRD**

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>40</td>
<td>105 mm (4.1’’)</td>
<td>Approx. 52 mm (2’’)</td>
</tr>
</tbody>
</table>

**Sanitary process screw connection to NEUMO Bio-Connect**

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16</td>
<td>82 mm (3.2’’)</td>
<td>Approx. 52 mm (2’’)</td>
</tr>
<tr>
<td>65</td>
<td>16</td>
<td>105 mm (4.1’’)</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>16</td>
<td>115 mm (4.5’’)</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>16</td>
<td>145 mm (5.7’’)</td>
<td></td>
</tr>
<tr>
<td>2”</td>
<td>16</td>
<td>82 mm (3.2’’)</td>
<td></td>
</tr>
<tr>
<td>2½”</td>
<td>16</td>
<td>105 mm (4.1’’)</td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>16</td>
<td>105 mm (4.1’’)</td>
<td></td>
</tr>
<tr>
<td>4”</td>
<td>16</td>
<td>145 mm (5.7’’)</td>
<td></td>
</tr>
</tbody>
</table>

**Sanitary connection to NEUMO Bio-Connect flange connection**

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16</td>
<td>110 mm (4.3’’)</td>
<td>Approx. 52 mm (2’’)</td>
</tr>
<tr>
<td>65</td>
<td>16</td>
<td>140 mm (5.5’’)</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>16</td>
<td>150 mm (5.9’’)</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>16</td>
<td>175 mm (6.9’’)</td>
<td></td>
</tr>
<tr>
<td>2”</td>
<td>16</td>
<td>100 mm (3.9’’)</td>
<td></td>
</tr>
<tr>
<td>2½”</td>
<td>16</td>
<td>110 mm (4.3’’)</td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>16</td>
<td>140 mm (5.5’’)</td>
<td></td>
</tr>
<tr>
<td>4”</td>
<td>16</td>
<td>175 mm (6.9’’)</td>
<td></td>
</tr>
</tbody>
</table>

**Sanitary connection to NEUMO Bio-Connect clamp connection**

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16</td>
<td>77,4 mm (3.0’’)</td>
<td>Approx. 52 mm (2’’)</td>
</tr>
<tr>
<td>65</td>
<td>10</td>
<td>90,9 mm (3.6’’)</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>10</td>
<td>106 mm (4.2’’)</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>10</td>
<td>119 mm (4.7’’)</td>
<td></td>
</tr>
<tr>
<td>2”</td>
<td>16</td>
<td>64 mm (2.5’’)</td>
<td></td>
</tr>
<tr>
<td>2½”</td>
<td>16</td>
<td>77,4 mm (3.0’’)</td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>10</td>
<td>90,9 mm (3.6’’)</td>
<td></td>
</tr>
<tr>
<td>4”</td>
<td>10</td>
<td>119 mm (4.7’’)</td>
<td></td>
</tr>
</tbody>
</table>

**Sanitary connection to NEUMO Bio-Connect S flange connection**

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16</td>
<td>125 mm (4.9’’)</td>
<td>Approx. 52 mm (2’’)</td>
</tr>
<tr>
<td>65</td>
<td>10</td>
<td>145 mm (5.7’’)</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>10</td>
<td>155 mm (6.1’’)</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>10</td>
<td>180 mm (7.1’’)</td>
<td></td>
</tr>
<tr>
<td>2”</td>
<td>16</td>
<td>125 mm (4.9’’)</td>
<td></td>
</tr>
<tr>
<td>2½”</td>
<td>10</td>
<td>135 mm (5.3’’)</td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>10</td>
<td>145 mm (5.7’’)</td>
<td></td>
</tr>
<tr>
<td>4”</td>
<td>10</td>
<td>180 mm (7.1’’)</td>
<td></td>
</tr>
</tbody>
</table>

### Thread connection G2” to DIN 3852

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>63</td>
<td>78 mm (3.1’’)</td>
<td>Approx. 52 mm (2’’)</td>
</tr>
<tr>
<td>2½”</td>
<td>63</td>
<td>82 mm (3.2’’)</td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>78 mm (3.1’’)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Tank connection TG52/50

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>40</td>
<td>63 mm (2.5’’)</td>
<td>Approx. 63 mm (2.5’’)</td>
</tr>
</tbody>
</table>

### SMS socket with union nut

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>25</td>
<td>84 mm (3.3’’)</td>
<td>Approx. 52 mm (2.1’’)</td>
</tr>
<tr>
<td>2½”</td>
<td>25</td>
<td>100 mm (3.9’’)</td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>25</td>
<td>114 mm (4.5’’)</td>
<td></td>
</tr>
</tbody>
</table>

### SMS threaded socket

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>25</td>
<td>70 x 1/6 mm</td>
<td>Approx. 52 mm (2.1’’)</td>
</tr>
<tr>
<td>2½”</td>
<td>25</td>
<td>85 x 1/6 mm</td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>25</td>
<td>98 x 1/6 mm</td>
<td></td>
</tr>
</tbody>
</table>

### IDF socket with union nut

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>25</td>
<td>77 mm (3’’)</td>
<td>Approx. 52 mm (2.1’’)</td>
</tr>
<tr>
<td>2½”</td>
<td>25</td>
<td>91 mm (3.6’’)</td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>25</td>
<td>106 mm (4.2’’)</td>
<td></td>
</tr>
</tbody>
</table>

### IDF threaded socket

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>2”</td>
<td>25</td>
<td>64 mm (2.5’’)</td>
<td>Approx. 52 mm (2.1’’)</td>
</tr>
<tr>
<td>2½”</td>
<td>25</td>
<td>77,5 mm (3.1’’)</td>
<td></td>
</tr>
<tr>
<td>3”</td>
<td>25</td>
<td>91 mm (3.6’’)</td>
<td></td>
</tr>
</tbody>
</table>
## SITRANS P measuring instruments for pressure

Transmitters for gage, absolute and differential pressure, flow and level

### DS III series for gage and absolute pressure, with front-flush diaphragm

#### Aseptic threaded socket to DIN 11864-1 Form A

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>25</td>
<td>78 x 1/8&quot;</td>
<td>Approx. 52 mm (2.1&quot;)</td>
</tr>
<tr>
<td>65</td>
<td>25</td>
<td>95 x 1/8&quot;</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>25</td>
<td>110 x 1/4&quot;</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>25</td>
<td>130 x 1/4&quot;</td>
<td></td>
</tr>
</tbody>
</table>

#### Aseptic flange with notch to DIN 11864-2 Form A

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16</td>
<td>94</td>
<td>Approx. 52 mm (2.1&quot;)</td>
</tr>
<tr>
<td>65</td>
<td>16</td>
<td>113</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>16</td>
<td>133</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>16</td>
<td>159</td>
<td></td>
</tr>
</tbody>
</table>

#### Aseptic flange with groove to DIN 11864-2 Form A

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16</td>
<td>94</td>
<td>Approx. 52 mm (2.1&quot;)</td>
</tr>
<tr>
<td>65</td>
<td>16</td>
<td>113</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>16</td>
<td>133</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>16</td>
<td>159</td>
<td></td>
</tr>
</tbody>
</table>

#### Aseptic clamp with groove to DIN 11864-3 Form A

<table>
<thead>
<tr>
<th>DN</th>
<th>PN</th>
<th>ØD</th>
<th>H₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>25</td>
<td>77.5</td>
<td>Approx. 52 mm (2.1&quot;)</td>
</tr>
<tr>
<td>65</td>
<td>25</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>16</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>16</td>
<td>130</td>
<td></td>
</tr>
</tbody>
</table>
# Technical specifications

## SITRANS P, DS III series for absolute pressure (from the gage pressure series)

<table>
<thead>
<tr>
<th>Input</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured variable</td>
<td>Absolute pressure</td>
<td>Nominal measuring range</td>
</tr>
<tr>
<td>Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.3 ... 250 mbar a (0.12 ... 3.6 psi a)</td>
<td>6 bar a (87 psi a)</td>
<td>6 bar a (87 psi a)</td>
</tr>
<tr>
<td>43 ... 1300 mbar a (0.62 ... 18.9 psi a)</td>
<td>10 bar a (145 psi a)</td>
<td>10 bar a (145 psi a)</td>
</tr>
<tr>
<td>160 ... 5000 mbar a (2.32 ... 72.5 psi a)</td>
<td>30 bar a (435 psi a)</td>
<td>30 bar a (435 psi a)</td>
</tr>
<tr>
<td>1 ... 30 bar a (14.5 ... 435 psi a)</td>
<td>100 bar a (1450 psi a)</td>
<td>100 bar a (1450 psi a)</td>
</tr>
<tr>
<td>Lower measuring limit</td>
<td>0 mbar a (0 psi a)</td>
<td></td>
</tr>
<tr>
<td>Upper measuring limit</td>
<td>100% of max. span</td>
<td></td>
</tr>
</tbody>
</table>

## Output

<table>
<thead>
<tr>
<th>Output</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output signal</td>
<td>4 ... 20 mA</td>
<td>Digital PROFIBUS PA or FOUNDATION Fieldbus signal</td>
</tr>
<tr>
<td>Lower limit (infinitely adjustable)</td>
<td>3.55 mA, factory preset to 3.84 mA</td>
<td>-</td>
</tr>
<tr>
<td>Upper limit (infinitely adjustable)</td>
<td>23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA</td>
<td>-</td>
</tr>
</tbody>
</table>

## Load

- Without HART communication
  \[ R_\text{L} = \frac{(U_\text{H} - 10.5 \text{ V})/0.023 \text{ A}}{\Omega} \]
- With HART communication
  \[ R_\text{L} = 230 \ldots 500 \Omega \text{ (SIMATIC PDM)} \quad \text{or} \quad R_\text{L} = 230 \ldots 1100 \Omega \text{ (HART Communicator)} \]

## Physical bus

- IEC 61158-2

## With polarity reversal protection

- Yes

## Accuracy

**Reference conditions**

(All error data refer always refer to the set span)

**Increasing characteristic, start-of-scale value 0 bar, stainless steel seal diaphragm, silicone oil filling, room temperature 25 °C (77 °F))**: Span ratio \((r = \text{max. span} / \text{set span})\)

**Error in measurement and fixed-point setting**

<table>
<thead>
<tr>
<th>Linear characteristic</th>
<th>(\text{≤ 0.1%} )</th>
<th>(\text{≤ 0.2%} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( - r \leq 10 )</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( - 10 &lt; r \leq 30 )</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Long-term drift (temperature change ±30 °C (±54 °F))**

\(\text{≤ (0.1 \cdot r)}\%/\text{year} \)

**Influence of ambient temperature**

| \(-10 \ldots +60 \degree \text{C} \) \( (14 \ldots 140 \degree \text{F}) \) | \(\text{≤ (0.1 \cdot r + 0.2)%} \) | \(\text{≤ 0.3%} \) |
| \(-40 \ldots -10 \degree \text{C} \) \( \text{and} +60 \ldots +85 \degree \text{C} \) \( (-40 \ldots +14 \degree \text{F} \) \( \text{and} +140 \ldots 185 \degree \text{F}) \) | \(\text{≤ (0.1 \cdot r + 0.15)%/10 K} \) | \(\leq 0.25%/10 K \) |

**Measured Value Resolution**

\(3 \cdot 10^{-5} \) of nominal measuring range
## SITRANS P measuring instruments for pressure

### Transmitters for gage, absolute and differential pressure, flow and level

### DS III series for absolute pressure (from gage pressure series)

<table>
<thead>
<tr>
<th>Rated operating conditions</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of protection (to EN 60529)</td>
<td>IP65</td>
<td></td>
</tr>
<tr>
<td>Process temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Measuring cell with silicone oil filling</td>
<td>-40 ... +100 °C (-40 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>• Measuring cell with inert filling liquid</td>
<td>-20 ... +100 °C (-4 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>• In conjunction with dust explosion protection</td>
<td>-20 ... +60 °C (-4 ... +140 °F)</td>
<td></td>
</tr>
<tr>
<td>Ambient conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Digital indicators</td>
<td>-30 ... +85 °C (-22 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>• Storage temperature</td>
<td>-50 ... +85 °C (-58 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>• Climatic class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Condensation</td>
<td>Permissible</td>
<td></td>
</tr>
<tr>
<td>• Electromagnetic compatibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Emitted interference and interference immunity</td>
<td>To EN 61326 and NAMUR NE 21</td>
<td></td>
</tr>
</tbody>
</table>

### Design

| Weight (without options)                                       | ≈ 1.5 kg (≈ 3.3 lb)               |
| Housing material                                               | Poor in copper die-cast aluminium, GD-AISi12 or stainless steel precision casting, mat. No. 1.4408 |
| Wetted parts materials                                          |                                   |
| • Connection shank                                             | Stainless steel, mat. No. 1.4404/316L or Hastelloy C4, mat. No. 2.4610 |
| • Oval flange                                                  | Stainless steel, mat. No. 1.4404/316L |
| • Seal diaphragm                                               | Stainless steel, mat. No. 1.4404/316L or Hastelloy C276, mat. No. 2.4819 |
| Measuring cell filling                                          | Silicone oil or inert filling liquid (max. 160 bar a (2320 psi a) with oxygen measurement) |
| Process connection                                             | Connection shank G½A to DIN EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MWP 2320 psi a)) to DIN 19213 with mounting thread M10 or 7/16-20 UNF to EN 61518 |
| Material of the mounting bracket                               | Sheet steel, Mat. No. 1.0330, chrome-plated |
| • Steel                                                        | Stainless steel, Mat. No. 1.4301 (SS304) |
| Power supply $U_i$                                              | Supplied through bus               |
| Terminal voltage on transmitter                                | 10.5 ... 45 V DC                   |
| Separate 24 V power supply necessary                           | 10.5 ... 30 V DC in intrinsically-safe mode |
| Bus voltage                                                    | No                                |
| • Not Ex                                                       | 9 ... 32 V                         |
| • With intrinsically-safe operation                            | 9 ... 24 V                         |
| Current consumption                                            | 12.5 mA                            |
| • Basic current (max.)                                         | Yes                               |
| • Startup current’s basic current                              | Yes                               |
| • Max. current in event of fault                               | 15.5 mA                            |
| Fault disconnection electronics (FDE) available                | Yes                               |
SITRANS P, DS III series for absolute pressure (from the gage pressure series)

<table>
<thead>
<tr>
<th>Certificate and approvals</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification according to pressure equipment directive (DRGL 97/23/EC)</td>
<td>For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)</td>
<td></td>
</tr>
</tbody>
</table>

Explosion protection
- Intrinsic safety "i"
  - Identification: PTB 99 ATEX 2122
  - Permissible ambient temperature:
    -40 ... +85 °C (-40 ... +185 °F) temperature class T4;
    -40 ... +70 °C (-40 ... +158 °F) temperature class T5;
    -40 ... +60 °C (-40 ... +140 °F) temperature class T6
  - Connection: To certified intrinsically-safe circuits with maximum values:
    - $U_i = 30 \, V$, $I_i = 100 \, mA$,
    - $P_i = 750 \, mW$, $R_i = 300 \, \Omega$
  - Effective internal inductance/capacitance: $L_i = 0.4 \, mH$, $C_i = 6 \, nF$

- Explosion-proof "d"
  - Identification: PTB 99 ATEX 1160
  - Permissible ambient temperature:
    -40 ... +85 °C (-40 ... +185 °F) temperature class T4;
    -40 ... +60 °C (-40 ... +140 °F) temperature class T6
  - Connection: To circuits with values: $U_i = 10.5 ... 45 \, V$ DC

- Dust explosion protection for zone 20
  - Identification: PTB 01 ATEX 2055
  - Permissible ambient temperature: 120 °C (248 °F)
  - Connection: To circuits with values: $U_i = 9 ... 32 \, V$ DC

- Dust explosion protection for zone 21/22
  - Identification: PTB 01 ATEX 2055
  - Connection: To circuits with values: $U_i = 9 ... 32 \, V$ DC, $P_{\text{max}} = 1.2 \, W$

- Type of protection "n" (zone 2)
  - Identification: TÜV 01 ATEX 1696 X
  - Connection: To circuits with values: $U_i = 10.5 ... 45 \, V$ DC, $P_{\text{max}} = 1.2 \, W$

- Explosion protection to FM
  - Identification: Certificate of Compliance 3008490
  - Identification (XP/DIP) or (IS); (NI): CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III

- Explosion protection to CSA
  - Identification: Certificate of Compliance 1153651
  - Identification (XP/DIP) or (IS): CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III
# SITRANS P measuring instruments for pressure

Transmitters for gage, absolute and differential pressure, flow and level

## DS III series for absolute pressure (from gage pressure series)

<table>
<thead>
<tr>
<th>HART communication</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HART communication</td>
<td>230 ... 1100 Ω</td>
</tr>
<tr>
<td>Protocol</td>
<td>HART Version 5.x</td>
</tr>
<tr>
<td>Software for computer</td>
<td>SIMATIC PDM</td>
</tr>
</tbody>
</table>

## PROFIBUS PA communication

Simultaneous communication with master class 2 (max.)

- The address can be set using Configuration tool or local operation (standard setting address 126)
- Cyclic data usage
  - Output byte
    - 5 (one measuring value) or 10 (two measuring values)
  - Input byte
    - 0, 1, or 2 (register operating mode and reset function for metering)

## Internal preprocessing

- Device profile
  - PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B

## Function blocks

- Analog input
  - Adaptation to customer-specific process variables
    - Yes, linearly rising or falling characteristic
  - Electrical damping $T_{63}$, adjustable
    - 0 ... 100 s
  - Simulation function
    - Input/Output
  - Failure mode
    - Can be parameterized (last good value, substitute value, incorrect value)
  - Limit monitoring
    - Yes, one upper and lower warning limit and one alarm limit respectively

- Register (totalizer)
  - Can be reset, preset, optional direction of counting, simulation function of register output
  - Failure mode
    - Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)
  - Limit monitoring
    - One upper and lower warning limit and one alarm limit respectively

- Physical block
  - 1

## Transducer blocks

- Physical block
  - 1

## Pressure transducer block

- Can be calibrated by applying two pressures
  - Yes
- Monitoring of sensor limits
  - Yes
- Specification of a container characteristic with
  - Max. 30 nodes
- Square-rooted characteristic for flow measurement
  - Yes
- Gradual volume suppression and implementation point of square-root extraction
  - Parameterizable
- Simulation function for measured pressure value and sensor temperature
  - Constant value or over parameterizable ramp function

## Communication FOUNDATION Fieldbus

Function blocks

- 3 function blocks analog input, 1 function block PID

- Analog input
  - Adaptation to customer-specific process variables
    - Yes, linearly rising or falling characteristic
  - Electrical damping $T_{63}$, adjustable
    - 0 ... 100 s
  - Simulation function
    - Output/input (can be locked within the device with a bridge)
  - Failure mode
    - Can be parameterized (last good value, substitute value, incorrect value)
  - Limit monitoring
    - Yes, one upper and lower warning limit and one alarm limit respectively
  - Square-rooted characteristic for flow measurement
    - Yes

- PID
  - Standard FF function block

- Physical block
  - 1 Resource block

- Transducer blocks
  - 1 transducer block Pressure with calibration, 1 transducer block LCD

- Pressure transducer block
  - Can be calibrated by applying two pressures
    - Yes
  - Monitoring of sensor limits
    - Yes
  - Simulation function: Measured pressure value, sensor temperature and electronics temperature
    - Constant value or over parameterizable ramp function
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series for absolute pressure
(from gage pressure series)

Selection and Ordering data

Order No. 7MF 4 233

Measuring cell filling
Silicone oil Standard 1
Inert liquid \(^1\) Grease-free 3

Span
8.3 ... 250 mbar a (0.12 ... 3.63 psi a) D
43 ... 1300 mbar a (0.62 ... 18.9 psi a) F
0.16 ... 5 bar a (2.32 ... 72.5 psi a) G
1 ... 30 bar a (14.5 ... 435 psi a) H

Wetted parts materials
Seal diaphragm Stainless steel A

Hastelloy B

Stainless steel C

Process connection

- Connection shank G½B to EN 837-1 0
- Female thread ½-14 NPT 1
- Oval flange made of stainless steel 2
- Mounting thread M20 x 1.5 3
- Male thread M20 x 1.5 5
- Male thread ½-14 NPT 6

Non-wetted parts materials

- Housing made of die-cast aluminium 0
- Housing stainless steel precision casting \(^5\) 3

Version

- Standard version 1
- International version, English label inscriptions, documentation in 5 languages on CD 2

Explosion protection

- Without A
- With ATEX, Type of protection:
  - "Intrinsic safety (Ex ia)" B
  - "Explosion-proof (Ex d)" \(^6\) D
  - "Intrinsic safety and explosion-proof enclosure (Ex ia + Ex d)" \(^5\) P
  - "Ex nA/nL (zone 2)" E
  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)" \(^7\) R
  - With FM + CSA, Type of protection:
    - "Intrinsic safety and explosion-proof (is + xp)" \(^5\) \(^6\) NC

Electrical connection / cable entry

- Screwed gland Pg 13.5 \(^8\) A
- Screwed gland M20x1.5 B
- Screwed gland ½-14 NPT C
- Han 7D plug (plastic housing) incl. mating connector \(^8\) D
- Plug M12 (metal) \(^9\) F

Display

- Without (digital indicator hidden, setting: mA) 1
- With visible digital indicator 6
- With customer-specific digital indicator (setting as specified, Order code "Y21" or required) 7

---

1) For oxygen application, add Order code E10.
2) Version 7MF4233-1DY... only up to max. span 200 mbar a (2.9 psi a)
3) When the manufacturer’s certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
4) When the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
5) Not together with Electrical connection „Screwed gland Pg 13.5“ and „Han7D plug”.
6) Without cable gland, with blanking plug.
7) With enclosed cable gland EEEx ia and blanking plug.
8) Not together with type of protection “Explosion-proof” and type of protection “Ex nA”.
9) Not together with types of protection “Explosion-proof” or “Intrinsic safety and explosion-proof”

F) Subject to export regulations AL: 9I999, ECCN: N.
# SITRANS P measuring instruments for pressure

Transmitters for gage, absolute and differential pressure, flow and level

## DS III series for absolute pressure
(from gage pressure series)

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS P pressure transmitters for absolute pressure (from the gage pressure series)</td>
</tr>
<tr>
<td>DS III PA series (PROFIBUS PA)</td>
</tr>
<tr>
<td>DS III FF series (FOUNDATION Fieldbus)</td>
</tr>
</tbody>
</table>

### Measuring cell filling

<table>
<thead>
<tr>
<th>Measuring cell cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
</tr>
<tr>
<td>Inert liquid</td>
</tr>
</tbody>
</table>

### Nominal measuring range

- 250 mbar a (3.63 psi a)  
- 1300 mbar a (18.9 psi a)  
- 5 bar a (72.5 psi a)  
- 30 bar a (435 psi a)

### Wetted parts materials

<table>
<thead>
<tr>
<th>Seal diaphragm</th>
<th>Process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Hastelloy</td>
<td>Hastelloy</td>
</tr>
</tbody>
</table>

### Version

- Standard version  
- International version, English label inscriptions, documentation in 5 languages on CD

### Explosion protection

- Without  
- With ATEX, Type of protection:  
  - *Intrinsic safety (EEx ia)*  
  - *Explosion-proof (EEx d)*  
  - *Intrinsic safety and explosion-proof enclosure (EEx ia + EEx d)*  
  - *Ex nA/nL (zone 2)*  
  - *Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)* (not for DS III FF)  
- With FM + CSA, Type of protection:  
  - *Intrinsic safety and explosion-proof (is + xp)*

### Electrical connection / cable entry

- Screwed gland M20x1.5  
- Screwed gland ½-14 NPT  
- Plug M12 incl. mating connector

### Display

- Without (digital display hidden)  
- With visible digital indicator  
- With customer-specific digital indicator (setting as specified, Order code "Y21" or required)

Factory-mounting of shut-off valves and valve manifolds see page 2/142.

Included in delivery of the device:
- Brief instructions (Leporello)  
- CD-ROM with detailed documentation

---

1) For oxygen application, add Order code E10.  
2) Version 7MF4233-1DY... only up to max. span 200 mbar a (2.9 psi a).  
3) When the manufacturer’s certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.  
4) Whe the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.  
5) Without cable gland, with blanking plug.  
6) With enclosed cable gland EEx ia and blanking plug.  
7) Not together with types of protection "Explosion-proof" or "Intrinsic safety and explosion-proof"  

F) Subject to export regulations AL: 9I999, ECCN: N.
### Selection and Ordering data

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add &quot;-Z&quot; to Order No. and specify Order code.</td>
<td>HART</td>
</tr>
<tr>
<td>Pressure transmitter with mounting bracket made of:</td>
<td></td>
</tr>
<tr>
<td>• Steel</td>
<td>A01</td>
</tr>
<tr>
<td>• Stainless steel</td>
<td>A02</td>
</tr>
<tr>
<td>Plug</td>
<td></td>
</tr>
<tr>
<td>• Han 7D (metal, gray)</td>
<td>A30</td>
</tr>
<tr>
<td>• Han 8U (instead of Han 7D)</td>
<td>A31</td>
</tr>
<tr>
<td>Cable sockets for M12 connectors (metal)</td>
<td>A50</td>
</tr>
<tr>
<td>Rating plate inscription (instead of German)</td>
<td></td>
</tr>
<tr>
<td>• English</td>
<td>B11</td>
</tr>
<tr>
<td>• French</td>
<td>B12</td>
</tr>
<tr>
<td>• Spanish</td>
<td>B13</td>
</tr>
<tr>
<td>• Italian</td>
<td>B14</td>
</tr>
<tr>
<td>English rating plate</td>
<td></td>
</tr>
<tr>
<td>Pressure units in inH2O or psi</td>
<td></td>
</tr>
<tr>
<td>Quality inspection certificate (Factory calibration) to IEC 60770-2</td>
<td>C11</td>
</tr>
<tr>
<td>Acceptance test certificate</td>
<td>C12</td>
</tr>
<tr>
<td>To EN 10204-3.1</td>
<td></td>
</tr>
<tr>
<td>Factory certificate</td>
<td>C14</td>
</tr>
<tr>
<td>To EN 10204-2.2</td>
<td></td>
</tr>
<tr>
<td>&quot;Functional Safety (SIL)&quot; certificate</td>
<td>C20</td>
</tr>
<tr>
<td>&quot;PROFIsafe&quot; certificate and protocol</td>
<td>C21</td>
</tr>
<tr>
<td>Setting of upper limit of output signal to 22.0 mA</td>
<td>D05</td>
</tr>
<tr>
<td>Manufacturer’s declaration acc. to NACE</td>
<td>D07</td>
</tr>
<tr>
<td>Type of protection IP68 (not together with Han 7D / Han 8U plug, Pg 13.5 screwed gland)</td>
<td>D12</td>
</tr>
<tr>
<td>Digital indicator alongside the input keys (only together with the devices 7MF4233-…-.A.6 or -.A.7-Z, Y21 or Y22 + Y01).</td>
<td>D27</td>
</tr>
<tr>
<td>Supplied with oval flange</td>
<td>D37</td>
</tr>
<tr>
<td>(1 item), PTFE packing and screws in thread of oval flange</td>
<td></td>
</tr>
<tr>
<td>Use in or on zone 1D/2D (only together with type of protection &quot;Intrinsic safety (Ex ia)&quot;)</td>
<td>E01</td>
</tr>
<tr>
<td>Use on zone 0 (only together with type of protection &quot;Intrinsic safety (Ex ia)&quot;)</td>
<td>E02</td>
</tr>
<tr>
<td>Oxygen application (max. 120 bar a (1740 psi a) at 60°C (140 °F) with oxygen measurement and inert liquid)</td>
<td>E10</td>
</tr>
<tr>
<td>Explosion-proof &quot;Intrinsic safety&quot; to INMETRO (Brazil) (only for transmitter 7MF4...----...-B..)</td>
<td>E25</td>
</tr>
<tr>
<td>Explosion-proof &quot;Intrinsic safety&quot; to NEPSI (China) (only for transmitter 7MF4...----...-B..)</td>
<td>E55</td>
</tr>
<tr>
<td>Explosion protection &quot;Explosion-proof&quot; to NEPSI (China) (only for transmitter 7MF4...----...-D..)</td>
<td>E56</td>
</tr>
<tr>
<td>Explosion-proof &quot;Zone 2&quot; to NEPSI (China) (only for transmitter 7MF4...----...-E..)</td>
<td>E57</td>
</tr>
</tbody>
</table>

### Additional data

<table>
<thead>
<tr>
<th>Measuring range to be set</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify in plain text (max. 5 digits): Y01: ... up to ... mbar, bar, kPa, MPa, psi</td>
<td>Y01</td>
</tr>
<tr>
<td>Measuring point number (TAG No.)</td>
<td>Y15</td>
</tr>
<tr>
<td>Max. 16 characters, specify in plain text: Y15: ………………………………</td>
<td></td>
</tr>
<tr>
<td>Measuring point text</td>
<td>Y16</td>
</tr>
<tr>
<td>Max. 27 characters, specify in plain text: Y16: ………………………………</td>
<td></td>
</tr>
<tr>
<td>Entry of HART address (TAG)</td>
<td>Y17</td>
</tr>
<tr>
<td>Max. 8 characters, specify in plain text: Y17: ………………………………</td>
<td></td>
</tr>
<tr>
<td>Setting of pressure indication in pressure units</td>
<td>Y21</td>
</tr>
<tr>
<td>Specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi, …</td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td></td>
</tr>
<tr>
<td>The following pressure units can be selected: bar, mbar, mmH2O*, inH2O*, ftH2O*, mmHg, inHg, psi, kPa, MPa, g/cm², kg/cm², Torr, ATM oder %</td>
<td></td>
</tr>
<tr>
<td>*) ref. temperature 20 °C</td>
<td></td>
</tr>
<tr>
<td>Setting of pressure indication in non-pressure units</td>
<td>Y22 + Y01</td>
</tr>
<tr>
<td>Specify in plain text: Y22: … up to … l/min, m³/h, m, USgpm, …</td>
<td></td>
</tr>
<tr>
<td>(specification of measuring range in pressure units &quot;Y01&quot; is essential, unit with max. 5 characters)</td>
<td></td>
</tr>
<tr>
<td>Preset bus address (possible between 1 and 126)</td>
<td>Y25</td>
</tr>
<tr>
<td>Specify in plain text: Y25: ………………………………</td>
<td></td>
</tr>
</tbody>
</table>

1. When the manufacturer’s certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

2. When the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.

Note: Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset

✓ = available
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series for absolute pressure
(from gage pressure series)

Dimensional drawings

SITRANS P pressure transmitters, DS III HART series for absolute pressure, from the pressure series, dimensions in mm (inch)

1. Process connection:
   - ½-14 NPT,
   - connection shank G½B or
   - oval flange
2. Blanking plug
3. Electrical connection:
   - screwed gland Pg 13,5 (adapter)²,³,
   - screwed gland M20x1,5 ³,
   - screwed gland ½-14 NPT or
   - Han 7D/ Han 8U ²,³ plug
4. Terminal side
5. Electronic side, digital display (longer overall length for cover with window)
6. Protective cover over keys
7. Mounting bracket (option)
8. Screw cover - safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "Explosion-proof enclosure"
3) Not with type of protection "FM + CSA [is + xp]"
4) For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
5) Minimum distance for rotating
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series for absolute pressure
(from gage pressure series)

1 Process connection:
   - ½-14 NPT,
   - connection shank G½B or
   - oval flange
2 Blanking plug
3 Electrical connection:
   - screwed gland M20x1.5 4),
   - screwed gland ½-14 NPT or
   - PROFIBUS-Stecker M12 3) 4)
4 Terminal side
5 Electronic side, digital display (longer overall
   length for cover with window)
6 Protective cover over keys
7 Mounting bracket (option)
8 Screw cover - safety bracket (only for type of protection
   "Explosion-proof enclosure", not shown in the drawing)

1) Allow approx. 20 mm (0.79 inch) thread length in addition
2) Minimum distance for rotating
3) Not with type of protection "Explosion-proof enclosure"
4) Not with type of protection "FM + CSA"

SITRANS P pressure transmitters, DS III PA and FF series for absolute pressure, from the pressure series, dimensions in mm (inch)
### Technical specifications

#### SITRANS P, DS III series for absolute pressure (from differential pressure series)

<table>
<thead>
<tr>
<th>Input</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured variable</td>
<td>Absolute pressure</td>
<td></td>
</tr>
<tr>
<td>Span</td>
<td>Maximum working pressure</td>
<td>Nominal measuring range</td>
</tr>
<tr>
<td>8.3 ... 250 mbar a (0.12 ... 3.6 psi a)</td>
<td>32 bar a (464 psi a)</td>
<td>250 mbar a (3.6 psi a)</td>
</tr>
<tr>
<td>43 ... 1300 mbar a (0.62 ... 18.9 psi a)</td>
<td>32 bar a (464 psi a)</td>
<td>1300 mbar a (18.9 psi a)</td>
</tr>
<tr>
<td>160 ... 5000 mbar a (2.32 ... 72.5 psi a)</td>
<td>32 bar a (464 psi a)</td>
<td>5 bar a (72.5 psi a)</td>
</tr>
<tr>
<td>1 ... 30 bar a (14.5 ... 435 psi a)</td>
<td>160 bar a (2320 psi a)</td>
<td>30 bar a (435 psi a)</td>
</tr>
<tr>
<td>5.3 ... 100 bar a (77 ... 1450 psi a)</td>
<td>160 bar a (2320 psi a)</td>
<td>100 bar a (1450 psi a)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lower measuring limit</th>
<th>Measuring cell with silicone oil filling</th>
<th>0 mbar a (0 psi a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper measuring limit</td>
<td>100% of max. span</td>
<td></td>
</tr>
</tbody>
</table>

#### Output

<table>
<thead>
<tr>
<th>Output signal</th>
<th>4 ... 20 mA</th>
<th>Digital PROFIBUS PA or FOUNDATION Fieldbus signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lower limit (infinitely adjustable)</td>
<td>3.55 mA, factory preset to 3.84 mA</td>
<td>-</td>
</tr>
<tr>
<td>• Upper limit (infinitely adjustable)</td>
<td>23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Load

| Without HART communication | $R_B \leq \left[ \frac{U_H \cdot 10.5 V}{0.023 A}\right] \Omega$ | - |
| With HART communication | $R_B = 230 \ldots 500 \Omega$ (SIMATIC PDM) or $R_B = 230 \ldots 1100 \Omega$ (HART Communicator) | - |

| Physical bus | - | IEC 61158-2 |
| With polarity reversal protection | - | Yes |

#### Accuracy

<table>
<thead>
<tr>
<th>Reference conditions</th>
<th>To EN 60770-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing characteristic, start-of-scale value 0 bar, stainless steel seal diaphragm, silicone oil filling, room temperature 25 °C (77 °F) $r$: Span ratio ($r = \text{max. span} / \text{set span}$)</td>
<td></td>
</tr>
</tbody>
</table>

| Error in measurement and fixed-point setting (including hysteresis and repeatability) | $\leq 0.1\%$ |
| Linear characteristic $- \leq 10$ | $\leq 0.1\%$ |
| $- 10 < r \leq 30$ | $\leq 0.2\%$ |
| Long-term drift (temperature change ± 30 °C (± 54 °F)) | $\leq (0.1 \cdot r)\%/\text{year}$ |
| Influence of ambient temperature $\leq 0.1\%$/year |

| $\leq 0.3\%$ |
| at -10 ... +60 °C (14 ... 140 °F) |
| $\leq (0.1 \cdot r + 0.2)\%$ |
| at -40 ... -10 °C and +60 ... +85 °C (-40 ... -14 °F and 140 ... 185 °F) |
| $\leq (0.1 \cdot r + 0.15)\%/10\ K$ |
| Measured Value Resolution | 3 \cdot 10^{-5} of nominal measuring range |
### Rated operating conditions

<table>
<thead>
<tr>
<th>Condition Type</th>
<th>Conditions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of protection (to EN 60529)</td>
<td>IP65</td>
<td></td>
</tr>
<tr>
<td>Process temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Measuring cell with silicone oil filling</td>
<td>-40 ... +100 °C (-40 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>• Measuring cell with inert liquid filling</td>
<td>-20 ... +100 °C (-4 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>• In conjunction with dust explosion protection</td>
<td>-20 ... +60 °C (-4 ... +140 °F)</td>
<td></td>
</tr>
<tr>
<td>Ambient conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Digital indicators</td>
<td>-30 ... +85 °C (-22 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>• Storage temperature</td>
<td>-50 ... +85 °C (-58 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>• Climatic class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Condensation</td>
<td>Permissible</td>
<td></td>
</tr>
<tr>
<td>• Electromagnetic compatibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Emitted interference and interference immunity</td>
<td>To EN 61326 and NAMUR NE 21</td>
<td></td>
</tr>
</tbody>
</table>

### Design

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (without options)</td>
<td>≈ 4.5 kg (≈ 9.9 lb)</td>
</tr>
<tr>
<td>Housing material</td>
<td>Poor in copper die-cast aluminium, GD-AISI12 or stainless steel precision casting, Mat. No. 1.4408</td>
</tr>
<tr>
<td>Wetted parts materials</td>
<td></td>
</tr>
<tr>
<td>• Seal diaphragm</td>
<td>Stainless steel, Mat. No. 1.4404/316L or Hastelloy C276, Mat. No. 2.4819, Monel, Mat. No. 2.4360, tantalum or gold</td>
</tr>
<tr>
<td>• Process flanges and sealing screw</td>
<td>Stainless steel, Mat. No. 1.4408, Hastelloy C4, Mat. No. 2.4610 or Monel, Mat. No. 2.4360</td>
</tr>
<tr>
<td>• O-Ring</td>
<td>FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR</td>
</tr>
<tr>
<td>Measuring cell filling</td>
<td>Silicone oil or inert liquid filling liquid (max. 160 bar (2320 psi a) with oxygen measurement)</td>
</tr>
<tr>
<td>Process connection</td>
<td>¼-18 NPT and flange connection to DIN 19213 with mounting thread M10 to DIN 19213 or 7/16-20 UNF to EN 61518</td>
</tr>
<tr>
<td>Material of the mounting bracket</td>
<td></td>
</tr>
<tr>
<td>• Steel</td>
<td>Sheet steel, Mat. No. 1.0330, chrome-plated</td>
</tr>
<tr>
<td>• Stainless steel</td>
<td>Stainless steel, Mat. No. 1.4301 (SS304)</td>
</tr>
</tbody>
</table>

### Power supply $U_H$

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
<th>Supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal voltage on transmitter</td>
<td>10.5 ... 45 V DC</td>
<td>Supplied through bus</td>
</tr>
<tr>
<td>Separate 24 V power supply necessary</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Bus voltage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Not Ex</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>• With intrinsically-safe operation</td>
<td>-</td>
<td>9 ... 32 V</td>
</tr>
<tr>
<td>Current consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Basic current (max.)</td>
<td>-</td>
<td>12.5 mA</td>
</tr>
<tr>
<td>• Startup current ≤ basic current</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>• Max. current in event of fault</td>
<td>-</td>
<td>15.5 mA</td>
</tr>
<tr>
<td>Fault disconnection electronics (FDE) available</td>
<td>-</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Certificate and approvals

<table>
<thead>
<tr>
<th></th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification according to pressure equipment directive (DRGL 97/23/EC)</td>
<td>For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)</td>
<td></td>
</tr>
<tr>
<td><strong>Explosion protection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Intrinsic safety 'i'</td>
<td>PTB 99 ATEX 2122</td>
<td>FISCO supply unit: U_0 = 17.5 V, I_0 = 380 mA, P_0 = 5.32 W</td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 1/2 G EEEx ia/ib IIB/IIC T6</td>
<td>Linear barrier: U_0 = 24 V, I_0 = 250 mA, P_0 = 1.2 W</td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F) temperature class T4;</td>
<td>-40 ... +60 °C (-40 ... +140 °F) temperature class T6</td>
</tr>
<tr>
<td>- Connection</td>
<td>To certified intrinsically-safe circuits with maximum values: U_i = 30 V, I_i = 100 mA, P_i = 750 mW, R_i = 300 Ω</td>
<td>FISCO supply unit: U_0 = 17.5 V, I_0 = 380 mA, P_0 = 5.32 W</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Linear barrier: U_0 = 24 V, I_0 = 250 mA, P_0 = 1.2 W</td>
</tr>
<tr>
<td>• Explosion-proof &quot;d&quot;</td>
<td>PTB 99 ATEX 1160</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 1/2 G EEEx d IIC T4/T6</td>
<td></td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F) temperature class T4;</td>
<td>-40 ... +60 °C (-40 ... +140 °F) temperature class T6</td>
</tr>
<tr>
<td>- Connection</td>
<td>To circuits with values: U_H = 10.5 ... 45 V DC</td>
<td>To circuits with values: U_H = 9 ... 32 V DC</td>
</tr>
<tr>
<td>• Dust explosion protection for zone 20</td>
<td>PTB 01 ATEX 2055</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 1 D IP65 T 120 °C</td>
<td></td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F)</td>
<td>-40 ... +60 °C (-40 ... +140 °F) temperature class T6</td>
</tr>
<tr>
<td>- Max. surface temperature</td>
<td>120 °C (248 °F)</td>
<td></td>
</tr>
<tr>
<td>- Connection</td>
<td>To certified intrinsically-safe circuits with maximum values: U_i = 30 V, I_i = 100 mA, P_i = 750 mW, R_i = 300 Ω</td>
<td>FISCO supply unit: U_0 = 17.5 V, I_0 = 380 mA, P_0 = 5.32 W</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Linear barrier: U_0 = 24 V, I_0 = 250 mA, P_0 = 1.2 W</td>
</tr>
<tr>
<td>• Type of protection &quot;n&quot; (zone 2)</td>
<td>PTB 01 ATEX 2055</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 2 D IP65 T 120 °C</td>
<td></td>
</tr>
<tr>
<td>- Connection</td>
<td>To circuits with values: U_H = 10.5 ... 45 V DC, P_{max} = 1.2 W</td>
<td>To circuits with values: U_H = 9 ... 32 V DC, P_{max} = 1.2 W</td>
</tr>
<tr>
<td>• Type of protection &quot;n&quot; (zone 2)</td>
<td>TÜV 01 ATEX 1696 X</td>
<td>Planned</td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 3 G EEEx nA IIC T4/T5/T6</td>
<td></td>
</tr>
<tr>
<td>• Explosion protection to FM</td>
<td>Certificate of Compliance 3008490</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Identification (XP/DIP) or (IS); (NI)</td>
<td>CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III</td>
<td></td>
</tr>
<tr>
<td>• Explosion protection to CSA</td>
<td>Certificate of Compliance 1153651</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

**HART communication**
- HART communication: 230 ... 1100 Ω
- Protocol: HART Version 5.x
- Software for computer: SIMATIC PDM

**PROFIBUS PA communication**
- Simultaneous communication with master class 2 (max.)
- The address can be set using: Configuration tool or local operation (standard setting address 126)
- Cyclic data usage:
  - Output byte: 5 (one measuring value) or 10 (two measuring values)
  - Input byte: 0, 1, or 2 (register operating mode and reset function for metering)
- Internal preprocessing:
  - Device profile: PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
  - Function blocks: 2
    - Analog input:
      - Adaptation to customer-specific process variables: Yes, linearly rising or falling characteristic
      - Electrical damping $T_{63}$, adjustable: 0 ... 100 s
      - Simulation function: Input /Output
      - Failure mode: Can be parameterized (last good value, substitute value, incorrect value)
      - Limit monitoring: Yes, one upper and lower warning limit and one alarm limit respectively
    - Register (totalizer):
      - Can be reset, preset, optional direction of counting, simulation function of register output
      - Failure mode: Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)
      - Limit monitoring: One upper and lower warning limit and one alarm limit respectively
  - Physical block:
    - Transducer blocks: 1
    - Pressure transducer block:
      - Can be calibrated by applying two pressures: Yes
      - Monitoring of sensor limits: Yes
      - Specification of a container characteristic with: Max. 30 nodes
      - Square-rooted characteristic for flow measurement: Yes
      - Gradual volume suppression and implementation point of square-root extraction: Parameterizable
      - Simulation function for measured pressure value and sensor temperature: Constant value or over parameterizable ramp function

**Communication FOUNDATION Fieldbus**
- Function blocks: 3 function blocks analog input, 1 function block PID
- Analog input:
  - Adaptation to customer-specific process variables: Yes, linearly rising or falling characteristic
  - Electrical damping $T_{63}$, adjustable
  - Simulation function: Output/input (can be locked within the device with a bridge)
  - Failure mode: Can be parameterized (last good value, substitute value, incorrect value)
  - Limit monitoring: Yes, one upper and lower warning limit and one alarm limit respectively
- PID:
- Physical block:
  - Transducer blocks: 1 transducer block Pressure with calibration, 1 transducer block LCD
- Pressure transducer block:
  - Can be calibrated by applying two pressures: Yes
  - Monitoring of sensor limits: Yes
  - Simulation function: Measured pressure value, sensor temperature and electronics temperature

Siemens Fl 01 · 2009
## SITRANS P measuring instruments for pressure

Transmitters for gage, absolute and differential pressure, flow and level

### DS III series for absolute pressure (from differential pressure series)

#### Selection and Ordering data

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS P pressure transmitters for absolute pressure, from the differential pressure, series DS III HART</td>
<td>7 MF 4 3 3 3 -</td>
</tr>
</tbody>
</table>

#### Measuring cell filling

- Silicone oil
- Inert liquid

#### Measuring cell cleaning

- Standard
- Grease-free

#### Span

- 8.3 ... 250 mbar a (0.12 ... 3.63 psi a)
- 43 ... 1300 mbar a (0.62 ... 18.9 psi a)
- 0.16 ... 5 bar a (3.22 ... 72.5 psi a)
- 1 ... 30 bar a (14.5 ... 435 psi a)
- 5.3 ... 100 bar a (76.9 ... 1450 psi a)

#### Wetted parts materials

<table>
<thead>
<tr>
<th>Seal diaphragm</th>
<th>Parts of measuring cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Hastelloy</td>
<td>Hastelloy</td>
</tr>
<tr>
<td>Tantalum</td>
<td>Tantalum</td>
</tr>
<tr>
<td>Monel</td>
<td>Monel</td>
</tr>
<tr>
<td>Gold</td>
<td>Gold</td>
</tr>
</tbody>
</table>

#### Process connection

- Female thread ¼-18 NPT with flange connection
  - Sealing screw opposite process connection
  - Mounting thread 7/16-20 UNF to EN 61518
  - Mounting thread M10 to DIN 19213 (for replacement needs)
  - Vent on side of process flange
  - Mounting thread 7/16-20 UNF to EN 61518
  - Mounting thread M10 to DIN 19213 (for replacement needs)

#### Non-wetted parts materials

<table>
<thead>
<tr>
<th>Process flange screws</th>
<th>Electronics housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Die-cast aluminium</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>Stainless steel precision casting</td>
</tr>
</tbody>
</table>

#### Version

- Standard version
- International version, English label inscriptions, documentation in 5 languages on CD

#### Explosion protection

- Without
- With ATEX, Type of protection:
  - “Intrinsic safety (Ex ia)"
  - “Explosion-proof (Ex d)”
  - “Intrinsic safety and explosion-proof enclosure (Ex ia + Ex d)”
  - “Ex nA/nL (zone 2)"
  - “Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"
- With FM + CSA, Type of protection:
  - “Intrinsic safety and explosion-proof (is + xp)”

#### Electrical connection / cable entry

- Screwed gland Pg 13.5
- Screwed gland M20x1.5
- Screwed gland ½-14 NPT
- Han 7D plug (plastic housing) incl. mating connector
- Plug M12 (metal)

#### Display

- Without (digital indicator hidden, setting: mA)
- With visible digital indicator
- With customer-specific digital indicator (setting as specified, Order code “Y21” or required)

#### Power supply units

See “SITRANS I power supply units and isolation amplifiers”.

Factory-mounting of shut-off valves and valve manifolds see page 2/142.

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flange(s)

1) For oxygen applications, add Order code E10.
2) Version 7MF4333-1DY... only up to max. span 200 mbar a (2.9 psi a).
3) When the manufacturer’s certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
4) Where the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
5) Not for span “5.3 ... 100 bar a (76.9 ... 1450 psi a)”. Position of the top vent valve in the process flange (see dimensional drawing).
6) Not together with Electrical connection „Screwed gland Pg 13.5” and „Han7D plug”.
7) Without cable gland, with blanking plug
8) With enclosed cable gland Ex ia and blanking plug
9) Not together with type of protection “Explosion-proof” and and type of protection “Ex nA”.
10) Not together with types of protection “Explosion-proof” or “Intrinsic safety and explosion-proof”

E) Combinations of the versions marked with E) are subject to the export regulations AL: 2B230, ECCN: N.
F) Subject to export regulations AL: 9I999, ECCN: N.
## Selection and Ordering data

**Order No.**
- SITRANS P pressure transmitters for absolute pressure (from the differential pressure series)
  - DS III PA series (PROFIBUS PA) F) 7 MF 4 3 3 4 -
  - DS III FF series (FOUNDATION Fieldbus) F) 7 MF 4 3 3 5 -

## Selection and Ordering data

**Order No.**
- SITRANS P pressure transmitters for absolute pressure (from the differential pressure series)
  - DS III PA series (PROFIBUS PA) F) 7 MF 4 3 3 4 -
  - DS III FF series (FOUNDATION Fieldbus) F) 7 MF 4 3 3 5 -

### Measuring cell filling
- Measuring cell cleaning
  - Silicone oil: Standard
  - Inert liquid: Grease-free

### Nominal measuring range
- 250 mbar a (3.63 psi a)
- 1300 mbar a (18.9 psi a)
- 5 bar a (72.5 psi a)
- 30 bar a (435 psi a)
- 100 bar a (1450 psi a)

### Wetted parts materials
- Seal diaphragm: Stainless steel
- Parts of measuring cell: Stainless steel
- Process flange screws: Stainless steel precision casting
- Electronics housing: Die-cast aluminium

### Explosion protection
- Without
- With ATEX, Type of protection:
  - "Intrinsic safety (EEEx ia)"
  - "Explosion-proof (EEEx d)" (without cable gland, with blanking plug)
  - "Intrinsic safety and explosion-proof enclosure (EEEx ia + EEEx d)" (with enclosed cable gland EEEx ia and blanking plug)
- With FM + CSA, Type of protection:
  - "Intrinsic safety and explosion-proof (is + xp)"

### Electrical connection / cable entry
- Screwed gland M20x1.5
- Screwed gland ½-14 NPT
- M12 Connector (metall)

---

1) For oxygen application, add Order code E10.
2) Version 7MF3434-1DY... only up to max. span 200 mbar a (2.9 psi a).
3) When the manufacturer’s certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
4) When the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
5) Not for nominal measuring range 100 bar a (1450 psi a). Position of the top vent valve in the process flange (see dimensional drawing).
6) Without cable gland, with blanking plug
7) With enclosed cable gland EEEx ia and blanking plug
8) Cannot be used together with the following types of protection: “Explosion-proof” and “Intrinsic safety and explosion-proof”.

**Display**
- Without (digital display hidden)
- With visible digital indicator
- With customer-specific digital indicator (setting as specified, Order code “Y21” or required)

---

Factory-mounting of shut-off valves and valve manifolds see page 2/142.

Included in delivery of the device:
- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

---

1) Combinations of the versions marked with E) are subject to the export regulations AL: 2B230, ECCN: N.
2) Subject to export regulations AL: 9I999, ECCN: N.
## SITRANS P measuring instruments for pressure

Transmitters for gage, absolute and differential pressure, flow and level

### DS III series for absolute pressure
(from differential pressure series)

#### Selection and Ordering data

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add &quot;-Z&quot; to Order No. and specify Order code.</td>
<td></td>
</tr>
<tr>
<td>Pressure transmitter with mounting bracket made of:</td>
<td></td>
</tr>
<tr>
<td>• Steel</td>
<td>A01</td>
</tr>
<tr>
<td>• Stainless steel</td>
<td>A02</td>
</tr>
<tr>
<td>O-rings for process flanges (instead of PTFE (Viton))</td>
<td></td>
</tr>
<tr>
<td>• PTFE (Teflon)</td>
<td>A20</td>
</tr>
<tr>
<td>• FEP (with silicone core, approved for food)</td>
<td>A21</td>
</tr>
<tr>
<td>• FEPF (Kalrez, compound 4079)</td>
<td>A22</td>
</tr>
<tr>
<td>• NBR (Buna N)</td>
<td>A23</td>
</tr>
<tr>
<td>Plug</td>
<td></td>
</tr>
<tr>
<td>• Han 7D (metal, gray)</td>
<td>A30</td>
</tr>
<tr>
<td>• Han 8U (instead of Han 7D)</td>
<td>A31</td>
</tr>
<tr>
<td>Sealing screws</td>
<td></td>
</tr>
<tr>
<td>¼-18 NPT, with valve in material of process flanges</td>
<td></td>
</tr>
<tr>
<td>Cable sockets for M12 connectors (metal)</td>
<td>A50</td>
</tr>
<tr>
<td>Rating plate inscription (instead of German)</td>
<td></td>
</tr>
<tr>
<td>• English</td>
<td>B11</td>
</tr>
<tr>
<td>• French</td>
<td>B12</td>
</tr>
<tr>
<td>• Spanish</td>
<td>B13</td>
</tr>
<tr>
<td>• Italian</td>
<td>B14</td>
</tr>
<tr>
<td>English rating plate</td>
<td>B21</td>
</tr>
<tr>
<td>Quality inspection certificate (Factory calibration) to IEC 60770-2</td>
<td>C11</td>
</tr>
<tr>
<td>Acceptance test certificate</td>
<td>C14</td>
</tr>
<tr>
<td>To EN 10204-3.1</td>
<td>C12</td>
</tr>
<tr>
<td>To EN 10204-2.2</td>
<td>C21</td>
</tr>
<tr>
<td>&quot;Functional Safety (SIL)&quot; certificate</td>
<td>C20</td>
</tr>
<tr>
<td>&quot;PROFIsafe&quot; certificate and protocol</td>
<td>D05</td>
</tr>
<tr>
<td>Setting of upper limit of output signal to 22.0 mA</td>
<td>D12</td>
</tr>
<tr>
<td>Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)</td>
<td>D07</td>
</tr>
<tr>
<td>Type of protection IP68 (not together with Han 7D/Han 8U plug, cable gland PG 13.5)</td>
<td>D12</td>
</tr>
<tr>
<td>Digital indicator alongside the input keys (only together with the devices 7MF4333-21)</td>
<td>D27</td>
</tr>
<tr>
<td>Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange</td>
<td>D37</td>
</tr>
<tr>
<td>Use in or on zone 1D/2D</td>
<td>E01</td>
</tr>
<tr>
<td>(only together with type of protection &quot;Intrinsic safety (EX ia)&quot;)</td>
<td></td>
</tr>
<tr>
<td>Use on zone 0</td>
<td>E02</td>
</tr>
<tr>
<td>(only together with type of protection &quot;Intrinsic safety (EX ia)&quot;)</td>
<td></td>
</tr>
<tr>
<td>Oxygen application (max. 120 bar a (1740 psi a) at 60°C (140 °F) with oxygen measurement and inert liquid)</td>
<td>E10</td>
</tr>
<tr>
<td>Explosion-proof &quot;Intrinsic safety&quot; to INMETRO (Brazil) (only for transmitter 7MF4-...-....-B..)</td>
<td>E25</td>
</tr>
</tbody>
</table>

#### Additional data

Add "-Z" to Order No. and specify Order code.

#### Measuring range to be set

Specify in plain text (max. 5 digits):

Y01: up to ... mbar, bar, kPa, MPa, psi, ... units "Y01" is essential, unit with non-pressure units

Y21: mbar, bar, kPa, MPa, psi, ... units

Y22: up to ..... l/min, m³/h, m, USgpm, ...

Y25: ...............

Max. 27 characters, specify in plain text:

Y15: ...........................................

Max. 16 characters, specify in plain text:

Y17: ...........................................

Measuring range to be set

Setting of pressure indication in pressure units

Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)

Type of protection IP68 (not together with Han 7D/Han 8U plug, cable gland PG 13.5)

Digital indicator alongside the input keys (only together with the devices 7MF4333-21)

Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange

Use in or on zone 1D/2D

(only together with type of protection "Intrinsic safety (EX ia)")

Use on zone 0

(only together with type of protection "Intrinsic safety (EX ia)")

Oxygen application (max. 120 bar a (1740 psi a) at 60°C (140 °F) with oxygen measurement and inert liquid)

Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4-...-....-B..)
SITRANS P pressure transmitters, DS III HART series for absolute pressure, from the differential pressure series, dimensions in mm (inch)

1 Process connection: ¼-18 NPT (EN 61518)
2 Blanking plug
3 Electrical connection:
   - screwed gland Pg 13,5 (adapter)
   - screwed gland M20x1,5
   - screwed gland ½-14 NPT or
   - Han 7D/ Han 8U plug
4 Terminal side
5 Electronics side, digital display (longer overall length for cover with window)
6 Protective cover over keys
7 Mounting bracket (option)
8 Sealing screw with valve (option)
9 Screw cover - safety bracket (only for type of protection
   "Explosion-proof enclosure", not shown in the drawing)
10 Lateral venting for liquid measurement (Standard)
11 Lateral venting for gas measurement (suffix HG2)

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "explosion-proof enclosure"
3) Not with type of protection "FM + CSA (is + xp)"
4) 92 mm (3.62 inch) for minimum distance to permit rotation with indicator
5) 45 mm (1.8 inch) for Pg 13,5 with adapter

SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series for absolute pressure
(from differential pressure series)
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series for absolute pressure
(from differential pressure series)

1. Process connection: ¼-18 NPT (EN 61518)
2. Blanking plug
3. Electrical connection:
   - screwed gland M20x1.5 (5)
   - screwed gland ½-14 NPT or
   - PROFIBUS plug M12 (6)
4. Terminal side
5. Electronic side, digital display (longer overall length for cover with window)
6. Protective cover over keys
7. Mounting bracket (option)
8. Sealing screw with valve (option)
9. Screw cover – safety bracket (only for explosion-proof enclosure, not shown in the drawing)
10. Lateral venting for liquid measurement (Standard)
11. Lateral venting for gas measurement (suffix H02)

1) Allow approx. 20 mm (0.79 inch) thread length in addition
2) 92 mm (3.62 inch) for minimum distance to permit rotation with indicator
3) Not with type of protection "explosion-proof enclosure"
4) Not with type of protection "FM + CSA"

SITRANS P pressure transmitters, DS III PA and FF series for absolute pressure, from the differential pressure series, dimensions in mm (inch)
## Technical specifications

### SITRANS P, DS III series, for differential pressure and flow

<table>
<thead>
<tr>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measured variable</strong></td>
<td>Differential pressure and flow</td>
</tr>
<tr>
<td><strong>Spans (infinitely adjustable) or nominal measuring range and max. permissible working pressure</strong></td>
<td><strong>Maximum working pressure</strong></td>
</tr>
<tr>
<td>1 ... 20 mbar (0.4015 ... 8.031 inH2O)</td>
<td>32 bar (464 psi)</td>
</tr>
<tr>
<td>2.5 ... 250 mbar (1.004 ... 100.4 inH2O)</td>
<td>160 bar (2320 psi)</td>
</tr>
<tr>
<td>6 ... 600 mbar (2.409 ... 240.9 inH2O)</td>
<td>420 bar (6091 psi)</td>
</tr>
<tr>
<td>16 ... 1600 mbar (6.424 ... 642.4 inH2O)</td>
<td>600 mbar (240.9 inH2O)</td>
</tr>
<tr>
<td>50 ... 5000 mbar (20.08 ... 2008 inH2O)</td>
<td>5 bar (2008 inH2O)</td>
</tr>
<tr>
<td>0.3 ... 30 bar (4.35 ... 435 psi)</td>
<td>30 bar (435 psi)</td>
</tr>
<tr>
<td>2.5 ... 250 mbar (1.004 ... 100.4 inH2O)</td>
<td>420 bar (6091 psi)</td>
</tr>
<tr>
<td>6 ... 600 mbar (2.409 ... 240.9 inH2O)</td>
<td>600 mbar (240.9 inH2O)</td>
</tr>
<tr>
<td>16 ... 1600 mbar (6.424 ... 642.4 inH2O)</td>
<td>5 bar (2008 inH2O)</td>
</tr>
<tr>
<td>50 ... 5000 mbar (20.08 ... 2008 inH2O)</td>
<td>30 bar (435 psi)</td>
</tr>
<tr>
<td>0.3 ... 30 bar (4.35 ... 435 psi)</td>
<td>30 bar (435 psi)</td>
</tr>
</tbody>
</table>

**Lower measuring limit**
- Measuring cell with silicone oil filling -100% of max. span (-33% with 30 bar (435 psi) measuring cell or 30 mbar a (0.44 psi))
- Upper measuring limit 100% of max. span (for oxygen version and inert filling liquid; max. 160 bar g (2320 psi g))

**Output**
- Output signal 4 ... 20 mA
- **Digital PROFIBUS PA or FOUNDATION Fieldbus signal**
- Lower limit (infinitely adjustable) 3.55 mA, factory preset to 3.84 mA
- Upper limit (infinitely adjustable) 23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA

**Load**
- Without HART communication
  \[ R_L \leq \left( \frac{U_H}{10.5} - 0.023 \right) \text{ in } \Omega \]
  \[ U_H : \text{Power supply in V} \]
- With HART communication
  \[ R_L = 230 \ldots 500 \Omega \text{ (SIMATIC PDM)} \]
  \[ R_L = 230 \ldots 1100 \Omega \text{ (HART Communicator)} \]

**Physical bus**
- IEC 61158-2

**With polarity reversal protection**
- Yes

**Accuracy**
- To EN 60770-1
- Increasing characteristic, start-of-scale value 0 bar, stainless steel seal diaphragm, silicone oil filling, room temperature 25 °C (77 °F)\( r = \text{Span ratio (r = max. span / set span)}\)

**Error in measurement and fixed-point setting (including hysteresis and repeatability)**
- Linear characteristic
  - \( r \leq 10 \)
    \[ \leq 0.0029 \cdot r + 0.071 \% \]
  - \( 10 < r \leq 30 \)
    \[ \leq 0.0045 \cdot r + 0.071 \% \]
  - \( 30 < r \leq 100 \)
    \[ \leq 0.005 \cdot r + 0.05 \% \]
- Square-root characteristic (flow > 50%)
  - \( r \leq 10 \)
    \[ \leq 0.1 \% \]
  - \( 10 < r \leq 30 \)
    \[ \leq 0.2 \% \]
### SITRANS P, DS III series, for differential pressure and flow

<table>
<thead>
<tr>
<th>Feature</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Square-root characteristic (flow 25 ... 50%)</td>
<td>≤ 0.2%</td>
<td>≤ 0.2%</td>
</tr>
<tr>
<td>- ( r \leq 10 )</td>
<td>≤ 0.2%</td>
<td>≤ 0.2%</td>
</tr>
<tr>
<td>- ( 10 &lt; r \leq 30 )</td>
<td>≤ 0.4%</td>
<td>-</td>
</tr>
<tr>
<td>Long-term drift (temperature change ± 30 °C (± 54 °F))</td>
<td>≤ (0.25 ( \cdot ) r)% every 5 years</td>
<td>≤ (0.25% every 5 years</td>
</tr>
<tr>
<td>- static pressure max. 70 bar g (1015 psi g)</td>
<td>static pressure max. 70 bar g (1015 psi g)</td>
<td></td>
</tr>
<tr>
<td>• 20 mbar (0.29 psi)-measuring cell</td>
<td>≤ (0.2 ( \cdot ) r) per year</td>
<td>≤ 0.2 per year</td>
</tr>
<tr>
<td>Influence of ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• at -10 ... +60 °C (14 ... 140 °F)</td>
<td>≤ (0.08 ( \cdot ) r + 0.1)%</td>
<td>≤ 0.3%</td>
</tr>
<tr>
<td>• at -40 ... -10 °C and +60 ... +85 °C (-40 ... +14 °F and 140 ... 185 °F)</td>
<td>≤ (0.1 ( \cdot ) r + 0.15)%/10 K</td>
<td>≤ 0.25%/10 K</td>
</tr>
<tr>
<td>Influence of static pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• on the zero point</td>
<td>≤ (0.15 ( \cdot ) r)% per 100 bar (1450 psi)</td>
<td>≤ 0.15% je 100 bar (1450 psi)</td>
</tr>
<tr>
<td>- 20 mbar (0.29 psi)-measuring cell</td>
<td>≤ (0.15 ( \cdot ) r)% per 32 bar (464 psi)</td>
<td>≤ 0.15% je 32 bar (464 psi)</td>
</tr>
<tr>
<td>• on the span</td>
<td>≤ 0.2% je 100 bar (1450 psi)</td>
<td>-</td>
</tr>
<tr>
<td>- 20 mbar (0.29 psi)-measuring cell</td>
<td>≤ 0.2% je 32 bar (464 psi)</td>
<td>-</td>
</tr>
<tr>
<td>Measured Value Resolution</td>
<td>-</td>
<td>3 ( \cdot ) 10(^{-5} ) of nominal measuring range</td>
</tr>
</tbody>
</table>

### Rated operating conditions

<table>
<thead>
<tr>
<th>Feature</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of protection (to EN 60529)</td>
<td>IP65</td>
<td></td>
</tr>
<tr>
<td>Process temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Measuring cell with silicone oil filling</td>
<td>-40 ... +100 °C (-40 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>• Measuring cell with inert filling liquid</td>
<td>-20 ... +100 °C (-4 ... +212 °F)</td>
<td></td>
</tr>
<tr>
<td>• In conjunction with dust explosion protection</td>
<td>-20 ... +60 °C (-4 ... +140 °F)</td>
<td></td>
</tr>
<tr>
<td>Ambient conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Ambient temperature</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Digital indicators</td>
<td>-30 ... +85 °C (-22 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>• Storage temperature</td>
<td>-50 ... +85 °C (-58 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>• Climatic class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Condensation</td>
<td>Permissible</td>
<td></td>
</tr>
<tr>
<td>• Electromagnetic compatibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Emitted interference and interference immunity</td>
<td>To EN 61326 and NAMUR NE 21</td>
<td></td>
</tr>
<tr>
<td>Material of the mounting bracket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Steel</td>
<td>Sheet steel, Mat. No. 1.0330, chrome-plated</td>
<td></td>
</tr>
<tr>
<td>• Stainless steel</td>
<td>Stainless steel, Mat. No. 1.4301 (SS304)</td>
<td></td>
</tr>
</tbody>
</table>

### Design

<table>
<thead>
<tr>
<th>Feature</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (without options)</td>
<td>4.5 kg (= 9.9 lb)</td>
<td></td>
</tr>
<tr>
<td>Housing material</td>
<td>Poor in copper die-cast aluminium, GD-AISI12 or stainless steel precision casting, mat. No. 1.4408</td>
<td></td>
</tr>
<tr>
<td>Wetted parts materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Seal diaphragm</td>
<td>Stainless steel, mat. No. 1.4404/316L or Hastelloy C276, mat. No. 2.4819, Monel, mat. No. 2.4360, tantalum or gold</td>
<td></td>
</tr>
<tr>
<td>Measuring cell filling</td>
<td>Silicone oil or inert filling liquid (max. 160 bar (2320 psi g) with oxygen measurement)</td>
<td></td>
</tr>
<tr>
<td>Process connection</td>
<td>Female thread ( \frac{1}{4} )-18 NPT and flange connection with mounting thread M10 to DIN 19213 or ( \frac{1}{4} )-20 UNF to EN 61518</td>
<td></td>
</tr>
</tbody>
</table>
## SITRANS P, DS III series, for differential pressure and flow

<table>
<thead>
<tr>
<th>Power supply $U_H$</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal voltage on transmitter</td>
<td>10.5 ... 45 V DC</td>
<td>Supplied through bus</td>
</tr>
<tr>
<td>10.5 ... 30 V DC in intrinsically-safe mode</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Separate 24 V power supply necessary</td>
<td>-</td>
<td>No</td>
</tr>
<tr>
<td>Bus voltage</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>• Not Ex</td>
<td>-</td>
<td>9 ... 32 V</td>
</tr>
<tr>
<td>• With intrinsically-safe operation</td>
<td>-</td>
<td>9 ... 24 V</td>
</tr>
<tr>
<td>Current consumption</td>
<td>-</td>
<td>12.5 mA</td>
</tr>
<tr>
<td>• Basic current (max.)</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>• Startup current ≤ basic current</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>• Max. current in event of fault</td>
<td>-</td>
<td>15.5 mA</td>
</tr>
<tr>
<td>Fault disconnection electronics (FDE) avail.</td>
<td>-</td>
<td>Yes</td>
</tr>
</tbody>
</table>
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series
for differential pressure and flow

SITRANS P, DS III series, for differential pressure and flow

Certificate and approvals

<table>
<thead>
<tr>
<th></th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification according to pressure equipment directive (DRGL 97/23/EC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 32/160 (MWP 464/2320 psi)</td>
<td>For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)</td>
<td></td>
</tr>
<tr>
<td>PN 420 (MWP 6092 psi)</td>
<td>For gases of fluid group 1 and liquids of fluid group 1; complies with basic safety requirements of Article 3, paragraph 1 (appendix 1); assigned to category III, conformity evaluation module H by the TÜV Nord.</td>
<td></td>
</tr>
</tbody>
</table>

Explosion protection

- **Intrinsic safety “i”**
  - Identification: Ex II 1/2 G Ex ia/ib IIIB/IIC T6
  - Permissible ambient temperature: -40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +70 °C (-40 ... +158 °F) temperature class T5; -40 ... +60 °C (-40 ... +140 °F) temperature class T6
  - Connection: To certified intrinsically-safe circuits with maximum values: \( U_i = 30 \text{ V}, I_i = 100 \text{ mA}, P_i = 750 \text{ mW}, R_i = 300 \Omega \)
  - Effective internal inductance/capacitance: \( L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF} \)
  - FISCO supply unit: \( U_o = 17.5 \text{ V}, I_o = 380 \text{ mA}, P_o = 5.32 \text{ W} \)
  - Linear barrier: \( U_o = 24 \text{ V}, I_o = 250 \text{ mA}, P_o = 1.2 \text{ W} \)

- **Explosion-proof “d”**
  - Identification: Ex II 1/2 G Ex d IIC T4/T6
  - Permissible ambient temperature: -40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6
  - Connection: To circuits with values: \( U_i = 10.5 \ldots 45 \text{ V DC} \)

- **Dust explosion protection for zone 20**
  - Identification: Ex II 1 D IP65 T 120 °C
  - Permissible ambient temperature: -40 ... +85 °C (-40 ... +185 °F)
  - Max. surface temperature: 120 °C (248 °F)
  - Connection: To certified intrinsically-safe circuits with maximum values: \( U_i = 30 \text{ V}, I_i = 100 \text{ mA}, P_i = 750 \text{ mW}, R_i = 300 \Omega \)
  - Effective internal inductance/capacitance: \( L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF} \)
  - FISCO supply unit: \( U_o = 17.5 \text{ V}, I_o = 380 \text{ mA}, P_o = 5.32 \text{ W} \)
  - Linear barrier: \( U_o = 24 \text{ V}, I_o = 250 \text{ mA}, P_o = 1.2 \text{ W} \)

- **Dust explosion protection for zone 21/22**
  - Identification: Ex II 2 D IP65 T 120 °C
  - Connection: To circuits with values: \( U_i = 10.5 \ldots 45 \text{ V DC}; P_{\text{max}} = 1.2 \text{ W} \)

- **Type of protection “n” (zone 2)**
  - Identification: TÜV 01 ATEX 1696 X
  - Connection: To circuits with values: \( U_i = 10.5 \ldots 45 \text{ V DC}; P_{\text{max}} = 1.2 \text{ W} \)

- **Explosion protection to FM**
  - Identification (XP/DIP) or (IS); (NI) Certificate of Compliance 3008490
  - Identification (XP/DIP) or (IS) Certificate of Compliance 1153651

- **Explosion protection to CSA**
  - Identification (XP/DIP) or (IS)
### SITRANS P measuring instruments for pressure

Transmitters for gage, absolute and differential pressure, flow and level

#### DS III series

for differential pressure and flow

<table>
<thead>
<tr>
<th>HART communication</th>
<th>PROFIBUS PA communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART communication</td>
<td>Simultaneous communication with master class 2 (max.)</td>
</tr>
<tr>
<td>Protocol</td>
<td>The address can be set using</td>
</tr>
<tr>
<td>Software for computer</td>
<td>Configuration tool or local operation (standard setting address 126)</td>
</tr>
<tr>
<td></td>
<td>Cyclic data usage</td>
</tr>
<tr>
<td></td>
<td>• Output byte 5 (one measuring value) or 10 (two measuring values)</td>
</tr>
<tr>
<td></td>
<td>• Input byte 0, 1, or 2 (register operating mode and reset function for metering)</td>
</tr>
<tr>
<td>Internal preprocessing</td>
<td>PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B</td>
</tr>
<tr>
<td>Function blocks</td>
<td>2</td>
</tr>
<tr>
<td>• Analog input</td>
<td>• Analog input</td>
</tr>
<tr>
<td></td>
<td>- Adaptation to customer-specific process variables Yes, linearly rising or falling characteristic</td>
</tr>
<tr>
<td></td>
<td>- Electrical damping $T_{63}$, adjustable 0 ... 100 s</td>
</tr>
<tr>
<td></td>
<td>- Simulation function Input /Output</td>
</tr>
<tr>
<td></td>
<td>- Failure mode Can be parameterized (last good value, substitute value, incorrect value)</td>
</tr>
<tr>
<td></td>
<td>- Limit monitoring Yes, one upper and lower warning limit and one alarm limit respectively</td>
</tr>
<tr>
<td>• Register (totalizer)</td>
<td>Can be reset, preset, optional direction of counting, simulation function of register output</td>
</tr>
<tr>
<td></td>
<td>• Failure mode Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)</td>
</tr>
<tr>
<td></td>
<td>• Limit monitoring One upper and lower warning limit and one alarm limit respectively</td>
</tr>
<tr>
<td>• Physical block</td>
<td>1</td>
</tr>
<tr>
<td>Transducer blocks</td>
<td>2</td>
</tr>
<tr>
<td>• Pressure transducer block</td>
<td>• Pressure transducer block</td>
</tr>
<tr>
<td></td>
<td>- Can be calibrated by applying two pressures Yes</td>
</tr>
<tr>
<td></td>
<td>- Monitoring of sensor limits Yes</td>
</tr>
<tr>
<td></td>
<td>- Specification of a container characteristic with Max. 30 nodes</td>
</tr>
<tr>
<td></td>
<td>- Square-rooted characteristic for flow measurement Yes</td>
</tr>
<tr>
<td></td>
<td>- Gradual volume suppression and implementation point of square-root extraction Parameterizable</td>
</tr>
<tr>
<td></td>
<td>- Simulation function for measured pressure value and sensor temperature Constant value or over parameterizable ramp function</td>
</tr>
</tbody>
</table>

#### Communication FOUNDATION Fieldbus

Function blocks 3 function blocks analog input, 1 function block PID

- Analog input - Adaptation to customer-specific process variables Yes, linearly rising or falling characteristic
- Electrical damping $T_{63}$, adjustable 0 ... 100 s
- Simulation function Output/input (can be locked within the device with a bridge)
- Failure mode Can be parameterized (last good value, substitute value, incorrect value)
- Limit monitoring Yes, one upper and lower warning limit and one alarm limit respectively
- Square-rooted characteristic for flow measurement Yes

- PID Standard FF function block
- Physical block 1 Resource block
- Transducer blocks 1 transducer block Pressure with calibration, 1 transducer block LCD
- Pressure transducer block Yes
- Monitoring of sensor limits Yes
- Simulation function: Measured pressure value, sensor temperature and electronics temperature Constant value or over parameterizable ramp function
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

Selection and Ordering data

Order No. SITRANS P pressure transmitters for differential pressure and flow, Series DS III HART PN 32/160 (MWP 464/2320 psi) 7 MF 44 33 -

Measuring cell filling Measuring cell cleaning
Silicone oil Standard ▶ 1
Inert liquid(1) Grease-free ▶ 3

Span
PN 32 (MWP 464 psi)
1 ... 20 mbar(2) (0.4015 ... 8.03 inH2O) ▶ B
PN 160 (MWP 2320 psi)
1 ... 60 mbar (0.4015 ... 24.09 inH2O) ▶ C
2.5 ... 250 mbar (1.004 ... 100.4 inH2O) ▶ D
6 ... 600 mbar (2.409 ... 240.9 inH2O) ▶ E
16 ... 1600 mbar (6.424 ... 642.4 inH2O) ▶ F
50 ... 5000 mbar (20.08 ... 2008 inH2O) ▶ G
0.3 ... 30 bar (4.35 ... 435 psi) ▶ H

Wetted parts materials
(stainless steel process flanges) Seal diaphragm Parts of measuring cell
Stainless steel Stainless steel ▶ A
Hastelloy Stainless steel ▶ B
Hastelloy Hastelloy ▶ C
Tantalum(3) Tantalum ▶ D
Mone(3) Monel ▶ E
Gold(3) Gold ▶ F
Version for diaphragm seal(1) 5) ▶ G

Process connection
Female thread ¼-18 NPT with flange connection
Sealing screw opposite process connection
- Mounting thread 7/16-20 UNF to EN 61518 ▶ 1
- Mounting thread M10 to DIN 19213 (only for replacement needs) ▶ 2

Vent on side of process flange 2)
- Mounting thread 7/16-20 UNF to EN 61518 ▶ 3
- Mounting thread M10 to DIN 19213 (only for replacement needs) ▶ 4

Non-wetted parts materials
Process flange screws Electronics housing
Stainless steel Die-cast aluminium ▶ A
Stainless steel Stainless steel precision casting(6) ▶ B

Version
Standard version ▶ 1
International version, English label inscriptions, documentation in 5 languages on CD ▶ 2

Explosion protection
Without ▶ A
With ATEX, Type of protection:
- “Intrinsic safety (EEx ia)” ▶ B
- “Explosion-proof (EEx d)”(7)
- “Intrinsic safety and explosion-proof enclosure (EEx ia + EEx d)”(9)
- “Ex nA/NL (zone 2)” ▶ E
- “Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)”(8)

With FM + CSA, Type of protection:
- “Intrinsic safety and explosion-proof (is + xp)”(7)
- “Ex nA”(7)

Electrical connection / cable entry
Screwed gland Pg 13.5(9) ▶ A
Screwed gland M20x1.5 ▶ B
Screwed gland ½-14 NPT ▶ C
Han 7D plug (plastic housing) incl. mating connector(10) ▶ D
M12 connectors (metal)(10) ▶ F

Display
- without (digital indicator hidden, setting: mA) ▶ 1
- With visible digital indication ▶ 6
- With customer-specific digital indication (setting as specified, Order code “Y21” or required) ▶ 7

Available ex stock
Power supply units see “SITRANS I power supply units and isolation amplifiers”.

Factory-mounting of shut-off valves and valve manifolds see page 2/142.

Included in delivery of the device:
- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

1) For oxygen application, add Order code E10.
2) Not suitable for connection of remote seal. Position of the top vent valve in the process flanges (see dimensional drawing).
3) Only together with max. spans 250, 1600, 5000 and 30000 mbar (100.4, 240.9, 2008 inH2O and 435 psi)
4) When the manufacturer’s certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
5) With the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
6) Not together with Electrical connection „Screwed gland Pg 13.5“ and „Han7D plug“.
7) Without cable gland, with blanking plug
8) With enclosed cable gland EEx ia and blanking plug
9) Not together with type of protection “Explosion-proof” and type of protection “Ex nA”.
10) Cannot be used together with the following types of protection: “Explosion-proof” and “Intrinsic safety and explosion-proof”
**SITRANS P measuring instruments for pressure**

Transmitters for gage, absolute and differential pressure, flow and level

---

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>SITRANS P measuring instruments for pressure transmitters for differential pressure and flow PN 32/160 (MWP 464/2320 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS III PA series (PROFIBUS PA)</td>
<td>7MF 4 43 4</td>
</tr>
<tr>
<td>DS III FF series (FOUNDATION Fieldbus)</td>
<td>7MF 4 43 5</td>
</tr>
</tbody>
</table>

### Measuring cell filling

<table>
<thead>
<tr>
<th>Measuring cell cleaning</th>
<th>Silicon oil</th>
<th>Inert liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td></td>
<td>Grease-free</td>
</tr>
</tbody>
</table>

### Nominal measuring range

<table>
<thead>
<tr>
<th>PN 32 (MWP 464 psi)</th>
<th>20 mbar(1)</th>
<th>(8.03 inH₂O)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN 160 (MWP 2320 psi)</td>
<td>60 mbar</td>
<td>(24.09 inH₂O)</td>
</tr>
<tr>
<td></td>
<td>250 mbar</td>
<td>(100.4 inH₂O)</td>
</tr>
<tr>
<td></td>
<td>600 mbar</td>
<td>(240.9 inH₂O)</td>
</tr>
<tr>
<td></td>
<td>1600 mbar</td>
<td>(642.4 inH₂O)</td>
</tr>
<tr>
<td></td>
<td>5 bar</td>
<td>(2008 inH₂O)</td>
</tr>
<tr>
<td></td>
<td>30 bar</td>
<td>(435 psi)</td>
</tr>
</tbody>
</table>

### Wetted parts materials

<table>
<thead>
<tr>
<th>Stainless steel process flanges</th>
<th>Seal diaphragm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Parts of measuring cell</td>
</tr>
<tr>
<td>Hastelloy</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Hastelloy</td>
<td>Hastelloy</td>
</tr>
<tr>
<td>Tantalum(3)</td>
<td>Tantalum</td>
</tr>
<tr>
<td>Monel(3)</td>
<td>Monel</td>
</tr>
<tr>
<td>Gold(3)</td>
<td>Gold</td>
</tr>
</tbody>
</table>

### Process connection

- Female thread ¼-18 NPT with flange connection
- Sealing screw opposite process connection
- Mounting thread ½-14 NPT to DIN 19213 (only for replacement needs)
- Venting on side of process flanges(2)
- Mounting thread ½-14 NPT to DIN 19213 (only for replacement needs)

### Non-wetted parts materials

<table>
<thead>
<tr>
<th>Process flange screws</th>
<th>Electronics housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Die-cast aluminium</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>Stainless steel precision casting</td>
</tr>
</tbody>
</table>

### Version

- Standard version
- International version, English label inscriptions, documentation in 5 languages on CD

### Explosion protection

- Without
- With ATEX, Type of protection:
  - "Intrinsic safety (EEx ia)"
  - "Explosion-proof (EEx d)(6)"
  - "Intrinsic safety and explosion-proof enclosure (EEx ia + EEx d)(7)"
  - "n (Zone 2)" (planned)
  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)(7)" (not for DS III FF)
- With FM + CSA, Type of protection:
  - "Intrinsic safety and explosion-proof (is + xp)(6)"

---

**DS III series**

for differential pressure and flow

### Electrical connection / cable entry

-  \(\text{Screwed gland M20x1.5} \) B
-  \(\text{Screwed gland ½-14 NPT} \) C
-  \(\text{M12 connectors (metal)}(6) \) F

### Display

-  \(\text{Without (digital display hidden)} \) 1
-  \(\text{With visible digital indication} \) 6
-  \(\text{With customer-specific digital indication (setting as specified, Order code "Y21" or required)} \) 7

---

1) For oxygen application, add Order code E10.
2) Not suitable for connection of remote seal. Position of the top vent valve in the process flanges (see dimensional drawing).
3) Only together with max. spans 250, 1600, 5000 and 30000 mbar (100.4, 240.9, 2008 inH₂O and 435 psi).
4) When the manufacture's certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
5) When the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
6) Without cable gland, with blanking plug.
7) With enclosed cable gland EEx ia and blanking plug.
8) Cannot be used together with the following types of protection: "Explosion-proof" and "Intrinsic safety and explosion-proof".
## Selection and Ordering data

### Order code

<table>
<thead>
<tr>
<th>Further designs</th>
<th>HART</th>
<th>PA</th>
<th>FF</th>
</tr>
</thead>
</table>

### Pressure transmitter with mounting bracket made of:

- **Steel**: A01
- **Stainless steel**: A02

### O-rings for process flanges

(Instead of FPM (Viton))

- **PTFE (Teflon)**: A20
- **FEP (with silicone core, approved for food)**: A21
- **FFPM (Kalrez, compound 4079)**: A22
- **NBR (Buna N)**: A23

### Plug

- **Han 7D (metal, gray)**: A30
- **Han 8U (instead of Han 7D)**: A31

### Sealing screws

1/4-18 NPT, with valve in mat. of process flanges

- **A40**

### Cable sockets for M12 connectors (metal)

- **A50**

### Rating plate inscription (instead of German)

- **English**: B11
- **French**: B12
- **Spanish**: B13
- **Italian**: B14

### English rating plate (calibration certificate)

Pressure units in inH₂O or psi

- **B21**

### Quality inspection certificate (Factory calibration) to IEC 60770-2

- **C11**

### Acceptance test certificate

To EN 10 204-3.1

- **C12**

### Factory certificate

To EN 10 204-2.2

- **C14**

### "Functional Safety (SIL)" certificate

- **C20**

### PROFIsafe certificate and protocol

- **C21**

### Setting of upper limit of output signal to 22.0 mA

- **D05**

### Manufacturer's declaration acc. to NACE

(only together with seal diaphragm made of Hastelloy and stainless steel)

- **D07**

### Type of protection IP68

(not together with 7D/
Han 8U plug, cable gland Pg 13.5)

- **D12**

### Digital indicator alongside the input keys

(only together with the devices 7MF4433-.......2-.A.6 or -A.7-Z, Y21 or Y22 + Y01)

- **D27**

### Process flange screws made of Monel

(max. nominal pressure PN20)

- **D34**

### Supplied with oval flange set

(2 items), PTFE packings and stainless steel screws in thread of process flanges

- **D37**

### Use in or on zone 1D/2D

(only together with type of protection "Intrinsic safety (EEx ia)"

- **E01**

### Use on zone 0

(only together with type of protection "Intrinsic safety (EEx ia)"

- **E02**

### TÜV approval to AD/TRD

(only together with type of protection "Intrinsic safety (EEx ia)"

- **E06**

### Overfilling safety device for flammable and non-flammable liquids

(max. PN 32 (MWp 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)", to WHG and VbF, not together with measuring cell filling "inert liquid"

- **E08**

---

**E10**

**E25**

**E55**

**E56**

**E57**

**H01**

**H02**

**H03**

**K01(F)**

**K02(F)**

**K04**

---

1) When the manufacture's certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

2) When the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.

3) Not suitable for connection of remote seal
Selection and Ordering data

<table>
<thead>
<tr>
<th>Additional data</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add &quot;-Z&quot; to Order No. and specify Order code.</td>
<td></td>
</tr>
<tr>
<td><strong>Measuring range to be set</strong></td>
<td></td>
</tr>
<tr>
<td>Specify in plain text:</td>
<td></td>
</tr>
<tr>
<td>• With linear characteristic (max. 5 digits):</td>
<td>Y01 ✔️</td>
</tr>
<tr>
<td>Y01: ... up to ... mbar, bar, kPa, MPa, psi</td>
<td></td>
</tr>
<tr>
<td>• With square-rooted characteristic (max. 5 digits):</td>
<td>Y02 ✔️</td>
</tr>
<tr>
<td>Y02: ... up to ... mbar, bar, kPa, MPa, psi</td>
<td></td>
</tr>
<tr>
<td><strong>Measuring point number (TAG No.)</strong></td>
<td>Y15 ✔️ ✔️ ✔️</td>
</tr>
<tr>
<td>Max. 16 char., specify in plain text: Y15: ........</td>
<td></td>
</tr>
<tr>
<td><strong>Measuring point text</strong></td>
<td>Y16 ✔️ ✔️ ✔️</td>
</tr>
<tr>
<td>Max. 27 char., specify in plain text: Y16: ........</td>
<td></td>
</tr>
<tr>
<td><strong>Entry of HART address (TAG)</strong></td>
<td>Y17 ✔️</td>
</tr>
<tr>
<td>Max. 8 char., specify in plain text: Y17: ........</td>
<td></td>
</tr>
<tr>
<td><strong>Setting of pressure indicator in pressure units</strong></td>
<td>Y21 ✔️ ✔️ ✔️</td>
</tr>
<tr>
<td>Specify in plain text (standard setting: mA):</td>
<td></td>
</tr>
<tr>
<td>Y21: mbar, bar, kPa, MPa, psi, ...</td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td></td>
</tr>
<tr>
<td>The following pressure units can be selected:</td>
<td></td>
</tr>
<tr>
<td>bar, mbar, mm H₂O, inH₂O, ftH₂O, mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM oder %</td>
<td></td>
</tr>
<tr>
<td>*) ref. temperature 20 °C</td>
<td></td>
</tr>
<tr>
<td><strong>Setting of pressure indicator in non-pressure units</strong></td>
<td>Y221) ✔️</td>
</tr>
<tr>
<td>Specify in plain text:</td>
<td></td>
</tr>
<tr>
<td>Y22: ... up to ... l/min, m³/h, m, USgpm, ...</td>
<td>Y01 or Y02 (specification of measuring range in pressure units &quot;Y01&quot; or &quot;Y02&quot; is essential, unit with max. 5 characters)</td>
</tr>
<tr>
<td><strong>Preset bus address</strong></td>
<td>Y25 ✔️</td>
</tr>
<tr>
<td>(possible between 1 and 126)</td>
<td></td>
</tr>
<tr>
<td>Specify in plain text: Y25: ..................</td>
<td></td>
</tr>
</tbody>
</table>

Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset

✔️ = available

1) Not together with over-filling safety device for flammable and non-flammable liquids (Order code 'E98')
### Selection and Ordering data

#### SITRANS P pressure transmitters for differential pressure and flow, Series DS III HART PN 420 (MWP 6092 psi)

<table>
<thead>
<tr>
<th>Measuring cell filling</th>
<th>Measuring cell cleaning</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>Standard</td>
<td>7 MF 4 5 3 3 -</td>
</tr>
</tbody>
</table>

#### Span

- 2.5 ... 250 mbar (1.004 ... 100.4 inH₂O)
- 6 ... 600 mbar (2.409 ... 240.9 inH₂O)
- 16 ... 1600 mbar (6.424 ... 642.4 inH₂O)
- 50 ... 5000 mbar (20.08 ... 2008 inH₂O)
- 0.3 ... 30 bar (4.35 ... 435 psi)

#### Wetted parts materials

<table>
<thead>
<tr>
<th>(stainless steel process flanges)</th>
<th>Seal diaphragm</th>
<th>Parts of measuring cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>A</td>
</tr>
<tr>
<td>Hastelloy</td>
<td>Stainless steel</td>
<td>B</td>
</tr>
<tr>
<td>Gold(1)</td>
<td>Gold</td>
<td>L</td>
</tr>
</tbody>
</table>

#### Process connection

- Female thread ¼-18 NPT with flange connection
- Sealing screw opposite process connection
  - Mounting thread 7/16-20 UNF to EN 61518 (3)
  - Mounting thread M12 to DIN 19213 (1)
  - Mounting thread 7/16-20 UNF to EN 61518 (7)
  - Mounting thread M12 to DIN 19213 (5)
  
#### Non-wetted parts materials

<table>
<thead>
<tr>
<th>Process flange screws</th>
<th>Electronics housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Die-cast aluminium</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>Stainless steel precision casting(2)</td>
</tr>
</tbody>
</table>

#### Version

- Standard version (1)
- International version, English label inscriptions, documentation in 5 languages on CD (2)

#### Explosion protection

- Without (A)
- With ATEX, Type of protection:
  - "Intrinsic safety (Ex ia)" (B)
  - "Explosion-proof (Ex d)"(3)
  - "Intrinsic safety and explosion-proof enclosure (Ex ia + Ex d)"(4)
  - "Ex nA/NL (zone 2)" (E)
  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D20)"(4)
- With FM + CSA, Type of protection:
  - "Intrinsic safety and explosion-proof (is + xp)"(3), max PN 360 (NC)

#### Electrical connection / cable entry

- Screwed gland Pg 13.5(5)
- Screwed gland M20x1.5
- Screwed gland ½-14 NPT
- Han 7D plug (plastic housing) incl. mating connector(5)
- M12 connectors (metal)(6)

---

1) Not together with max. span 600 mbar (240.9 inH₂O)
2) Not together with Electrical connection „Screwed gland Pg 13.5“ and „Han7D plug“.
3) Without cable gland, with blanking plug
4) With enclosed cable gland EEx ia and blanking plug
5) Not together with type of protection “Explosion-proof” and and type of protection “Ex nA”.
6) Cannot be used together with the following types of protection: “Explosion-proof” and “Intrinsic safety and explosion-proof”.

---

### Scope of delivery

Pressure transmitter as ordered (Instruction Manual is extra ordering item)

---

1) Not together with max. span 600 mbar (240.9 inH₂O)
2) Not together with Electrical connection „Screwed gland Pg 13.5“ and „Han7D plug“.
3) Without cable gland, with blanking plug
4) With enclosed cable gland EEx ia and blanking plug
5) Not together with type of protection “Explosion-proof” and and type of protection “Ex nA”.
6) Cannot be used together with the following types of protection: “Explosion-proof” and “Intrinsic safety and explosion-proof”.
**Selection and Ordering data**

<table>
<thead>
<tr>
<th>SITRANS P pressure transmitters for differential pressure and flow, Series DS III HART PN 420 (MWP 6092 psi)</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS III PA (PROFIBUS PA) series</td>
<td>7 MF 4 5 3 4 -</td>
</tr>
<tr>
<td>DS III FF series (FOUNDATION Fieldbus)</td>
<td>7 MF 4 5 3 5 -</td>
</tr>
</tbody>
</table>

### Nominal measuring range

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>250 mbar</td>
<td>(100.4 inH&lt;sub&gt;2&lt;/sub&gt;O)</td>
</tr>
<tr>
<td>600 mbar</td>
<td>(240.9 inH&lt;sub&gt;2&lt;/sub&gt;O)</td>
</tr>
<tr>
<td>1600 mbar</td>
<td>(642.4 inH&lt;sub&gt;2&lt;/sub&gt;O)</td>
</tr>
<tr>
<td>5 bar</td>
<td>(2008 inH&lt;sub&gt;2&lt;/sub&gt;O)</td>
</tr>
<tr>
<td>30 bar</td>
<td>(135 psi)</td>
</tr>
</tbody>
</table>

### Wetted parts materials

- Stainless steel: Parts of measuring cell
- Hastelloy: Seal diaphragm
- Gold<sup>1)</sup>: Parts of measuring cell

### Process connection

- Female thread ¼-18 NPT with flange connection
- Sealing screw opposite process connection
- Mounting thread 7/16-20 UNF to EN 61518
- Mounting thread M12 to DIN 19213 (only for replacement needs)
- Venting on side of process flanges. Position of the top vent valve in the process flanges (see dimensional drawing).
- Mounting thread 7/16-20 UNF to EN 61518
- Mounting thread M12 to DIN 19213 (only for replacement needs)

### Non-wetted parts materials

- Process flange screws
- Electronics housing
- Stainless steel: Die-cast aluminium
- Stainless steel precision casting

### Version

- Standard version
- International version, English label inscriptions, documentation in 5 languages on CD

### Explosion protection

- Without
- With ATEX, Type of protection:
  - "Intrinsic safety (EEx ia)"
  - "Explosion-proof (EEx d)"<sup>2)</sup>
  - "Intrinsic safety and explosion-proof enclosure (EEx ia + EEx d)"<sup>3)</sup>
  - "Ex nA/nL (zone 2)"
  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)"<sup>3)</sup> (not for DS III FF)
- With FM + CSA, Type of protection:
  - "Intrinsic safety and explosion-proof (is + xp)"<sup>4)</sup>, max PN 360

### Electrical connection / cable entry

- Screwed gland M20x1.5
- Screwed gland ½-14 NPT
- Plug M12 incl. mating connector<sup>4)</sup>
### Selection and Ordering data

#### Further designs

Add "-Z" to Order No. and specify Order code.

<table>
<thead>
<tr>
<th>Component Description</th>
<th>Order Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure transmitter with mounting bracket made of:</td>
<td>HART PA FF</td>
</tr>
<tr>
<td>• Steel</td>
<td>A01</td>
</tr>
<tr>
<td>• Stainless steel</td>
<td>A02</td>
</tr>
<tr>
<td>O-rings for process flanges (instead of FPM (Viton))</td>
<td>A20</td>
</tr>
<tr>
<td>• PTFE (Teflon)</td>
<td>A21</td>
</tr>
<tr>
<td>• FEP (with silicone core, approved for food)</td>
<td>A22</td>
</tr>
<tr>
<td>• FFPM (Kalrez, compound 4079)</td>
<td>A23</td>
</tr>
<tr>
<td>Plug</td>
<td></td>
</tr>
<tr>
<td>• Han 7D (metal, gray)</td>
<td>A30</td>
</tr>
<tr>
<td>• Han 8U (instead of Han 7D)</td>
<td>A31</td>
</tr>
<tr>
<td>Sealing screws</td>
<td></td>
</tr>
<tr>
<td>¼-18 NPT, with valve in material of process flanges</td>
<td>A40</td>
</tr>
<tr>
<td>Cable sockets for M12 connectors (metal) (instead of German)</td>
<td>A50</td>
</tr>
<tr>
<td>Rating plate inscription</td>
<td></td>
</tr>
<tr>
<td>• English</td>
<td>B11</td>
</tr>
<tr>
<td>• French</td>
<td>B12</td>
</tr>
<tr>
<td>• Spanish</td>
<td>B13</td>
</tr>
<tr>
<td>• Italian</td>
<td>B14</td>
</tr>
<tr>
<td>English rating plate</td>
<td></td>
</tr>
<tr>
<td>Pressure units in inH2O or psi</td>
<td>B21</td>
</tr>
<tr>
<td>Quality inspection certificate (Factory calibration) to IEC 60770-2</td>
<td>C11</td>
</tr>
<tr>
<td>Acceptance test certificate</td>
<td></td>
</tr>
<tr>
<td>To EN 10204-3.1</td>
<td>C12</td>
</tr>
<tr>
<td>Factory certificate</td>
<td></td>
</tr>
<tr>
<td>To EN 10204-2.2</td>
<td>C14</td>
</tr>
<tr>
<td>&quot;Functional Safety (SIL)&quot; certificate</td>
<td></td>
</tr>
<tr>
<td>&quot;PROFIsafe&quot; certificate and protocol</td>
<td></td>
</tr>
<tr>
<td>Setting of upper limit of output signal to 22.0 mA</td>
<td>D05</td>
</tr>
<tr>
<td>Manufacturer’s declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)</td>
<td>D07</td>
</tr>
<tr>
<td>Type of protection IP68 (not together with Han 7D / Han 8U plug, Pg 13.5 screwed gland)</td>
<td>D12</td>
</tr>
<tr>
<td>Digital indicator alongside the input keys (only together with the devices 7MF4533-. . .-2-.A:6 or -A:7-Z, Y21 or Y22 + Y01)</td>
<td>D27</td>
</tr>
<tr>
<td>Use in on zone 1D/2D (only together with type of protection &quot;Intrinsic safety (Ex ia)&quot;)</td>
<td>E01</td>
</tr>
<tr>
<td>Use on zone 0 (only together with type of protection &quot;Intrinsic safety (Ex ia)&quot;)</td>
<td>E02</td>
</tr>
<tr>
<td>Explosion-proof &quot;Intrinsic safety&quot; to INMETRO (Brazil) (only for transmitter 7MF4-. . .-B..)</td>
<td>E25</td>
</tr>
<tr>
<td>Explosion-proof &quot;Intrinsic safety&quot; to NEPSI (China) (only for transmitter 7MF4-. . .-B..)</td>
<td>E55</td>
</tr>
</tbody>
</table>

#### Additional data

Add "-Z" to Order No. and specify Order code.

| Measuring range to be set                                      |             |
| Specified in plain text:                                       |             |
| • With linear characteristic (max. 5 digits):                 |             |
|   Y01: ... up to ... mbar, bar, kPa, MPa, psi                 |             |
| • With square-rooted characteristic (max. 5 digits):          |             |
|   Y02: ... up to ... mbar, bar, kPa, MPa, psi                 |             |
| Measuring point number (TAG No.)                              |             |
| Max. 16 characters, specify in plain text:                    |             |
| Measuring point text                                          |             |
| Max. 27 characters, specify in plain text:                    |             |
| Entry of HART address (TAG)                                   |             |
| Max. 8 characters, specify in plain text:                     |             |
| Setting of pressure indication in pressure units              |             |
| Specify in plain text (standard setting: mA):                 |             |
| Y21: mbar, bar, kPa, MPa, psi, ...                            |             |
| Setting of pressure indication in non-pressure units           |             |
| Specify in plain text:                                        |             |
| Y22: ..... up to ..... l/min, m3/h, m, USgpm, ...              |             |
| Note: The following pressure units can be selected:           |             |
| bar, mbar, mm H2O, inH2O, atm, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % |             |
| *) rel. temperature 20 °C                                     |             |

### Additional notes

Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset

- = available
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

**DS III series**
for differential pressure and flow

### Dimensional drawings

![Dimensional drawing of SITRANS P transmitters](image)

1. Process connection: ¼-18 NPT (EN 61518)
2. Blanking plug
3. Electrical connection:
   - screwed gland Pg 13.5 (adapter)
   - screwed gland M20x1.5
   - screwed gland ½-14 NPT or
   - Han 7D/ Han 8U plug
4. Terminal side
5. Electronics side, digital display (longer overall length for cover with window)
6. Protective cover over keys
7. Mounting bracket (option)
8. Sealing screw with valve (option)
9. Screw cover - safety bracket (only for type of protection)
   -“Explosion-proof enclosure”, not shown in the drawing
10. Lateral venting for liquid measurement (Standard)
11. Lateral venting for gas measurement (suffix H02)

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "explosion-proof enclosure"
3) Not with type of protection "FM + CSA [is + xp]"
4) 92 mm (3.62 inch) for minimum distance to permit rotation with indicator
5) 45 mm (1.8 inch) for Pg 13.5 with adapter

SITRANS P pressure transmitters, DS III HART series for differential pressure and flow, dimensions in mm (inch)
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series
for differential pressure and flow

SITRANS P pressure transmitters, DS III PA and FF series for differential pressure and flow, dimensions in mm (inch)
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

SITRANS P pressure transmitters, DS III HART series for differential pressure and flow, with process covers for vertical differential pressure lines, option „H3G“, dimensions in mm (inch)

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "explosion-proof enclosure"
3) Not with type of protection “FM + CSA [5 + eq]”
4) 92 mm (3.6 inch) for minimum distance to permit rotation with indicator
5) 74 mm (2.9 inch) for PN ≥ 420 (MWP ≥ 6092 psi)
6) 91 mm (3.6 inch) for PN ≥ 420 (MWP ≥ 6092 psi)
7) 219 mm (8.62 inch) for PN ≥ 420 (MWP ≥ 6092 psi)
8) 45 mm (1.8 inch) for Pg 13,5 with adapter
SITRANS P pressure transmitters, DS III PA and FF series for differential pressure and flow, with process covers for vertical differential pressure lines, dimensions in mm (inch)

SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series
for differential pressure and flow

1 Process connection ¼-18 NPT (EN 61 518)
2 Blanking plug
3 Electrical connection:
   screwed gland M20x1.5,
   screwed gland ½-14 NPT or
   PROFIBUS plug M12
4 Terminal side
5 Electronics side, digital display (longer overall length for cover with window)
6 Protective cover over keys
7 Mounting bracket (option)
8 Sealing screw with valve (option)
9 Screw cover safety bracket (only for explosion-proof enclosure, not shown in the drawing)

1) Allow approx. 20 mm (0.79 inch) thread length in addition
2) 92 mm (3.6 inch) for minimum distance to permit rotation without indicator
3) 74 mm (2.9 inch) for PN ≥ 420 (MWP ≥ 6082 psi)
4) 91 mm (3.6 inch) for PN ≥ 420 (MWP ≥ 6082 psi)
5) 219 mm (8.62 inch) for PN ≥ 420 (MWP ≥ 6082 psi)
6) Approx. 45 mm (1.77 inch) for Pg 13.5 with adapter
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series
for differential pressure and flow

SITRANS P pressure transmitters, DS III FF series for differential pressure and flow, with digital indicator beside control keys, for vertical differential pressure lines, dimensions in mm (inch)

1 Process connection, \( \frac{1}{4} \)-18 NPT (EN 61 518)
2 Terminal side, analog indicator (optional)
3 External digital indicator (optional)
4 Sealing plug
5 Fixing screw
6 Blanking plug
7 Protective cover for keys
8 Electrical connection

SITRANS P pressure transmitters, DS III series for differential pressure and flow, with digital indicator beside control keys
### Technical specifications

#### SITRANS P, DS III series for level

<table>
<thead>
<tr>
<th>Input</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured variable</td>
<td>Level</td>
<td></td>
</tr>
<tr>
<td>Spans (infinitely adjustable) or nominal measuring range and max. permissible working pressure</td>
<td>Minimum working pressure</td>
<td>Maximum working pressure</td>
</tr>
<tr>
<td>25 ... 250 mbar g (0.36 ... 3.63 psi g)</td>
<td>250 mbar g (3.63 psi g)</td>
<td>See &quot;Mounting flange&quot;</td>
</tr>
<tr>
<td>25 ... 600 mbar g (0.36 ... 8.7 psi g)</td>
<td>600 mbar g (8.7 psi g)</td>
<td>See &quot;Mounting flange&quot;</td>
</tr>
<tr>
<td>53 ... 1600 mbar g (0.77 ... 23.2 psi g)</td>
<td>1600 mbar g (23.2 psi g)</td>
<td>See &quot;Mounting flange&quot;</td>
</tr>
<tr>
<td>160 ... 5000 mbar g (2.32 ... 72.5 psi g)</td>
<td>5000 mbar g (72.5 psi g)</td>
<td>See &quot;Mounting flange&quot;</td>
</tr>
</tbody>
</table>

#### Output

<table>
<thead>
<tr>
<th>Output signal</th>
<th>4 ... 20 mA</th>
<th>Digital PROFIBUS PA or FOUNDATION Fieldbus signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower limit (infinitely adjustable)</td>
<td>3.55 mA, factory preset to 3.84 mA</td>
<td>-</td>
</tr>
<tr>
<td>Upper limit (infinitely adjustable)</td>
<td>23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Load

- Without HART communication: $R_L \leq \left(\frac{U_H - 10.5 V}{0.023 A}\right)$ in $\Omega$
- With HART communication: $R_L = 230 \ldots 500 \Omega$ (SIMATIC PDM) or $R_L = 230 \ldots 1100 \Omega$ (HART Communicator)

#### Physical bus

- IEC 61158-2

#### With polarity reversal protection

- Yes

#### Accuracy

- Reference conditions: To EN 60770-1
- Increasing characteristic, start-of-scale value 0 bar, stainless steel seal diaphragm, silicone oil filling, room temperature 25 °C (77 °F)
- Span ratio ($r = \text{max. span} / \text{set span}$)
- $\leq 0.075\% \cdot r$ for $10 \leq r \leq 30$
- $\leq 0.15\% \cdot r$ for $30 < r \leq 100$
- Long-term drift (temperature change ±30 °C ($\pm 54^\circ F$))
- $\leq 0.25\%$ every 5 years
- $\leq 0.4\% / 10 K$ double values with $10 < r \leq 30$
- $\leq 0.27\% / 10 K$ double values with $10 < r \leq 30$

#### Influence of ambient temperature

- at -10 ... +60 °C (14 ... 140 °F)
  - 250-mbar (3.63 psi) measuring cell: $\leq 0.5\% \cdot r + 0.2\%$ (0.4 instead of 0.2 with $10 < r \leq 30$)
  - 600-mbar (8.7 psi) measuring cell: $\leq 0.3\% \cdot r + 0.2\%$ (0.4 instead of 0.2 with $10 < r \leq 30$)
  - 1600 and 5000 mbar (23.2 and 72.5 psi) measuring cells: $\leq 0.25\% \cdot r + 0.2\%$ (0.4 instead of 0.2 with $10 < r \leq 30$
- at -40 ... -10 °C and +60 ... +85 °C ($-40 \ldots +14^\circ F$ and +140 ... 185 °F)
  - 250-mbar (3.63 psi) measuring cell: $\leq 0.25\% \cdot r + 0.15\% / 10 K$ double values with $10 < r \leq 30$
  - 600-mbar (8.7 psi) measuring cell: $\leq 0.15\% \cdot r + 0.15\% / 10 K$ double values with $10 < r \leq 30$
  - 1600 and 5000 mbar (23.2 and 72.5 psi) measuring cells: $\leq 0.12\% \cdot r + 0.15\% / 10 K$ double values with $10 < r \leq 30$
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

DS III series for level

### Influence of static pressure

- **on the zero point**
  - 250 mbar (3.63 psi) measuring cell: \( \leq (0.3 \cdot r) \% \) per nominal pressure
  - 600 mbar (8.7 psi) measuring cell: \( \leq (0.15 \cdot r) \% \) per nominal pressure
  - 1600 and 5000 mbar (23.2 and 72.5 psi) measuring cells: \( \leq (0.1 \cdot r) \% \) per nominal pressure

- **on the span**
  - 250 mbar (3.63 psi) measuring cell: \( \leq (0.1 \cdot r) \% \) per nominal pressure

- Measured Value Resolution: \( 3 \cdot 10^{-5} \) of nominal measuring range

### Rated operating conditions

**Degree of protection (to EN 60529)**: IP65

**Process temperature**
- Measuring cell with silicone oil filling:
  - High-pressure side: -40 ... +175 °C (-40 ... +347 °F)
  - Low-pressure side: -20 ... +60 °C (-4 ... +140 °F) in conjunction with dust explosion protection

**Ambient temperature**
- Digital indicators: -30 ... +85 °C (-22 ... +185 °F)
- Storage temperature: -50 ... +85 °C (-58 ... +185 °F)

**Climatic class**
- Condensation: Permissible

**Electromagnetic compatibility**
- Emitted interference and interference immunity: To EN 61326 and NAMUR NE 21

**Design**

**Weight (without options)**
- To EN (pressure transmitter with mounting flange, without tube): 11 ... 13 kg (≈ 24.2 ... 28.7 lb)
- To ASME (pressure transmitter with mounting flange, without tube): 11 ... 18 kg (≈ 24.2 ... 39.7 lb)

**Wetted parts materials**
- Poor in copper die-cast aluminium, GD-AlSi12 or stainless steel precision casting, mat. No. 1.4408

**Housing material**
- Measuring cell filling: Silicone oil

**Process connection**
- High-pressure side: Flange to EN and ASME
- Low-pressure side: Female thread ¼-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16-20 UNF to EN 61518

### Power supply \( U_I \)

**Terminal voltage on transmitter**
- 10.5 ... 45 V DC
- 10.5 ... 30 V DC in intrinsically-safe mode

**Bus voltage**
- Not Ex: 9 ... 32 V
- With intrinsically-safe operation: 9 ... 24 V

**Current consumption**
- Basic current (max.): 12.5 mA
- Startup current ≤ basic current: Yes
- Max. current in event of fault: 15.5 mA
- Fault disconnection electronics (FDE) available: Yes

*Note: Always take into account assignment of max. permissible working temperature to max. permissible working pressure of the respective flange connection!*
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

## Certificate and approvals

<table>
<thead>
<tr>
<th>Description</th>
<th>HART</th>
<th>PROFIBUS PA or FOUNDATION Fieldbus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification according to pressure equipment directive (DRGL 97/23/EC)</td>
<td>For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)</td>
<td></td>
</tr>
<tr>
<td>Explosion protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Intrinsic safety &quot;i&quot;</td>
<td>PTB 99 ATEX 2122</td>
<td>FISCO supply unit:</td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 1/2 G Ex ia/b IIB/IIIC T6</td>
<td>$U_i = 17.5 \text{ V, } I_i = 380 \text{ mA, } P_o = 5.32 \text{ W}$</td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F) temperature class T4;</td>
<td>Linear barrier:</td>
</tr>
<tr>
<td></td>
<td>-40 ... +70 °C (-40 ... +158 °F) temperature class T5;</td>
<td>$U_b = 24 \text{ V, } I_b = 250 \text{ mA, } P_o = 1.2 \text{ W}$</td>
</tr>
<tr>
<td></td>
<td>-40 ... +60 °C (-40 ... +140 °F) temperature class T6</td>
<td></td>
</tr>
<tr>
<td>- Connection</td>
<td>To certify intrinsically-safe circuits with maximum values:</td>
<td>To circuits with values: $U_i = 9 \ldots 32 \text{ V DC}$</td>
</tr>
<tr>
<td></td>
<td>$U_i = 30 \text{ V, } I_i = 100 \text{ mA, } R_i = 750 \text{ mW; } R_i = 300 \Omega$</td>
<td></td>
</tr>
<tr>
<td>- Effective internal inductance/capacitance</td>
<td>$L_i = 0.4 \text{ mH, } C_i = 6 \text{ nF}$</td>
<td>$L_i = 7 \mu \text{H, } C_i = 1.1 \text{ nF}$</td>
</tr>
<tr>
<td>• Explosion-proof &quot;d&quot;</td>
<td>PTB 99 ATEX 1160</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 1/2 G Ex d IIC T4/T6</td>
<td></td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F) temperature class T4;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-40 ... +60 °C (-40 ... +140 °F) temperature class T6</td>
<td></td>
</tr>
<tr>
<td>- Connection</td>
<td>To circuits with values: $U_i = 10.5 \ldots 45 \text{ V DC}$</td>
<td>To circuits with values: $U_i = 9 \ldots 32 \text{ V DC}$</td>
</tr>
<tr>
<td>• Dust explosion protection for zone 20</td>
<td>PTB 01 ATEX 2055</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 1 D IP65 T 120 °C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ex II 1/2 D IP65 T 120 °C</td>
<td></td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F)</td>
<td></td>
</tr>
<tr>
<td>- Max. surface temperature</td>
<td>120 °C (248 °F)</td>
<td></td>
</tr>
<tr>
<td>- Connection</td>
<td>To certify intrinsically-safe circuits with maximum values:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$U_i = 30 \text{ V, } I_i = 100 \text{ mA, } R_i = 750 \text{ mW; } R_i = 300 \Omega$</td>
<td></td>
</tr>
<tr>
<td>- Effective internal inductance/capacitance</td>
<td>$L_i = 0.4 \text{ mH, } C_i = 6 \text{ nF}$</td>
<td></td>
</tr>
<tr>
<td>• Dust explosion protection for zone 21/22</td>
<td>PTB 01 ATEX 2055</td>
<td></td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 2 D IP65 T 120 °C</td>
<td></td>
</tr>
<tr>
<td>- Connection</td>
<td>To circuits with values: $U_i = 10.5 \ldots 45 \text{ V DC; } P_{\text{max}} = 1.2 \text{ W}$</td>
<td>To circuits with values: $U_i = 9 \ldots 32 \text{ V DC; } P_{\text{max}} = 1.2 \text{ W}$</td>
</tr>
<tr>
<td>• Type of protection &quot;n&quot; (zone 2)</td>
<td>TÜV 01 ATEX 1696 X</td>
<td>Planned</td>
</tr>
<tr>
<td>- Identification</td>
<td>Ex II 3 G Ex e IIC T4/T5/T6</td>
<td></td>
</tr>
<tr>
<td>• Explosion protection to FM</td>
<td>Certificate of Compliance 3008490</td>
<td></td>
</tr>
<tr>
<td>- Identification (XP/DIP) or (IS); (NI)</td>
<td>CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III</td>
<td></td>
</tr>
<tr>
<td>• Explosion protection to CSA</td>
<td>Certificate of Compliance 1153651</td>
<td></td>
</tr>
<tr>
<td>- Identification (XP/DIP) or (IS)</td>
<td>CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III</td>
<td></td>
</tr>
</tbody>
</table>
### HART communication

<table>
<thead>
<tr>
<th>Function</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HART communication</td>
<td>230 ... 1100 Ω</td>
</tr>
<tr>
<td>Protocol</td>
<td>HART Version 5.x</td>
</tr>
<tr>
<td>Software for computer</td>
<td>SIMATIC PDM</td>
</tr>
</tbody>
</table>

#### PROFIBUS PA communication

- **Simultaneous communication with master class 2 (max.)**: 4
- **The address can be set using**: Configuration tool or local operation (standard setting address 126)
- **Cyclic data usage**:
  - **Output byte**: 5 (one measuring value) or 10 (two measuring values)
  - **Input byte**: 0, 1, or 2 (register operating mode and reset function for metering)
- **Internal preprocessing**:
  - **Device profile**: PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
- **Function blocks**: 2
  - **Analog input**:
    - Adaptation to customer-specific process variables: Yes, linearly rising or falling characteristic
    - Electrical damping $T_{63}$: adjustable 0 ... 100 s
    - Simulation function: Input /Output
    - Failure mode: Can be parameterized (last good value, substitute value, incorrect value)
    - Limit monitoring: Yes, one upper and lower warning limit and one alarm limit respectively
  - **Register (totalizer)**:
    - Can be reset, preset, optional direction of counting, simulation function of register output
    - Failure mode: Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)
    - Limit monitoring: One upper and lower warning limit and one alarm limit respectively
  - **Physical block**:
    - 1
  - **Transducer blocks**:
    - 2
  - **Pressure transducer block**:
    - Can be calibrated by applying two pressures: Yes
    - Monitoring of sensor limits: Yes
    - Specification of a container characteristic with: Max. 30 nodes
    - Square-rooted characteristic for flow measurement: Yes
    - Gradual volume suppression and implementation point of square-root extraction: Parameterizable
    - Simulation function for measured pressure value and sensor temperature: Constant value or over parameterizable ramp function

### Communication FOUNDATION Fieldbus

- **Function blocks**: 3 function blocks analog input, 1 function block PID
  - **Analog input**:
    - Adaptation to customer-specific process variables: Yes, linearly rising or falling characteristic
    - Electrical damping $T_{63}$: adjustable 0 ... 100 s
    - Simulation function: Output/input (can be locked within the device with a bridge)
    - Failure mode: Can be parameterized (last good value, substitute value, incorrect value)
    - Limit monitoring: Yes, one upper and lower warning limit and one alarm limit respectively
    - Square-rooted characteristic for flow measurement: Yes
  - **PID**:
    - Standard FF function block
  - **Physical block**:
    - Standard FF function block
  - **Transducer blocks**:
    - 1 transducer block Pressure with calibration, 1 transducer block LCD
  - **Pressure transducer block**:
    - Can be calibrated by applying two pressures: Yes
    - Monitoring of sensor limits: Yes
    - Simulation function: Measured pressure value, sensor temperature and electronics temperature
    - Square-rooted characteristic for flow measurement: Yes

### Mounting flange

- **Nom. diam.**: Nom. press.
  - **To EN 1092-1**
    - DN 80: PN 40
    - DN 100: PN16, PN40
  - **To ASME B16.5**
    - 3 inch: Class 150, class 300
    - 4 inch: Class 150, class 300
### Selection and Ordering data

<table>
<thead>
<tr>
<th>Measuring cell filling</th>
<th>Measuring cell cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>Standard</td>
</tr>
</tbody>
</table>

### Span

<table>
<thead>
<tr>
<th>Pressure (mbar)</th>
<th>Span (mbar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 ... 250</td>
<td>0.363 ... 3.63</td>
</tr>
<tr>
<td>25 ... 600</td>
<td>0.363 ... 8.70</td>
</tr>
<tr>
<td>53 ... 1600</td>
<td>0.77 ... 23.2</td>
</tr>
<tr>
<td>0.16 ... 5</td>
<td>2.32 ... 72.5</td>
</tr>
</tbody>
</table>

### Process connection of low-pressure side

<table>
<thead>
<tr>
<th>Female thread</th>
<th>Mounting thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>¾-18 NPT</td>
<td>7/16-20 UNF to EN 61518</td>
</tr>
<tr>
<td></td>
<td>M10 to DIN 19213 (only for replacement needs)</td>
</tr>
</tbody>
</table>

### Non-wetted parts materials

<table>
<thead>
<tr>
<th>Process flange screws</th>
<th>Electronics housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Die-cast aluminium</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>Stainless steel precision casting</td>
</tr>
</tbody>
</table>

### Version

- Standard version
- International version, English label inscriptions, documentation in 5 languages on CD

### Explosion protection

- Without
- With ATEX, Type of protection:
  - "Intrinsic safety (EEX ia)"
  - "Explosion-proof (EEX d)"
  - "Intrinsic safety and explosion-proof enclosure (EEX ia + EEX d)"
  - "Ex nA/nL (zone 2)"
  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEX ia + EEX d + Zone 1/2D)"
- With FM + CSA, Type of protection:
  - "Intrinsic safety and explosion-proof (is + xp)"

### Electrical connection / cable entry

- Screwed gland Pg 13.5
- Screwed gland M20x1.5
- Screwed gland ¾-14 NPT
- Han 7D plug (plastic housing) incl. mating connector
- M12 connectors (metal)

### Display

- without (digital indicator hidden, setting: mA)
- With visible digital indication
- With customer-specific digital indication (setting as specified, Order code "Y21" or required)

### Ordering information:

1st order item: Pressure transmitter 7MF4633...
2nd order item: Mounting flange 7MF4912-3...

Ordering example:

- Item line 1: 7MF4633-1EY20-1AA1-Z
- B line: Y01
- C line: Y01: 80 to 143 mbar (1.16 to 2.1 psi)

### Power supply units

See "SITRANS I power supply units and isolation amplifiers".

Included in delivery of the device:
- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flange(s)
SITRANS P measuring instruments for pressure
Transmitters for gage, absolute and differential pressure, flow and level

### Selection and Ordering data

#### Order No.

<table>
<thead>
<tr>
<th>SITRANS P pressure transmitter for level</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS III PA series (PROFIBUS PA)</td>
<td>7MF 46 34 -</td>
</tr>
<tr>
<td>DS III FF series (FOUNDATION Fieldbus)</td>
<td>7MF 46 35 -</td>
</tr>
</tbody>
</table>

#### Nominal measuring range

- 250 mbar (3.63 psi)
- 600 mbar (8.70 psi)
- 1600 mbar (23.2 psi)
- 5 bar (72.5 psi)

#### Process connection of low-pressure side

- Female thread ¼-18 NPT with flange connection
- Mounting thread M10 to DIN 19213 (only for replacement needs)
- Mounting thread 1/2-20 UNF to EN 61518

#### Non-wetted parts materials

- Process flange screws: Stainless steel or Die-cast aluminium
- Electronics housing: Stainless steel precision casting

#### Explosion protection

- Without
- With ATEX, Type of protection:
  - “Intrinsic safety (EEx ia)”
  - “Explosion-proof (EEx d)”
  - “Intrinsic safety and explosion-proof enclosure (EEx ia + EEx d)”
  - “Ex na/nL (zone2)”
  - “Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D(2D))”
  - With FM + CSA, Type of protection:
    - “Intrinsic safety and explosion-proof (is + xp)”

#### Electrical connection / cable entry

- Screwed gland M20x1.5
- Screwed gland ⅜-14 NPT
- Plug M12 incl. mating connector

#### Display

- Without (digital display hidden)
- With visible digital indication
- With customer-specific digital indication (setting as specified, Order code “Y21” or required)

#### Further designs

- Add “Z” to Order No. and specify Order code.

### O-rings for process flanges on low-pressure side

- (instead of FPM (Viton))
  - PTFE (Teflon)
  - FEP (with silicone core, approved for food)
  - FFPM (Kalrez, compound 4079)
  - NBR (Buna N)

### Plug

- Han 7D (metal, gray)
- Han 8U (instead of Han 7D)

### Sealing screws

- ¼-18 NPT, with valve in material of process flanges

### Cable sockets for M12 connectors (metal)

- English rating plate
- “Functional Safety (SIL)” certificate
- “PROFIsafe” certificate and protocol

### Rating plate inscription

- International version, English label inscriptions, documentation in 5 languages on CD

### Version

- Standard version
- International version

### Quality inspection certificate (Factory calibration) to IEC 60770-2

- Acceptance test certificate
- To EN 10204-3.1
- To EN 10204-2.2

### Factory certificate

- “SITRANS P” pressure transmitter
- “SITRANS P” measuring instruments for pressure

### Display

- Without (digital display hidden)
- With visible digital indication
- With customer-specific digital indication (setting as specified, Order code “Y21” or required)

### Ordering example:

1st order item: Pressure transmitter 7MF4634-...
2nd order item: Mounting flange 7MF4912-...

### Ordering information

- With customer-specific digital indication (setting as specified, Order code “Y21” or required)
- Display
- Without (digital display hidden)
- With visible digital indication
- With customer-specific digital indication (setting as specified, Order code “Y21” or required)

### O-ring material

- NBR (Buna N)
- PTFE (Teflon)
- FPM (Viton)
- FEP (with silicone core, approved for food)

### Further designs

- Add “Z” to Order No. and specify Order code.

### O-rings for process flanges on low-pressure side

- (instead of FPM (Viton))
  - PTFE (Teflon)
  - FEP (with silicone core, approved for food)
  - FFPM (Kalrez, compound 4079)
  - NBR (Buna N)

### Plug

- Han 7D (metal, gray)
- Han 8U (instead of Han 7D)

### Sealing screws

- ¼-18 NPT, with valve in material of process flanges

### Cable sockets for M12 connectors (metal)

- English rating plate
- “Functional Safety (SIL)” certificate
- “PROFIsafe” certificate and protocol

### Rating plate inscription

- International version, English label inscriptions, documentation in 5 languages on CD

### Version

- Standard version
- International version

### Quality inspection certificate (Factory calibration) to IEC 60770-2

- Acceptance test certificate
- To EN 10204-3.1
- To EN 10204-2.2

### Factory certificate

- “SITRANS P” pressure transmitter
- “SITRANS P” measuring instruments for pressure

### Display

- Without (digital display hidden)
- With visible digital indication
- With customer-specific digital indication (setting as specified, Order code “Y21” or required)

### Ordering example:

1st order item: Pressure transmitter 7MF4634-...
2nd order item: Mounting flange 7MF4912-...

### Ordering information

- With customer-specific digital indication (setting as specified, Order code “Y21” or required)
- Display
- Without (digital display hidden)
- With visible digital indication
- With customer-specific digital indication (setting as specified, Order code “Y21” or required)
DS III series
for level

### Additional data

Add "+Z" to Order No. and specify Order code.

<table>
<thead>
<tr>
<th>Measuring range to be set</th>
<th>Y01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify in plain text (max. 5 digits): Y01: ... up to ... mbar, bar, kPa, MPa, psi</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measuring point number (TAG No.)</th>
<th>Y15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. 16 characters, specify in plain text: Y15: ..........................</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measuring point text</th>
<th>Y16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. 27 characters, specify in plain text: Y16: ..........................</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Entry of HART address (TAG)</th>
<th>Y17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. 8 characters, specify in plain text: Y17: ..........................</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting of pressure indicator in pressure units</th>
<th>Y21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi, ... Note: The following pressure units can be selected: bar, mbar, mm Hg, in Hg, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or %) ref. temperature 20 °C</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting of pressure indicator in non-pressure units</th>
<th>Y22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify in plain text: Y22: ... up to ... l/min, m³/h, m, USgpm, ... (specification of measuring range in pressure units &quot;Y01&quot; is essential, unit with max. 5 characters)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Preset bus address</th>
<th>Y25</th>
</tr>
</thead>
<tbody>
<tr>
<td>(possible between 1 and 126) Specify in plain text: Y25: ..........................</td>
<td></td>
</tr>
</tbody>
</table>

Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset

= available

1) Not together with over-filling safety device for flammable and non-flammable liquids (Order code "E08")

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
</table>

### Connection acc. to EN 1092-1

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 80</td>
<td>PN 40</td>
</tr>
<tr>
<td>DN 100</td>
<td>PN 16</td>
</tr>
</tbody>
</table>

### Connection acc. to ASME B16.5

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 inch</td>
<td>Class 150</td>
</tr>
<tr>
<td>4 inch</td>
<td>Class 300</td>
</tr>
</tbody>
</table>

### Wetted parts materials

- Stainless steel 316L
  - Coated with PFA
  - Coated with ECTFE\(^1\)
- Monel 400, mat. No. 2.4360
- Hastelloy B2, mat. No. 2.4617
- Hastelloy C276, mat. No. 2.4819
- Hastelloy C4, mat. No. 2.4610
- Tantalum

Other version, add
Order code and plain text:
material of parts in contact with the medium: ...
Sealing face, see "Technical specifications"

### Tube length

<table>
<thead>
<tr>
<th>Tube length</th>
<th>L1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without</td>
<td>0</td>
</tr>
<tr>
<td>50 mm</td>
<td>1</td>
</tr>
<tr>
<td>100 mm</td>
<td>2</td>
</tr>
<tr>
<td>150 mm</td>
<td>3</td>
</tr>
<tr>
<td>200 mm</td>
<td>4</td>
</tr>
</tbody>
</table>

Other version: add
Order code and plain text:
tube length: ...

### Filling liquid

- Silicone oil M5
- Silicone oil M50
- High-temperature oil
- Halocarbon oil (for O₂ measurements)
- Glycerin / water\(^2\)
- Food oil (FDA-listed)

Other version, add
Order code and plain text:
filling liquid: ...

\(^1\) For vacuum on request

\(^2\) Not suitable for use in low-pressure range
## Selection and Ordering data

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
<th>HART</th>
<th>PA and FF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flame flashover lock-out</td>
<td>A01</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>For mounting on zone 0 (including documentation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality inspection certificate (Factory calibration) to IEC 60770-2</td>
<td>C11</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Acceptance test certificate</td>
<td>C12</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>To EN 10204-3.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vacuum-proof design</td>
<td>V04</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>(for use in low-pressure range)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculation of span of associated pressure transmitter</td>
<td>Y05</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>(enclose filled-in questionnaire with order)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: suffix &quot;Y01&quot; required with pressure transmitter!</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

✓ = available
### Dimensional drawings

**SITRANS P measuring instruments for pressure**

**Transmitters for gage, absolute and differential pressure, flow and level**

**DS III series**

**for level**

---

1. Process connection of low pressure side ¼-18 NPT (EN 61 518)
2. Blanking plug
3. Electrical connection:
   - screwed gland Pg 13.5 (adapter) (2) (3)
   - screwed gland M20x1.5, screwed gland ½-14 NPT or
   - Han 7D/8(8) Han 8U plug (2) (3)
4. Terminal side
5. Electronics side, digital display (longer overall length for cover with window)
6. Protective cover over keys
7. Sealing screw with valve (option)
8. Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)

---

**Connection to EN 1092-1**

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d</th>
<th>d₂</th>
<th>d₃</th>
<th>d₄</th>
<th>d₅</th>
<th>dₓ</th>
<th>f</th>
<th>k</th>
<th>n</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>DN 80</td>
<td>PN 40</td>
<td>24</td>
<td>200</td>
<td>90</td>
<td>18</td>
<td>138</td>
<td>76</td>
<td>72</td>
<td>2</td>
<td>160</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 100</td>
<td>PN 40</td>
<td>20</td>
<td>220</td>
<td>115</td>
<td>18</td>
<td>158</td>
<td>94</td>
<td>89</td>
<td>2</td>
<td>180</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PN 40</td>
<td>24</td>
<td>235</td>
<td>115</td>
<td>22</td>
<td>162</td>
<td>94</td>
<td>89</td>
<td>2</td>
<td>190</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Connection to ASME B16.5**

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d₂</th>
<th>d₃</th>
<th>d₄</th>
<th>d₅</th>
<th>f</th>
<th>k</th>
<th>n</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td></td>
</tr>
<tr>
<td>3 inch</td>
<td>150</td>
<td>0.94</td>
<td>(23.8)</td>
<td>7.5</td>
<td>(190.5)</td>
<td>0.75</td>
<td>(19.0)</td>
<td>5</td>
<td>(127)</td>
<td>3</td>
<td>(76)</td>
</tr>
<tr>
<td>300</td>
<td>1.12</td>
<td>(28.6)</td>
<td>8.25</td>
<td>(209.5)</td>
<td>0.87</td>
<td>(22.2)</td>
<td>5</td>
<td>(127)</td>
<td>3</td>
<td>(76)</td>
<td>2.81</td>
</tr>
<tr>
<td>4 inch</td>
<td>150</td>
<td>0.94</td>
<td>(23.8)</td>
<td>9</td>
<td>(228.5)</td>
<td>0.75</td>
<td>(19.0)</td>
<td>6.19</td>
<td>(157.2)</td>
<td>3.69</td>
<td>(94)</td>
</tr>
<tr>
<td>300</td>
<td>1.25</td>
<td>(31.7)</td>
<td>10</td>
<td>(254)</td>
<td>0.87</td>
<td>(22.2)</td>
<td>6.19</td>
<td>(157.2)</td>
<td>3.69</td>
<td>(94)</td>
<td>3.5</td>
</tr>
</tbody>
</table>

---

**d**: Internal diameter of gasket to DIN 2690

**dₓ**: Effective diaphragm diameter

---

1) 89 mm = 3½ inch with tube length L = 0.

---

**Note:**

- (2) mm / inch
- (3) mm / inch / inch
- (4) mm / inch / 10 mm / inch
- (5) mm / inch / 10 mm / inch
- (6) mm / inch / 10 mm / inch
- (7) mm / inch / 10 mm / inch
- (8) mm / inch / 10 mm / inch
- (9) mm / inch / 10 mm / inch
### Transmitters for gage, absolute and differential pressure, flow and level

**SITRANS P** measuring instruments for pressure

**Transmitters for level, including mounting flange, dimensions in mm (inch)**

1. Process connection of low pressure side ¼-18 NPT (EN 61518)
2. Blanking plug
3. Electrical connection:
   - screwed connection M20x1.5
   - screwed connection ¾-14 NPT or
   - PROFINET plug M12
4. Terminal side
5. Electronics side, digital display (longer overall length for cover with window)
6. Protective cover over keys
7. Sealing screw with valve (option)
8. Screw cover safety bracket (only for "explosion-proof enclosure", not shown in the drawing)

1) Allow approx. 20 mm (0.79 inch) thread length in addition
2) Not with type of protection "Explosion-proof enclosure"
3) Not with type of protection "FM + CSA [s + sp]"
4) 92 mm (3.62 inch) for minimum distance to permit rotation with indicator

**Connection to EN 1092-1**

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d</th>
<th>d₂</th>
<th>d₃</th>
<th>d₅</th>
<th>d₆</th>
<th>f</th>
<th>k</th>
<th>n</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
</tr>
<tr>
<td>DN 80</td>
<td>PN 40</td>
<td>25</td>
<td>200</td>
<td>90</td>
<td>18</td>
<td>138</td>
<td>76</td>
<td>72</td>
<td>2</td>
<td>160</td>
<td>8</td>
<td>0, 50, 100, 150 or 200</td>
</tr>
<tr>
<td>DN 100</td>
<td>PN 40</td>
<td>20</td>
<td>220</td>
<td>115</td>
<td>18</td>
<td>158</td>
<td>94</td>
<td>89</td>
<td>2</td>
<td>180</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>PN 40</td>
<td></td>
<td>25</td>
<td>235</td>
<td>115</td>
<td>22</td>
<td>162</td>
<td>94</td>
<td>89</td>
<td>2</td>
<td>190</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

**Connection to ASME B16.5**

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d₂</th>
<th>d₃</th>
<th>d₅</th>
<th>d₆</th>
<th>d₆</th>
<th>f</th>
<th>k</th>
<th>n</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lb/sq.in.</td>
<td>inch</td>
<td>inch</td>
<td>inch</td>
<td>inch</td>
<td>inch</td>
<td>inch</td>
<td>inch</td>
<td>inch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td>mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 inch</td>
<td>150</td>
<td>0.94</td>
<td>7.5</td>
<td>0.75</td>
<td>5</td>
<td>3</td>
<td>2.81</td>
<td>0.06</td>
<td>6</td>
<td>4</td>
<td>0, 2, 3.94, 5.94 or 7.87</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(23.8)</td>
<td>(190.5)</td>
<td>(19.0)</td>
<td>(127)</td>
<td>(76)</td>
<td>(72)</td>
<td>(152.4)</td>
<td>(16.5)</td>
<td>(157.2)</td>
<td>(94)</td>
<td>(168.3)</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>1.12</td>
<td>8.25</td>
<td>0.87</td>
<td>5</td>
<td>3</td>
<td>2.81</td>
<td>0.06</td>
<td>6</td>
<td>4</td>
<td>0, 2, 3.94, 5.94 or 7.87</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(28.6)</td>
<td>(209.5)</td>
<td>(22.2)</td>
<td>(127)</td>
<td>(76)</td>
<td>(72)</td>
<td>(152.4)</td>
<td>(16.5)</td>
<td>(157.2)</td>
<td>(94)</td>
<td>(168.3)</td>
<td></td>
</tr>
<tr>
<td>4 inch</td>
<td>150</td>
<td>0.94</td>
<td>9</td>
<td>0.75</td>
<td>6.19</td>
<td>3.69</td>
<td>3.5</td>
<td>0.06</td>
<td>7.5</td>
<td>8</td>
<td>190.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(23.8)</td>
<td>(228.5)</td>
<td>(19.0)</td>
<td>(157.2)</td>
<td>(94)</td>
<td>(89)</td>
<td>(160.5)</td>
<td>(16.5)</td>
<td>(157.2)</td>
<td>(94)</td>
<td>(168.3)</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>1.25</td>
<td>10</td>
<td>0.87</td>
<td>6.19</td>
<td>3.69</td>
<td>3.5</td>
<td>0.06</td>
<td>7.88</td>
<td>8</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(31.7)</td>
<td>(254)</td>
<td>(22.2)</td>
<td>(157.2)</td>
<td>(94)</td>
<td>(89)</td>
<td>(160.5)</td>
<td>(16.5)</td>
<td>(157.2)</td>
<td>(94)</td>
<td>(168.3)</td>
<td></td>
</tr>
</tbody>
</table>

1) 89 mm = 3½ inch with tube length L = 0.

| d: Internal diameter of gasket to DIN 2690 |
| d₆: Effective diaphragm diameter |

Siemens FI 01 · 2009
SITRANS P measuring instruments for pressure
SITRANS P Accessories

Supplementary electronics for 4-wire connection

Overview

SITRANS P pressure transmitter with supplementary electronics for 4-wire connection

Direct connection of the supplementary electronics to a SITRANS P pressure transmitter from the DS III HART series produces a transmitter for four-wire connection.

The supplementary electronics cannot be attached to explosion-protected pressure transmitters. The supplementary electronics is fitted in a light metal housing which is mounted on the left side of the pressure transmitter.

Note on ordering:
The supplementary electronics has to be ordered through the supplementary options of the pressure transmitter in question.

Technical specifications

SITRANS P, supplementary electronics for 4-wire connection

Output

- Output signal: 0 … 20 mA or 4 … 20 mA
- Load: Max. 750 Ω
- Voltage measurement: Linear (square-rooting in transmitter if necessary)
- Electrical isolation: Between power supply and input/output

Measuring accuracy

- To EN 60770-1
- Conformity error (in addition to transmitter): ≤ 0.15% of set span
- Influence of ambient temperature: ≤ 0.1% per 10 K
- Power supply effect: ≤ 0.1% per 10% change in voltage or frequency
- Load effect: ≤ 0.1% per 100% change

Rated conditions

- Ambient temperature: -20 … +80 °C (-4 … +176 °F)
- Storage temperature: -50 … +85 °C (-58 … +185 °F)
- Degree of protection: IP54 to EN 60529
- Electromagnetic compatibility (EMC): EN 50081, EN 50082

Structural design

- Dimensions (W x H x D) in mm (inch): 80 x 120 x 60 (3.15 x 4.72 x 2.36)
- Electrical connection: Screw terminals (Pg 13.5 cable inlet) or Han 7D / Han 8U plug

Power supply

- Supply voltage: 230 V AC (-10 … +6%, 47 … 63 Hz, approx. 6 VA) or 24 V AC/DC (24 V AC ± 10%, 47 … 63 Hz, approx. 3 VA)
- Permissible ripple (within the specified limits): Approx. 2.5 Vpp

Dimensional drawings

SITRANS P pressure transmitters with supplementary electronics for four-wire connection, dimension drawing, dimensions in mm (inch)

Schematics

Supplementary electronics for 4-wire connection, connection diagram
### Selection and Ordering data

<table>
<thead>
<tr>
<th><strong>Supplementary electronics for 4-wire connection</strong></th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order No. of the transmitter 7MF4.33-....-1AB, add &quot;-Z&quot; and Order code.</td>
<td>V</td>
</tr>
</tbody>
</table>

#### Power supply 24 V AC/DC

<table>
<thead>
<tr>
<th><strong>Electrical connection</strong></th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminals; 2 Pg screwed glands, to left</td>
<td>1</td>
</tr>
<tr>
<td>2 Han 7D/Han 8U plugs incl. mating connector, to left</td>
<td>3</td>
</tr>
<tr>
<td>1 Han 7D plug incl. mating connector, angled</td>
<td>5</td>
</tr>
<tr>
<td>Terminals; 1 Pg screwed gland, downwards</td>
<td>6</td>
</tr>
<tr>
<td>1 Han 8U plug incl. mating connector, downwards (observe arrangement of plug and differential pressure line)</td>
<td>9</td>
</tr>
</tbody>
</table>

- 2 Han 7D plugs incl. mating connector, angled, to left |
- 2 Han 8U plugs incl. mating connector, to left |

#### Power supply 230 V AC

<table>
<thead>
<tr>
<th><strong>Electrical connection</strong></th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminals; 2 Pg screwed glands, to left</td>
<td>7</td>
</tr>
<tr>
<td>2 Han 7D plugs incl. mating connector, to left</td>
<td>8</td>
</tr>
</tbody>
</table>

#### Output current

<table>
<thead>
<tr>
<th>Current</th>
<th>Order no.</th>
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</thead>
<tbody>
<tr>
<td>0 ... 20 mA</td>
<td>0</td>
</tr>
<tr>
<td>4 ... 20 mA</td>
<td>1</td>
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</tbody>
</table>

### Selection and Ordering data

<table>
<thead>
<tr>
<th><strong>Accessories</strong></th>
<th><strong>Order No.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction Manual</td>
<td>ASE00322799</td>
</tr>
</tbody>
</table>
## Selection and Ordering data

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</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>Grease-free</td>
<td>0.01 ... 1 bar g</td>
<td>10.15 ... 14.5 psi g</td>
<td>0.04 ... 4 bar g</td>
<td>0.58 ... 58 psi g</td>
<td>0.16 ... 16 bar g</td>
<td>2.32 ... 232 psi g</td>
<td>0.63 ... 63 bar g</td>
<td>9.14 ... 914 psi g</td>
<td>1.6 ... 160 bar g</td>
<td>23.2 ... 2320 psi g</td>
<td>4.0 ... 400 bar g</td>
<td>58.0 ... 5802 psi g</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
<td>Stainless steel</td>
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<tr>
<td>Inert liquid</td>
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</tbody>
</table>
| Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Replacement measuring cell for pressure for SITRANS P, DS III, DS III PA and DS III FF series</th>
</tr>
</thead>
<tbody>
<tr>
<td>7MF4990 -</td>
<td>F) Subject to export regulations AL: 91999, ECCN: N.</td>
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<tr>
<td>0 - 0DC0</td>
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</table>

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order No.</th>
<th>Replacement measuring cell for absolute pressure (from the pressure series) for SITRANS P, DS III, DS III PA and DS III FF series</th>
</tr>
</thead>
<tbody>
<tr>
<td>7MF4992 -</td>
<td>F)</td>
<td>Subject to export regulations AL: 91999, ECCN: N.</td>
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<td>0 - 0DC0</td>
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</tr>
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</table>

### Selection and Ordering data

**Replacement measuring cell for pressure**

**Replacement measuring cell for absolute pressure**

**Order No.**

**Order code**

**Acceptance test certificate**

*Please add "Z" to Order No. and specify Order code.*

*Acceptance test certificate to EN 10204-3.1*

F) Subject to export regulations AL: 91999, ECCN: N.

---

### Selection and Ordering data

**Replacement measuring cell for pressure**

**Replacement measuring cell for absolute pressure**

**Order No.**

**Order code**

**Acceptance test certificate**

*Please add "Z" to Order No. and specify Order code.*

*Acceptance test certificate to EN 10204-3.1*
SITRANS P measuring instruments for pressure
SITRANS P Accessories

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Spare parts / Accessories</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F) Replacement measuring cell for absolute pressure (from the differential pressure series) for SITRANS P, DS III, DS III PA and DS III FF series</td>
<td>7 MF 4 9 9 3 - 0 DC 0</td>
</tr>
<tr>
<td>Measuring cell filling Measuring cell cleaning</td>
<td></td>
</tr>
<tr>
<td>Silicone oil Standard</td>
<td>1</td>
</tr>
<tr>
<td>Inert liquid Grease-free</td>
<td>3</td>
</tr>
<tr>
<td>Measured span</td>
<td></td>
</tr>
<tr>
<td>8.3 ... 250 mbar a (0.12 ... 3.63 psi a) E)</td>
<td>D</td>
</tr>
<tr>
<td>43 ... 1300 mbar a (0.62 ... 18.9 psi a) E)</td>
<td>F</td>
</tr>
<tr>
<td>0.16 ... 5 bar a (2.32 ... 72.5 psi a) E)</td>
<td>G</td>
</tr>
<tr>
<td>1 ... 30 bar a (14.5 ... 435 psi a)</td>
<td>H</td>
</tr>
<tr>
<td>5.3 ... 100 bar a (76.9 ... 1450 psi a) KE</td>
<td></td>
</tr>
<tr>
<td>Wetted parts materials</td>
<td></td>
</tr>
<tr>
<td>Stainless steel Stainless steel</td>
<td>a</td>
</tr>
<tr>
<td>Hastelloy Stainless steel</td>
<td>b</td>
</tr>
<tr>
<td>Hastelloy Hastelloy</td>
<td>c</td>
</tr>
<tr>
<td>Tantalum Tantalum</td>
<td>e</td>
</tr>
<tr>
<td>Monel Monel</td>
<td>h</td>
</tr>
<tr>
<td>Gold Gold</td>
<td>E</td>
</tr>
<tr>
<td>Process connection</td>
<td></td>
</tr>
<tr>
<td>Female thread ¼-18 NPT with flange connection</td>
<td></td>
</tr>
<tr>
<td>• Sealing screw opposite process connection</td>
<td></td>
</tr>
<tr>
<td>- Mounting thread M10 to DIN 19213</td>
<td>0</td>
</tr>
<tr>
<td>- Mounting thread 1/16-20 UNF to EN 61518</td>
<td>2</td>
</tr>
<tr>
<td>• Vent on side of process flange 1)</td>
<td></td>
</tr>
<tr>
<td>- Mounting thread M10 to DIN 19213</td>
<td>4</td>
</tr>
<tr>
<td>- Mounting thread 1/16-20 UNF to EN 61518</td>
<td>6</td>
</tr>
<tr>
<td>Non-wetted parts materials</td>
<td></td>
</tr>
<tr>
<td>• Stainless steel process flange screws</td>
<td>2</td>
</tr>
</tbody>
</table>

### Further designs

Please add “-Z” to Order No. and specify Order code.

<table>
<thead>
<tr>
<th>O-rings for process flanges (instead of FPM (Viton))</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PTFE (Teflon)</td>
<td>a20</td>
</tr>
<tr>
<td>• FEP (with silicone core, approved for food)</td>
<td>a21</td>
</tr>
<tr>
<td>• FFPM (Kalrez, compound 4079)</td>
<td>a22</td>
</tr>
<tr>
<td>• NBR (Buna N)</td>
<td>a23</td>
</tr>
</tbody>
</table>

### Acceptance test certificate
to EN 10204-3.1

| Process connection G½A | D16 |
| Remote seal flanges | d20 |
| Vent on side for gas measurements | h02 |
| Process flanges | |
| • without | K00 |
| • with process flange made of | |
| - Hastelloy | K01 |
| - Monel | K02 |
| - Stainless steel with PVDF insert max. PN 10 (MWP 145 psi) max. temperature of medium 90 °C (194 °F) | K04 |

1) Not suitable for connection of remote seal

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Spare parts / Accessories</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F) Replacement measuring cell for differential pressure and PN 32/160 (MWP 464/2320 psi) for SITRANS P, DS III, DS III PA and DS III FF series</td>
<td>7 MF 4 9 9 4 - 0 DC 0</td>
</tr>
<tr>
<td>Measuring cell filling Measuring cell cleaning</td>
<td></td>
</tr>
<tr>
<td>Silicone oil Standard</td>
<td>1</td>
</tr>
<tr>
<td>Inert liquid Grease-free</td>
<td>3</td>
</tr>
<tr>
<td>Measured span</td>
<td></td>
</tr>
<tr>
<td>PN 32 (MWP 464 psi)</td>
<td></td>
</tr>
<tr>
<td>1 ... 20 mbar 1) (0.4015 ... 8.03 inH₂O) b</td>
<td></td>
</tr>
<tr>
<td>PN 160 (MWP 2320 psi)</td>
<td></td>
</tr>
<tr>
<td>1 ... 60 mbar (0.4015 ... 24.09 inH₂O) c</td>
<td></td>
</tr>
<tr>
<td>2.5 ... 250 mbar (1.004 ... 100.4 inH₂O) e</td>
<td></td>
</tr>
<tr>
<td>6 ... 600 mbar (2.409 ... 240.9 inH₂O)</td>
<td></td>
</tr>
<tr>
<td>16 ... 1600 mbar (6.424 ... 642.4 inH₂O) D</td>
<td></td>
</tr>
<tr>
<td>50 ... 5000 mbar (20.08 ... 2008 inH₂O) G</td>
<td></td>
</tr>
<tr>
<td>0.3 ... 30 bar (4.35 ... 435 psi) H</td>
<td></td>
</tr>
<tr>
<td>Wetted parts materials (stainless steel process flanges)</td>
<td></td>
</tr>
<tr>
<td>Seal diaphragm Parts of measuring cell</td>
<td></td>
</tr>
<tr>
<td>Stainless steel Stainless steel</td>
<td>A</td>
</tr>
<tr>
<td>Hastelloy Stainless steel</td>
<td>B</td>
</tr>
<tr>
<td>Hastelloy Hastelloy</td>
<td>C</td>
</tr>
<tr>
<td>Tantalum Tantalum</td>
<td>E</td>
</tr>
<tr>
<td>Monel(2) Monel</td>
<td>H</td>
</tr>
<tr>
<td>Gold(2) Gold</td>
<td>I</td>
</tr>
<tr>
<td>Process connection</td>
<td></td>
</tr>
<tr>
<td>Female thread ¼-18 NPT with flange connection</td>
<td></td>
</tr>
<tr>
<td>• Sealing screw opposite process connection</td>
<td></td>
</tr>
<tr>
<td>- Mounting thread M10 to DIN 19213</td>
<td>0</td>
</tr>
<tr>
<td>- Mounting thread 1/16-20 UNF to EN 61518</td>
<td>2</td>
</tr>
<tr>
<td>• Vent on side of process flange 1)</td>
<td></td>
</tr>
<tr>
<td>- Mounting thread M10 to DIN 19213</td>
<td>4</td>
</tr>
<tr>
<td>- Mounting thread 1/16-20 UNF to EN 61518</td>
<td>6</td>
</tr>
<tr>
<td>Non-wetted parts materials</td>
<td></td>
</tr>
<tr>
<td>Stainless steel process flange screws</td>
<td>2</td>
</tr>
</tbody>
</table>

### Further designs

Please add “-Z” to Order No. and specify Order code.

<table>
<thead>
<tr>
<th>O-rings for process flanges (instead of FPM (Viton))</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>• PTFE (Teflon)</td>
<td>a20</td>
</tr>
<tr>
<td>• FEP (with silicone core, approved for food)</td>
<td>a21</td>
</tr>
<tr>
<td>• FFPM (Kalrez, compound 4079)</td>
<td>a22</td>
</tr>
<tr>
<td>• NBR (Buna N)</td>
<td>a23</td>
</tr>
</tbody>
</table>

### Acceptance test certificate
to EN 10204-3.1

| Remote seal flanges | d20 |
| Vent on side for gas measurements | h02 |
| Stainless steel process flange screws for vertical differential pressure lines (not together with K01, K02 and K04) | H03 |
| Process flanges | |
| • without | K00 |
| • with process flange made of | |
| - Hastelloy | K01 |
| - Monel | K02 |
| - Stainless steel with PVDF insert max. PN 10 (MWP 145 psi) max. temperature of medium 90 °C (194 °F) | K04 |

1) Not suitable for connection of remote seal
2) Only together with max. spans 250, 1600, 5000 and 30000 mbar (3.63, 23.2, 72.5 and 435 psi)
## Accessories / spare parts for SITRANS P P300 and DS III series

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Spare parts / Accessories</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Replacement measuring cell for differential pressure and PN 420 (MWP 6092 psi) for SITRANS P, DS III, DS III PA and DS III FF series</strong></td>
<td>7 MF 4995 - 0DC0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measuring cell filling</th>
<th>Measuring cell cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>Standard</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measured span</th>
<th>Silicon oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 ... 250 mbar</td>
<td>(1.004 ... 100.4 inH₂O)</td>
</tr>
<tr>
<td>6 ... 600 mbar</td>
<td>(2.409 ... 240.9 inH₂O)</td>
</tr>
<tr>
<td>16 ... 1600 mbar</td>
<td>(6.424 ... 642.4 inH₂O)</td>
</tr>
<tr>
<td>50 ... 5000 mbar</td>
<td>(20.08 ... 2008 inH₂O)</td>
</tr>
<tr>
<td>0.3 ... 30 bar</td>
<td>(4.35 ... 435 psi)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wetted parts materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel process flanges</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seal diaphragm</th>
<th>Parts of measuring cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Hastelloy</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Gold1)</td>
<td>Gold</td>
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</table>

<table>
<thead>
<tr>
<th>Process connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female thread ¼-18 NPT with flange connection</td>
</tr>
<tr>
<td>- Sealing screw opposite process connection</td>
</tr>
<tr>
<td>- Mounting thread M12 to DIN 19213</td>
</tr>
<tr>
<td>- Mounting thread 7/16-20 UNF to EN 61518</td>
</tr>
<tr>
<td>- Vent on side of process flange</td>
</tr>
<tr>
<td>- Mounting thread M12 to DIN 19213</td>
</tr>
<tr>
<td>- Mounting thread 7/16-20 UNF to EN 61518</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-wetted parts materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel process flange screws</td>
</tr>
</tbody>
</table>

### Further designs

Please add "-Z" to Order No. and specify Order code.

<table>
<thead>
<tr>
<th>O-rings for process flanges (instead of FPM (Viton))</th>
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<tbody>
<tr>
<td>- PTFE (Teflon)</td>
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<tr>
<td>- FEP (with silicone core, approved for food)</td>
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<tr>
<td>- FFPF (Kalrez, compound 4079)</td>
</tr>
<tr>
<td>- NBR (Buna N)</td>
</tr>
</tbody>
</table>

Acceptance test certificate to EN 10204-3.1

<table>
<thead>
<tr>
<th>Stainless steel process flanges for vertical differential pressure lines</th>
</tr>
</thead>
<tbody>
<tr>
<td>without process flanges</td>
</tr>
</tbody>
</table>

---

1) Not together with max. span 600 mbar (240.9 inH₂O)

F) Subject to export regulations AL: 91999, ECCN: N.
SITRANS P measuring instruments for pressure

SITRANS P Accessories

Accessories / spare parts for SITRANS P P300 and DS III series

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mounting bracket and mounting parts</strong></td>
<td></td>
</tr>
<tr>
<td>for pressure transmitters</td>
<td>7MF4997-1AB</td>
</tr>
<tr>
<td>for pressure transmitters</td>
<td>7MF4997-1AH</td>
</tr>
<tr>
<td>for absolute pressure transmitters</td>
<td>7MF4997-1AC</td>
</tr>
<tr>
<td>for absolute pressure transmitters</td>
<td>7MF4997-1AJ</td>
</tr>
<tr>
<td>for differential pressure transmitters with flange thread M10</td>
<td>7MF4997-1AD</td>
</tr>
<tr>
<td>for differential pressure transmitters with flange thread M12</td>
<td>7MF4997-1AE</td>
</tr>
<tr>
<td>for differential pressure transmitters with flange thread M12</td>
<td>7MF4997-1AL</td>
</tr>
<tr>
<td><strong>Cover</strong></td>
<td></td>
</tr>
<tr>
<td>Made of die-cast aluminium, including gasket, for DS III, DS III PA and DS III FF series</td>
<td>7MF4997-1BB</td>
</tr>
<tr>
<td>with window</td>
<td>7MF4997-1BE</td>
</tr>
<tr>
<td>without window</td>
<td>7MF4997-1BC</td>
</tr>
<tr>
<td>with window</td>
<td>7MF4997-1BF</td>
</tr>
<tr>
<td>without window</td>
<td>7MF4997-1CA</td>
</tr>
<tr>
<td><strong>Mounting screw</strong></td>
<td></td>
</tr>
<tr>
<td>for measuring-point label, earthing and connection terminals or for digital indicator</td>
<td>7MF49997-1CD</td>
</tr>
</tbody>
</table>

F) Subject to export regulations AL: 9I999, ECCN: N.
SITRANS P Accessories

Selection and Ordering data

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<thead>
<tr>
<th>Instruction Manual¹</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>for P300 series with HART communication</td>
<td></td>
</tr>
<tr>
<td>- German</td>
<td>A5E00359580</td>
</tr>
<tr>
<td>- English</td>
<td>A5E00359579</td>
</tr>
<tr>
<td>- French</td>
<td>A5E00359578</td>
</tr>
<tr>
<td>- Spanish</td>
<td>A5E00359576</td>
</tr>
<tr>
<td>- Italian</td>
<td>A5E00359577</td>
</tr>
<tr>
<td>- Leporello German/English</td>
<td>A5E00359581</td>
</tr>
<tr>
<td>for P300 series with PROFIBUS PA communication</td>
<td></td>
</tr>
<tr>
<td>- German</td>
<td>A5E00414587</td>
</tr>
<tr>
<td>- English</td>
<td>A5E00414588</td>
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<tr>
<td>- French</td>
<td>A5E00414589</td>
</tr>
<tr>
<td>- Spanish</td>
<td>A5E00414590</td>
</tr>
<tr>
<td>- Italian</td>
<td>A5E00414591</td>
</tr>
<tr>
<td>- Leporello German/English</td>
<td>A5E00414592</td>
</tr>
<tr>
<td>for DS III series</td>
<td></td>
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<tr>
<td>- German</td>
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<td>for DS III PA series</td>
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<td>for DS III FF series</td>
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<td>- German</td>
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<td>- Spanish (planned)</td>
<td>A5E00279632</td>
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<tr>
<td>- Italian (planned)</td>
<td>A5E00279631</td>
</tr>
</tbody>
</table>

Brief instructions (Leporello)

| for DS III series, German, English | A5E00047093 |
| for DS III PA series, German, English | A5E00053274 |
| for DS III FF series, German, English | A5E00282355 |

CD with documentation

for P300, DS III, DS III PA and DS III FF series
German, English, French, Italian, Spanish

Instruction Manual

for replacement of electronics, measuring cell and connection board
German/English
A5E00078060

HART modem

| with RS232 interface | 7MF4997-1DA |
| with USB interface | 7MF4997-1DB |

Available ex stock

Power supply units see “SITRANS I power supply units and input isolators”.

¹ You can download the Instruction Manuals free-of-charge from the Internet site www.siemens.com/sitransp.

D) Subject to export regulations AL: N, ECCN: EAR99H.

G) Subject to export regulations AL: N, ECCN: 5D992B1.
Mounting bracket for SITRANS P gage and absolute pressure transmitter, DS III series
Material of mounting bracket: Sheet-steel Mat. No. 1.0330, chrome-plated, or stainless steel Mat. No. 1.4301 (304)

Mounting bracket for SITRANS P differential pressure transmitter, DS III series,
Material of mounting bracket: Sheet-steel Mat. No. 1.0330, chrome-plated, or stainless steel Mat. No. 1.4301 (304)
Overview

SITRANS P transmitters

- P300 for relative and absolute pressure,
- DS III for relative and absolute pressure (both designs) and
- DS III for differential pressure

can be delivered factory-fitted with the following valve manifolds:

- 7MF9011-4EA and 7MF9011-4FA valve manifolds for relative pressure and absolute pressure transmitters
- 7MF9411-5BA and 7MF9411-5CA valve manifolds for absolute pressure and differential pressure transmitters

Design

The 7MF9011-4EA valve manifolds are sealed with gaskets made of PTFE between transmitter and the valve manifold as standard. Soft iron, stainless steel and copper gaskets are also available for sealing purposes if preferred.

Selection and Ordering data

7MF9011-4FA valve block on relative and absolute pressure transmitters

<table>
<thead>
<tr>
<th>Add -Z to the Order No. of the transmitter and add order codes.</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS P DSIII 7MF403.-…, 1.-…, 7MF423.-…, 1.-… and</td>
<td>T03</td>
</tr>
<tr>
<td>SITRANS P300 7MF802.-…, 1.-…</td>
<td></td>
</tr>
<tr>
<td>With process connection female thread ½-14 NPT in-sealed with PTFE sealing strip</td>
<td></td>
</tr>
<tr>
<td>Delivery incl. high-pressure test certified by factory certificate to EN10204-2.2</td>
<td></td>
</tr>
</tbody>
</table>

7MF9011-4EA valve block on relative and absolute pressure transmitters

<table>
<thead>
<tr>
<th>Add -Z to the Order No. of the transmitter and add order codes.</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS P DSIII 7MF403.-…, 0.-…, 7MF423.-…, 0.-… and</td>
<td>T02</td>
</tr>
<tr>
<td>SITRANS P300 7MF802.-…, 0.-…</td>
<td></td>
</tr>
<tr>
<td>with process connection collar G1/2 A to EN857-1 with gasket made of PTFE between valve manifold and transmitter</td>
<td></td>
</tr>
<tr>
<td>Alternative sealing material:</td>
<td></td>
</tr>
<tr>
<td>- soft iron</td>
<td>A70</td>
</tr>
<tr>
<td>- stainless steel, Mat. No. 14571</td>
<td>A71</td>
</tr>
<tr>
<td>- copper</td>
<td>A72</td>
</tr>
<tr>
<td>Delivery incl. high-pressure test certified by factory certificate to EN10204-2.2</td>
<td></td>
</tr>
</tbody>
</table>

Further designs:

Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)

Supplied acceptance test certificate to EN10204-2.3 for transmitters and mounted valve manifold

Oil and grease-free cleaning for oxygen operation

7MF9411-5BA valve manifold on absolute and differential pressure transmitters

<table>
<thead>
<tr>
<th>Add -Z to the Order No. of the transmitter and add order codes.</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS P DSIII 7MF433.-…, 7MF443.-… and</td>
<td>U01</td>
</tr>
<tr>
<td>7MF453.-…</td>
<td>U02</td>
</tr>
<tr>
<td>mounted with gaskets made of PTFE and screws made of</td>
<td></td>
</tr>
<tr>
<td>- chromized steel</td>
<td></td>
</tr>
<tr>
<td>- stainless steel</td>
<td></td>
</tr>
<tr>
<td>Delivery incl. high-pressure test certified by factory certificate to EN10204-2.2</td>
<td></td>
</tr>
</tbody>
</table>

7MF9411-5CA valve manifold on differential pressure transmitters

<table>
<thead>
<tr>
<th>Add -Z to the Order No. of the transmitter and add order codes.</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SITRANS P DSIII 7MF443.-… und 7MF453.-…</td>
<td>U03</td>
</tr>
<tr>
<td>mounted with gaskets made of PTFE and screws made of</td>
<td>U04</td>
</tr>
<tr>
<td>- chromized steel</td>
<td></td>
</tr>
<tr>
<td>- stainless steel</td>
<td></td>
</tr>
<tr>
<td>Delivery incl. high-pressure test certified by factory certificate to EN10204-2.2</td>
<td></td>
</tr>
</tbody>
</table>

Further designs:

Delivery includes mounting bracket and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)

Supplied acceptance test certificate to EN10204-2.3 for transmitters and mounted valve manifold

Oil and grease-free cleaning for oxygen operation

For 7MF453.-… transmitters, you require a 7/10-20 UNF connection thread in the process flange

1) For 7MF453.-… transmitters, you require a 7/10-20 UNF connection thread in the process flange.
**Dimensional drawings**

*Valve manifolds mounted on SITRANS P DS III*

Valve manifold 7MF9011-4EA with mounted relative pressure and absolute pressure transmitters

Valve manifold 7MF9011-4EA with mounted relative pressure and absolute pressure transmitters, dimensions in mm (inch)

Valve manifold 7MF9011-4FA with mounted relative pressure and absolute pressure transmitters

Valve manifold 7MF9011-4FA with mounted relative pressure and absolute pressure transmitters, dimensions in mm (inch)
Valve manifold 7MF9411-5BA with mounted differential pressure transmitter

Valve manifold 7MF9411-5CA with mounted differential pressure transmitter

Valve manifold 7MF9411-5BA with mounted differential pressure transmitter, dimensions in mm (inch)

Valve manifold 7MF9411-5CA with mounted differential pressure transmitter, dimensions in mm (inch)
Valve manifolds mounted on SITRANS P300

Valve manifold 7MF9011-4EA with mounted relative pressure and absolute pressure transmitters

Valve manifold 7MF9011-4FA with mounted relative pressure and absolute pressure transmitters

Valve manifold 7MF9011-4EA with mounted relative pressure and absolute pressure transmitters, dimensions in mm (inch)

Valve manifold 7MF9011-4FA with mounted relative pressure and absolute pressure transmitters, dimensions in mm
SITRANS P measuring instruments for pressure

Transmitters for hydrostatic level

MPS series (submersible sensor)

Overview

SITRANS P pressure transmitters, MPS series (submersible sensor)

SITRANS P pressure transmitters, MPS series, are submersible sensors for hydrostatic level measurements.

The pressure transmitters of the MPS series are available for various measuring ranges and with explosion protection as an option.

A junction box and a cable hanger are available as accessories for simple installation.

Benefits

- Compact design
- Simple installation
- Small error in measurement (0.3%)
- Degree of protection IP68

Application

SITRANS P pressure transmitters, MPS series, are used in the following branches for example:

- Oil and gas industries
- Shipbuilding
- Water supply

Design

SITRANS P pressure transmitters, MPS series, have a flush-mounted piezo-resistive sensor with stainless steel diaphragm.

These pressure transmitters are equipped with an electronic circuit fitted together with the sensor in a stainless steel housing. The cable also contains a strength cord and vent pipe.

The diaphragm is protected against external influences by a protective cap.

The sensor, electronic circuit and cable are sealed in a common housing of small dimensions.

The pressure transmitter is temperature-compensated for a wide temperature range.

Function

SITRANS P pressure transmitters, MPS series, are for measuring the liquid levels in wells, tanks, channels and dams.

Integration
Technical specifications

SITRANS P pressure transmitters, MPS series (submersible sensor)

Mode of operation

Input
- Measured variable: Hydrostatic level
- Measuring range:
  - 0 ... 2 mH₂O (0 ... 6 ftH₂O)
  - 0 ... 4 mH₂O (0 ... 12 ftH₂O)
  - 0 ... 5 mH₂O (0 ... 15 ftH₂O)
  - 0 ... 6 mH₂O (0 ... 18 ftH₂O)
  - 0 ... 10 mH₂O (0 ... 30 ftH₂O)
  - 0 ... 20 mH₂O (0 ... 60 ftH₂O)

Output
- Output signal: 4 ... 20 mA

Accuracy
- Error in measurement (including non-linearity, hysteresis and repeatability, at 25 °C (77 °F)):
  - 0.3% of full-scale value (typical)
- Influence of ambient temperature:
  - Zero and span:
    - 1 ... 6 mH₂O (3 ... 18 ftH₂O): 0.45%/10 K of full-scale value
    - ≥ 6 mH₂O (≥ 18 ftH₂O): 0.3%/10 K of full-scale value

Rated operating conditions

Ambient conditions
- Process temperature: -10 ... +80 °C (+14 ... +176 °F)
- Storage temperature: -40 ... +100 °C (-40 ... +212 °F)
- Degree of protection to DIN EN 60529: IP68

Design
- Weight:
  - Pressure transmitters: 0.4 kg (= 0.88 lb)
  - Cable: 0.08 kg/m (= 0.054 lb/ft)
- Electrical connection:
  - Cable with 2 conductors with screen and vent pipe, strength cord (max. 300 N (67.44 lbf))
- Material:
  - Seal diaphragm: Stainless steel, mat. No. 1.4571/316 Ti
  - Casing: Stainless steel, mat. No. 1.4571/316 Ti
  - Gasket: Viton
  - Connecting cable: Optionally PE/HFFR sheath (non-halogen) or FEP sheath

Power supply
- Terminal voltage on pressure transmitter (Uₖₜₐₜₜ): 10 ... 36 V DC

Certificate and approvals
- The transmitter is not subject to the pressure equipment directive (DGRL 97/23/EC)
- Explosion protection:
  - Intrinsically safe "i" TÜV 03 ATEX 2004X
    - Identification: Ex II 1 G EEx ia IIC T4

Junction box
- Application: For connecting the transmitter cable
- Design
  - Weight: 0.2 kg (0.44 lb)
  - Electrical connection:
    - 2 x 3-way (28 ... 18 AWG)
  - Cable entry: 2 x M20x1.5
  - Enclosure material: Polycarbonate
  - Vent pipe for atmospheric pressure
  - Screw for cable strength cord

Rated operating conditions

Degree of protection to DIN EN 60529: IP54

Cable hanger
- Application: For mounting the transmitter
- Design
  - Weight: 0.16 kg (0.35 lb)
  - Material: Galvanized steel, polyamide
SITRANS P measuring instruments for pressure
Transmitters for hydrostatic level

**MPS series (submersible sensor)**

### Selection and Ordering data

**Order No.**

<table>
<thead>
<tr>
<th>SITRANS P pressure transmitters for pressure, MPS series (submersible sensor)</th>
<th>C) 7MF1570 - A0</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-wire system</td>
<td></td>
</tr>
<tr>
<td>Note: Junction box and cable hanger included in delivery</td>
<td></td>
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</tbody>
</table>

### Cable material

- PE
- FEP

### Measuring range

<table>
<thead>
<tr>
<th>Measuring range</th>
<th>Cable length L</th>
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<tbody>
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<td>0 ... 2 mH₂O</td>
<td>10 m</td>
<td>C</td>
</tr>
<tr>
<td>0 ... 4 mH₂O</td>
<td>10 m</td>
<td>D</td>
</tr>
<tr>
<td>0 ... 5 mH₂O</td>
<td>25 m</td>
<td>E</td>
</tr>
<tr>
<td>0 ... 6 mH₂O</td>
<td>25 m</td>
<td>F</td>
</tr>
<tr>
<td>0 ... 10 mH₂O</td>
<td>25 m</td>
<td>G</td>
</tr>
<tr>
<td>0 ... 20 mH₂O</td>
<td>25 m</td>
<td></td>
</tr>
<tr>
<td>0 ... 6 ftH₂O</td>
<td>32 ft</td>
<td>H</td>
</tr>
<tr>
<td>0 ... 12 ftH₂O</td>
<td>32 ft</td>
<td></td>
</tr>
<tr>
<td>0 ... 18 ftH₂O</td>
<td>82 ft</td>
<td></td>
</tr>
<tr>
<td>0 ... 30 ftH₂O</td>
<td>82 ft</td>
<td></td>
</tr>
<tr>
<td>0 ... 60 ftH₂O</td>
<td>82 ft</td>
<td></td>
</tr>
</tbody>
</table>

Special measuring range/Special cable length

- Specify measuring range and cable length

### Explosion protection

- Without
- With type of protection “Intrinsic safety” (Ex II 1 G Ex ia IIC T4)
- With approval for drinking water to WRAS and ACS

### Further designs

- Quality inspection certificate (Factory calibration) to IEC 60770-2 supplied later, specify factory no. of transmitter for this purpose.

### Accessories (as spare parts)

- **Junction box**
  - Order No. 7MF1554-8CC11
  - for connecting the transmitter cable

- **Cable hanger**
  - Order No. 7MF1570-8AB
  - for mounting the pressure transmitter

### Dimensional drawings

- **SITRANS P pressure transmitters, MPS series, dimensions in mm (inch)**
- **Junction box, dimensions in mm (inch)**
- **Cable hanger, dimensions in mm (inch)**

1) Special measuring ranges between 0 ... 1 mH₂O (0 ... 3 ftH₂O) and 0 ... 200 mH₂O (0 ... 656 ftH₂O) and special cable lengths up to 1000 m (3281 ft) are possible. With Ex versions the max. special cable length is 50 m (150 ft). The length of free-hanging cable should not exceed 375 m.

C) Subject to export regulations AL: N, ECCN: EAR99.
D) Subject to export regulations AL: N, ECCN: EAR99H.
Determination of the measuring range in case of media with a density ≠ 1000 kg/m³ (medium ≠ water)

Calculation of the measuring range:
\[ p = \rho \times g \times H \]

with:
- \( \rho \) = density of medium
- \( g \) = local acceleration due to gravity
- \( H \) = maximum level

Example:
Medium: Diesel fuel = 850 kg/m³
Acceleration due to gravity: 9.81 m/s²
Start-of-scale: 0 m
Maximum level: 6.2 m

Calculation:
\[ p = 850 \, \text{kg/m}^3 \times 9.81 \, \text{m/s}^2 \times 6.2 \, \text{m} \]
\[ p = 51698.7 \, \text{N/m}^2 \]
\[ p = 517 \, \text{mbar} \]

Transmitter to be ordered:
7MF1570-5ZA02-Z
J1Y: 0 ... 517 mbar; able length e.g. 8 m
Overview
In many cases the pressure transmitter and the measured medium have to be physically separated. It is then necessary to use a remote seal.

The remote seals can be used with the following SITRANS P pressure transmitter series:
- Pressure (P300, DS III, DS III PA, DS III FF)
- Absolute pressure (P300, DS III, DS III PA, DS III FF)
- Differential pressure and flow (DS III, DS III PA, DS III FF)

Note
When configuring your remote seal, be sure to read the information about transmission response, temperature error and response time to be found in the sections "Function" and "Technical data". Only then will the remote seal work to optimum effect.

Benefits
- No direct contact between the pressure transmitter and the medium
- Individual configuration of the pressure transmitter for perfect adaptation to the operating conditions
- Available in many versions
- Specially designed for difficult operating conditions
- Quick-release versions available for the food industry

Application
Remote seal systems should be used if a separation between the measured medium and the measuring instrument is essential or appropriate.

Examples of such cases:
- The temperature of the medium is outside the limits specified for the pressure transmitter.
- The medium is corrosive and requires diaphragm materials which are not available for the pressure transmitter.
- The medium is highly viscous or contains solids which would block the measuring chambers of the pressure transmitter.
- The medium may freeze in the measuring chambers or pulse line.
- The medium is heterogeneous or fibrous.
- The medium tends towards polymerization or crystallization.
- The process requires quick-release remote seals, as necessary e.g. in the food industry for fast cleaning.
- The process requires cleaning of the measuring point, e.g. in a batch process.

Design
A remote seal system consists of the following components.
- Pressure transmitter
- One or two remote seals
- Filling liquid
- Connection between pressure transmitter and remote seal (direct mounting or by means of capillary)

The volume in contact with the measured medium is terminated by a flat elastic diaphragm lying in a bed. Between the diaphragm and the pressure transmitter is the filling liquid.

In many cases, a capillary has to be connected between the remote seal and the pressure transmitter in order e.g. to minimize temperature effects on the latter when hot media are involved.

However, the capillary influences the response time and the temperature response of the complete remote seal system. Two capillaries of equal length must always be used to connect a remote seal to a pressure transmitter for differential pressure.

The remote seal can be optionally equipped with a projecting diaphragm (tube).

Remote seals of sandwich design are fitted with a dummy flange.

Designs

Diaphragm seal
With diaphragm seals, the pressure is measured by means of a flat diaphragm which rests in a bed.

The following types of diaphragm seals exist:

Diaphragm seal of sandwich design without (left) and with a projecting diaphragm (tube)
- Sandwich design
- Sandwich design with projecting diaphragm (tube) to DIN or ASME which are secured using a dummy flange.

Diaphragm seal of flange design without (left) and with a projecting diaphragm (tube)
- Flange design
- Flange design with projecting diaphragm (tube) to DIN or ASME, secured using holes in the flange.

Quick-release diaphragm seal
- Quick-release remote seals, e.g. to DIN 11851, SMS standard, IDF standard, APV RJT standard, clamp connection, etc.
  - Miniature diaphragm seal with male thread for screwing into tapped holes
  - Remote seals with customer-specific process connections
Miniature diaphragm seal with diaphragm flush with front

- Miniature diaphragm seals

The quick-release remote seals are used above all in the food industry. Their design means that the measured medium cannot accumulate in dead volumes. The quick-release clamp present on the remote seal means that quick dismounting is possible for cleaning.

Clamp-on seal

Clamp-on seal with quick-release design (left) and for flange mounting

With clamp-on seals, the pressure is first measured using a cylindrical diaphragm positioned in a pipe, and then transmitted to the pressure transmitter by means of the filling liquid.

The clamp-on seal is a special design for flowing media. It consists of a cylindrical pipe in which a cylindrical diaphragm is embedded. Since it is completely integrated in the process pipe, no turbulences, dead volumes or other obstructions to the flow occur. Furthermore, the clamp-on seal can be cleaned by a pig.

The following types of clamp-on seals exist:
- Quick-release clamp-on seals, e.g. to DIN 11851, SMS standard, IDF standard, APV/RJT standard, clamp connection etc. The quick-release facility attached to the remote seal enables the seal to be removed quickly for cleaning purposes.
- Clamp-on seals for flanging to EN or ASME.
- Clamp-on seals with customer-specific process connections.

Note:
The pressure data on the transmitter and the remote seal must be observed with regard to pressure/temperature behavior.

Function
The measured pressure is transferred from the diaphragm to the filling liquid and passes through the capillary to the measuring chamber of the pressure transmitter. The interior of the diaphragm seal and of the capillary, as well as the measuring chamber of the transmitter, are filled gas-free by the filling liquid.

Transmission response
The transmission response of a remote seal is characterized by the following variables:
- Temperature error
- Adjustment time

Temperature error
Temperature errors are caused by the change of volume of the filling liquid due to temperature variations. To select the right remote seal you must calculate the temperature error.

Below you will find an overview of the factors which influence the size of the temperature error, as well as information on how to calculate the temperature error.

The temperature error is dependent on the following variables:
- Rigidity of the diaphragm used
- Filling liquid used
- Influence of the filling liquid underneath the process flanges or in the connection shank of the pressure transmitter
- Internal diameter of the capillary: The bigger the internal diameter, the bigger the temperature error
- Length of the capillary: The longer the capillary, the bigger the temperature error

Diaphragm rigidity
The rigidity of the diaphragm is of decisive importance. The bigger the diameter of the diaphragm, the softer the diaphragm and the more sensitively it reacts to temperature-induced changes in volume of the filling liquid.

The result is that small measuring ranges are only possible with large diaphragm diameters.

Other factors apart from diaphragm rigidity which also play a role:
- Diaphragm thickness
- Diaphragm material
- Coatings if present

Filling liquid
Every filling liquid reacts to temperature variations with a change of volume. Temperature errors can be minimized by selecting a suitable filling liquid, but the filling liquid must also be appropriate for the temperature limits and operating pressure. Furthermore, the filling liquid must also be physiologically harmless.

Since the filling liquid is present under the diaphragm, in the capillary and under the process flange of the pressure transmitter (or in the connection shank), the temperature error must be calculated separately for each combination.

Note:
When operating in the low-pressure range, also during commissioning, it is recommended to use a vacuum-proof remote seal (see Selection and Ordering data).

An example of a temperature error calculation can be found in the section "Technical Specifications".
**Response time**

The response time is dependent on the following factors:

- Internal diameter of the capillary: The bigger the internal diameter, the shorter the response time.
- Viscosity of the filling liquid: The greater the viscosity, the longer the response time.
- Length of the capillary: The longer the capillary, the longer the response time.
- Pressure in the pressure measuring system: The higher the pressure, the shorter the response time.

**Recommendations**

The following should be observed to obtain an optimum combination of transmitter and remote seal:

- Choose the biggest possible diameter for the remote seal. The effective diameter of the seal diaphragm is then bigger and the temperature error smaller.
- Choose the shortest possible capillary. The response time is then shorter and the temperature error smaller.
- Choose the filling liquid with the least viscosity and the smallest coefficient of expansion. Make sure, however, that the filling liquid meets the process requirements with regard to pressure, vacuum and temperature. And ensure that the filling liquid and the medium are compatible with one another.
- Note the following points for use in the vacuum range:
  - The pressure transmitter must always be positioned below the lowest spigot.
  - The operating range of some filling liquids is very limited with regard to the permissible temperature of the medium.
  - A vacuum-proof seal is necessary for continuous operation in the low-pressure range.
- Recommendations for the minimum span can be found in the section "Technical data".

**Note**

The remote seals listed here are a selection of the most common designs. On account of the large variety of process connections, certain remote seals which are not listed here may be available nevertheless.

Other versions can be:

- Other process connections, standards
- Aseptic or sterile connections
- Other dimensions
- Other nominal pressures
- Special diaphragm materials, including coatings
- Other sealing faces
- Other filling liquids
- Other capillary lengths
- Sheathing of capillaries with protective hose
- Calibration at higher/lower temperatures etc.

*Please contact your Siemens Regional Office for more information.*
### Technical specifications

#### Temperature error Diaphragm seals

Temperature errors of diaphragm seals when connected to pressure transmitters for pressure, absolute pressure, differential pressure (single-sided) and level.

Remarks:
- Values apply for the filling liquids silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil and food oil (FDA listed).
- Half the values apply to glycerin/water mixture as the filling liquid.
- Values apply to stainless steel as the diaphragm material.

<table>
<thead>
<tr>
<th>Nominal diameter/design</th>
<th>Diaphragm diameter</th>
<th>Temperature error of remote seal</th>
<th>Temperature error of capillary</th>
<th>Temperature error of process flange/connection spigot</th>
<th>Recommended min. spans (guidance values, observe temp. error)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm (inch)</td>
<td>mbar/10 K (psi/10 K)</td>
<td>mbar/10 K (psi/10 K) ⋅ mKap</td>
<td>mbar/10 K (psi/10 K)</td>
<td>mbar (psi)</td>
</tr>
<tr>
<td><strong>Sandwich design or with flange to EN 1092-1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 50 without tube</td>
<td>59 (2.32)</td>
<td>1.5 (0.022)</td>
<td>2 (0.029)</td>
<td>2 (0.029)</td>
<td>200 (2.90)</td>
</tr>
<tr>
<td>DN 50 with tube</td>
<td>48 (1.89)</td>
<td>5 (0.073)</td>
<td>10 (0.145)</td>
<td>10 (0.145)</td>
<td>500 (7.25)</td>
</tr>
<tr>
<td>DN 80 without tube</td>
<td>89 (3.50)</td>
<td>0.2 (0.003)</td>
<td>0.2 (0.003)</td>
<td>0.2 (0.003)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>DN 80 with tube</td>
<td>72 (2.83)</td>
<td>1 (0.015)</td>
<td>1 (1.015)</td>
<td>1 (1.015)</td>
<td>250 (3.63)</td>
</tr>
<tr>
<td>DN 100 without tube</td>
<td>89 (3.50)</td>
<td>0.4 (0.006)</td>
<td>0.4 (0.006)</td>
<td>0.4 (0.006)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>DN 100 with tube</td>
<td>89 (3.50)</td>
<td>0.4 (0.006)</td>
<td>0.4 (0.006)</td>
<td>0.4 (0.006)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>DN 125 without tube</td>
<td>124 (4.88)</td>
<td>0.2 (0.003)</td>
<td>0.1 (0.002)</td>
<td>0.1 (0.002)</td>
<td>20 (0.29)</td>
</tr>
<tr>
<td>DN 125 with tube</td>
<td>124 (4.88)</td>
<td>0.2 (0.003)</td>
<td>0.1 (0.002)</td>
<td>0.1 (0.002)</td>
<td>20 (0.29)</td>
</tr>
<tr>
<td><strong>Sandwich design or with flange to ASME B16.5</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 inch without tube</td>
<td>59 (2.32)</td>
<td>1.5 (0.022)</td>
<td>2 (0.029)</td>
<td>2 (0.029)</td>
<td>200 (2.90)</td>
</tr>
<tr>
<td>2 inch with tube</td>
<td>48 (1.89)</td>
<td>5 (0.073)</td>
<td>10 (0.145)</td>
<td>10 (0.145)</td>
<td>500 (7.25)</td>
</tr>
<tr>
<td>3 inch without tube</td>
<td>89 (3.50)</td>
<td>0.2 (0.003)</td>
<td>0.2 (0.003)</td>
<td>0.2 (0.003)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>3 inch with tube</td>
<td>72 (2.83)</td>
<td>1 (0.015)</td>
<td>1 (1.015)</td>
<td>1 (1.015)</td>
<td>250 (3.63)</td>
</tr>
<tr>
<td>4 inch without tube</td>
<td>89 (3.50)</td>
<td>0.4 (0.006)</td>
<td>0.4 (0.006)</td>
<td>0.4 (0.006)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>4 inch with tube</td>
<td>89 (3.50)</td>
<td>0.4 (0.006)</td>
<td>0.4 (0.006)</td>
<td>0.4 (0.006)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>5 inch without tube</td>
<td>124 (4.88)</td>
<td>0.2 (0.003)</td>
<td>0.1 (0.002)</td>
<td>0.1 (0.002)</td>
<td>20 (0.29)</td>
</tr>
<tr>
<td>5 inch with tube</td>
<td>124 (4.88)</td>
<td>0.2 (0.003)</td>
<td>0.1 (0.002)</td>
<td>0.1 (0.002)</td>
<td>20 (0.29)</td>
</tr>
<tr>
<td><strong>Remote seal with union nut to DIN 11851</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 25</td>
<td>25 (0.98)</td>
<td>20 (0.290)</td>
<td>60 (0.870)</td>
<td>60 (0.870)</td>
<td>6000 (87)</td>
</tr>
<tr>
<td>DN 32</td>
<td>32 (1.26)</td>
<td>8 (0.116)</td>
<td>25 (0.363)</td>
<td>25 (0.363)</td>
<td>4000 (58)</td>
</tr>
<tr>
<td>DN 40</td>
<td>40 (1.57)</td>
<td>4 (0.058)</td>
<td>10 (0.145)</td>
<td>10 (0.145)</td>
<td>2000 (29)</td>
</tr>
<tr>
<td>DN 50</td>
<td>52 (2.05)</td>
<td>4 (0.058)</td>
<td>5 (0.073)</td>
<td>5 (0.073)</td>
<td>500 (7.25)</td>
</tr>
<tr>
<td>DN 65</td>
<td>59 (2.32)</td>
<td>3 (0.044)</td>
<td>4 (0.058)</td>
<td>4 (0.058)</td>
<td>500 (7.25)</td>
</tr>
<tr>
<td>DN 80</td>
<td>72 (2.83)</td>
<td>1 (0.015)</td>
<td>1 (0.015)</td>
<td>1 (0.015)</td>
<td>250 (3.63)</td>
</tr>
<tr>
<td><strong>Remote seal with threaded socket to DIN 11851</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 25</td>
<td>25 (0.98)</td>
<td>20 (0.290)</td>
<td>60 (0.870)</td>
<td>60 (0.870)</td>
<td>6000 (87)</td>
</tr>
<tr>
<td>DN 32</td>
<td>32 (1.26)</td>
<td>8 (0.116)</td>
<td>25 (0.363)</td>
<td>25 (0.363)</td>
<td>4000 (58)</td>
</tr>
<tr>
<td>DN 40</td>
<td>40 (1.57)</td>
<td>4 (0.058)</td>
<td>10 (0.145)</td>
<td>10 (0.145)</td>
<td>2000 (29)</td>
</tr>
<tr>
<td>DN 50</td>
<td>52 (2.05)</td>
<td>4 (0.058)</td>
<td>5 (0.073)</td>
<td>5 (0.073)</td>
<td>500 (7.25)</td>
</tr>
<tr>
<td>DN 65</td>
<td>59 (2.32)</td>
<td>3 (0.044)</td>
<td>4 (0.058)</td>
<td>4 (0.058)</td>
<td>500 (7.25)</td>
</tr>
<tr>
<td>DN 80</td>
<td>72 (2.83)</td>
<td>1 (0.015)</td>
<td>1 (0.015)</td>
<td>1 (0.015)</td>
<td>250 (3.63)</td>
</tr>
<tr>
<td><strong>Clamp connection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1½ inch</td>
<td>32 (1.26)</td>
<td>8 (0.116)</td>
<td>25 (0.363)</td>
<td>25 (0.363)</td>
<td>4000 (58)</td>
</tr>
<tr>
<td>2 inch</td>
<td>40 (1.57)</td>
<td>4 (0.058)</td>
<td>10 (0.145)</td>
<td>10 (0.145)</td>
<td>2000 (29)</td>
</tr>
<tr>
<td>2½ inch</td>
<td>59 (2.32)</td>
<td>3 (0.044)</td>
<td>5 (0.073)</td>
<td>5 (0.073)</td>
<td>500 (7.25)</td>
</tr>
<tr>
<td>3 inch</td>
<td>72 (2.83)</td>
<td>1 (0.015)</td>
<td>1 (0.015)</td>
<td>1 (0.015)</td>
<td>250 (3.63)</td>
</tr>
<tr>
<td><strong>Miniature diaphragm seal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G1B</td>
<td>25 (0.98)</td>
<td>20 (0.290)</td>
<td>60 (0.870)</td>
<td>60 (0.870)</td>
<td>6000 (87)</td>
</tr>
<tr>
<td>G1½B</td>
<td>40 (1.57)</td>
<td>4 (0.058)</td>
<td>10 (0.145)</td>
<td>10 (0.145)</td>
<td>2000 (29)</td>
</tr>
<tr>
<td>G2B</td>
<td>52 (2.05)</td>
<td>4 (0.058)</td>
<td>5 (0.073)</td>
<td>5 (0.073)</td>
<td>500 (7.25)</td>
</tr>
</tbody>
</table>

Remarks:
- Values apply for the filling liquids silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil and food oil (FDA listed).
- Half the values apply to glycerin/water mixture as the filling liquid.
- Values apply to stainless steel as the diaphragm material.
## Technical description

Temperature errors of diaphragm seals with connection to differential pressure transmitters (double-sided)

<table>
<thead>
<tr>
<th>Nominal diameter/design</th>
<th>Diaphragm diameter</th>
<th>Temperature error of remote seal</th>
<th>Temperature error of capillary</th>
<th>Temperature error of process flange/connection spigot</th>
<th>Recommended min. spans (guidance values, observe temperature error)</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm (inch)</td>
<td>mbar/10 K</td>
<td>(psi/10 K)</td>
<td>mbar/(10 K ( \cdot m_{\text{kap}} ))</td>
<td>mbar/(10 K)</td>
<td>mbar/(psi)</td>
</tr>
<tr>
<td>Sandwich design or with flange to EN 1092-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 50 without tube</td>
<td>59 (2.32)</td>
<td>0.3 (0.0043)</td>
<td>0.3 (0.0045)</td>
<td>0.3 (0.0045)</td>
<td>250 (3.626)</td>
</tr>
<tr>
<td>DN 50 with tube</td>
<td>48 (1.89)</td>
<td>1.26 (0.018)</td>
<td>1.7 (0.025)</td>
<td>1.7 (0.025)</td>
<td>250 (3.626)</td>
</tr>
<tr>
<td>DN 80 without tube</td>
<td>89 (3.50)</td>
<td>0.05 (0.001)</td>
<td>0.05 (0.001)</td>
<td>0.05 (0.0007)</td>
<td>50 (0.725)</td>
</tr>
<tr>
<td>DN 80 with tube</td>
<td>72 (2.83)</td>
<td>0.24 (0.004)</td>
<td>0.17 (0.003)</td>
<td>0.17 (0.003)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>DN 100 without tube</td>
<td>89 (3.50)</td>
<td>0.1 (0.002)</td>
<td>0.07 (0.001)</td>
<td>0.07 (0.001)</td>
<td>50 (0.725)</td>
</tr>
<tr>
<td>DN 100 with tube</td>
<td>89 (3.50)</td>
<td>0.1 (0.002)</td>
<td>0.07 (0.001)</td>
<td>0.07 (0.001)</td>
<td>50 (0.725)</td>
</tr>
<tr>
<td>DN 125 without tube</td>
<td>124 (4.88)</td>
<td>0.05 (0.001)</td>
<td>0.03 (0.0004)</td>
<td>0.03 (0.0004)</td>
<td>20 (0.29)</td>
</tr>
<tr>
<td>DN 125 with tube</td>
<td>124 (4.88)</td>
<td>0.05 (0.001)</td>
<td>0.03 (0.0004)</td>
<td>0.03 (0.0004)</td>
<td>20 (0.29)</td>
</tr>
<tr>
<td>Sandwich design with flange to ASME B16.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 inch without tube</td>
<td>59 (2.32)</td>
<td>0.3 (0.0043)</td>
<td>0.3 (0.0043)</td>
<td>0.3 (0.0045)</td>
<td>250 (3.626)</td>
</tr>
<tr>
<td>2 inch with tube</td>
<td>48 (1.89)</td>
<td>1.26 (0.018)</td>
<td>1.7 (0.025)</td>
<td>1.7 (0.025)</td>
<td>250 (3.626)</td>
</tr>
<tr>
<td>3 inch without tube</td>
<td>89 (3.50)</td>
<td>0.05 (0.001)</td>
<td>0.05 (0.0007)</td>
<td>0.05 (0.0007)</td>
<td>50 (0.725)</td>
</tr>
<tr>
<td>3 inch with tube</td>
<td>72 (2.83)</td>
<td>0.24 (0.004)</td>
<td>0.17 (0.003)</td>
<td>0.17 (0.003)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>4 inch without tube</td>
<td>89 (3.50)</td>
<td>0.1 (0.002)</td>
<td>0.07 (0.001)</td>
<td>0.07 (0.001)</td>
<td>50 (0.725)</td>
</tr>
<tr>
<td>4 inch with tube</td>
<td>89 (3.50)</td>
<td>0.1 (0.002)</td>
<td>0.07 (0.001)</td>
<td>0.07 (0.001)</td>
<td>50 (0.725)</td>
</tr>
<tr>
<td>5 inch without tube</td>
<td>124 (4.88)</td>
<td>0.05 (0.001)</td>
<td>0.03 (0.0004)</td>
<td>0.03 (0.0004)</td>
<td>20 (0.29)</td>
</tr>
<tr>
<td>5 inch with tube</td>
<td>124 (4.88)</td>
<td>0.05 (0.001)</td>
<td>0.03 (0.0004)</td>
<td>0.03 (0.0004)</td>
<td>20 (0.29)</td>
</tr>
<tr>
<td>Remote seal with union nut to DIN 11851</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 50</td>
<td>52 (2.05)</td>
<td>1 (0.015)</td>
<td>0.83 (0.012)</td>
<td>0.83 (0.012)</td>
<td>250 (3.626)</td>
</tr>
<tr>
<td>DN 65</td>
<td>59 (2.32)</td>
<td>0.7 (0.010)</td>
<td>0.67 (0.010)</td>
<td>0.67 (0.010)</td>
<td>250 (3.626)</td>
</tr>
<tr>
<td>DN 80</td>
<td>72 (2.83)</td>
<td>0.24 (0.004)</td>
<td>0.17 (0.003)</td>
<td>0.17 (0.003)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>Remote seal with threaded socket to DIN 11851</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DN 50</td>
<td>52 (2.05)</td>
<td>1 (0.015)</td>
<td>0.83 (0.012)</td>
<td>0.83 (0.012)</td>
<td>250 (3.626)</td>
</tr>
<tr>
<td>DN 65</td>
<td>59 (2.32)</td>
<td>0.7 (0.010)</td>
<td>0.67 (0.010)</td>
<td>0.67 (0.010)</td>
<td>250 (3.626)</td>
</tr>
<tr>
<td>DN 80</td>
<td>72 (2.83)</td>
<td>0.24 (0.004)</td>
<td>0.17 (0.003)</td>
<td>0.17 (0.003)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>Clamp connection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 inch</td>
<td>40 (1.57)</td>
<td>1 (0.015)</td>
<td>2.5 (0.036)</td>
<td>2.5 (0.036)</td>
<td>2000 (29.01)</td>
</tr>
<tr>
<td>2½ inch</td>
<td>59 (2.32)</td>
<td>0.7 (0.010)</td>
<td>0.67 (0.010)</td>
<td>0.67 (0.010)</td>
<td>250 (3.626)</td>
</tr>
<tr>
<td>3 inch</td>
<td>72 (2.83)</td>
<td>0.24 (0.004)</td>
<td>0.17 (0.003)</td>
<td>0.17 (0.003)</td>
<td>100 (1.45)</td>
</tr>
</tbody>
</table>

**Remarks:**
- Values apply for the filling liquids silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil and food oil (FDA listed)
- Half the values apply to glycerin/water mixture as the filling liquid
- Values apply to stainless steel as the diaphragm material.
### Temperature error Clamp-on seals

Temperature errors of clamp-on seals when connected to pressure transmitters for pressure and absolute pressure, and with single-sided connection to pressure transmitters for differential pressure

<table>
<thead>
<tr>
<th>Nominal diameter/design</th>
<th>Temperature error of remote seal mbar/10 K (psi/10 K)</th>
<th>Temperature error of capillary mbar/10 K (psi/10 K)</th>
<th>Temperature error of process flange/connection spigot mbar/10 K (psi/10 K)</th>
<th>Recommended min. spans (guidance values, observe temperature error) mbar (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 25 (1 inch)</td>
<td>6.0 (0.0870)</td>
<td>8.5 (0.123)</td>
<td>8.5 (0.123)</td>
<td>1000 (14.5)</td>
</tr>
<tr>
<td>DN 40 (1½ inch)</td>
<td>4.5 (0.065)</td>
<td>4.5 (0.065)</td>
<td>4.5 (0.065)</td>
<td>250 (3.63)</td>
</tr>
<tr>
<td>DN 50 (2 inch)</td>
<td>4.0 (0.058)</td>
<td>3.0 (0.044)</td>
<td>3.0 (0.044)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>DN 80 (3 inch)</td>
<td>9.5 (0.138)</td>
<td>5.0 (0.073)</td>
<td>5.0 (0.073)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>DN 100 (4 inch)</td>
<td>8.0 (0.12)</td>
<td>3.0 (0.044)</td>
<td>3.0 (0.044)</td>
<td>100 (1.45)</td>
</tr>
</tbody>
</table>

**Remarks:**
- Values apply for the filling liquids silicone oil M5, silicone oil M50, high-temperature oil, halocarbon oil and food oil (FDA listed).
- Half the values apply to glycerin/water mixture as the filling liquid.
- Values apply to stainless steel as the diaphragm material.
- Diaphragm thickness 0.05 mm (0.002 inch) for DN 25/DN 40/DN 50 and 0.1 mm (0.004 inch) for DN 80/DN 100

Temperature errors of clamp-on seals with double-sided connection to pressure transmitters for differential pressure

<table>
<thead>
<tr>
<th>Nominal diameter/design</th>
<th>Temperature error of remote seal mbar/10 K (psi/10 K)</th>
<th>Temperature error of capillary mbar/10 K (psi/10 K)</th>
<th>Temperature error of process flange/connection spigot mbar/10 K (psi/10 K)</th>
<th>Recommended min. spans (guidance values, observe temperature error) mbar (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 25 (1 inch)</td>
<td>2.3 (0.033)</td>
<td>1.8 (0.026)</td>
<td>1.8 (0.026)</td>
<td>1000 (14.5)</td>
</tr>
<tr>
<td>DN 40 (1½ inch)</td>
<td>0.8 (0.012)</td>
<td>0.3 (0.004)</td>
<td>0.3 (0.004)</td>
<td>250 (3.63)</td>
</tr>
<tr>
<td>DN 50 (2 inch)</td>
<td>0.3 (0.004)</td>
<td>0.1 (0.002)</td>
<td>0.1 (0.002)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>DN 80 (3 inch)</td>
<td>3.0 (0.044)</td>
<td>0.5 (0.007)</td>
<td>0.5 (0.007)</td>
<td>100 (1.45)</td>
</tr>
<tr>
<td>DN 100 (4 inch)</td>
<td>1.0 (0.015)</td>
<td>0.1 (0.002)</td>
<td>0.1 (0.002)</td>
<td>100 (1.45)</td>
</tr>
</tbody>
</table>
**Calculation of the temperature error**

The following equation is used to calculate the temperature error:

\[ dp = (\vartheta_{RS} - \vartheta_{Cal}) \cdot f_{RS} + (\vartheta_{Cap} - \vartheta_{Cal}) \cdot f_{Cap} + (\vartheta_{TR} - \vartheta_{Cal}) \cdot f_{PF} \]

- \( dp \): Additional temperature error (mbar)
- \( \vartheta_{RS} \): Temperature on remote seal diaphragm (generally corresponds to temperature of medium)
- \( \vartheta_{Cal} \): Calibration (reference) temperature (20 °C (68 °F))
- \( f_{RS} \): Temperature error of remote seal
- \( \vartheta_{Cap} \): Ambient temperature on the capillaries
- \( f_{Cap} \): Temperature error of capillaries
- \( \vartheta_{TR} \): Ambient temperature on pressure transmitter
- \( f_{PF} \): Temperature error of the oil filling in the process flanges of the pressure transmitter

**Example of temperature error calculation**

**Existing conditions**

SITRANS P pressure transmitter for differential pressure, 250 mbar, set to 0 ... 100 mbar, with DN 80 remote seal diaphragms without tube, diaphragm made of stainless steel, mat. No. 1.4404/316L

- \( f_{RS} = 0.1 \text{ mbar}/10 \text{ K} \) (0.0014 psi/10 K)
- Capillary length \( l_{Cap} = 6 \text{ (19.7 ft)} \)
- Capillaries fitted on both sides \( f_{Cap} = 0.07 \text{ mbar}/(10 \text{ K} \cdot m) \) (0.001 psi/(10 K \cdot 3.28 ft))
- Filling liquid silicone M5 \( f_{PF} = 0.07 \text{ mbar}/10 \text{ K} \) (0.001 psi/10 K)
- Process temperature \( \vartheta_{RS} = 100 \text{ °C (212 °F)} \)
- Temperature on the capillaries \( \vartheta_{Cap} = 50 \text{ °C (122 °F)} \)
- Temperature on pressure transmitter \( \vartheta_{TR} = 50 \text{ °C (122 °F)} \)
- Calibration temperature \( \vartheta_{Cal} = 20 \text{ °C (68 °F)} \)

**Required**

- Additional temperature error of remote seals \( dp \)

**Calculation in mbar**

\[ dp = (100 \text{ °C} - 20 \text{ °C}) \cdot 0.1 \text{ mbar}/10 \text{ K} + (50 \text{ °C} - 20 \text{ °C}) \cdot 6 \text{ m} \cdot 0.07 \text{ mbar}/(10 \text{ K} \cdot m) + (50 \text{ °C} - 20 \text{ °C}) \cdot 0.07 \text{ mbar}/10 \text{ K} \]
\[ dp = 0.8 \text{ mbar} + 1.26 \text{ mbar} + 0.21 \text{ mbar} \]

**Calculation in psi**

\[ dp = (212 \text{ °F} - 68 \text{ °F}) \cdot 0.0014 \text{ psi}/10 \text{ K} + (112 \text{ °F} - 68 \text{ °F}) \cdot 19.7 \text{ ft} \cdot 0.001 \text{ psi}/(10 \text{ K} \cdot 3.28 \text{ ft}) + (112 \text{ °F} - 68 \text{ °F}) \cdot 0.001 \text{ psi}/10 \text{ K} \]
\[ dp = 0.012 \text{ psi} + 0.018 \text{ psi} + 0.003 \text{ psi} \]

**Result**

\( dp = 2.27 \text{ mbar (0.033 psi)} \) (corresponds to 2.27% of set span)

**Note**

The determined temperature error only applies to the error resulting from connection of the remote seal.

The transmission response of the respective transmitter is not included in this consideration.

It must be calculated separately, and the resulting error added to the error determined above from connection of the remote seal.

---

**Dependence of temperature error on diaphragm material**

The temperature errors listed in the previous table are based on the use of stainless steel as the diaphragm material. If other diaphragm materials are used, the temperature errors change as follows:

<table>
<thead>
<tr>
<th>Diaphragm material</th>
<th>Change in temperature error of remote seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel</td>
<td>Increase in values by</td>
</tr>
<tr>
<td>Hastelloy C4, mat. No. 2.4610</td>
<td>50%</td>
</tr>
<tr>
<td>Hastelloy C276, mat. No. 2.4819</td>
<td>50%</td>
</tr>
<tr>
<td>Monel 400, mat. No. 2.4360</td>
<td>60%</td>
</tr>
<tr>
<td>Tantalum</td>
<td>50%</td>
</tr>
<tr>
<td>Titanium</td>
<td>50%</td>
</tr>
<tr>
<td>PTFE coating on stainless steel diaphragm</td>
<td>80%</td>
</tr>
<tr>
<td>ECTFE coating or PFA coating on stainless steel diaphragm</td>
<td>100%</td>
</tr>
<tr>
<td>Gold coating on stainless steel diaphragm</td>
<td>40%</td>
</tr>
</tbody>
</table>

**Maximum temperature of medium**

The following maximum temperatures of the medium apply depending on the material of the wetted parts:

<table>
<thead>
<tr>
<th>Material</th>
<th>( p_{abs} &lt; 1 \text{ bar} )</th>
<th>( p_{abs} &gt; 1 \text{ bar} )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C (°F)</td>
<td>°C (°F)</td>
</tr>
<tr>
<td>Stainless steel, 316L</td>
<td>200 (392)</td>
<td>400 (662)</td>
</tr>
<tr>
<td>PTFE coating</td>
<td>200 (392)</td>
<td>260 (500)</td>
</tr>
<tr>
<td>ECTFE coating</td>
<td>200 (392)</td>
<td>260 (500)</td>
</tr>
<tr>
<td>PFA coating</td>
<td>200 (392)</td>
<td>260 (500)</td>
</tr>
<tr>
<td>Hastelloy C4, mat. No. 2.4610</td>
<td>200 (392)</td>
<td>260 (500)</td>
</tr>
<tr>
<td>Hastelloy C276, mat. No. 2.4819</td>
<td>200 (392)</td>
<td>400 (662)</td>
</tr>
<tr>
<td>Monel 400, mat. No. 2.4360</td>
<td>200 (392)</td>
<td>400 (662)</td>
</tr>
<tr>
<td>Tantalum</td>
<td>200 (392)</td>
<td>300 (572)</td>
</tr>
</tbody>
</table>

**Maximum capillary length for diaphragm seals (guidance values)**

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Max. length of capillary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diaphragm seal</td>
</tr>
<tr>
<td>DN 25</td>
<td>(1 inch)</td>
</tr>
<tr>
<td>DN 32</td>
<td>(1¼ inch)</td>
</tr>
<tr>
<td>DN 40</td>
<td>(1½ inch)</td>
</tr>
<tr>
<td>DN 50</td>
<td>(2 inch)</td>
</tr>
<tr>
<td>DN 65</td>
<td>(2½ inch)</td>
</tr>
<tr>
<td>DN 80</td>
<td>(3 inch)</td>
</tr>
<tr>
<td>DN 100</td>
<td>(4 inch)</td>
</tr>
<tr>
<td>DN 125</td>
<td>(5 inch)</td>
</tr>
</tbody>
</table>
**Response times**

The values listed in the following table are the response times (in seconds per meter of capillary) for a change in pressure which corresponds to the set span. The listed values must be multiplied by the respective length of the capillary, or with transmitters for differential pressure and flow by the total length of both capillaries.

The response times are independent of the set span within the range of the respective transmitter. The response times are of insignificant importance for spans above 10 bar (145 psi). The response times of the pressure transmitters are not considered in the table.

<table>
<thead>
<tr>
<th>Filling liquid</th>
<th>Density</th>
<th>Temperature on capillary</th>
<th>Response time in s/m (s/ft) with max. span of pressure transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>kg/dm³</td>
<td>°C (°F)</td>
<td>250 mbar (3.63 psi) 600 mbar (8.7 psi) 1600 mbar (23.2 psi)</td>
</tr>
<tr>
<td>Silicone oil M5</td>
<td>0.914</td>
<td>+60 (140) 0.06 (0.018) 0.02 (0.006) 0.01 (0.003)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+20 (68) 0.11 (0.034) 0.02 (0.006) 0.02 (0.006)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-20 (–4) 0.3 (0.091) 0.12 (0.037) 0.05 (0.015)</td>
<td></td>
</tr>
<tr>
<td>Silicone oil M50</td>
<td>0.966</td>
<td>+60 (140) 0.6 (0.183) 0.25 (0.076) 0.09 (0.027)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+20 (68) 0.61 (0.186) 0.26 (0.079) 0.1 (0.030)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-20 (–4) 1.69 (0.515) 0.71 (0.216) 0.27 (0.082)</td>
<td></td>
</tr>
<tr>
<td>High-temperature oil</td>
<td>1.070</td>
<td>+60 (140) 0.14 (0.043) 0.06 (0.018) 0.02 (0.006)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+20 (68) 0.65 (0.198) 0.27 (0.082) 0.1 (0.030)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-10 (14) 3.96 (1.207) 1.65 (0.503) 0.62 (0.189)</td>
<td></td>
</tr>
<tr>
<td>Halocarbon oil</td>
<td>1.968</td>
<td>+60 (140) 0.07 (0.021) 0.03 (0.009) 0.01 (0.003)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+20 (68) 0.29 (0.088) 0.12 (0.037) 0.05 (0.015)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-20 (–4) 2.88 (0.878) 1.2 (0.366) 0.45 (0.137)</td>
<td></td>
</tr>
<tr>
<td>Food oil (FDA listed)</td>
<td>0.920</td>
<td>+60 (140) 0.75 (0.229) 0.33 (0.101) 0.17 (0.052)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+20 (68) 4 (1.220) 1.75 (0.534) 0.67 (0.204)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-20 (–4) 20 (6.100) 8.5 (2.593) 3.25 (0.991)</td>
<td></td>
</tr>
<tr>
<td>Glycerin/water</td>
<td>1.220</td>
<td>+60 (140) 0.13 (0.040) 0.05 (0.015) 0.02 (0.006)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+20 (68) 0.76 (0.232) 0.32 (0.098) 0.12 (0.037)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 (32) 9.72 (2.963) 4.05 (1.234) 1.51 (0.460)</td>
<td></td>
</tr>
</tbody>
</table>

**Technical data of filling liquids**

When selecting the filling liquid, check that it is suitable with respect to the permissible temperature of the medium and the process pressure. Also check the compatibility of the filling liquid with the measured medium. For example, only physiologically harmless filling liquids may be used in the food industry.

Oxygen and chlorine are special cases of measured medium. The liquid must not react with either of these two media or a leaking remote seal may lead to an explosion or fire.

<table>
<thead>
<tr>
<th>Filling liquid</th>
<th>Digit in Order No.</th>
<th>Permissible temperature of medium</th>
<th>Density at 20 °C (68 °F)</th>
<th>Viscosity at 20 °C (68 °F)</th>
<th>Coefficient of expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil M5</td>
<td>1</td>
<td>p-abs &lt; 1 bar: -60 ... +80 (76 ... +176)</td>
<td>0.914 (0.03) 4 (43)</td>
<td>0.00108 (0.00060)</td>
<td></td>
</tr>
<tr>
<td>silicone oil M50</td>
<td>2</td>
<td>p-abs &lt; 1 bar: -40 ... +150 (302)</td>
<td>0.96 (0.03) 50 (538)</td>
<td>0.00104 (0.00058)</td>
<td></td>
</tr>
<tr>
<td>High-temperature oil</td>
<td>3</td>
<td>p-abs &gt; 1 bar: -10 ... +200 (392)</td>
<td>1.07 (0.04) 39 (420)</td>
<td>0.00080 (0.00044)</td>
<td></td>
</tr>
<tr>
<td>Halocarbon oil</td>
<td>4</td>
<td>Not possible: -40 ... +80 (347)</td>
<td>1.968 (0.07) 14 (151)</td>
<td>0.00086 (0.00048)</td>
<td></td>
</tr>
<tr>
<td>Glycerin/water</td>
<td>6</td>
<td>Not possible: -4 ... +320 (248)</td>
<td>1.22 (0.04) 88 (947)</td>
<td>0.00050 (0.00028)</td>
<td></td>
</tr>
<tr>
<td>Food oil (FDA listed)</td>
<td>7</td>
<td>Not possible: -20 ... +160 (392)</td>
<td>0.92 (0.03) 10 (107)</td>
<td>0.00080 (0.00044)</td>
<td></td>
</tr>
</tbody>
</table>
SITRANS P measuring instruments for pressure
Diaphragm seals of sandwich design
For gage, absolute, differential pressure and flow with flexible capillary

Overview

Diaphragm seals of sandwich design

Technical specifications

### Diaphragm seals of sandwich design

<table>
<thead>
<tr>
<th>Nominal diameter</th>
<th>Nominal pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>• DN 50</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>• DN 80</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>• DN 100</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>• DN 125</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>• 2 inch</td>
<td>Class 150 ... class 2500</td>
</tr>
<tr>
<td>• 3 inch</td>
<td>Class 150 ... class 2500</td>
</tr>
<tr>
<td>• 4 inch</td>
<td>Class 150 ... class 2500</td>
</tr>
<tr>
<td>• 5 inch</td>
<td>Class 150 ... class 2500</td>
</tr>
</tbody>
</table>

#### Sealing face
- For stainless steel, mat. No. 1.4404/216L: To EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA
- For the other materials: To EN 1092-1, form B2 or ASME B16.5 RFSF

#### Materials
- **Main body**: Stainless steel 316L
- **Wetted parts**: Stainless steel 316L
  - Without foil
  - PTFE (for vacuum on request)
  - ECTFE (for vacuum on request)
  - PFA (for vacuum on request)
- **Capillary**: Stainless steel, mat. No. 1.4571/316Ti
- **Sheath**: Spiral hose made of stainless steel, mat. No. 1.4301/316

#### Sealing material in the process flanges
- For pressure transmitters, absolute pressure transmitters and low-pressure applications: Copper
- For other applications: Viton

#### Maximum pressure
See above and the technical data of the pressure transmitters

#### Tube length
Without tube as standard (tube available on request)

#### Capillary
- **Length**: Max. 10 m (32.8 ft), longer lengths on request
- **Internal diameter**: max. 2 mm (0.079 inch)
- **Minimum bending radius**: 150 mm (5.9 inch)

#### Filling liquid
- Silicone oil M5
- Silicone oil M50
- High-temperature oil
- Halocarbon oil (for measuring O2)
- Food oil (FDA listed)
- Glycerine/water (not suitable for use in low-pressure range)

#### Permissible ambient temperature
Dependent on the pressure transmitter and the filling liquid of the remote seal

More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals

#### Weight
Approx. 4 kg (8.82 lb)

Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)

For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)
**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Applications</th>
<th>Order No.</th>
<th>Ord.code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diaphragm seal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandwich-type design, with flexible capillary connected to a SITRANS P transmitter (order separately):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for pressure 7MF403 and 7MF423 together with Order code “V01” (vacuum-proof design) and 7MF802</td>
<td>7MF 4 9 0 0 -</td>
<td></td>
</tr>
<tr>
<td>Scope of delivery (1 off)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for absolute pressure 7MF433;</td>
<td>7MF 4 9 0 1 -</td>
<td></td>
</tr>
<tr>
<td>Scope of delivery (1 off)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for differential pressure and flow 7MF443; scope of delivery 2 off</td>
<td>7MF 4 9 0 3 -</td>
<td></td>
</tr>
</tbody>
</table>

**Nominal diameter and nominal pressure**

- DN 50 PN 16 ... 100
- DN 80 PN 16 ... 100
- DN 100 PN 16 ... 100
- DN 125 PN 16 ... 100
- 2 inch Class 150 ... 2500

**Wetted parts materials**

- Stainless steel 316L
  - without foil
  - with PTFE coating
  - with ECTFE coating
  - with PFA coating
- Monel 400, mat. No. 2.4360
- Hastelloy C276, mat. No. 2.4819
- Hastelloy C4, mat. No. 2.4610
- Tantalum

**Length of capillary**

1.0 m (3.28 ft) 1
1.6 m (5.25 ft) 3
2.5 m (8.20 ft) 4
4.0 m (13.1 ft) 5
6.0 m (19.7 ft) 6
8.0 m (26.25 ft) 7
10.0 m (32.8 ft) 8

**Selection and Ordering data**

<table>
<thead>
<tr>
<th>Applications</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spark arrester</strong></td>
<td>A01</td>
</tr>
<tr>
<td>With spark arrester for mounting on zone 0 (including documentation)</td>
<td></td>
</tr>
<tr>
<td><strong>Quality inspection certificate (Factory calibration)</strong> to IEC 60770-2</td>
<td>C11</td>
</tr>
<tr>
<td><strong>Acceptance test certificate</strong> to EN 10204, section 3.1</td>
<td>C12</td>
</tr>
<tr>
<td><strong>Vacuum-proof design</strong></td>
<td>V01</td>
</tr>
<tr>
<td>for use in low-pressure range for transmitters for</td>
<td></td>
</tr>
<tr>
<td><strong>Calculation of span of associated pressure transmitter</strong></td>
<td>Y05</td>
</tr>
</tbody>
</table>

---

1) With 7MF802 and the measuring cells Q, S, T and U also order the vacuum-tight version.
2) Max. capillary length, see section “Technical description”.
3) Subject to export regulations AL: N, ECCN: EAR99H.

---

1) With 7MF802 and the measuring cells Q, S, T and U also order the vacuum-tight version.
2) For vacuum on request
3) Not suitable for use in low-pressure range.
Diaphragm seals of sandwich design

For gage, absolute, differential pressure and flow with flexible capillary

### Dimensional drawings

![Diagram of Diaphragm Seals](image)

#### Connection to EN 1092-1

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d_M</th>
<th>l</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 50</td>
<td>PN 16 ... PN 100</td>
<td>20</td>
<td>102</td>
<td>59</td>
<td>100</td>
</tr>
<tr>
<td>DN 80</td>
<td></td>
<td>20</td>
<td>138</td>
<td>89</td>
<td>100</td>
</tr>
<tr>
<td>DN 100</td>
<td></td>
<td>20</td>
<td>158</td>
<td>89</td>
<td>100</td>
</tr>
<tr>
<td>DN 125</td>
<td></td>
<td>22</td>
<td>188</td>
<td>124</td>
<td>100</td>
</tr>
</tbody>
</table>

#### Connection to ASME B16.5

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d_M</th>
<th>l</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 inch</td>
<td>150 ... 2500</td>
<td>(0.79)</td>
<td>(3.94)</td>
<td>(2.32)</td>
<td>(3.94)</td>
</tr>
<tr>
<td>3 inch</td>
<td></td>
<td>(0.79)</td>
<td>(5.28)</td>
<td>(2.32)</td>
<td>(3.94)</td>
</tr>
<tr>
<td>4 inch</td>
<td></td>
<td>(0.79)</td>
<td>(6.22)</td>
<td>(2.32)</td>
<td>(3.94)</td>
</tr>
<tr>
<td>5 inch</td>
<td></td>
<td>(0.87)</td>
<td>(7.32)</td>
<td>(4.88)</td>
<td>(3.94)</td>
</tr>
</tbody>
</table>

**d:** Inside diameter of gasket according to EN 1092-1 / ASME B16.5

**d_M:** Effective diaphragm diameter

Diaphragm seals of sandwich design with flexible capillary for connection to SITRANS P pressure transmitters for pressure, dimensions in mm (inch)
### SITRANS P measuring instruments for pressure

**Diaphragm seals of flange design**

**For gage, absolute, differential pressure and flow with flexible capillary**

#### Overview

![Diaphragm seals of flange design](image)

#### Technical specifications

**Diaphragm seals of flange design with flexible capillary**

<table>
<thead>
<tr>
<th>Nominal diameter</th>
<th>Nominal pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>• DN 50 (recommendable only for pressure transmitters for pressure)</td>
<td>PN 10 ... PN 40, PN 100</td>
</tr>
<tr>
<td>• DN 80</td>
<td>PN 10 ... PN 40, PN 100</td>
</tr>
<tr>
<td>• DN 100</td>
<td>PN 16, PN 40</td>
</tr>
<tr>
<td>• DN 125</td>
<td>PN 16, PN 40</td>
</tr>
<tr>
<td>• 2 inch (recommendable only for pressure transmitters for pressure)</td>
<td>Class 150, class 300, class 600, class 1500</td>
</tr>
<tr>
<td>• 3 inch</td>
<td>Class 150, class 300, class 600</td>
</tr>
<tr>
<td>• 4 inch</td>
<td>Class 150, class 300, class 400</td>
</tr>
<tr>
<td>• 5 inch</td>
<td>Class 150, class 300, class 400</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sealing face</th>
</tr>
</thead>
<tbody>
<tr>
<td>• For stainless steel, mat. No. 1.4404/316L</td>
</tr>
<tr>
<td>• For the other materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Main body</td>
</tr>
<tr>
<td>• Wetted parts</td>
</tr>
<tr>
<td>• Without foil</td>
</tr>
<tr>
<td>• PTFE (for vacuum on request)</td>
</tr>
<tr>
<td>• ECTFE (for vacuum on request)</td>
</tr>
<tr>
<td>• PFA (for vacuum on request)</td>
</tr>
<tr>
<td>• Monel 400, mat. No. 2.4360</td>
</tr>
<tr>
<td>• Hastelloy C276, mat. No. 2.4819</td>
</tr>
<tr>
<td>• Hastelloy C4, mat. No. 2.4610</td>
</tr>
<tr>
<td>• Tantalum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>• Capillary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel, mat. No. 1.4571/316Ti</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>• Sheath</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spiral hose made of stainless steel, mat. No. 1.4404/316L</td>
</tr>
</tbody>
</table>

### Sealing material in the process flanges

- For pressure transmitters, absolute pressure transmitters and low-pressure applications: Copper
- For other applications: Viton

### Maximum pressure

See above and the technical data of the pressure transmitter.

### Tube length

Without tube as standard (tube available on request).

### Capillary

- Length: Max. 10 m (32.8 ft), longer lengths on request
- Internal diameter: 2 mm (0.079 inch)
- Minimum bending radius: 150 mm (5.9 inch)

### Filling liquid

(for remote seals of sandwich and flange design)

- Silicone oil M5
- Silicone oil M50
- High-temperature oil
- Halocarbon oil (for measuring O₂)
- Food oil (FDA listed)
- Glycerine/water (not for use in low-pressure range)

### Permissible ambient temperature

Dependent on the pressure transmitter and the filling liquid of the remote seal.

More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals.

### Weight

Approx. 4 kg (8.82 lb)

### Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)

For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)
### Selection and Ordering data

<table>
<thead>
<tr>
<th>Diaphragm seal</th>
<th>Order No.</th>
<th>Ord. code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange design, with flexible capillary, connected to a pressure transmitter SITRANS P (order separately):</td>
<td>7MF403</td>
<td>D) 7MF 4 9 2 0 -</td>
</tr>
<tr>
<td>for pressure 7MF403 and 7MF423 together with Order code &quot;V01&quot; (vacuum-proof design)</td>
<td>7MF423</td>
<td>D) 7MF 4 9 2 1 -</td>
</tr>
<tr>
<td>Scope of delivery: 1 off</td>
<td>7MF802</td>
<td>D) 7MF 4 9 2 3 -</td>
</tr>
<tr>
<td>for absolute pressure 7MF433;</td>
<td>7MF433</td>
<td>1)</td>
</tr>
<tr>
<td>Scope of delivery: 1 off</td>
<td>7MF443</td>
<td>1)</td>
</tr>
<tr>
<td>for differential pressure and flow 7MF443;</td>
<td>7MF443</td>
<td>1)</td>
</tr>
<tr>
<td>Scope of delivery: 2 off</td>
<td>7MF492</td>
<td>1)</td>
</tr>
</tbody>
</table>

### Nominal diameter and nominal pressure

<table>
<thead>
<tr>
<th>Nominal diameter</th>
<th>Nominal pressure</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 50</td>
<td>PN 10 ... 40</td>
<td>A</td>
</tr>
<tr>
<td>(DN 50 recommended only for pressure transmitters for pressure)</td>
<td>PN 100</td>
<td>B</td>
</tr>
<tr>
<td>DN 80</td>
<td>PN 10 ... 40</td>
<td>D</td>
</tr>
<tr>
<td>DN 100</td>
<td>PN 16</td>
<td>E</td>
</tr>
<tr>
<td>DN 125</td>
<td>PN 16</td>
<td>G</td>
</tr>
<tr>
<td>2 inch</td>
<td>Class 150</td>
<td>J</td>
</tr>
<tr>
<td></td>
<td>Class 600</td>
<td>P</td>
</tr>
<tr>
<td>3 inch</td>
<td>Class 150</td>
<td>Q</td>
</tr>
<tr>
<td></td>
<td>Class 300</td>
<td>R</td>
</tr>
<tr>
<td>4 inch</td>
<td>Class 150</td>
<td>T</td>
</tr>
<tr>
<td></td>
<td>Class 400</td>
<td>V</td>
</tr>
<tr>
<td>5 inch</td>
<td>Class 150</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>Class 400</td>
<td>Y</td>
</tr>
</tbody>
</table>

- Smooth sealing face to EN 1092-1, form B1 or to ASME B16.5 RF 125 ... 250 AA
- Other version
  - Add Order code and plain text: Nominal diameter: ... Nominal pressure: ... Sealing face: See "Technical data"

### Wetted parts materials

- Stainless steel 316L
  - without foil
  - with PTFE coating
  - with ECTFE coating
  - with PFA coating
- Monel 400, mat. No. 2.4360
- Hastelloy C276, mat. No. 2.4819
- Hastelloy C4, mat. No. 2.4610
- Tantalum

- Other version
  - Add Order code and plain text: Wetted parts materials: ...

### Tube length

- without tube
- Other version
  - Add Order code and plain text: Tube length: ...

### Filling liquid

- Silicone oil M5
- Silicone oil M50
- High-temperature oil
- Halocarbon oil (for measuring O2)
- Glycerin/water
- Food oil (FDA listed)

### Length of capillary

- 1.0 m (3.28 ft)
- 1.6 m (5.25 ft)
- 2.5 m (8.20 ft)
- 4.0 m (13.1 ft)
- 6.0 m (19.7 ft)
- 8.0 m (26.25 ft)
- 10.0 m (32.8 ft)

- Other version
  - Add Order code and plain text: Length of capillary: ...

1) With 7MF802 and the measuring cells Q, S, T and U also order the vacuum-tight version.
2) For vacuum on request.
3) Not suitable for use in low-pressure range.
4) Max. capillary length, see section "Technical description".

D) Subject to export regulations AL: N, ECCN: EAR99H.

---

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Diaphragm seal</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flange design, with flexible capillary, connected to a pressure transmitter SITRANS P (order separately):</td>
<td>7MF403</td>
</tr>
<tr>
<td>for pressure 7MF403 and 7MF423 together with Order code &quot;V01&quot; (vacuum-proof design)</td>
<td>D) 7MF 4 9 2 0 -</td>
</tr>
<tr>
<td>Scope of delivery: 1 off</td>
<td>7MF423</td>
</tr>
<tr>
<td>for absolute pressure 7MF433;</td>
<td>7MF433</td>
</tr>
<tr>
<td>Scope of delivery: 1 off</td>
<td>7MF443</td>
</tr>
<tr>
<td>for differential pressure and flow 7MF443;</td>
<td>7MF443</td>
</tr>
<tr>
<td>Scope of delivery: 2 off</td>
<td>7MF492</td>
</tr>
</tbody>
</table>

### Fillig liquid

- Silicone oil M5
- Silicone oil M50
- High-temperature oil
- Halocarbon oil (for measuring O2)
- Glycerin/water
- Food oil (FDA listed)

### Length of capillary

- 1.0 m (3.28 ft)
- 1.6 m (5.25 ft)
- 2.5 m (8.20 ft)
- 4.0 m (13.1 ft)
- 6.0 m (19.7 ft)
- 8.0 m (26.25 ft)
- 10.0 m (32.8 ft)

### Wetted parts materials

- Stainless steel 316L
  - without foil
  - with PTFE coating
  - with ECTFE coating
  - with PFA coating
- Monel 400, mat. No. 2.4360
- Hastelloy C276, mat. No. 2.4819
- Hastelloy C4, mat. No. 2.4610
- Tantalum

### Tube length

- without tube

### Other version

- Add Order code and plain text: Length of capillary: ...

---

### Spark arrestor

- With spark arrestor for mounting on zone 0 (including documentation) for transmitters for
  - pressure and absolute pressure
  - differential pressure

### Quality inspection certificate (Factory calibration)

- to IEC 60770-2

### Acceptance test certificate

- to EN 10204, section 3.1

### Vacuum-proof design

- for use in low-pressure range for transmitters for
  - pressure
  - differential pressure

### Calculation of span of associated pressure transmitter

- Enclose filled-in questionnaire with order

---

### Further designs

Please add "-Z" to Order No. and specify Order code.

- Spark arrestor
- Quality inspection certificate (Factory calibration)
- Acceptance test certificate
- Vacuum-proof design
- Calculation of span of associated pressure transmitter

---

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spark arrestor</td>
<td>A01</td>
</tr>
<tr>
<td>Quality inspection certificate (Factory calibration) to IEC 60770-2</td>
<td>C11</td>
</tr>
<tr>
<td>Acceptance test certificate to EN 10204, section 3.1</td>
<td>C12</td>
</tr>
</tbody>
</table>
| Vacuum-proof design for use in low-pressure range for transmitters for
  - pressure
  - differential pressure | V01 |
| Calculation of span of associated pressure transmitter | Y05 |

---

### Selection and Ordering data

<table>
<thead>
<tr>
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| Vacuum-proof design for use in low-pressure range for transmitters for
  - pressure
  - differential pressure | V01 |
| Calculation of span of associated pressure transmitter | Y05 |

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### Selection and Ordering data

<table>
<thead>
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<tbody>
<tr>
<td>Spark arrestor</td>
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</tr>
</tbody>
</table>
| Vacuum-proof design for use in low-pressure range for transmitters for
  - pressure
  - differential pressure | V01 |
| Calculation of span of associated pressure transmitter | Y05 |
SITRANS P measuring instruments for pressure
Diaphragm seals of flange design

For gage, absolute, differential pressure and flow with flexible capillary

Dimensional drawings

Connection to EN 1092-1

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d₂</th>
<th>d₄</th>
<th>d₅</th>
<th>d₆</th>
<th>f</th>
<th>k</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 50</td>
<td>PN 40</td>
<td>20</td>
<td>165</td>
<td>18</td>
<td>102</td>
<td>59</td>
<td>2</td>
<td>125</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>DN 80</td>
<td>PN 100</td>
<td>29</td>
<td>195</td>
<td>26</td>
<td>138</td>
<td>59</td>
<td>2</td>
<td>145</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>DN 100</td>
<td>PN 40</td>
<td>24</td>
<td>200</td>
<td>18</td>
<td>138</td>
<td>89</td>
<td>2</td>
<td>160</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>DN 125</td>
<td>PN 16</td>
<td>23</td>
<td>200</td>
<td>20</td>
<td>158</td>
<td>89</td>
<td>2</td>
<td>160</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PN 40</td>
<td>26</td>
<td>270</td>
<td>26</td>
<td>188</td>
<td>124</td>
<td>2</td>
<td>220</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Nominal dimensional drawings

Nominal dimensional drawings for gage, absolute, differential pressure and flow with flexible capillary

Connection to ASME B16.5

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d₂</th>
<th>d₄</th>
<th>d₅</th>
<th>d₆</th>
<th>f</th>
<th>k</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 inch</td>
<td></td>
<td>(0.79)</td>
<td>(5.80)</td>
<td>(0.79)</td>
<td>(3.62)</td>
<td>(2.32)</td>
<td>(0.06)</td>
<td>(4.74)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 inch</td>
<td></td>
<td>(0.96)</td>
<td>(7.48)</td>
<td>(0.79)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 inch</td>
<td></td>
<td>(1.14)</td>
<td>(8.27)</td>
<td>(0.87)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 inch</td>
<td></td>
<td>(1.52)</td>
<td>(8.27)</td>
<td>(0.87)</td>
<td>(3.50)</td>
<td>(0.25)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connection to EN 1092-1

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d₂</th>
<th>d₄</th>
<th>d₅</th>
<th>d₆</th>
<th>f</th>
<th>k</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 inch 150</td>
<td></td>
<td>(0.8)</td>
<td>(7.9)</td>
<td>(0.79)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 inch 150</td>
<td></td>
<td>(1.2)</td>
<td>(10.0)</td>
<td>(0.87)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 inch 150</td>
<td></td>
<td>(1.6)</td>
<td>(12)</td>
<td>(0.9)</td>
<td>(3.50)</td>
<td>(0.25)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connection to ASME B16.5

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d₂</th>
<th>d₄</th>
<th>d₅</th>
<th>d₆</th>
<th>f</th>
<th>k</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 inch 150</td>
<td></td>
<td>(0.96)</td>
<td>(7.9)</td>
<td>(0.79)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 inch 150</td>
<td></td>
<td>(1.2)</td>
<td>(10.0)</td>
<td>(0.87)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 inch 150</td>
<td></td>
<td>(1.6)</td>
<td>(12)</td>
<td>(0.9)</td>
<td>(3.50)</td>
<td>(0.25)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Connection to EN 1092-1

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d₂</th>
<th>d₄</th>
<th>d₅</th>
<th>d₆</th>
<th>f</th>
<th>k</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 inch 150</td>
<td></td>
<td>(0.94)</td>
<td>(7.9)</td>
<td>(0.79)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 inch 150</td>
<td></td>
<td>(1.3)</td>
<td>(11.0)</td>
<td>(0.87)</td>
<td>(3.50)</td>
<td>(0.25)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 inch 150</td>
<td></td>
<td>(1.79)</td>
<td>(11.0)</td>
<td>(0.9)</td>
<td>(3.50)</td>
<td>(0.25)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nominal dimensional drawings

Nominal dimensional drawings for gage, absolute, differential pressure and flow with flexible capillary

Connection to ASME B16.5

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d₂</th>
<th>d₄</th>
<th>d₅</th>
<th>d₆</th>
<th>f</th>
<th>k</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 inch 150</td>
<td></td>
<td>(0.94)</td>
<td>(7.9)</td>
<td>(0.79)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 inch 150</td>
<td></td>
<td>(1.3)</td>
<td>(11.0)</td>
<td>(0.87)</td>
<td>(3.50)</td>
<td>(0.25)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 inch 150</td>
<td></td>
<td>(1.79)</td>
<td>(11.0)</td>
<td>(0.9)</td>
<td>(3.50)</td>
<td>(0.25)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nominal dimensional drawings

Nominal dimensional drawings for gage, absolute, differential pressure and flow with flexible capillary

Diaphragm seals of flange design with flexible capillary for connection to SITRANS P pressure transmitters for absolute pressure or for differential pressure and flow, dimensions in mm (inch)

Diaphragm seals of flange design with flexible capillary for connection to SITRANS P pressure transmitters for pressure, dimensions in mm (inch)
Siemens FI 01 · 2009

SITRANS P measuring instruments for pressure

Diaphragm seals of flange design
For gage and absolute pressure, directly fitted on transmitter

Overview

Diaphragm seals of flange design, directly fitted on a pressure transmitter for pressure

Technical specifications

Diaphragm seals (flange design) for pressure and absolute pressure, directly fitted on a transmitter

<table>
<thead>
<tr>
<th>Nominal diameter</th>
<th>Nominal pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>• DN 50</td>
<td>PN 40, PN 100</td>
</tr>
<tr>
<td>• DN 80</td>
<td>PN 40, PN 100</td>
</tr>
<tr>
<td>• DN 100</td>
<td>PN 16, PN 40</td>
</tr>
<tr>
<td>• 2 inch</td>
<td>Class 150, class 300, class 600, class 1500</td>
</tr>
<tr>
<td>• 3 inch</td>
<td>Class 150, class 300, class 600</td>
</tr>
<tr>
<td>• 4 inch</td>
<td>Class 150, class 300, class 400</td>
</tr>
</tbody>
</table>

Sealing face

- For stainless steel, mat. No. 1.4404/316L
  To EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA
- For the other materials
  Smooth to EN 1092-1, form B2 or ASME B16.5 RFSF

Materials

- Main body
  Stainless steel 316L
- Wetted parts
  Stainless steel 316L
  - Without foil
  - PTFE (for vacuum on request)
  - ECTFE (for vacuum on request)
  - PFA (for vacuum on request)
  Monel 400, mat. No. 2.4360
  Hastelloy C276, mat. No. 2.4819
  Hastelloy C4, mat. No. 2.4610
  Tantalum
- Capillary
  Stainless steel, 1.4571/316Ti
- Sealing material on the process connection
  Copper

Maximum pressure

See above and the technical data of the transmitter

Tube length

- Without tube
- 50 mm (1.97 inch)
- 100 mm (3.94 inch)
- 150 mm (5.91 inch)
- 200 mm (7.87 inch)

Capillary

- Length
  Max. 10 m (32.8 ft), longer lengths on request
- Internal diameter
  2 mm (0.079 inch)
- Minimum bending radius
  150 mm (5.9 inch)

Filling liquid

- Silicone oil M5
- Silicone oil M50
- High-temperature oil
- Halocarbon oil (for measuring O2)
- Food oil (FDA listed)
- Glycerine/water (not suitable for use in low-pressure range)

Max. recommended process temperature

170 °C (338 °F)

Permissible ambient temperature

Dependent on the pressure transmitter and the filling liquid of the remote seal.

More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals.

Weight

Approx. 4 kg (8.82 lb)

Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)

For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)
### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Ord.code</th>
<th>Diaphragm seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>D)</td>
<td>7 MF 4 9 1 0</td>
<td></td>
</tr>
</tbody>
</table>

Directly fitted to a pressure transmitter SITRANS P for pressure 7MF403 and 7MF423 together with Order code “V01” (vacuum-proof design) and 7MF802[1]; must be ordered separately.

### Process connection
- Vertical (pressure transmitter upright)
- Horizontal

### Nominal diameter and nominal pressure

<table>
<thead>
<tr>
<th>Dia</th>
<th>PN 50</th>
<th>PN 80</th>
<th>PN 100</th>
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<tr>
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<td>B</td>
<td>100</td>
<td>100</td>
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</tr>
<tr>
<td>C</td>
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<td>150</td>
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<td>E</td>
<td>150</td>
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</tr>
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<td>F</td>
<td>150</td>
<td>150</td>
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</tr>
<tr>
<td>G</td>
<td>150</td>
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<td>150</td>
</tr>
</tbody>
</table>

### Other version
- Add Order code and plain text:
  - Nominal diameter: ...
  - Nominal pressure: ...

### Wetted parts materials

- Stainless steel 316L
  - without foil
  - with PTFE coating
  - with ECTFE coating[2]
  - with PFA coating
- Monel 400, mat. No. 2.4360
- Hastelloy C276, mat. No. 2.4819
- Hastelloy C4, mat. No. 2.4610
- Tantalum

### Tube length

- Without tube
- 50 mm (1.97 inch)
- 100 mm (3.94 inch)
- 150 mm (5.90 inch)
- 200 mm (7.87 inch)

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Ord.code</th>
<th>Diaphragm seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>D)</td>
<td>7 MF 4 9 1 0</td>
<td></td>
</tr>
</tbody>
</table>

Directly fitted to a pressure transmitter SITRANS P for pressure 7MF403 and 7MF423 together with Order code “V01” (vacuum-proof design) and 7MF802[1]; must be ordered separately.

### Filling liquid
- Silicone oil M5
- Silicone oil M50
- High-temperature oil
- Halocarbon oil (for measuring O₂)
- Glycerin/water[3]
- Food oil (FDA listed)

Other version
- Add Order code and plain text:
  - Filling liquid: ...

[1] With 7MF802 and the measuring cells Q, S, T and U also order the vacuum-tight version.
[2] For vacuum on request.

Subject to export regulations AL: N, ECCN: EAR99H.

### Spark arrestor
- With spark arrestor for mounting on zone 0 (including documentation) for transmitters for pressure and absolute pressure

### Quality inspection certificate (Factory calibration)
- to IEC 60770-2

### Acceptance test certificate
- to EN 10204, section 3.1

### Vacuum-proof design
- for use in low-pressure range for transmitters for pressure

### Calculation of span of associated pressure transmitter
- Enclose filled-in questionnaire with order

---

1) With 7MF802 and the measuring cells Q, S, T and U also order the vacuum-tight version.
2) For vacuum on request.
3) Not suitable for use in low-pressure range.

Subject to export regulations AL: N, ECCN: EAR99H.
SITRANS P measuring instruments for pressure

Diaphragm seals of flange design

For gage and absolute pressure, directly fitted on transmitter

### Dimensional drawings

Diaphragm seals of flange design, direct connection to a SITRANS P pressure transmitter (process connection vertical (top) and horizontal (bottom)), dimensions in mm (inch)

### Connection to EN 1092-1

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d2</th>
<th>d4</th>
<th>d5</th>
<th>dM</th>
<th>f</th>
<th>k</th>
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<tbody>
<tr>
<td>mm</td>
<td>mm</td>
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<td>mm</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>DN 50</td>
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<td>18</td>
<td>102</td>
<td>48.3</td>
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### Connection to ASME B16.5

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<th>D</th>
<th>d2</th>
<th>d4</th>
<th>d5</th>
<th>dM</th>
<th>f</th>
<th>k</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
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<td>mm</td>
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<tr>
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<td>150</td>
<td>20</td>
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<tr>
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<td>(5.91)</td>
<td>(0.79)</td>
<td>(3.62)</td>
<td>(1.9)</td>
<td>(2.32)</td>
<td>(0.06)</td>
<td>(4.74)</td>
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<td>(0.89)</td>
<td>(6.5)</td>
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<td>(1.9)</td>
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<td>(1.02)</td>
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<td>(0.25)</td>
<td>(6.5)</td>
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</tr>
<tr>
<td>3 inch</td>
<td>150</td>
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<td>89</td>
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<td>(5)</td>
<td>(3)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6)</td>
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<td>(6.63)</td>
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<td>230</td>
<td>20</td>
<td>158</td>
<td>94</td>
<td>89</td>
<td>1.6</td>
<td>190.5</td>
<td>8</td>
</tr>
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<td>(0.95)</td>
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<td>(0.79)</td>
<td>(6.22)</td>
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<td>(0.06)</td>
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<td></td>
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<td>8</td>
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</tr>
<tr>
<td>(1.26)</td>
<td>(10.04)</td>
<td>(0.79)</td>
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<td>8</td>
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<td>(1.62)</td>
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<td>(3.50)</td>
<td>(0.25)</td>
<td>(7.87)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **d**: Inside diameter of gasket according to EN 1092-1 / ASME B16.5
- **dM**: Effective diaphragm diameter
SITRANS P measuring instruments for pressure
Diaphragm seals of flange design

For differential pressure, fixed connection and with capillary

Overview

Diaphragm seals of flange design for pressure transmitters for differential pressure, fixed connection and with flexible capillary

Technical specifications

<table>
<thead>
<tr>
<th>Nominal diameter</th>
<th>Nominal pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>• DN 80</td>
<td>PN 40</td>
</tr>
<tr>
<td>• DN 100</td>
<td>PN 16, PN 40</td>
</tr>
<tr>
<td>• 3 inch</td>
<td>Class 150, class 300</td>
</tr>
<tr>
<td>• 4 inch</td>
<td>Class 150, class 300</td>
</tr>
<tr>
<td>Sealing face</td>
<td></td>
</tr>
<tr>
<td>• For stainless steel, mat. No. 1.4404/316L</td>
<td>To EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 AA</td>
</tr>
<tr>
<td>• For the other materials</td>
<td>To EN 1092-1, form B2 or ASME B16.5 RFSF</td>
</tr>
</tbody>
</table>

Materials

<table>
<thead>
<tr>
<th>Main body</th>
<th>Wetted parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless steel 316L</td>
<td>Stainless steel 316L</td>
</tr>
<tr>
<td>• Without foil</td>
<td>• Without foil</td>
</tr>
<tr>
<td>• PTFE (for vacuum on request)</td>
<td>• PTFE (for vacuum on request)</td>
</tr>
<tr>
<td>• ECTFE (for vacuum on request)</td>
<td>• ECTFE (for vacuum on request)</td>
</tr>
<tr>
<td>• PFA (for vacuum on request)</td>
<td>• PFA (for vacuum on request)</td>
</tr>
<tr>
<td>Monel 400, mat. No. 2.4360</td>
<td>Monel 400, mat. No. 2.4360</td>
</tr>
<tr>
<td>Hastelloy C276, mat. No. 2.4819</td>
<td>Hastelloy C276, mat. No. 2.4819</td>
</tr>
<tr>
<td>Hastelloy C4, mat. No. 2.4610</td>
<td>Hastelloy C4, mat. No. 2.4610</td>
</tr>
<tr>
<td>Tantalum</td>
<td>Tantalum</td>
</tr>
</tbody>
</table>

Capillary

<table>
<thead>
<tr>
<th>Length</th>
<th>Internal diameter</th>
<th>Minimum bending radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. 10 m (32.8 ft), longer lengths on request</td>
<td>2 mm (0.079 inch)</td>
<td>150 mm (5.9 inch)</td>
</tr>
</tbody>
</table>

Filling liquid

<table>
<thead>
<tr>
<th>Silicone oil M5</th>
<th>Silicone oil M50</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-temperature oil</td>
<td>Halocarbon oil (for measuring O2)</td>
</tr>
<tr>
<td>Food oil (FDA listed)</td>
<td>Glycerine/water (not suitable for use in low-pressure range)</td>
</tr>
</tbody>
</table>

Max. recommended process temperature

170 °C (338 °F)

Permissible ambient temperature

Dependent on the pressure transmitter and the filling liquid of the remote seal

More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals

Weight

Approx. 4 kg (8.82 lb)

Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)

For gases of fluid group 1 and liquids of fluid group 1, complies with requirements of article 3, paragraph 3 (sound engineering practice)
## Selection and Ordering data

### Diaphragm seal

<table>
<thead>
<tr>
<th>Mounting flange (with tube as option)</th>
<th>Order No. Ord. code</th>
</tr>
</thead>
<tbody>
<tr>
<td>for direct mounting to high-pressure side and flanged remote seal without tube, fitted by means of capillary to low-pressure side of SITRANS P for differential pressure, DS III series (7MF443)</td>
<td>D) 7MF4913 -</td>
</tr>
</tbody>
</table>

### Flange, connection to EN 1092-1

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 80</td>
<td>FN 40</td>
</tr>
<tr>
<td>DN 100</td>
<td>FN 16</td>
</tr>
</tbody>
</table>

### Flange, connection to ASME B16.5

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 inch</td>
<td>Class 150</td>
</tr>
<tr>
<td>4 inch</td>
<td>Class 150</td>
</tr>
</tbody>
</table>

### Wetted parts materials

Smooth sealing face to EN 1092-1, form B1 or B2, or to ASME B16.5 RF 125 ... 250 AA or RF SF
- Stainless steel 316L
  - without foil
  - with PTFE coating
  - with ECTFE coating 1)
  - with PFA coating
- Monel 400, mat. No. 2.4360
- Hastelloy C276, mat. No. 2.4819
- Hastelloy C4, mat. No. 2.4610
- Tantalum

### Tube length

(for mounting flange on high-pressure side)
- Without tube
- 50 mm (1.97 inch)
- 100 mm (3.94 inch)
- 150 mm (5.90 inch)
- 200 mm (7.87 inch)

### Filling liquid

- Silicone oil M5
- Silicone oil M50
- High-temperature oil
- Halocarbon oil (for measuring O$_2$
- Glycerin/Water 2)
- Food oil (FDA listed)

### Length of capillary

1. 1.0 m (3.28 ft)
2. 1.6 m (5.25 ft)
3. 2.5 m (8.20 ft)
4. 4.0 m (13.1 ft)
5. 6.0 m (19.7 ft)
6. 8.0 m (26.25 ft)
7. 10.0 m (32.8 ft)

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order code</th>
</tr>
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<tbody>
<tr>
<td>A02</td>
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<td>C11</td>
</tr>
<tr>
<td>C12</td>
</tr>
<tr>
<td>V03</td>
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<tr>
<td>Y05</td>
</tr>
</tbody>
</table>

### Further designs

- Spark arrestor
  With spark arrestor for mounting on zone 0 (including documentation)
- Quality inspection certificate (Factory calibration) to IEC 60770-2
- Acceptance test certificate to EN 10204, section 3.1
- Vacuum-proof design for use in low-pressure range
- Calculation of span of associated pressure transmitter
  Enclose filled-in questionnaire with order

---

1) For vacuum on request.

2) Not suitable for use in low-pressure range.

3) Max. capillary length, see section "Technical description".

D) Subject to export regulations AL: N, ECCN: EAR99H.
Diaphragm seals of flange design with flexible capillary, fixed connection, for connection to a SITRANS P pressure transmitter for differential pressure, dimensions in mm (inch)

**Nominal diameters and nominal pressures**

<table>
<thead>
<tr>
<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d2</th>
<th>d4</th>
<th>d5</th>
<th>dM</th>
<th>f</th>
<th>k</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 80</td>
<td>PN 40</td>
<td>24</td>
<td>200</td>
<td>18</td>
<td>138</td>
<td>76</td>
<td>89</td>
<td>2</td>
<td>160</td>
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<tr>
<td>DN 100</td>
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<td>162</td>
<td>94</td>
<td>89</td>
<td>2</td>
<td>180</td>
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**Connection to EN 1092-1**

<table>
<thead>
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<th>Nom. press.</th>
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<th>D</th>
<th>d2</th>
<th>d4</th>
<th>d5</th>
<th>dM</th>
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<td>1.6</td>
<td>152.5</td>
<td>4</td>
</tr>
<tr>
<td>(0.96)</td>
<td>(7.48)</td>
<td>(0.79)</td>
<td>(5)</td>
<td>(3)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6)</td>
<td></td>
<td></td>
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<td>4 inch</td>
<td>150</td>
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<td>4</td>
</tr>
<tr>
<td>(0.96)</td>
<td>(9.06)</td>
<td>(0.79)</td>
<td>(6.22)</td>
<td>(3.69)</td>
<td>(3.50)</td>
<td>(0.06)</td>
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**Connection to ASME B16.5**

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<th>Nom. diam.</th>
<th>Nom. press.</th>
<th>b</th>
<th>D</th>
<th>d2</th>
<th>d4</th>
<th>d5</th>
<th>dM</th>
<th>f</th>
<th>k</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 inch</td>
<td>150</td>
<td>24</td>
<td>210</td>
<td>22</td>
<td>127</td>
<td>76</td>
<td>89</td>
<td>1.6</td>
<td>168.5</td>
<td>8</td>
</tr>
<tr>
<td>(1.14)</td>
<td>(8.27)</td>
<td>(0.87)</td>
<td>(5)</td>
<td>(3)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(6.63)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 inch</td>
<td>150</td>
<td>24</td>
<td>255</td>
<td>22</td>
<td>158</td>
<td>94</td>
<td>89</td>
<td>1.6</td>
<td>200</td>
<td>8</td>
</tr>
<tr>
<td>(1.26)</td>
<td>(10.04)</td>
<td>(0.87)</td>
<td>(6.22)</td>
<td>(3.69)</td>
<td>(3.50)</td>
<td>(0.06)</td>
<td>(7.87)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **d**: Inside diameter of gasket according to EN 1092-1 / ASME B16.5
- **dM**: Effective diaphragm diameter

---

**Dimensional drawings**

Diaphragm seals of flange design, for differential pressure, fixed connection and with capillary.
Quick-release diaphragm seals for pressure

Quick-release diaphragm seals

Quick-release diaphragm seals are available for the following SITRANS P pressure transmitter series:

- For pressure: MK II, DS III, DS III PA, DS III FF
- For differential pressure and flow: DS III, DS III PA, DS III FF

The quick-release remote seals are common designs in the food industry. Their design means that the measured medium cannot accumulate in dead volumes. The quick-release clamp present on the remote seal means that quick dismounting is possible for cleaning.

### Technical specifications

#### Quick-release diaphragm seal

<table>
<thead>
<tr>
<th>Connection, nominal diameter</th>
<th>Nominal pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>For pressure</td>
<td></td>
</tr>
<tr>
<td>To DIN 11851 with slotted union nut</td>
<td></td>
</tr>
<tr>
<td>- DN 25</td>
<td>PN 40</td>
</tr>
<tr>
<td>- DN 32</td>
<td>PN 40</td>
</tr>
<tr>
<td>- DN 40</td>
<td>PN 40</td>
</tr>
<tr>
<td>- DN 50</td>
<td>PN 25</td>
</tr>
<tr>
<td>- DN 65</td>
<td>PN 25</td>
</tr>
<tr>
<td>- DN 80</td>
<td>PN 25</td>
</tr>
<tr>
<td>To DIN 11851 with threaded socket</td>
<td></td>
</tr>
<tr>
<td>- DN 50</td>
<td>PN 25</td>
</tr>
<tr>
<td>- DN 65</td>
<td>PN 25</td>
</tr>
<tr>
<td>- DN 80</td>
<td>PN 25</td>
</tr>
</tbody>
</table>

#### Sealing face

- For stainless steel, mat. No. 1.4404/316L To EN 1092-1, form B1 or ASME B16.5 RF 125 ... 250 A
- For the other materials To EN 1092-1, form B2 or ASME B16.5 RFSF

#### Materials

- Main body Stainless steel 316L
- Wetted parts Stainless steel 316L
- Capillary Stainless steel, mat. No. 1.4571/316Ti
- Sheath Spiral hose made of stainless steel, mat. No. 1.4301/316

#### Maximum pressure

See above and the technical data of the pressure transmitter

#### Tube length

Without tube

#### Capillary

- Length Max. 10 m (32.8 ft), longer lengths on request
- Internal diameter 2 mm (0.079 inch)
- Minimum bending radius 150 mm (5.9 inch)

#### Filling liquid

Food oil (FDA listed)
Glycerin/water (not suitable for use in low-pressure range)

#### Permissible ambient temperature

Dependent on the pressure transmitter and the filling liquid of the remote seal

More information can be found in the technical data of the pressure transmitters and in the section “Technical data of filling liquid” in the Technical description to the remote seals.

#### Weight

Approx. 4 kg (8.82 lb)

#### Certificates and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC) For gases of fluid group 1 and liquids of fluid group 1, complies with requirements of article 3, paragraph 3 (sound engineering practice)
## Selection and Ordering data

### Quick-release diaphragm seal

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- DN 25</td>
<td>PN 40</td>
</tr>
<tr>
<td>- DN 32</td>
<td>PN 40</td>
</tr>
<tr>
<td>- DN 40</td>
<td>PN 40</td>
</tr>
<tr>
<td>- DN 50</td>
<td>PN 25</td>
</tr>
<tr>
<td>- DN 65</td>
<td>PN 25</td>
</tr>
<tr>
<td>- DN 80</td>
<td>PN 25</td>
</tr>
</tbody>
</table>

- Connection to DIN 11851 with slotted union nut
- Connection to DIN 11851 with screw necks

**Further designs**

Add Order code and plain text:
- Nominal diameter: ...
- Nominal pressure: ...

**Filling liquid**

- Glycerin/water
- Food oil (FDA listed)

**Connection to pressure transmitter**

- direct through capillary
- 1.0 m (3.28 ft)
- 1.6 m (5.25 ft)
- 2.5 m (8.20 ft)
- 4.0 m (13.1 ft)
- 6.0 m (19.7 ft)
- 8.0 m (26.25 ft)
- 10.0 m (32.8 ft)

**Further designs**

Please add "Z" to Order No. and specify Order code.

### Quality inspection certificate (Factory calibration) to IEC 60770-2

- C11

### Acceptance test certificate

to EN 10204, section 3.1

- C12

### Vacuum-proof design

- V03

---

1) With 7MF8028\(^1\) and the measuring cells Q, S, T and U also order the vacuum-tight version.

2) Not suitable for use in low-pressure range.

3) Max. capillary length, see section "Technical description"
**SITRANS P measuring instruments for pressure**

**Quick-release diaphragm seals**

For gage, absolute and differential pressure

**Dimensional drawings**

<table>
<thead>
<tr>
<th>DN</th>
<th>( d_M )</th>
<th>( D )</th>
<th>( H )</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1½ inch)</td>
<td>32</td>
<td>1.26</td>
<td>35</td>
</tr>
<tr>
<td>(2 inch)</td>
<td>40</td>
<td>1.57</td>
<td>35</td>
</tr>
<tr>
<td>(2½ inch)</td>
<td>52</td>
<td>2.05</td>
<td>35</td>
</tr>
<tr>
<td>(3 inch)</td>
<td>72</td>
<td>2.83</td>
<td>35</td>
</tr>
</tbody>
</table>

\( d_M \) Effective diaphragm diameter

Quick-release diaphragm seal, dimensions in mm (inch)
Overview

Miniature diaphragm seals

The miniature diaphragm seals are available for the following SITRANS P pressure transmitter series for pressure:

• P300, DSIII, DS III PA, DS III FF

Suitable for high pressures, contaminated, fibrous and viscous media in the chemical, paper, food and drink industries.

Design

• Flush-mounted diaphragm
• No dead spaces
• Fixed threaded stems

Dimensional drawings

Technical specifications

Miniature diaphragm seals

<table>
<thead>
<tr>
<th>Span with</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>G1B</td>
<td>&gt; 6 bar (&gt; 87 psi)</td>
</tr>
<tr>
<td>G1 ½B</td>
<td>&gt; 2 bar (&gt; 29 psi)</td>
</tr>
<tr>
<td>G2B</td>
<td>&gt; 600 mbar (&gt; 8.7 psi)</td>
</tr>
</tbody>
</table>

Filling liquid: Silicone oil M5 or food oil (FDA listed)

Material

• Main body: Stainl. steel mat No. 1.4404/ 316L
• Diaphragm: Stainl. steel mat No. 1.4404 / 316L

Maximum pressure: 100% of nominal pressure of pressure transmitter, up to maximum of PN 400 (5802 psi) (depending on the seal used).

Temperature of use: Same as pressure transmitter

Temperature range of medium: Same as pressure transmitter

Max. recommended process temperature: 150 °C (302 °F)

Weight

• G1B: Approx. 0.3 kg (approx. 0.66 lb)
• G1 ½B: Approx. 0.5 kg (approx. 1.10 lb)
• G2B: Approx. 0.8 kg (approx. 1.76 lb)

Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)

For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)

Selection and Ordering data

Order No. Ord. code

Miniature diaphragm seals

D) 7MF4960 -

directly fitted to SITRANS P pressure transmitters for pressure; type. 7MF4038 and 7MF4238 together with Order code "V01" (vacuum-proof design) and 7MF8021; must be ordered separately

Material: Stainless steel, mat. No. 1.4401

Pressure rating, see "Pressure transmitters"

Process connection

• G1B
• G1 ½B
• G2B
• 1" - NPT
• 1 ½" - NPT
• 2" - NPT

Other version, add Order code and plain text:

Process connection: ...

Wetted parts materials

• Stainless steel 316L

Other version, add Order code and plain text:

Wetted parts materials: ...

Filling liquid

• Silicone oil M5
• Food oil (FDA listed)

Other version, add Order code and plain text:

Filling liquid: ...

1) With 7MF802 and the measuring cells Q, S, T and U also order the vacuum-tight version.

D) Subject to export regulations AL: N, ECCN: EAR99H.

Further designs

Please add "Z" to Order No. and specify Order code.

Quality inspection certificate (Factory calibration) to IEC 60770-2

Acceptance test certificate to EN 10204, section 3.1

Vacuum-proof design for use in low-pressure range

Selection and Ordering data

Order code

Further designs

C11

Quality inspection certificate (Factory calibration) to IEC 60770-2

C12

Acceptance test certificate to EN 10204, section 3.1

C12

Vacuum-proof design for use in low-pressure range

V01
Flushing rings

Flushing ring

Flushing rings are required for flange-mounted and sandwich-type remote seals (Order No. 7MF4900 ... 7MF4923) if the danger exists that the process conditions and the geometry of the connection could cause the medium to form deposits or blockages.

The flushing ring is clamped between the process flange and the remote seal.

Deposits can be flushed away from the diaphragm through the holes in the side, or the pressure volume can be vented. Different nominal diameters and forms permit adaptation to the respective process flange.

Process connection

For flanges to EN and ASME:
DN 50, 80, 100, 125; PN 16 ... 100 or
DN 2 inch, 3 inch, 4 inch, 5 inch; Class 150 ... 600

Standard design

Material: CrNi-Stahl, mat. No. 1.4404/316L
Sealing faces and flushing holes: See Selection and Ordering data

Technical specifications

Flushing ring for remote seals of sandwich and flange design

<table>
<thead>
<tr>
<th>Nominal diameter</th>
<th>Nominal pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 50</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>DN 80</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>DN 100</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>DN 125</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>2 inch</td>
<td>Class 150 ... class 600</td>
</tr>
<tr>
<td>3 inch</td>
<td>Class 150 ... class 600</td>
</tr>
<tr>
<td>4 inch</td>
<td>Class 150 ... class 600</td>
</tr>
<tr>
<td>5 inch</td>
<td>Class 150 ... class 600</td>
</tr>
</tbody>
</table>

Sealing face

- To EN 1092-1
  - Form B1
  - Form B2
  - Form D/Form D
  - Form C/Form C
  - Form C/Form C
  - Form E
  - Form F

- To ASME B16.5
  - RF 125 ... 250 AA
  - RFSF
  - RJT ring groove

Flushing holes (2 off), female thread:
- G ¼
- G½
- ¼-18 NPT
- ½-14 NPT

Material

Stainless steel 1.4404/316L
SITRANS P measuring instruments for pressure
Flushing rings
For diaphragm seals

Selection and Ordering data

Flushing ring
for remote seals 7MF4900 to 7MF4923

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• DN 50</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>• DN 80</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>• DN 100</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>• DN 125</td>
<td>PN 16 ... PN 100</td>
</tr>
<tr>
<td>• 2 inch</td>
<td>Class 150 ... 600</td>
</tr>
<tr>
<td>• 3 inch</td>
<td>Class 150 ... 600</td>
</tr>
<tr>
<td>• 4 inch</td>
<td>Class 150 ... 600</td>
</tr>
<tr>
<td>• 5 inch</td>
<td>Class 150 ... 600</td>
</tr>
</tbody>
</table>

Other version
Add Order code and plain text:
Nominal diameter: ...; Nominal pressure: ...

Sealing face
• EN 1092-1
  - Form B1
  - Form B2
• ASME B16.5
  - RF 125 ... 250 AA
  - RF SF
  - RJT ring groove

Other version
Add Order code and plain text:
Sealing face: ...

Flushing holes (2 off)
• Female thread G¼
• Female thread G½
• Female thread 1/8-18 NPT
• Female thread 3/8-14 NPT

Material
• Stainless steel 316L

Other version
Add Order code and plain text:
Material: ...

---

Dimensional drawings

Connection to EN 1092-1

<table>
<thead>
<tr>
<th>DN (mm)</th>
<th>PN (bar)</th>
<th>d4 (mm)</th>
<th>d1 (mm)</th>
<th>h (mm)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>16 ... 100</td>
<td>102</td>
<td>62</td>
<td>30</td>
<td>1.10</td>
</tr>
<tr>
<td>80</td>
<td>16 ... 100</td>
<td>138</td>
<td>92</td>
<td>30</td>
<td>1.90</td>
</tr>
<tr>
<td>100</td>
<td>16 ... 100</td>
<td>162</td>
<td>92</td>
<td>30</td>
<td>3.15</td>
</tr>
<tr>
<td>125</td>
<td>16 ... 100</td>
<td>188</td>
<td>126</td>
<td>30</td>
<td>3.50</td>
</tr>
</tbody>
</table>

Connection to ASME B 16.5

<table>
<thead>
<tr>
<th>DN (inch)</th>
<th>Class</th>
<th>d4 (inch)</th>
<th>d1 (inch)</th>
<th>h (inch)</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>150</td>
<td>92</td>
<td>62</td>
<td>30</td>
<td>1.32</td>
</tr>
<tr>
<td>3</td>
<td>150</td>
<td>127</td>
<td>92</td>
<td>30</td>
<td>2.31</td>
</tr>
<tr>
<td>4</td>
<td>150</td>
<td>157</td>
<td>92</td>
<td>30</td>
<td>6.28</td>
</tr>
<tr>
<td>5</td>
<td>150</td>
<td>185.5</td>
<td>126</td>
<td>30</td>
<td>7.28</td>
</tr>
</tbody>
</table>

Flushing ring, dimension drawing

---

Selection and Ordering data

Order No. Ord. code

Further designs
Please add "-Z" to Order No. and specify Order code.

Acceptance test certificate

to EN 10204, section 3.1

C12

D) Subject to export regulations AL; N, ECCN: EAR99H.
Clamp-on seals for flange mounting

The clamp-on seal is completely integrated in the process line. It is particularly suitable for flowing and highly viscous media.

The clamp-on remote seal consists of a cylindrical jacket into which a thin-walled pipe is welded. It is clamped directly between two flanges in the pipeline.

Design

- Clamp-on seals for flange-mounting (flange design) to EN/ASME for SITRANS P pressure transmitters
  - For pressure: P300, DS III, DS III PA and DS III FF series
  - For differential pressure and flow: DS III, DS III PA and DS III FF
- Sealing face to EN 1092-1 or ASME B16.5
- Connection to the transmitter directly or by means of a flexible capillary (max. 10 m long)
- See Technical data for details of materials used for the wetted parts
- Material used for the capillary, the guard sleeve, the seal’s main body and the measuring cell: Stainless steel, mat.-No. 1.4571
- Filling liquid: Silicone oil, high-temperature oil, halocarbon oil, food oil (FDA listed) or glycerin/water (not suitable for uses in low-pressure range)

Function

The measured pressure is transferred from the diaphragm to the filling liquid and passes either directly or through the capillary to the measuring chamber of the pressure transmitter. The interior of the diaphragm seal and of the capillary, as well as the measuring chamber of the pressure transmitter, are filled gas-free by the filling liquid.

Note:

When operating in the low-pressure range, also during commissioning, it is recommended to use a vacuum-proof remote seal (see Selection and Ordering data).

Technical specifications

### Clamp-on seals for flange-mounting

<table>
<thead>
<tr>
<th>Nominal diameter</th>
<th>Nominal pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 25</td>
<td>PN 6 ... PN 100</td>
</tr>
<tr>
<td>DN 40</td>
<td>PN 6 ... PN 100</td>
</tr>
<tr>
<td>DN 50</td>
<td>PN 6 ... PN 100</td>
</tr>
<tr>
<td>DN 80</td>
<td>PN 6 ... PN 100</td>
</tr>
<tr>
<td>DN 100</td>
<td>PN 6 ... PN 100</td>
</tr>
<tr>
<td>1 inch</td>
<td>Class 150 ... class 2500</td>
</tr>
<tr>
<td>1½ inch</td>
<td>Class 150 ... class 2500</td>
</tr>
<tr>
<td>2 inch</td>
<td>Class 150 ... class 2500</td>
</tr>
<tr>
<td>3 inch</td>
<td>Class 150 ... class 2500</td>
</tr>
<tr>
<td>4 inch</td>
<td>Class 150 ... class 2500</td>
</tr>
</tbody>
</table>

### Process connection

Flange to EN 1092-1 or ASME B16.5

### Sealing face

To EN 1092-1 or to ASME B16.5 RF 125 ... 250 A or RF8F

### Materials

- **Main body**: Stainless steel 1.4404/316L
- **Diaphragm**: Stainless steel 1.4404/316L
- **Wetted parts**: Stainless steel 1.4404/316L
- **Without foil**
- **ECTFE coating**
- **PFA coating (for vacuum on request)**
- **Monel 400, mat. No. 2.4360**
- **Hastelloy C276, mat. No. 2.4819**
- **Hastelloy C4, mat. No. 2.4610**
- **Tantalum**
- **Capillary**: Stainless steel, mat. No. 1.4571/316Ti
- **Sheath**: Spiral hose made of stainless steel, mat. No. 1.4301/316

### Capillary

- **Length**: Max. 10 m (32.8 ft)
- **Internal diameter**: 2 mm (0.079 inch)
- **Minimum bending radius**: 150 mm (5.9 inch)

### Filling liquid

- **Silicone oil M5**
- **Silicone oil M50**
- **High-temperature oil**
- **Halocarbon oil**
- **Food oil (FDA listed)**
- **Glycerin/water (not suitable for uses in low-pressure range)**

### Permissible ambient temperature

See pressure transmitters, see filling liquid

### Weight

Approx. 4 kg (8.82 lb)

### Classification and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)

For gases of fluid group 1 and liquids of fluid group 1; complies with the requirements of article 3, paragraph 1 (appendix 1); assigned to category III, conformity evaluation module H by the TÜV Nord
### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Ord. code</th>
</tr>
</thead>
<tbody>
<tr>
<td>7MF4980 -</td>
<td>D</td>
</tr>
</tbody>
</table>

#### Clamp-on seal for flange-mounting for SITRANS P pressure transmitters

- **for pressure**
  - 7MF403 and 7MF423 together with Order code "V01" (vacuum-proof design) and 7MF9028 must be ordered separately, scope of delivery: 1 off
- **for differential pressure and flow**
  - 7MF4433 or 7MF4434; order separately, scope of delivery: 1 pair (set); Material: Completely of stainless steel, mat. No. 1.4404/316L; Process connection to EN 1092-1 or ASME B16.5; sealing face to EN 1092-1, form B1, or to ASME B16.5 RF 125 ... 250 AA

### Nominal diameter and nominal pressure

<table>
<thead>
<tr>
<th>Nominal diameter</th>
<th>Nominal pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN 25</td>
<td>PN 6 ... 100</td>
</tr>
<tr>
<td>DN 40</td>
<td>PN 6 ... 100</td>
</tr>
<tr>
<td>DN 50</td>
<td>PN 6 ... 100</td>
</tr>
<tr>
<td>DN 80</td>
<td>PN 6 ... 100</td>
</tr>
<tr>
<td>DN 100</td>
<td>PN 6 ... 100</td>
</tr>
<tr>
<td>1 inch</td>
<td>Class 150 ... 2500</td>
</tr>
<tr>
<td>1½ inch</td>
<td>Class 150 ... 2500</td>
</tr>
<tr>
<td>2 inch</td>
<td>Class 150 ... 2500</td>
</tr>
<tr>
<td>3 inch</td>
<td>Class 150 ... 2500</td>
</tr>
<tr>
<td>4 inch</td>
<td>Class 150 ... 2500</td>
</tr>
</tbody>
</table>

### Wetted parts materials

- Stainless steel 316L
  - Without foil
  - With PFA coating
  - With ECTFE coating
- Monel 400, mat. No. 2.4360
- Hastelloy C276, mat. No. 2.4819
- Hastelloy C4, mat. No. 2.4610
- Tantalum

### Filling liquid

- Silicone oil M5
- Silicone oil M50
- High-temperature oil
- Halocarbon oil (for measuring O2)
- Glycerin/water
- Food oil (FDA listed)

### Connection to transmitter

- Direct (only for 7MF4980) through capillary, length:
  - 1.0 m (3.28 ft)
  - 1.6 m (5.25 ft)
  - 2.5 m (8.20 ft)
  - 4.0 m (13.1 ft)
  - 6.0 m (19.7 ft)
  - 8.0 m (26.25 ft)
  - 10.0 m (32.8 ft)

### For gage pressure, differential pressure and flow

### Further designs

- Please add "-Z" to Order No. and specify Order code.

#### Spark arrester

- With spark arrester for mounting on zone 0 (including documentation)
  - Pressure and absolute pressure: A01
  - for differential pressure transmitters: A02

#### Quality inspection certificate (Factory calibration) to IEC 60770-2

- Acceptance test certificate to EN 10204, section 3.1: C12

#### Vacuum-proof design

- For use in low-pressure range: V01

#### Calculation of span of associated pressure transmitter

- Enclose filled-in questionnaire with order
  - Note: Suffix "Y01" required with pressure transmitter!

- D) Subject to export regulations AL: N, ECCN: EAR99H.

---

1) With 7MF9028 and the measuring cells O, S, T and U also order the vacuum-tight version.
2) For vacuum on request.
3) Not suitable for use in low-pressure range.
4) Max. capillary length, see section "Technical description"
Dimensional drawings

Connection to EN 1092-1

<table>
<thead>
<tr>
<th>DN (mm)</th>
<th>PN (bar)</th>
<th>D (mm)</th>
<th>Mb (mm)</th>
<th>L (mm)</th>
<th>H (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>6 ... 100</td>
<td>63</td>
<td>28.5</td>
<td>60</td>
<td>78.5</td>
</tr>
<tr>
<td>40</td>
<td>6 ... 100</td>
<td>85</td>
<td>43</td>
<td>60</td>
<td>89.5</td>
</tr>
<tr>
<td>50</td>
<td>6 ... 100</td>
<td>95</td>
<td>54.5</td>
<td>60</td>
<td>92.5</td>
</tr>
<tr>
<td>80</td>
<td>6 ... 100</td>
<td>130</td>
<td>82.5</td>
<td>60</td>
<td>112</td>
</tr>
<tr>
<td>100</td>
<td>6 ... 100</td>
<td>150</td>
<td>107</td>
<td>60</td>
<td>122</td>
</tr>
</tbody>
</table>

Connection to ASME B16.5

<table>
<thead>
<tr>
<th>DN (inch)</th>
<th>Class</th>
<th>D (inch)</th>
<th>Mb (inch)</th>
<th>L (inch)</th>
<th>H (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>150</td>
<td>63</td>
<td>28.5</td>
<td>60</td>
<td>78.5</td>
</tr>
<tr>
<td>1½</td>
<td>150</td>
<td>85</td>
<td>43</td>
<td>60</td>
<td>86</td>
</tr>
<tr>
<td>2</td>
<td>150</td>
<td>95</td>
<td>54.5</td>
<td>60</td>
<td>94.5</td>
</tr>
<tr>
<td>3</td>
<td>150</td>
<td>130</td>
<td>82.5</td>
<td>60</td>
<td>112</td>
</tr>
<tr>
<td>4</td>
<td>150</td>
<td>150</td>
<td>107</td>
<td>60</td>
<td>122</td>
</tr>
</tbody>
</table>

Clamp-on seal for flange-mounting, connected to SITRANS P pressure transmitter, dimensions in mm (inch)

Bending radius ≥ 150 mm (5.9)
SITRANS P measuring instruments for pressure

Quick-release clamp-on seals

For pressure and absolute pressure

Overview

Quick-release clamp-on seals, to DIN 11851 with threaded socket

Quick-release clamp-on seals, with clamp connection

Quick-release clamp-on seals for pressure are available for the following SITRANS P pressure transmitter series:

- P300
- DS III
- DS III PA
- DS III FF

Application

The quick-release clamp-on seal is a special design for flowing media and high-viscosity media. Since it is completely integrated in the process pipe, no turbulences, dead volumes or other obstructions to the flow occur. The measured medium flows unhindered through the clamp-on seal and results in self-cleaning of the measuring chamber. Furthermore, the clamp-on seal can be cleaned by a pig.

Design

The quick-release clamp is available in two versions:

- DIN 11851 with threaded socket
- Clamp connection

The clamp-on seal is connected to the pressure transmitter either directly or by way of a capillary.

Function

The measured pressure is transferred from the diaphragm, mounted on the inner circumference of the clamp-on seal, to the filling liquid and then passes through the capillary to the measuring chamber of the pressure transmitter. The interior of the clamp-on seal and of the capillary, as well as the measuring chamber of the pressure transmitter, are filled gas-free by the filling liquid.

Note:

When operating in the low-pressure range, also during commissioning, it is recommended to use a vacuum-proof pressure transmitter (see Selection and Ordering data).

Technical specifications

Clamp-on seals of quick-release design for pressure

<table>
<thead>
<tr>
<th>Connection</th>
<th>Nominal diameter</th>
<th>Nominal pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>To DIN 11851 with threaded socket</td>
<td>DN 25</td>
<td>PN 40</td>
</tr>
<tr>
<td></td>
<td>DN 40</td>
<td>PN 40</td>
</tr>
<tr>
<td></td>
<td>DN 50</td>
<td>PN 25</td>
</tr>
<tr>
<td></td>
<td>DN 65</td>
<td>PN 25</td>
</tr>
<tr>
<td></td>
<td>DN 80</td>
<td>PN 25</td>
</tr>
<tr>
<td></td>
<td>DN 100</td>
<td>PN 25</td>
</tr>
</tbody>
</table>

- Clamp connection

| 1½ inch            | PN 40 |
| 2 inch             | PN 40 |
| 2½ inch            | PN 40 |
| 3 inch             | PN 40 |

Material

- Main body Stainless steel 1.4404/316L
- Diaphragm Stainless steel 1.4404/316L

Capillary

- Length Max. 10 m (32.8 ft)
- Internal diameter 2 mm (0.079 inch)
- Minimum bending radius 150 mm (5.9 inch)

Filling liquid

- Food oil (FDA listed)
- Glycerin/water (not suitable for use in low-pressure range)

Permissible ambient temperature

Dependent on the pressure transmitter and the filling liquid of the remote seal

More information can be found in the technical data of the pressure transmitters and in the section "Technical data of filling liquid" in the Technical description to the remote seals

Weight

Approx. 4 kg (approx. 8.82 lb)

Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)

- For gases of fluid group 1 and liquids of fluid group 1; complies with the requirements of article 3, paragraph 1 (appendix 1), assigned to category III, conformity evaluation module H by the TÜV Nord
SITRANS P measuring instruments for pressure
Quick-release clamp-on seals

For pressure and absolute pressure

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order No. Ord. code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick-release clamp-on seal</td>
<td>D) 7 MF 4 9 5 0 -</td>
</tr>
</tbody>
</table>

- for SITRANS P pressure transmitters for pressure
- 7MF403 and 7MF423 together with Order code "V01" (vacuum-proof design) and 7MF802\(^1\), must be ordered separately
- Filling liquid: Food oil (FDA listed)
- Material: Stainless steel 316L

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- DN 25</td>
<td>PN 40</td>
</tr>
<tr>
<td>- DN 40</td>
<td>PN 40</td>
</tr>
<tr>
<td>- DN 50</td>
<td>PN 25</td>
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<td>- DN 65</td>
<td>PN 25</td>
</tr>
<tr>
<td>- DN 80</td>
<td>PN 25</td>
</tr>
<tr>
<td>- DN 100</td>
<td>PN 25</td>
</tr>
</tbody>
</table>

- Clamp connection
- 1½ inch PN 40 4 L
- 2 inch PN 40 4 M
- 2½ inch PN 40 4 N
- 3 inch PN 40 4 P

Other version
- Add Order codes and plain text:
  - Nominal diameter: ...
  - Nominal pressure: ...

<table>
<thead>
<tr>
<th>Filling liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Glycerin/water(^2)</td>
</tr>
<tr>
<td>- Food oil (FDA listed)</td>
</tr>
</tbody>
</table>

Other version
- Add Order code and plain text:
- Filling liquid: ...

<table>
<thead>
<tr>
<th>Connection to transmitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Direct</td>
</tr>
<tr>
<td>- Through capillary, length: (^3)</td>
</tr>
<tr>
<td>- 1.0 m (3.28 ft)</td>
</tr>
<tr>
<td>- 1.6 m (5.25 ft)</td>
</tr>
<tr>
<td>- 2.5 m (8.20 ft)</td>
</tr>
<tr>
<td>- 4.0 m (13.1 ft)</td>
</tr>
<tr>
<td>- 6.0 m (19.7 ft)</td>
</tr>
<tr>
<td>- 8.0 m (26.25 ft)</td>
</tr>
<tr>
<td>- 10.0 m (32.8 ft)</td>
</tr>
</tbody>
</table>

Other version
- Add Order code and plain text:
- Length of capillary: ...

\(^1\)With 7MF802\(^3\) and the measuring cells Q, S, T and U also order the vacuum-tight version.
\(^2\)Not suitable for use in low-pressure range.
\(^3\)Max. capillary length, see section "Technical description"
D) Subject to export regulations AL: N, ECCN: EAR99H.

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further designs</td>
<td></td>
</tr>
<tr>
<td>Please add &quot;Z&quot; to Order No. and specify Order code.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality inspection certificate (Factory calibration) to IEC 60770-2</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>C11 Acceptance test certificate to EN 10204, section 3.1</td>
<td>C12</td>
</tr>
<tr>
<td>Vacuum-proof design for use in low-pressure range</td>
<td>V01</td>
</tr>
</tbody>
</table>
SITRANS P measuring instruments for pressure
Quick-release clamp-on seals
For pressure and absolute pressure

**Dimensional drawings**

Quick-release clamp-on seal, dimensions in mm (inch)

Connection to DIN 11851 with screw necks

<table>
<thead>
<tr>
<th>DN</th>
<th>Ø D₁</th>
<th>Ø D₂</th>
<th>H</th>
<th>L</th>
<th>G₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>38</td>
<td>52</td>
<td>68</td>
<td>128</td>
<td>Rd 52x1/6</td>
</tr>
<tr>
<td>40</td>
<td>55</td>
<td>65</td>
<td>74.5</td>
<td>160</td>
<td>Rd 65x1/6</td>
</tr>
<tr>
<td>50</td>
<td>68</td>
<td>78</td>
<td>81</td>
<td>170</td>
<td>Rd 78x1/6</td>
</tr>
<tr>
<td>65</td>
<td>85</td>
<td>95</td>
<td>89.5</td>
<td>182</td>
<td>Rd 95x1/6</td>
</tr>
<tr>
<td>80</td>
<td>110</td>
<td>110</td>
<td>97</td>
<td>182</td>
<td>Rd 110x1/4</td>
</tr>
<tr>
<td>100</td>
<td>130</td>
<td>130</td>
<td>107</td>
<td>182</td>
<td>Rd 110x1/4</td>
</tr>
</tbody>
</table>

Mounted directly on SITRANS P transmitter for pressure

Mount on SITRANS P transmitter for pressure or differential pressure and flow

Clamp connection for pipes to BS 4825/3 and o.D. tubes

<table>
<thead>
<tr>
<th>d</th>
<th>Ø D₁</th>
<th>Ø D₂</th>
<th>H</th>
<th>L</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>(inch)</td>
<td>mm</td>
<td>(inch)</td>
<td>mm</td>
<td>(inch)</td>
</tr>
<tr>
<td>22.2</td>
<td>(1)</td>
<td>38</td>
<td>(1.5)</td>
<td>50</td>
<td>(1.97)</td>
</tr>
<tr>
<td>34.9</td>
<td>(1½)</td>
<td>43</td>
<td>(1.69)</td>
<td>65</td>
<td>(2.56)</td>
</tr>
<tr>
<td>47.6</td>
<td>(2)</td>
<td>56</td>
<td>(2.2)</td>
<td>75</td>
<td>(2.95)</td>
</tr>
<tr>
<td>60.3</td>
<td>(2½)</td>
<td>68</td>
<td>(2.68)</td>
<td>77</td>
<td>(3.03)</td>
</tr>
<tr>
<td>73.0</td>
<td>(3)</td>
<td>82</td>
<td>(3.23)</td>
<td>91</td>
<td>(3.58)</td>
</tr>
</tbody>
</table>

Quick-release clamp-on seal, dimensions in mm (inch)
Measuring setups

Overview

This section shows examples of typical measuring setups for using SITRANS P pressure transmitters with and without remote seals.

Equations for calculating start of scale and full scale are provided for each example.

Questionnaires are included to help you select the right combination of remote seal and pressure transmitter.

Installation

Remote seals of sandwich design are fitted between the connection flange of the measuring point and a dummy flange. Remote seals of flange design are fitted directly on the connection flange of the measuring point. The respective pressure rating of the dummy flange or the flanged remote seal must be observed.

The pressure transmitter should be installed below the connection flange (and below the lower connection flange in the case of differential pressure transmitters). This arrangement must be used in the low-pressure range.

When measuring at pressures above atmospheric, the pressure transmitter can also be installed above the connection flange.

The capillaries between the remote seal and the pressure transmitter should be as short as possible to obtain a good transmission response.

Offset of measuring range

If there is a difference in height between the two connection flanges when measuring with two remote seals, an additional differential pressure will result from the oil filling of the remote seal capillaries. This results in a measuring range offset which has to be taken into account when you set the pressure transmitter.

An offset in the measuring range also occurs when combining a remote seal with a transmitter if the remote seal is not installed at the same height as the transmitter.

Pressure transmitter output

If the level, separation layer or density increase in closed vessels, the differential pressure and hence the output signal of the pressure transmitter also increase.

For an inverted relationship between the differential pressure and the output signal, the start-of-scale and full-scale values of the SITRANS P must be interchanged.

With open vessels, a rising pressure is usually assigned to an increasing level, separation layer or density.

Influence of ambient temperature

Temperature differences between the individual capillaries and between the individual remote seals should be avoided.

Temperature variations in the area of the measuring setup cause a change in volume of the filling liquid and hence measuring errors.

Notes

- For the separation layer measurement, the separation layer has to be positioned between the two spigots. Also you must make sure that the level in the container is always above the top spigot.
- When measuring density, make sure that the level of the medium remains constant. The level should be above the top spigot.

<table>
<thead>
<tr>
<th>Type of installation</th>
<th>Pressure transmitter</th>
<th>Remote seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/B</td>
<td>7MF4033</td>
<td>7MF4900</td>
</tr>
<tr>
<td></td>
<td>7MF4034</td>
<td>7MF4910</td>
</tr>
<tr>
<td></td>
<td>7MF4035</td>
<td>7MF4920</td>
</tr>
<tr>
<td></td>
<td>7MF8023</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7MF8024</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7MF8025</td>
<td></td>
</tr>
</tbody>
</table>

|                  | 7MF4233          | 7MF4900      |
|                  | 7MF4234          | 7MF4910      |
|                  | 7MF4235          | 7MF4920      |
| C₁ and C₂        | (vacuum-proof design in each case) |

|                  | 7MF4333          | 7MF4901      |
|                  | 7MF4334          | 7MF4921      |
|                  | 7MF4335          |              |

| D                  | 7MF4433          | 7MF4903      |
|                   | 7MF4434          | 7MF4923      |
|                   | 7MF4435          |              |

| E                  | 7MF4433          | 7MF4913      |
|                   | 7MF4434          |              |
|                   | 7MF4435          |              |

| G, H and J        | 7MF4433          | 7MF4903      |
|                  | 7MF4434          | 7MF4923      |
|                  | 7MF4435          |              |
SITRANS P measuring instruments for pressure

Remote seals

Dimensional drawings

Types of installation for pressure and level measurements (open vessels)

Installation type A

Pressure transmitter above the measuring point

Installation type B

Pressure transmitter below the measuring point

H₁ ≤ 7 m (23 ft), with halocarbon oil as filling liquid only H₂ ≤ 4 m (13.1 ft)

Installation type A

Start-of-scale:

\[ P_{\text{MIN}} = P_{\text{FL}} - \rho_{\text{OL}} \cdot g \cdot H_1 \]

Full-scale:

\[ P_{\text{MAX}} = P_{\text{FL}} + \rho_{\text{OL}} \cdot g \cdot H_1 \]

Legend

\( P_{\text{MIN}} \) Start-of-scale value to be set
\( P_{\text{MAX}} \) Full-scale value to be set
\( P_{\text{FL}} \) Density of medium in vessel
\( \rho_{\text{OL}} \) Density of filling oil in the capillary to the remote seal
\( g \) Local acceleration due to gravity
\( H_1 \) Start-of-scale value
\( H_2 \) Full-scale value
\( H_3 \) Distance between vessel flange and pressure trans.

Types of installation for absolute level measurements (closed vessels)

Installation type C₁

Pressure transmitter for absolute pressure always below the measuring point: H₁ ≥ 200 mm (7.9 inch)

Installation type C₂

Installation type C₁ and C₂

Start-of-scale:

\[ P_{\text{MIN}} = P_{\text{START}} + \rho_{\text{OL}} \cdot g \cdot H_1 \]

Full-scale:

\[ P_{\text{MAX}} = P_{\text{END}} + \rho_{\text{OL}} \cdot g \cdot H_1 \]

Legend

\( P_{\text{MIN}} \) Start-of-scale value to be set
\( P_{\text{MAX}} \) Full-scale value to be set
\( P_{\text{START}} \) Start-of-scale value
\( P_{\text{END}} \) Full-scale value
\( \rho_{\text{OL}} \) Density of filling oil in the capillary to the remote seal
\( g \) Local acceleration due to gravity
\( H_1 \) Distance between vessel flange and pressure trans.

Type of installation for differential pressure and flow measurements

Installation type D

Filter monitoring

Installation type D

Start-of-scale:

\[ P_{\text{MIN}} = P_{\text{START}} - \rho_{\text{OL}} \cdot g \cdot H_1 \]

Full-scale:

\[ P_{\text{MAX}} = P_{\text{END}} - \rho_{\text{OL}} \cdot g \cdot H_1 \]

Legend

\( P_{\text{MIN}} \) Start-of-scale value to be set
\( P_{\text{MAX}} \) Full-scale value to be set
\( P_{\text{START}} \) Start-of-scale value
\( P_{\text{END}} \) Full-scale value
\( \rho_{\text{OL}} \) Density of filling oil in the capillary to the remote seal
\( g \) Local acceleration due to gravity
\( H_1 \) Distance between the measuring points (spigots)
**Types of installation for level measurements (closed vessels)**

### Installation type E

- **Legend**
  - $P_{\text{MA}}$: Start-of-scale value to be set
  - $P_{\text{ME}}$: Full-scale value to be set
  - $P_{\text{FL}}$: Density of medium in vessel
  - $P_{\text{OI}}$: Density of filling oil in the capillary to the remote seal
  - $g$: Local acceleration due to gravity
  - $H_1$: Start-of-scale value
  - $H_2$: Full-scale value
  - $H_v$: Distance between the measuring points (spigots)

### Installation type G

- Pressure transmitter for differential pressure above the upper measuring point, no vacuum

- $H_1 \leq 7$ m (23 ft), with halocarbon oil as filling liquid only $H_2 \leq 4$ m (13.1 ft)

### Installation type H

- below the lower measuring point

### Installation type J

- between the measuring points, no vacuum

- $H_1 \leq 7$ m (23 ft), with halocarbon oil as filling liquid only $H_2 \leq 4$ m (13.1 ft)

### Installation type G, H and J

- **Legend**
  - $P_{\text{MA}}$: Start-of-scale value to be set
  - $P_{\text{ME}}$: Full-scale value to be set
  - $P_{\text{FL}}$: Density of medium in vessel
  - $P_{\text{OI}}$: Density of filling oil in the capillary to the remote seal
  - $g$: Local acceleration due to gravity
  - $H_1$: Start-of-scale value
  - $H_2$: Full-scale value
  - $H_v$: Distance between the measuring points (spigots)
Overview

Notes

• For the separation layer measurement, the separation layer has to be positioned between the two spigots.

Dimensional drawings

Pressure transmitters for differential pressure, for flanging

Measuring setups for open containers

![Diagram of Level measurement](image1)

**Level measurement**

\[ P_{\text{MAX}} = \rho \cdot g \cdot H_D \]

**Full-scale value**

**Start-of-scale value**

**Legend**

- \( P_{\text{MAX}} \): Start-of-scale value to be set
- \( P_{\text{FALL}} \): Full-scale value to be set
- \( \rho \): Density of medium in vessel
- \( g \): Local acceleration due to gravity
- \( H_D \): Start-of-scale value
- \( H_D \): Full-scale value

![Diagram of Separation layer measurement](image2)

**Separation layer measurement**

\[ P_{\text{MAX}} = g \cdot (H_D \cdot \rho_1 + (H_D - H_L) \cdot \rho_2) \]

**Start-of-scale**

**Full-scale**

**Legend**

- \( P_{\text{MAX}} \): Start-of-scale value to be set
- \( P_{\text{FALL}} \): Full-scale value to be set
- \( \rho_1 \): Density of heavier liquid
- \( \rho_2 \): Density of lighter liquid
- \( g \): Local acceleration due to gravity
- \( H_D \): Start-of-scale value
- \( H_D \): Full-scale value

![Diagram of Density measurement](image3)

**Density measurement**

\[ P_{\text{MAX}} = \rho_{\text{MIN}} \cdot g \cdot H_D \]

**Start-of-scale**

**Full-scale**

**Legend**

- \( P_{\text{MIN}} \): Start-of-scale value to be set
- \( P_{\text{FALL}} \): Full-scale value to be set
- \( \rho_{\text{MIN}} \): Minimum density of medium in vessel
- \( \rho_{\text{MAX}} \): Maximum density of medium in vessel
- \( g \): Local acceleration due to gravity
- \( H_D \): Full-scale value in m

Also you must make sure that the level in the container is always above the top spigot.

• When measuring density, make sure that the level of the medium remains constant. The level should be above the top spigot.
Measuring setups without remote seals

Measuring setups for closed containers

Level measurement, Version 1

Start-of-scale: \( \Delta p_{\text{AS}} = \rho \cdot g \cdot H_u \)
Full-scale: \( \Delta p_{\text{AF}} = \rho \cdot g \cdot H_O \)

Legend:
- \( \Delta p_{\text{AS}} \): Start-of-scale value to be set
- \( \Delta p_{\text{AF}} \): Full-scale value to be set
- \( \rho \): Density of medium in vessel
- \( g \): Local acceleration due to gravity
- \( H_u \): Start-of-scale value
- \( H_O \): Full-scale value

Level measurement, Version 2

Start-of-scale: \( \Delta p_{\text{AS}} = g \cdot \left( H_u \cdot \rho - H_V \cdot \rho' \right) \)
Full-scale: \( \Delta p_{\text{AF}} = g \cdot \left( H_O \cdot \rho - H_V \cdot \rho' \right) \)

Legend:
- \( \Delta p_{\text{AS}} \): Start-of-scale value to be set
- \( \Delta p_{\text{AF}} \): Full-scale value to be set
- \( \rho \): Density of medium in vessel
- \( \rho' \): Density of liquid in the negative pressure line (corresponding to the temperature existing there)
- \( g \): Local acceleration due to gravity
- \( H_u \): Start-of-scale value
- \( H_O \): Full-scale value
- \( H_V \): Distance between the measuring points (spigots)

Separation layer measurement

Start-of-scale: \( \Delta p_{\text{AS}} = g \cdot \left( H_u \cdot \rho_1 + (H_O - H_u) \cdot \rho_2 - H_V \cdot \rho'_3 \right) \)
Full-scale: \( \Delta p_{\text{AF}} = g \cdot \left( H_O \cdot \rho_1 - H_V \cdot \rho'_3 \right) \)

Legend:
- \( \Delta p_{\text{AS}} \): Start-of-scale value to be set
- \( \Delta p_{\text{AF}} \): Full-scale value to be set
- \( \rho_1 \): Density of heavier liquid with separation layer in vessel
- \( \rho_2 \): Density of lighter liquid with separation layer
- \( \rho'_3 \): Density of liquid in the negative pressure line (corresponding to the temperature existing there)
- \( g \): Local acceleration due to gravity
- \( H_u \): Start-of-scale value
- \( H_O \): Full-scale value
- \( H_V \): Distance between the measuring points (spigots)
Questionnaire
Checking of transmitter/remote seal combinations

* Customer: ___________________ Tag. No.: ___________________
* Plant: ____________________ Item No.: ____________________
* Ordering code: ____________ Person responsible: ___________
* Ordering department: _____ Phone: _____________________
* Transmitter Order No.: 7MF 4

Order No. of transmitter known?

Yes
No

* Order No. of remote seal:
7MF 4 9 □□□□□□□□□□□□□□□□□□□□
Suffixes ______________________
Suffixes ______________________

* Or without Order No.: Process connection

* Standard:
* Nominal diameter:
* Nominal pressure:
* Constructional design:

Order No. of transmitter known?

Yes
No

* Or without Order No.: Process connection

* Standard:
* Nominal diameter:
* Nominal pressure:
* Constructional design:

Order No. of transmitter known?

Yes
No

Check calculation of measuring range necessary?

Yes
No

* Range to be set:
(without calculation)
Start-of-scale: _______ mbar (4 mA)
Full-scale: _______ mbar (20 mA)

* Required measuring accuracy:
Error: < .% of set span per 10 V change in temperature

Please fill in this questionnaire and enclose with every order!

Checked: Name:
Department:
Date:

Medium
Density of medium: _______ kg/m³

* Temperature of medium:
Normal _______ °C
Minimum _______ °C
Maximum _______ °C

* Ambient temperature on capillaries:
Normal _______ °C
Minimum _______ °C
Maximum _______ °C

* Ambient temperature on transmitter:
Normal _______ °C
Minimum _______ °C
Maximum _______ °C

* Operating pressure referred to absolute zero:
bar a

* Does a vacuum occur during startup?
No Yes

If yes, associated temperature of medium: _______ °C

* Installation type, see pages 2/183 and 2/184

* Measuring:
With install. types A, B, C₁, C₂ and D: from ___ to ___ mbar range
With install. types A, B, G, H and J: H₀ = ___ mm; H₁ = ___ mm

* Dimensions:
With install. types A, B, C₁ and C₂: H₁ = ___ mm
With install. types D, G, H and J: H₁ = ___ mm

* Start-of-scale value following calculation: _______ mbar (4 mA)
Full-scale value following calculation: _______ mbar (20 mA)
Associated span: _______ mbar

* Error to be expected: < .% of set span per 10 K change in temperature

*) Values must be entered here!

Please fill in this questionnaire and enclose with every order!

Checked: Name:
Department:
Date:

Siemens Fl 01 · 2009
Questionnaire
for hydrostatic level measurements

Order date: _______________________________________________
Processing date: __________________________________________

Ordering code (customer): _________________________________
Ordering code (supplier): __________________________________
Customer reference:_______________________________________
Measuring point: __________________________________________
Position:__________________________________________________
Dimensions: ______________________________________________

Pressure: ☐ bar
Temperature: ☐ K  ☐ °C
Measuring range: ☐ cm  ☐ m  (please mark with cross)

Order No. of transmitter 1):

Y01

The different pressures and temperatures (densities) in the vessel and in the reference column result in an offset in the start-of-scale and full-scale values. The calibration data are determined in addition. It is also checked whether – as a result of the range offset – the ordered transmitter is suitable for this measurement.

Please supply the following characteristic data so that we can calculate the measuring range, start-of-scale value, full-scale value and calibration data:

Please mark type of boiler with a cross: Closed 1) ☐
Open or not under pressure 2) ☐
Medium ____________________

Licensed boiler pressure (absolute) _______________ bar
Operating pressure (absolute)
   Lowest _______________ bar
   Normal 3) _______________ bar
   Highest _______________ bar

Temperature of reference column (cold) _______________ K
Distance between measuring points (dimension according to sketch) HV = _________ m

Measuring range 4) = start-of-scale value to full-scale value
   Start-of-scale value HU = ___________ m
   Full-scale value HO = ___________ m

Position of equalizing vessel above bottom measuring point if different from HV _______________ m

Please mark pressure correction of level with a cross: No ☐
Yes 4) ☐

1) Reference line filled with condensation! Falling differential pressure with increasing level.
2) Reference line without gas or filled with gas (air). Rising differential pressure with increasing level.
3) If not specified otherwise, this value is assumed as the calculation pressure of the level meter. The input signal (differential pressure) depends on the density (pressure and temperature). The influence is practically negligible for a lowest liquid level of 20 to 30% of the distance between the measuring points.
4) If a pressure correction of the level is required, the measuring range must be the same as the distance between the measuring points, and the transmitter is designed for the calculation pressure of 1 bar (absolute). Pressure correction means: the static pressure and the temperature are measured separately and calculated by a correction computer or measured-value computer.
Questionnaire (suitable for US market)
Checking of transmitter/remote seal combinations

* Customer:___________________ Tag. No.: _____________________
* Plant: ___________________ Item No.: _____________________
* Ordering code:___________ Person responsible: ___________
* Ordering department: _____ Phone: _____________________
* Transmitter Order No.: 7MF 4 □□□□□□□□□□

Order No. of transmitter known?

Yes No

* Order No. of remote seal:

7MF 4 □□□□□□□□□□
Suffixes _______________________
Suffixes _______________________

* Or without Order No.: Process connection

* Standard:
* Nominal diameter:
* Nominal pressure:
* Constructional design:
  - Sandwich-type rem. seal
  - Flanged remote seal
  - Quick-release remote seal
  - Clamp-on seal
  - Other: ______________
* Connection:
  - Direct connection
  - Capillary on one side; connection to: + side – side
  - Capillaries on both sides;
  - Capillary length: ___ ft
  - Yes No
* Vacuum-proof design
* Wetted parts materials:
* Tube:
* Filling liquid
* Miscellaneous

Calculation of measuring range necessary?

No Yes

* Range to be set:
  (without calculation)

Start-of-scale: _______ psi ( 4 mA)
Full-scale: _______ psi (20 mA)

* Required measuring accuracy:
  Error: < . % of set span per 18 °F change in temperature

Please fill in this questionnaire and enclose with every order!

Checked: Name: Department: Date:

Medium
Density of medium: _______ kg/m³
* Temperature of medium:
  - Normal _______ °F
  - Minimum _______ °F
  - Maximum _______ °F

* Ambient temperature on capillaries:
  - Normal _______ °F
  - Minimum _______ °F
  - Maximum _______ °F

* Ambient temperature on transmitter:
  - Normal _______ °F
  - Minimum _______ °F
  - Maximum _______ °F

* Operating pressure referred to absolute zero:
  - _____ psi abs

* Does a vacuum occur during startup?
  - Yes No
  - If yes, associated temperature of medium: _______ °F

* Installation type, see pages 2/183 and 2/184

* Measuring:
  - With install. types A, B, C1, C2 and D: from ___ to ___ psi
  - With install. types A, B, G, H and J: HJ = ___ inch; H0 = ___ inch

* Dimensions:
  - With install. types A, B, C1 and C2: Hf = ___ inch
  - With install. types D, G, H and J: HV = ___ inch

* Start-of-scale value following calculation: _______ psi ( 4 mA)
* Full-scale value following calculation: _______ psi (20 mA)
* Associated span: _______ psi
* Error to be expected: < . % of set span per 18 °F change in temperature

*) Values must be entered here!
Overview
All shut-off fittings can be secured onto walls, racks (72 mm grid) and vertical and horizontal pipes.

This offers the advantage when assembling a plant that the shut-off fittings can be secured first and the lines for the medium and differential pressure connected to them. It is then possible to check all connections for leaks and to blow out or flush the pipes in order to remove dirt (welding residues, shavings etc.).

The measuring instruments can be screwed onto the shut-off fittings right at the end when all piping has been completed.

If an instrument has to be removed for maintenance, the fittings and pipes remain as they are. It is only necessary to close the valves – the instrument can then be removed, and refitted following maintenance.

Classification according to pressure equipment directive (DGRL 97/23/EC):
For gases of fluid group 1 and liquids of fluid group 1; compliance with requirements of article 3, paragraph 3 (sound engineering practice).

New standard DIN EN 61518
The flange connection between transmitter and valve manifold was modified in the new standard DIN EN 61518. The only connection thread approved for use in the process flanges of the pressure transmitter is $\frac{7}{16}$-20 UNF.

The valve manifolds for M12 screws, including the accessory sets, have therefore been deleted.

Material acceptance test certificate to EN 10204-3.1
If a material acceptance test certificate to EN 10204-3.1 is required when ordering valve manifolds or shut-off fittings, please note that a single certificate is sufficient for each ordered item type. This means that you will only be charged for one certificate in the cost calculations.

Pressure transmitters with shut-off fittings - mounting examples

SITRANS P transmitter for gage pressure with double shut-off valve, SITRANS P pressure transmitter with multiway cock or 3-spindle valve manifold

SITRANS P pressure transmitter for differential pressure, mounted in protective box (available on request)

SITRANS P transmitter for differential pressure with 3-way valve manifold, 3-spindle valve manifold or valve manifold combination DN 5/DN 8

SITRANS P pressure transmitter mounted on valve combination “Monoflange” for direct connection to flanges (available on request)
### Selection of available shut-off valves

<table>
<thead>
<tr>
<th>Transmitters</th>
<th>Shut-off valves for general applications</th>
<th>Page</th>
<th>Shut-off valves for special applications</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative and absolute pressure transmitters with process connection G½&quot; male thread</td>
<td>Shut-off valves/double shut-off valves to DIN 16270, DIN 16271 and DIN 16272</td>
<td>2/193</td>
<td>Double shut-off valve DN 5 for crossover ½-NPT-F to G½ nipple connection 7MF9011-4EA</td>
<td>2/196</td>
</tr>
</tbody>
</table>
| • SITRANS P, Z series 7MF1564-.....-A..  
• SITRANS P300 7MF802-....0.-....  
• SITRANS P DS III series 7MF603.....0.-.... and 7MF423.....0.-.... | | | | |
| Relative and absolute pressure transmitter with G½"-14 NPT female thread | Double shut-off valve DN 5 7MF9011-4FA and 7MF9011-4GA | 2/196 | Double shut-off valve DN 5 for process connection ½-NPT 7MF9011-4DA | 2/196 |
| • e.g.  
• SITRANS P Z series 7MF1564-.....-H..  
• SITRANS P300 7MF802-....1.-....  
• SITRANS P DS III series 7MF403.....1.-.... and 7MF423.....1.-.... | | | | |
| Absolute pressure transmitter with process connection to IEC 61518 | 2-spindle valve manifold DN 5 7MF9411-5A. | 2/201 | 2-spindle valve manifold DN 5 for installation in protective boxes 7MF9412-1B | 2/216 |
| • e.g.  
• SITRANS P DS II series 7MF453.-.... | | | | |

| | 2-way valve manifolds, DN 5, forged version 7MF9401-2J. and 7MF9401-2K. | 2/198 |
| | 2-way valve manifolds, DN 5, forged version 7MF9412-1B | 2/198 |
| | 2-way valve manifolds, DN 5, forged version 7MF9401-2E. and 7MF9401-2F. | 2/198 |
## Selection aid

<table>
<thead>
<tr>
<th>Transmitters</th>
<th>Shut-off valves for general applications</th>
<th>Page</th>
<th>Shut-off valves for special applications</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Differential pressure transmitter with process connection to IEC 61518</strong>&lt;br&gt;e.g.&lt;br&gt;• SITRANS P DS III series 7MF443.-... and 7MF453.-...</td>
<td>For 3/5-spindle valve manifold DN 5 7MF9411-5B and 7MF9411-5C.</td>
<td>2/201</td>
<td>3-way valve manifolds, DN 5, forged version 7MF9410-1..</td>
<td>2/206</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5-way valve manifolds, DN 5, forged version 7MF9410-3..</td>
<td>2/206</td>
</tr>
<tr>
<td>PN 100 multiway cocks 7MF9004-...</td>
<td>2/204</td>
<td></td>
<td>3-way valve manifolds, DN 8, forged version 7MF9416-1.. and 7MF9416-2..</td>
<td>2/209</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Valve manifold combination DN 5/DN 8 for vapor measurement 7MF9416-6..</td>
<td>2/212</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Valve manifold combination DN 8 for vapor measurement 7MF9416-4..</td>
<td>2/214</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3- and 5-spindle valve manifolds for DN 5 for installation in protective boxes 7MF9412-1D and 7MF9412-1E.</td>
<td>2/216</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3- and 5-spindle valve manifolds for vertical differential pressure lines 7MF9413-1..</td>
<td>2/220</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low-pressure multiway cock 7MF9004-4..</td>
<td>2/223</td>
</tr>
</tbody>
</table>
Overview

Transmitter for pressure with double shut-off valve 7MF9401-...

The shut-off valves for pressure gages are used to shut off the line of the measured medium when dealing with aggressive and non-aggressive gases, vapors and liquids.

Design

A water trap must be connected upstream of the shut-off valve in the case of temperatures of the medium above 120 °C. The shut-off valves form B have a shaft with which they can be secured on an instrument bracket. An adapter is therefore not required to secure these valves. The vent/test connection can be shut off separately with the double shut-off valves DN 5. This permits checking of the zero on the pressure gage. In addition, the characteristic of the pressure gage can be checked using an external pressure source.

Selection and Ordering data

### Shut-off valves, form B, DIN 16270

<table>
<thead>
<tr>
<th>Material</th>
<th>Maximum permissible working pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW614N (CuZn39Pb3)</td>
<td>250 bar</td>
</tr>
<tr>
<td>P250GH (mat. No. 1.0460)</td>
<td>400 bar</td>
</tr>
<tr>
<td>X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)</td>
<td>400 bar</td>
</tr>
</tbody>
</table>

### Shut-off valves, form B, DIN 16271

<table>
<thead>
<tr>
<th>Material</th>
<th>Maximum permissible working pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW614N (CuZn39Pb3)</td>
<td>250 bar</td>
</tr>
<tr>
<td>P250GH (mat. No. 1.0460)</td>
<td>400 bar</td>
</tr>
<tr>
<td>X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)</td>
<td>400 bar</td>
</tr>
</tbody>
</table>

### Shut-off valves, form B, DIN 16272

<table>
<thead>
<tr>
<th>Material</th>
<th>Maximum permissible working pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW614N (CuZn39Pb3)</td>
<td>250 bar</td>
</tr>
<tr>
<td>P250GH (mat. No. 1.0460)</td>
<td>400 bar</td>
</tr>
<tr>
<td>X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)</td>
<td>400 bar</td>
</tr>
</tbody>
</table>

### Double shut-off valves, form B, DIN 16270

<table>
<thead>
<tr>
<th>Material</th>
<th>Maximum permissible working pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>P250GH (mat. No. 1.0460)</td>
<td>400 bar</td>
</tr>
<tr>
<td>X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)</td>
<td>400 bar</td>
</tr>
</tbody>
</table>

### Double shut-off valves, form B, DIN 16271

<table>
<thead>
<tr>
<th>Material</th>
<th>Maximum permissible working pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>P250GH (mat. No. 1.0460)</td>
<td>400 bar</td>
</tr>
<tr>
<td>X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)</td>
<td>400 bar</td>
</tr>
</tbody>
</table>

### Accessories

- Factory test certificate EN 10204–2.2
- Material acceptance test certificate EN 10204-3.1

Instrument bracket, see page 2/197.
SITRANS P measuring instruments for pressure
Fittings - Shut-off valves for gage and absolute pressure transmitters

Shut-off valves to DIN 16270, DIN 16271 and DIN 16272

Characteristic curves

Permissible operating pressure as a function of the permissible operating temperature

Dimensional drawings

Shut-off valve, form B, dimension drawing, dimensions in mm

Double shut-off valve, form B, dimension drawing, dimensions in mm
Overview

P300 pressure transmitter with shut-off valve and angle adapter

The angle adapter enables pressure transmitters with top displays to be read from the front.

Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Angle adapters</th>
</tr>
</thead>
<tbody>
<tr>
<td>7MF9401-7WA</td>
<td>Material: X 12 CrNiMoTi 17 12 2 (mat. No. 1.45714/316Ti), max. permissible operating pressure 400 bar</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>7MF9000-8AB</td>
<td>Factory test certificate EN 10204-2.2</td>
</tr>
<tr>
<td>7MF9000-8AD</td>
<td>Material acceptance test certificate EN 10204-3.1</td>
</tr>
</tbody>
</table>

Characteristic curves

Design stainless steel
400 bar at 120 °C
350 bar at 200 °C

Permissible operating overpressure as a function of the permissible operating temperature
Double shut-off valves

Overview

The double shut-off valves DN 5 are suitable for pressure gages and pressure transmitters and available in 4 versions:

- Sleeve-collar
- Sleeve-sleeve
- Sleeve-nipple connection
- Collar-collar

Characteristic curves

Permissible operating pressure as a function of the permissible operating temperature

Selection and Ordering data

Order No.

Double shut-off valves DN 5

Material: X 6 CrNiMoTi 17 13 2 (mat. No. 1.4404/316L), max. permissible working pressure 420 bar:

- Sleeve-sleeve
- Sleeve-nipple connection
- Sleeve-collar
- Collar-collar

Accessories

Factory test certificate EN 10204-2.2 7MF9000-8AB

Material acceptance test certificate EN 10204-3.1 7MF9000-8AD

Dimensional drawings

Double shut-off valve DN 5 (sleeve-sleeve) 7MF9011-4DA, dimensions in mm

Double shut-off valve DN 5 (sleeve-nipple) 7MF9011-4EA, dimensions in mm

Double shut-off valve DN 5 (sleeve-collar) 7MF9011-4FA, dimensions in mm

Double shut-off valve DN 5 (collar-collar) 7MF9011-4GA, dimensions in mm
Overview

The mounting set is suitable for the double shut-off valves 7MF9011-4.A and for wall, rack and pipe mounting.

Selection and Ordering data

**Mounting set for shut-off valves**

- 7MF9011-4DA und -4EA
  - made of stainless steel, scope of delivery:
    - 1x mounting bracket,
    - 2x hexagon screws M6x40,
    - 1x mounting clip,
    - 2x washers 8.4 to DIN 125;
    - 2x hexagon nuts 8.4 to DIN EN 24032
  - Order No.: 7MF9011-8AB

- 7MF9011-4FA und -4GA
  - made of stainless steel, scope of delivery:
    - 1x mounting bracket,
    - 2x hexagon screws M6x10,
    - 1x mounting clip,
    - 2x washers 8.4 to DIN 125;
    - 2x hexagon nuts 8.4 to DIN EN 24032
  - Order No.: 7MF9011-8AC

Dimensional drawings

Mounting bracket (7MF9011-8AB) for shut-off valves 7MF9011-4DA and 7MF9011-4EA for wall, rack or pipe mounting, dimensions in mm

Mounting bracket (7MF9011-8AC) for shut-off valves 7MF9011-4FA and 7MF9011-4GA for wall, rack or pipe mounting, dimensions in mm

**Selection and Ordering data**

**Order No.**

<table>
<thead>
<tr>
<th>Instrument bracket, form H, DIN 16281</th>
</tr>
</thead>
<tbody>
<tr>
<td>made of aluminium alloy, painted black, for wall mounting, screw-type bracket cover</td>
</tr>
<tr>
<td>Projection length 60 mm</td>
</tr>
<tr>
<td>Projection length 100 mm</td>
</tr>
<tr>
<td>Order No.</td>
</tr>
<tr>
<td>M56340-A0046</td>
</tr>
<tr>
<td>M56340-A0047</td>
</tr>
</tbody>
</table>

**Instrument bracket, form A, DIN 16281**

- made of annealed cast iron, galvanized and primed for mounting on a wall or rack or on a sectional rail (horizontal/vertical); Screw-type bracket cover
- Order No.: M56340-A0053

**Instrument bracket, form A, DIN 16281**

- made of annealed cast iron, galvanized and primed with pipe clamp for mounting on a pipe (horizontal/vertical); Screw-type bracket cover
- Order No.: M56340-A0079

**Selection and Ordering data**

**Order No.**

<table>
<thead>
<tr>
<th>Instrument bracket, form A, DIN 16281</th>
</tr>
</thead>
<tbody>
<tr>
<td>made of aluminium alloy, painted black, for wall mounting, screw-type bracket cover</td>
</tr>
<tr>
<td>Projection length 60 mm</td>
</tr>
<tr>
<td>Projection length 100 mm</td>
</tr>
<tr>
<td>Order No.</td>
</tr>
<tr>
<td>M56340-A0046</td>
</tr>
<tr>
<td>M56340-A0047</td>
</tr>
</tbody>
</table>

**Instrument bracket, form A, DIN 16281**

- made of annealed cast iron, galvanized and primed with pipe clamp for mounting on a pipe (horizontal/vertical); Screw-type bracket cover
- Order No.: M56340-A0053

**Instrument bracket, form A, DIN 16281**

- made of annealed cast iron, galvanized and primed with pipe clamp for mounting on a pipe (horizontal/vertical); Screw-type bracket cover
- Order No.: M56340-A0079

**Instrument bracket, form H, DIN 16281**

- made of aluminium alloy, painted black, for wall mounting, screw-type bracket cover
- Projection length 60 mm
- Projection length 100 mm

**Instrument bracket, form A, DIN 16281**

- made of annealed cast iron, galvanized and primed for mounting on a wall or rack or on a sectional rail (horizontal/vertical); Screw-type bracket cover

**Instrument bracket, form A, DIN 16281**

- made of annealed cast iron, galvanized and primed with pipe clamp for mounting on a pipe (horizontal/vertical); Screw-type bracket cover
Overview

The two-way valve manifold DN 5 (7MF9401-2..) is used to shut off and vent the line with the measured medium, and to test the connected pressure gage or transmitter.

Benefits

- Available for aggressive and non-aggressive liquids and gases
- Two connection versions available
  - For flanging to pressure transmitters
  - With nipple for connection of pressure gages and pressure transmitters for pressure
- Max. working pressure 420 bar, with version for oxygen max. 100 bar

Application

The 2-way valve manifold is available in versions for aggressive and non-aggressive liquids and gases.

Mounting plates are available for wall mounting, for securing to mounting racks or for pipe mounting.

Design

The 2-way valve manifold DN 5 has 3 connections:

- A process connection (pipe union with ferrule Ø 12 mm)
- A connection for a pressure gage (flange or nipple)
- A test connection (thread G 3/8)

The 2-fold valve manifold DN 5 also has an operating valve and a test valve, each with an internal spindle thread.

Materials used

2-way valve manifold DN 5 for flanging to pressure transmitters

<table>
<thead>
<tr>
<th>Component</th>
<th>For non-aggressive liquids and gases</th>
<th>For aggressive liquids and gases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>P250GH 1.0460</td>
<td>X 6 CrNiMoTi 1.4571/316Ti</td>
</tr>
<tr>
<td>Head parts</td>
<td>C 35 1.0501</td>
<td></td>
</tr>
<tr>
<td>Spindles</td>
<td>X 12 CrMoS 17 1.4104</td>
<td></td>
</tr>
<tr>
<td>Cones</td>
<td>X 35 CrMo 17 hardened and tempered</td>
<td>1.4122</td>
</tr>
<tr>
<td>Valve seats</td>
<td>X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/316Ti</td>
</tr>
<tr>
<td>Packings</td>
<td>PTFE</td>
<td>PTFE</td>
</tr>
</tbody>
</table>

Function

The characteristic of the pressure measuring instrument or pressure transmitter can be tested through the test connection.

A pressure gage for local display can be connected to the test connection.

The two-way valve manifold DN 5 can be used in addition to shut off and vent the line with the measured medium.

Accessories

Accessory set for 2-way valve manifold DN 5 for flanging

- A31: 2 screws 7/16-20 UNF x 2 1/8 inch to ASME B18.3, 1 flat gasket
- A34: 2 screws 7/16-20 UNF x 2 1/8 inch to ASME B18.3, 1 O-ring (FPM 90)
- A11: 2 screws M10x55 to DIN EN 4762, 2 washers, 1 flat gasket
- A15 (suitable for oxygen): 2 screws M10x55 to DIN EN 4762, 2 washers, 1 flat gasket
- A16: 2 screws M10x55 to DIN EN 4762, 2 washers, 1 flat gasket (FPM 90)

Note: M10 screws only permissible up to PN 160!

Washers Ø 10.5 to DIN 125
Flat gaskets made of PTFE, max. 420 bar, 80 °C
O-ring to DIN 3771, 20 x 2.65 - S – FPM90, max. 420 bar, 120 °C

Mounting plate

Made of electrogalvanized sheet-steel

- M11: For wall mounting or for securing on rack (72 mm grid)

Scope of delivery:
- 1 mounting plate with bolts for mounting on valve manifold

- M12: For pipe mounting

Scope of delivery:
- 1 mounting plate M11
- 2 pipe brackets with nuts and washers for pipes with max. Ø 60.3 mm

Valve manifold 100 bar, suitable for oxygen

- S12: (only in combination with versions for aggressive liquids and gases): Suitable for oxygen
### Selection and Ordering data

<table>
<thead>
<tr>
<th>2-way valve manifold DN 5</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>for flanging to pressure transmitters, max. working pressure 420 bar, weight 1.85 kg (order accessory set and mounting plate with Order code), without certificate</td>
<td>7MF9401-2A</td>
</tr>
<tr>
<td>• for non-aggressive liquids and gases</td>
<td>2e</td>
</tr>
<tr>
<td>• for aggressive liquids and gases</td>
<td>2f</td>
</tr>
<tr>
<td>for fitting to pressure gages or pressure transmitters for pressure, with nipple connection to DIN 16284, max. working pressure 420 bar, weight 1.8 kg (order mounting plate with Order code)</td>
<td>7MF9401-2J</td>
</tr>
<tr>
<td>• for non-aggressive liquids and gases</td>
<td>2J</td>
</tr>
<tr>
<td>• for aggressive liquids and gases</td>
<td>2K</td>
</tr>
</tbody>
</table>

### Accessories

- Factory test certificate EN 10204-2.2: 7MF9000-8AB
- Material acceptance test certificate EN 10204-3.1: 7MF9000-8AD

1) For suitable seals, see page 2/228.

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Further designs1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please add &quot;-Z&quot; to Order No. and specify Order code.</td>
</tr>
<tr>
<td>Accessory set to EN (required for flanging, weight 0.2 kg)</td>
</tr>
<tr>
<td>2x screws 7/16-20 UNF x 2 1/8 inch to ASME B18.3; chromized steel</td>
</tr>
<tr>
<td>1x gasket made of PTFE, max. permissible 420 bar, 80 °C</td>
</tr>
<tr>
<td>Accessory set to DIN2) (required for flanging3), weight 0.2 kg)</td>
</tr>
<tr>
<td>2x screws M10x55 to DIN EN ISO 4762; chromized steel</td>
</tr>
<tr>
<td>2x washers Ø 10.5 mm to DIN 125; 1x gaskets made of PTFE, max. permissible 420 bar, 80 °C</td>
</tr>
<tr>
<td>• Standard design</td>
</tr>
<tr>
<td>• Version for oxygen</td>
</tr>
<tr>
<td>2x screws M10x55 to DIN EN ISO 4762; chromized steel</td>
</tr>
<tr>
<td>2x washers Ø 10.5 mm to DIN 125; 1x O-ring to DIN 3771, 20 x 2.65 - S - FPM90, max. permissible 420 bar, 120 °C</td>
</tr>
<tr>
<td>Mounting plate for valve manifold, made of electrogalvanized sheet-steel</td>
</tr>
<tr>
<td>for wall mounting or for securing on rack (72 mm grid), weight 0.5 kg</td>
</tr>
<tr>
<td>Scope of delivery: 1 mounting plate with bolts for mounting on valve manifold</td>
</tr>
<tr>
<td>for pipe mounting, weight 0.7 kg</td>
</tr>
<tr>
<td>Scope of delivery: 1x mounting plate M11, 2x pipe brackets with nuts and washers (for pipe with max. Ø 60.3 mm)</td>
</tr>
<tr>
<td>Valve manifold 100 bar Suitable for oxygen, only for 7MF9401-2F and 7MF9401-2K.</td>
</tr>
</tbody>
</table>

1) When ordering accessory set or mounting together with the 2-way valve manifold, please use Order code; otherwise use Order No.
2) Flange connections to DIN 19213 only permissible up to PN 160!
3) Only required for versions 7MF9401-2E und -2F.
SITRANS P measuring instruments for pressure
Fittings - Shut-off valves for gage and absolute pressure transmitters

2-way valve manifolds DN 5

Characteristic curves

2-way valve manifold DN 5, permissible working pressure as a function of the permissible working temperature

Dimensional drawings

2-way valve manifold DN 5 (7MF9401-2E/-2F) for flanging, dimensions in mm

A Process connection, Pipe union with ferrule, diameter 12 mm, S series to DIN 2353
B Connection for pressure gauge; flange conn. to DIN EN 81 518, Form A
C Test connection; thread G¼" 1 Operating valve
2 Test valve
Valve design: Internal spindle thread

2-way valve manifold DN 5 (7MF9401-2J/-2K) for connection to pressure gages and pressure transmitters, dimensions in mm

Mounting plate 7MF9006-6.. (M11, M12) for valve manifold, dimensions in mm

Schematics

Connection diagram of the 2-way valve manifolds
Overview

The 2-spindle, 3-spindle and 5-spindle valve manifolds 7MF9411-5.. are for pressure transmitters for absolute pressure or differential pressure.

The valve manifolds are used to shut off the differential pressure lines and to check the pressure transmitter zero.

The 2-spindle and the 5-spindle valve manifold enable in addition venting on the transmitter side and checking of the pressure transmitter characteristic.

Benefits

- Max. working pressure 420 bar
- Each available in version for oxygen

Application

The spindle valve manifolds DN 5 are designed for liquids and gases

Each is available in a version for oxygen on request

Design

All versions of the valve manifolds have a process connection ½-14 NPT. The connection for the pressure transmitter is always designed as a flange connection to EN 61518, form B . The 2-spindle and the 5-spindle valve manifold have in addition a vent and test connection ¼-18 NPT.

The valves have an external spindle thread.

Materials used

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
<th>Mat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>X 2 CrNiMo 17 13 2</td>
<td>1.4404/316L</td>
</tr>
<tr>
<td>Cones</td>
<td>X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/316Ti</td>
</tr>
<tr>
<td>Spindles</td>
<td>X 2 CrNiMo 18 10</td>
<td>1.4404/316L</td>
</tr>
<tr>
<td>Head parts</td>
<td>X 5 CrNiMo 18 10</td>
<td>1.4404/316L</td>
</tr>
<tr>
<td>Packings</td>
<td>PTFE</td>
<td>-</td>
</tr>
</tbody>
</table>

Function

Functions of all valve manifolds:

- Shutting off the differential pressure lines
- Checking the pressure transmitter zero

Additional functions of the 2-spindle and 5-spindle valve manifolds through the vent and test connection:

- Venting on the transmitter side
- Checking the pressure transmitter characteristic

Selection and Ordering data

<table>
<thead>
<tr>
<th>Valve manifolds DN 5</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>for liquids and gases, for flanging to pressure transmitters for absolute and differential pressure, max. working pressure 420 bar (order accessory set with Order code), without certificate</td>
<td>7MF9411 -</td>
</tr>
<tr>
<td>2-spindle valve manifold</td>
<td>5A</td>
</tr>
<tr>
<td>3-spindle valve manifold</td>
<td>5B</td>
</tr>
<tr>
<td>5-spindle valve manifold</td>
<td>5C</td>
</tr>
</tbody>
</table>

Accessories

- Factory test certificate EN 10204–2.2
- Material acceptance test certificate EN 10204-3.1

Selection and Ordering data

<table>
<thead>
<tr>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further designs 1)</td>
<td></td>
</tr>
<tr>
<td>Please add ‘-Z’ to Order No. and specify Order code.</td>
<td></td>
</tr>
<tr>
<td>Accessory set to EN (connection between valve manifold and pressure transmitter) for valve manifold 7MF9411-5A.</td>
<td></td>
</tr>
<tr>
<td>2x screws 7/18-20 UNF x 1¾ inch to ASME B18.2.1; chromeized steel</td>
<td>K35 7MF9411-7DB</td>
</tr>
<tr>
<td>1x gasket made of PTFE, max. permissible 420 bar, 80 °C</td>
<td></td>
</tr>
<tr>
<td>2x screws 7/18-20 UNF x 1¾ inch to ASME B18.2.1; stainless steel</td>
<td>K45 7MF9411-7DC</td>
</tr>
<tr>
<td>1x gasket made of PTFE, max. permissible 420 bar, 80 °C</td>
<td></td>
</tr>
<tr>
<td>Accessory set to DIN2) (connection between valve manifold and pressure transmitter) for valve manifold 7MF9411-5A.</td>
<td></td>
</tr>
<tr>
<td>2x screws M10x45 to DIN EN 24014; chromeized steel</td>
<td>K15 7MF9411-7BB</td>
</tr>
<tr>
<td>2x washers Ø 10.5 mm to DIN 125; 1x gasket made of PTFE, max. permissible 420 bar, 80 °C</td>
<td></td>
</tr>
<tr>
<td>2x screws M10x45 to DIN EN 24014; stainless steel</td>
<td>K25 7MF9411-7BC</td>
</tr>
<tr>
<td>2x washers Ø 10.5 mm to DIN 125, stainless steel; 1x gasket made of PTFE, max. permissible 420 bar, 80 °C</td>
<td></td>
</tr>
</tbody>
</table>

Siemens Fi 01 · 2009 2/201
Selection and Ordering data

<table>
<thead>
<tr>
<th>Further designs1)</th>
<th>Order code</th>
<th>Order No.</th>
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<tbody>
<tr>
<td>Please add “-Z” to Order No. and specify Order code.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for valve manifolds 7MF9411-5B, and -5C.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4x screws M10x45 to DIN EN 24014; chromized steel</td>
<td>K16</td>
<td>7MF9411-6BB</td>
</tr>
<tr>
<td>4x washers Ø 10.5 mm to DIN 125; 2 flat gaskets made of PTFE, max. permissible 420 bar, 80 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flange connection with M10 screws only permissible up to PN 160.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4x screws M10x45 to DIN EN 24014; stainless steel</td>
<td>K26</td>
<td>7MF9411-6BC</td>
</tr>
<tr>
<td>4x washers Ø 10.5 mm to DIN 125, stainless steel; 2x flat gaskets made of PTFE, max. permissible 420 bar, 80 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flange connection with M10 screws only permissible up to PN 160.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mounting plate
- for valve manifold, made of electrogalvanized sheet-steel
  - for wall mounting or for securing on rack (72 mm grid), weight 0.5 kg
    Scope of delivery: 1 mounting plate with bolts for mounting on valve manifold
  - for pipe mounting, weight 0.7 kg
    Scope of delivery: 1x mounting plate M11, 2x pipe brackets with nuts and washers (for pipe with max. Ø 60.3 mm)
- for valve manifold, made of stainless steel
  - for wall mounting or for securing on rack (72 mm grid), weight 0.5 kg
    Scope of delivery: 1 mounting plate with bolts for mounting on valve manifold
  - for pipe mounting, weight 0.7 kg
    Scope of delivery: 1x mounting plate M11, 2x pipe brackets with nuts and washers (for pipe with max. Ø 60.3 mm)

Valve manifold 100 bar
Suitable for oxygen
- for 7MF9411-5A. | S12 |
- for 7MF9411-5B. | S13 |
- for 7MF9411-5C. | S14 |

## Accessories

### Accessory set for 2-, 3- and 5-spindle valve manifolds

2-spindle valve manifold DN 5
- K35: 2 screws 7/16-20 UNF x 1¾ inch to ASME B18.2.1, 1 flat gasket
- K15: 2 screws M10x45 to DIN EN 24014, 2 washers, 1 flat gasket

3-spindle and 5-way valve manifold DN 5
- K36: 4 screws 7/16-20 UNF x 1¾ inch to ASME B18.2.1, 2 flat gaskets
- K16: 4 screws M10x45 to DIN EN 24014, 4 washers, 2 flat gaskets

Washers Ø 10.5 to DIN 125
Flat gaskets made of PTFE, max. 420 bar, 80 °C

**Note:** Flange connection with M10 screws only permissible up to PN 160!

### Mounting plate

Made of electrogalvanized sheet-steel
- M11: For wall mounting or for securing on rack (72 mm grid)
  Scope of delivery: 1 mounting plate with bolts for mounting on valve manifold
- M12: For pipe mounting
  Scope of delivery: 1 mounting plate M11, 2 pipe brackets with nuts and washers for pipes with max. Ø 60.3 mm

### Valve manifold 100 bar, suitable for oxygen

- S12: For 2-way valve manifold
- S13: For 3-way valve manifold
- S13: For 5-way valve manifold

### Characteristic curves

Valve manifolds PN 5 (7MF9411-5...), permissible working pressure as a function of the permissible working temperature

1) When ordering accessory set or mounting together with the valve manifolds, please use Order code; otherwise use Order No.
2) Flange connections to DIN 19213 only permissible up to 160!
2-, 3- and 5-spindle valve manifolds DN 5

### Dimensional drawings

2-spindle valve manifold DN 5 (7MF9411-5A.), dimensions in mm

![2-spindle valve manifold](image)

- **A** Process connection: ½-14 NPT
- **B** Transmitter connection: Flange connection to EN 61 518, form B
- **C** Vent / test connection: ½-18 NPT
- Valve design: external spindle thread

3-spindle valve manifold DN 5 (7MF9411-5B.), dimensions in mm

![3-spindle valve manifold](image)

- **A** Process connection: ½-14 NPT
- **B** Transmitter connection: Flange connection to EN 61 518, form B
- Valve design: external spindle thread

5-spindle valve manifold DN 5 (7MF9411-5C.), dimensions in mm

![5-spindle valve manifold](image)

- **A** Process connection: ½-14 NPT
- **B** Transmitter connection: Flange connection to EN 61 518, form B
- **C** Vent / test connection: ½-18 NPT
- Valve design: external spindle thread

### Schematics

2-spindle, 3-spindle and 5-spindle valve manifold DN 5, connections

![Schematics](image)

- **A** Process connection
- **B** Transmitter connection
- **C** Blow-out connection
Multiway cocks PN 100

Overview

The multiway cock PN 100 can be flanged to pressure transmitters for differential pressure.

Benefits

- Version available for aggressive liquids, gases and vapors
- Robust design
- Oil-free and grease-free version possible
- One-hand operation

Application

The PN 100 multiway cock is available in versions for aggressive and non-aggressive liquids, gases and vapors.

Design

The multiway cock can be flanged with four screws to pressure transmitters for differential pressure.

The PN 100 has 2 process connections and one blow-out connection. A steel version of the multiway cock is available for non-aggressive media, and a stainless steel version for aggressive media. The housing is forged in one piece. The switching lever is removable.

Sealing can be improved during operation.

Note: An accessory set is always required for flanging of the multiway cock to a differential pressure transmitter.

Function

- Shutting off the differential pressure lines
- Blowing out the differential pressure lines
- Testing the pressure transmitter zero

Cock positions; the symbols are printed on the cock

Technical specifications

<table>
<thead>
<tr>
<th>Multiway cocks PN 100</th>
<th>Measured medium</th>
<th>Water, non-aggressive liquids and gases</th>
<th>Aggressive liquids, gases and vapors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>P250GH, mat. No.: 1.0460</td>
<td>X 6 CrNiMoTi 17 12 2, mat. No. 1.4571/316Ti</td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td>Steel, for pipe Ø 12 mm, L series</td>
<td>Stainless steel, for pipe Ø 12 mm, L series</td>
<td></td>
</tr>
<tr>
<td>Process connection</td>
<td>2 bulkhead glands</td>
<td>Pipe union with ferrule</td>
<td></td>
</tr>
<tr>
<td>Connection for blow-</td>
<td>wing out</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. permissible work-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. permissible work-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>2.5 kg</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Selection and Ordering data

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiway cock PN 100 for flanging to pressure transmitters, weight 2.5 kg (without accessory set), without certificate</td>
<td>7MF9004-1A</td>
</tr>
<tr>
<td>for water and non-aggressive gases and vapors</td>
<td>1p</td>
</tr>
<tr>
<td>for aggressive liquids, gases and vapors</td>
<td>1Q</td>
</tr>
</tbody>
</table>

Accessories

- Factory test certificate EN 10204-2.2: 7MF9000-8AB
- Material acceptance test certificate EN 10204-3.1: 7MF9000-8AD

Selection and Ordering data

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Further designs(^1) Please add &quot;Z&quot; to Order No. and specify Order code.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accessory set to EN (required for flanging, weight 0.2 kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4x screws 7/16-20 UNF x 1 inch to ASME B18.2.1; chromized steel 2x gaskets made of PTFE, max. permissible temperature 80 °C</td>
<td>L31 F 7MF9004-5CC</td>
<td></td>
</tr>
<tr>
<td>Accessory set to DIN (required for flanging, weight 0.2 kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4x screws M10x25 to DIN EN 24017; chromized steel 4x washers Ø 10.5 mm to DIN 125; 2x gaskets made of PTFE, max. permissible temperature 80 °C</td>
<td>L11 7MF9004-6AD</td>
<td></td>
</tr>
<tr>
<td>L15 7MF9004-6AE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiway cock in oil-free and grease-free design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. PN 63 (instead of PN 100), BAM-tested lubricant, gasket suitable for oxygen measurement (only with Order No. 7MF9004-10Q Z)</td>
<td>S11</td>
<td></td>
</tr>
<tr>
<td>Mounting bracket Required for wall mounting or for securing on rack (72 mm grid), made of electrogalvanized sheet-steel, weight 0.85 kg</td>
<td>M13 7MF9004-6AA</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\)When ordering accessory set or mounting together with the multiway cock, please use Order code; otherwise use Order No.
Accessories

Accessory set for multiway cock PN 100
- L31: 4 screws $\frac{7}{16}$-20 UNF x 1 inch, 2 flat gaskets
- L11: 4 screws M10x25 to DIN EN 24017, 4 washers, 2 flat gaskets
- L15 (suitable for oxygen): 4 screws M10x25 to DIN EN 24017, 4 washers, 2 flat gaskets
Washers Ø 10.5 to DIN 125
Flat gaskets made of PTFE, max. permissible temperature 80 °C

Multiway cock in oil-free and grease-free design
- S11 (only for aggressive liquids, gases and vapors (7MF9004-1Q,)): Max. PN 63 (instead of PN 100), BAM-tested lubricant, gasket suitable for oxygen

Mounting brackets
- M13: Required for wall mounting or for securing on rack (72 mm grid); made of electrogalvanized sheet-steel

Characteristic curves

Multiway cock PN 100, permissible operating pressure as a function of the permissible operating temperature

Dimensional drawings

Multiway cock 7MF9004-1P, for flanging to pressure transmitters for differential pressure, dimensions in mm

Mounting bracket 7MF9004-6AA (M13), dimensions in mm
### Overview

The three-spindle and five-spindle valve manifolds DN 5 (7MF9410-1../-3..) are used to shut off the differential pressure lines and to check the transmitter zero.

In addition, the five-way valve manifold permits blowing out of the differential pressure lines.

### Benefits

- Available for aggressive and non-aggressive liquids and gases
- Max. working pressure 420 bar, with version for oxygen max. 100 bar

### Application

The 3-way and 5-way valve manifolds are available in versions for aggressive and non-aggressive liquids and gases.

Mounting plates are available for wall mounting, for securing to mounting racks or for pipe mounting.

### Design

The process connection of the 3-way and 5-way valve manifolds is a pipe union with ferrule.

Both valve manifolds have 2 flange connections for connecting a pressure transmitter.

In addition, the five-way valve manifold has 2 blow-out connections.

Depending on the version the valve manifold has either 3 or 5 valves, each with an internal spindle thread.

### Materials used

<table>
<thead>
<tr>
<th>Component</th>
<th>For non-aggressive liquids and gases</th>
<th>For aggressive liquids and gases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>P250GH</td>
<td>1.0460 X 6 CrNiMoTi 17 12 2</td>
</tr>
<tr>
<td>Head parts</td>
<td>C 35</td>
<td>1.0501</td>
</tr>
<tr>
<td>Spindles</td>
<td>X 12 CrMoS 17</td>
<td>1.4104</td>
</tr>
<tr>
<td>Cones</td>
<td>X 35 CrMo 17 hardened and tempered</td>
<td>1.4122</td>
</tr>
<tr>
<td>Valve seats</td>
<td>X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/316Ti</td>
</tr>
<tr>
<td>Packings</td>
<td>PTFE</td>
<td>PTFE</td>
</tr>
</tbody>
</table>

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Function</th>
<th>3-way valve manifold DN 5</th>
<th>5-way valve manifold DN 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shuting off the differential pressure lines</td>
<td>7MF9410 - 1e</td>
<td>7MF9410 - 3e</td>
</tr>
<tr>
<td>Checking the pressure transmitter zero</td>
<td>1f</td>
<td>3f</td>
</tr>
<tr>
<td>In addition, the five-way valve manifold permits blowing out of the differential pressure lines.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Accessories

- Factory test certificate EN 10204-2.2: 7MF9000-8AB
- Material acceptance test certificate EN 10204-3.1: 7MF9000-8AD
SITRANS P measuring instruments for pressure
Fittings - Shut-off valves for differential pressure transmitters

3-way and 5-way valve manifolds DN 5

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Further designs</strong>1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please add “Z” to Order No. and specify Order code.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Accessory set to EN</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(required for flanging, weight 0.2 kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4x screws 7/16-20 UNF x 21/8 inch to ASME B18.2; chromized steel</td>
<td>B31 F) 7MF9010-5CC</td>
<td></td>
</tr>
<tr>
<td>2x flat gaskets made of PTFE, max. permissible 420 bar, 80 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4x screws 7/16-20 UNF x 21/8 inch to ASME B18.2; chromized steel</td>
<td>B34 7MF9410-5CA</td>
<td></td>
</tr>
<tr>
<td>2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissible 420 bar, 120 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Accessory set to DIN</strong>2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(required for flanging, weight 0.2 kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4x screws M10x55 to DIN EN 24014; chromized steel</td>
<td>B11 7MF9010-6AD</td>
<td></td>
</tr>
<tr>
<td>4x washers Ø 10.5 mm to DIN 125; 2x flat gaskets made of PTFE, max. permissible 420 bar, 80 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mounting plate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>for wall manifold, made of electrogalvanized sheet-steel</td>
<td>M11 7MF9006-6EA</td>
<td></td>
</tr>
<tr>
<td>for wall mounting or for securing on rack (72 mm grid), weight 0.5 kg</td>
<td>Scope of delivery:</td>
<td></td>
</tr>
<tr>
<td>1 mounting plate with bolts for mounting on valve manifold</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for pipe mounting, weight 0.7 kg</td>
<td>M12 7MF9006-6GA</td>
<td></td>
</tr>
<tr>
<td>Scope of delivery:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1x mounting plate M11, 2x pipe brackets with nuts and washers (for pipe with max. Ø 60.3 mm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Valve manifold 100 bar</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>suitable for oxygen</td>
<td>S13 for 7MF9410-1F,</td>
<td></td>
</tr>
<tr>
<td>for 7MF9410-3F. s14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Accessories**

**Accessory set for 3-way and 5-way valve manifold DN 5 for flanging**
- B31: 4 screws 7/16-20 UNF x 21/8 inch to ASME B18.2; 2 flat gaskets
- B34: 4 screws 7/16-20 UNF x 21/8 inch to ASME B18.2, 2 O-rings (FPM 90)
- B11: 4 screws M10x55 to DIN EN 24014, 4 washers, 2 flat gaskets
- B15 (suitable for oxygen): 4 screws M10x55 to DIN EN 24014, 4 washers, 2 flat gaskets
- B16: 4 screws M10x55 to DIN EN 24014, 4 washers, 2 O-rings (FPM 90)

Washers Ø 10.5 to DIN 125
Flat gaskets made of PTFE. max. 420 bar, 80 °C
O-ring to DIN 3771, 20 x 2.65 – S – FPM90, max. 420 bar, 120 °C

**Mounting plate**
Made of electrogalvanized sheet-steel
- M11: For wall mounting or for securing on rack (72 mm grid)
  Scope of delivery: 1 mounting plate 7MF9006-6EA with bolts for mounting on valve manifold
- M12: For pipe mounting
  Scope of delivery: 1 mounting plate M11
  2 pipe brackets with nuts and washers for pipes with max. Ø 60.3 mm

**Valve manifold 100 bar, suitable for oxygen**
S12: Only in combination with versions for aggressive liquids and gases

---

1) When ordering accessory set or mounting together with the valve manifolds, please use Order code; otherwise use Order No.
2) Flange connections to DIN 19213 only permissible up to PN 160!

F) Subject to export regulations AL: 9I999, ECCN: N.
3-way and 5-way valve manifolds DN 5

### Characteristic curves

Permissible operating pressure as a function of the permissible operating temperature

### Dimensional drawings

3-way valve manifold DN 5 (7MF9410-1..), dimensions in mm

5-way valve manifold DN 5 (7MF9410-3..), dimensions in mm

### Schematics

3-way and 5-way valve manifolds, connections
Overview

The 3-way valve manifold DN 8 (7MF9416-1/-2..) is for pressure transmitters for differential pressure. It is used to shut off and blow out differential pressure lines and to test the pressure transmitter zero.

In the designs with a test connection, a test device can be connected to test the pressure transmitter characteristic.

Benefits

- For aggressive and non-aggressive liquids and gases
- The maximum working pressure is 420 bar.

Application

The 3-way valve manifold is available in versions for aggressive and non-aggressive liquids and gases.

Mounting plates are available for wall mounting, for securing to mounting racks or for pipe mounting.

Design

For the process connection on the version for non-aggressive media it is possible to choose between a pipe union with ferrule and welding pins.

The version for aggressive media always has a pipe union with ferrule.

Both versions are available optionally with a test connection M20x1.5.

The valves have an internal spindle thread.

Materials used

<table>
<thead>
<tr>
<th>Component</th>
<th>For non-aggressive liquids and gases</th>
<th>For aggressive liquids and gases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Material</td>
<td>Mat. No.</td>
</tr>
<tr>
<td>Housing</td>
<td>P250GH</td>
<td>1.0460</td>
</tr>
<tr>
<td>Head parts</td>
<td>C 35</td>
<td>1.0501</td>
</tr>
<tr>
<td>Spindles</td>
<td>X 12 CrMoS 17</td>
<td>1.4104</td>
</tr>
<tr>
<td>Cones</td>
<td>X 35 CrMo 17 hardened and tempered</td>
<td>1.4122</td>
</tr>
<tr>
<td>Valve seats</td>
<td>X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/316Ti</td>
</tr>
<tr>
<td>Packings</td>
<td>PTFE</td>
<td>-</td>
</tr>
</tbody>
</table>

Function

The 3-way valve manifold DN 8 performs two functions as standard:
- Shutting off the differential pressure lines
- Checking the pressure transmitter zero

All versions are also available with a test connection, to which a test device for checking the pressure transmitter characteristic can be connected.

Selection and Ordering data

<table>
<thead>
<tr>
<th>3-way valve manifold DN 8</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>for flanging to pressure transmitters for differential pressure, max. working pressure 420 bar, (order accessory set and mounting plate with Order code), without certificate for non-aggressive liquids and gases process connection: Pipe union with ferrule</td>
<td>7MF9416 - 1A</td>
</tr>
<tr>
<td>with test connection</td>
<td>1b</td>
</tr>
<tr>
<td>with test connection</td>
<td>1c</td>
</tr>
<tr>
<td>for non-aggressive liquids and gases process connection: Welding pin Ø 14 x 2.5</td>
<td>2b</td>
</tr>
<tr>
<td>without test connection</td>
<td>2c</td>
</tr>
<tr>
<td>with test connection</td>
<td>2d</td>
</tr>
<tr>
<td>for aggressive liquids and gases process connection: Pipe union with ferrule</td>
<td>1d</td>
</tr>
<tr>
<td>without test connection</td>
<td>1e</td>
</tr>
<tr>
<td>with test connection</td>
<td></td>
</tr>
</tbody>
</table>

Accessories

- Factory test certificate EN 10204-2.2: 7MF9000-8AB
- Material acceptance test certificate EN 10204-3.1: 7MF9000-8AD
3-way valve manifold DN 8

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessory set to EN</td>
<td>B31</td>
<td>F) 7MF9010-5CC</td>
</tr>
<tr>
<td>Accessory set to DIN</td>
<td>B34</td>
<td>7MF9410-5CA</td>
</tr>
<tr>
<td>Mounting plate</td>
<td>M11</td>
<td>7MF9006-6EA</td>
</tr>
<tr>
<td>Mounting plate</td>
<td>M12</td>
<td>7MF9006-6GA</td>
</tr>
</tbody>
</table>

#### Accessory set for 3-way valve manifold DN 8 for flanging

- **B31**: 4 screws $\frac{7}{16}$-20 UNF x 2\(\frac{1}{8}\) inch to ASME B18.2.1, 2 flat gaskets
- **B34**: 4 screws $\frac{7}{16}$-20 UNF x 2\(\frac{1}{8}\) inch to ASME B18.2.1, 2 O-rings (FPM 90)
- **B11**: 4 screws M10x55 to DIN EN 24014, 2 washers, 2 flat gaskets
- **B16**: 4 screws M10x55 to DIN EN 24014, 4 washers, 2 O-rings (FPM 90)

Washers Ø 10.5 to DIN 125

Flat gaskets made of PTFE, max. 420 bar, 120 °C

**Note**: M10 screws only permissible up to PN 160!

#### Mounting plate

Made of electrogalvanized sheet-steel

- **M11**: For wall mounting or for securing on rack (72 mm grid)
  - 1 mounting plate with bolts for mounting on valve manifold
- **M12**: For pipe mounting
  - 1 mounting plate M11
  - 2 pipe brackets with nuts and washers for pipes with max. Ø 60.3 mm

#### Characteristic curves

3-way valve manifold DN 8, permissible working pressure as a function of the permissible working temperature
3-way valve manifold DN 8

**Dimensional drawings**

3-way valve manifold DN 8 (7MF9416-1..) with pipe union, dimensions in mm

A  Process connection (e.g. on primary device):
   Pipe union with ferrule, diameter 12 mm, S series to DIN 2353
B  Transmitter connection:
   Flange connection to EN 61 518, form A
C  Test connection:
   M20x1.5
   Valve design: internal spindle thread

3-way valve manifold DN 8 (7MF9416-2..) with welding pin, dimensions in mm

A  Process connection (e.g. on primary device):
   Welding pin, diameter 14x2.3
B  Transmitter connection:
   Flange connection to EN 61 518, form A
C  Test connection:
   M20x1.5
   Valve design: internal spindle thread

Mounting plate 7MF9006-6.. (M11, M12) for valve manifold, dimensions in mm

**Schematics**

3-way valve manifold DN 8, connections

A  Process connection
B  Transmitter connection
C  Vent/test connection

Three-way valve manifold for liquids and gases
Overview

The valve manifold combination DN 5/DN 8 (7MF9416-6..) is for pressure transmitters for differential pressure.

The combination is used to shut off and blow out differential pressure lines and to test the pressure transmitter zero.

In the designs with a test connection, a test device can be connected to test the pressure transmitter characteristic.

Benefits

- Max. working pressure 420 bar

Application

The valve manifold combination DN 5/DN 8 is designed for vapors.

Design

The valve manifold combination DN 5/DN 8 has a process connection with welding pins.

The connection for the pressure transmitter is designed as a flange connection, while the blow-out connection is designed as a pipe union with ferrule.

The manifold valves have an internal spindle thread, while the blow-out valves have an external spindle thread.

The optional test connections are M20x1.5.

Materials used

<table>
<thead>
<tr>
<th>Valve manifold DN 5</th>
<th>Blow-out valves DN 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component</td>
<td>Material</td>
</tr>
<tr>
<td>Housing</td>
<td>P250GH</td>
</tr>
<tr>
<td>Head parts</td>
<td>C 35</td>
</tr>
<tr>
<td>Spindles</td>
<td>X 12 CrMoS 17</td>
</tr>
<tr>
<td>Cones</td>
<td>X 35 CrMo 17</td>
</tr>
<tr>
<td>Valve seats</td>
<td>X 6 CrNiMoTi</td>
</tr>
<tr>
<td>Packings</td>
<td>PTFE</td>
</tr>
<tr>
<td>Welding pins</td>
<td>-</td>
</tr>
</tbody>
</table>

Function

- Shutting off the differential pressure lines
- Blowing out the differential pressure lines
- Checking the pressure transmitter zero

As an option it is possible to order a version with a test connection, to which a test device for checking the transmitter characteristic can be connected.

Selection and Ordering data

<table>
<thead>
<tr>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve manifold combination DN 5/DN 8 for vapors</td>
<td>7MF9416-6A</td>
</tr>
</tbody>
</table>

Selection and Ordering data

<table>
<thead>
<tr>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory test certificate EN 10204-2.2</td>
<td>7MF9000-8AB</td>
</tr>
<tr>
<td>Material acceptance test certificate EN 10204-3.1</td>
<td>7MF9000-8AD</td>
</tr>
</tbody>
</table>

Selection and Ordering data

<table>
<thead>
<tr>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessory set to EN (required for flanging, weight 0.2 kg)</td>
<td>B34 7MF9410-5CA</td>
</tr>
<tr>
<td>Accessory set to DIN (required for flanging, weight 0.2 kg)</td>
<td>B16 7MF9010-6CC</td>
</tr>
</tbody>
</table>

Further designs

1) When ordering accessory set together with the valve manifold combination, please use Order code, otherwise use Order No.

2) Flange connections to DIN 19213 only permissible up to PN 160!
### Accessories

**Accessory set for valve manifold combination DN 5/DN 8 for flanging**
- B34: 4 screws 7/16-20 UNF x 2 1/8 inch to ASME B18.2.1, 2 O-rings (FPM 90)
- B16: 4 screws M10x55 to DIN EN 24014, 4 washers, 2 O-rings (FPM 90)

Washers Ø 10.5 to DIN 125
O-ring to DIN 3771, 20 x 2.65 - S – FPM90, max. 420 bar, 120 °C

**Note**: M10 screws only permissible up to PN 160!

### Characteristic curves

Permissible operating pressure as a function of the permissible operating temperature

1. Valve manifold
2. Blow-out connection

1) According to DIN 19210 the design can be such that the temperatures for the differential pressure line can be set approx. 100 °C lower than the media temperature.

### Dimensional drawings

Valve manifold combination DN 5/DN 8, dimensions in mm (deviating dimensions for 7MF9416-6D, shown in brackets)

### Schematics

Valve manifold combination DN 5/DN 8, connections
**Overview**

The valve manifold combination DN 8 (7MF9416-4..) is for pressure transmitters for differential pressure.

It is used to shut off and blow out the differential pressure lines and to check the pressure transmitter zero.

In the designs with a test connection, a test device can be connected to check the pressure transmitter characteristic.

**Benefits**

- Max. working pressure 420 bar

**Application**

The valve manifold combination DN 8 is designed for vapors.

**Design**

The valve manifold combination DN 8 has a process connection with welding pins.

The connection for the pressure transmitter is designed as a flange connection, while the blow-out connection is designed as a pipe union with ferrule.

The manifold valves have an internal spindle thread, while the blow-out valves have an external spindle thread.

The optional test connection is M20x1.5.

The valve manifold combination DN 8 is supplied with a mounting plate.

**Materials used**

<table>
<thead>
<tr>
<th>Component</th>
<th>Valve manifold</th>
<th>Blow-out valves</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Material</td>
<td>Mat. No.</td>
</tr>
<tr>
<td>Housings</td>
<td>P250GH</td>
<td>1.0460</td>
</tr>
<tr>
<td>Head parts</td>
<td>C 35</td>
<td>1.0501</td>
</tr>
<tr>
<td>Cones</td>
<td>X 35 CrMo 17</td>
<td>1.4122</td>
</tr>
<tr>
<td>Cones</td>
<td>X 35 CrMo 17</td>
<td>1.4122</td>
</tr>
<tr>
<td>Valve seats</td>
<td>X 6 CrNiMoTi</td>
<td>1.4571/316Ti</td>
</tr>
<tr>
<td>Packings</td>
<td>PTFE</td>
<td>-</td>
</tr>
<tr>
<td>Welding pins</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Function**

- Shutting off the differential pressure lines
- Blowing out the differential pressure lines
- Checking the pressure transmitter zero

As an option it is possible to order a version with a test connection, to which a test device for checking the pressure transmitter characteristic can be connected.
SITRANS P measuring instruments for pressure
Fittings - Shut-off valves for differential pressure transmitters

Valve manifold combination DN 8

Selection and Ordering data

<table>
<thead>
<tr>
<th>Accessory set to EN</th>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(required for flanging, weight 0.2 kg)</td>
<td>B34</td>
<td>7MF9410-5CA</td>
</tr>
<tr>
<td>4x screws (\frac{7}{16}) 20 UNF x (2\frac{1}{8}) inch to ASME B18.2.1, chromized steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissible 420 bar, 120 °C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Accessories

Accessories set to DIN²

<table>
<thead>
<tr>
<th>Accessory set to DIN²</th>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(required for flanging, weight 0.2 kg)</td>
<td>B16</td>
<td>7MF9010-6CC</td>
</tr>
<tr>
<td>4x screws M10x55 to DIN EN 24014; chromized steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4x washers Ø 10.5 mm to DIN 125; 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissible 420 bar, 120 °C Flange connection to DIN 19 213 only permissible up to PN 160!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: M10 screws only permissible up to PN 160!

Note

1) When ordering accessory set together with the valve manifold combination, please use Order code; otherwise use Order No.

2) Flange connections to DIN 19213 only permissible up to 160!

Further designs³

Please add "Z" to Order No. and specify Order code.

Characteristic curves

Permissible operating pressure as a function of the permissible operating temperature

Dimensional drawings

Valve manifold combination DN 8 (7MF9416-4..), dimensions in mm

Schematics

Valve manifold combination DN 8, connections

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2/215
The two-spindle, three-spindle and five-spindle valve manifolds (7MF9412–1..) are used to shut off the differential pressure lines and to check the transmitter zero.

The five-spindle valve manifold permits venting on the transmitter side and checking of the transmitter characteristic.

These valve manifolds are preferentially used when mounting in protective boxes. In addition, they can also be used for wall, frame or pipe mounting together with the mounting bracket.

Transmitters of the DS series can be operated and read from the front when using these valve manifolds.

### Application

The valve manifolds DN 5 are designed for liquids and vapors and for installing in protective boxes.

Each is available in a version for oxygen on request.

### Design

All versions of the spindle manifolds have a process connection ½-14 NPT.

The connection for the pressure transmitter is always designed as a flange connection to EN 61518, Form A.

The 2-spindle and the 5-spindle valve manifold have in addition a vent and test connection ¼-18 NPT.

The valves have an external spindle thread.

### Materials used

<table>
<thead>
<tr>
<th>Components</th>
<th>Material</th>
<th>Mat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>X 2 CrNiMo17 13 2</td>
<td>1.4404/316L</td>
</tr>
<tr>
<td>Cones</td>
<td>X 6 CrNiMoTi17 12 2</td>
<td>1.4571/316Ti</td>
</tr>
<tr>
<td>Spindles</td>
<td>X 2 CrNiMo18 10</td>
<td>1.4404/316L</td>
</tr>
<tr>
<td>Head parts</td>
<td>X 5 CrNiMo18 10</td>
<td>1.4401/316</td>
</tr>
<tr>
<td>Packings</td>
<td>PTFE</td>
<td>-</td>
</tr>
</tbody>
</table>

### Functions

Functions of all valve manifolds:
- Shutting off the differential pressure lines
- Checking the pressure transmitter zero

Additional functions of the 2-spindle and 5-spindle valve manifolds through the vent and test connection:
- Venting on the transmitter side
- Checking the pressure transmitter characteristic

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>7MF9000-8AB</td>
<td>EN 10204-2.2</td>
</tr>
<tr>
<td>7MF9000-8AD</td>
<td>EN 10204-3.1</td>
</tr>
</tbody>
</table>

### Further designs

Please add "-Z" to Order No. and specify Order code.

### Accessory set to EN

(All connections between valve manifold and pressure transmitter)

- for valve manifold 7MF9412–1C.
- 2x screws 7/16-20 UNF x 2 inch to ASME B18.2.1; chromized steel
- 1x O-ring to DIN 3771, 20 x 2.65 - S - FPM90, max. permissible 420 bar, 120 °C

- for valve manifold 7MF9412–1D and -1E.
- 4x screws 7/16-20 UNF x 2 inch to ASME B18.2.1; chromized steel
- 2x O-rings to DIN 3771, 20 x 2.65 - S - FPM90, max. permissible 420 bar, 120 °C

- for valve manifold 7MF9412–1D and -1E.
- 4x screws 7/16-20 UNF x 2 inch to ASME B18.2.1; chromized steel
- 2x flat gaskets made of PTFE, max. permissible 420 bar, 80 °C
Accessories

Accessory set for 2-, 3- and 5-spindle valve manifolds (Connection between manifold and transmitter)

2-spindle valve manifold DN 5 with flange connection
- F32: 2 screws 7/16 UNF x 2 inch to ASME B 18.2.1, 1 O-Ring (FPM90)
- F35: 2 screws 7/16 UNF x 2 inch to ASME B 18.2.1, 1 flat-gasket
- F12: 2 screws M10x50 to DIN EN 24014, 2 washers, 1 O-ring (FPM90)
- F15: 2 screws M10x50 to DIN EN 24014, 2 washers, 1 flat-gasket

3-spindle and 5-way valve manifold DN 5
- F34: 4 screws 7/16 UNF x 2 inch to ASME B 18.2.1, 2 O-rings (FPM90)
- F36: 4 screws 7/16 UNF x 2 inch to ASME B 18.2.1, 2 flat-gaskets
- F14: 4 screws M10x50 to DIN EN 24014, 4 washers, 2 O-rings (FPM90)
- F16: 4 screws M10x50 to DIN EN 24014, 4 washers, 2 flat-gaskets

Washers Ø 10.5 to DIN 125
Flat-gaskets made of PTFE, max. 420 bar, 80 °C
O-ring to DIN 3771, 20 x 2.65 - S - FPM90; max. 420 bar, 120 °C

Note:
Flange connections with M10 screws only permissible up to PN 160!

Mounting bracket required for wall mounting or for securing to mounting rack, with bolts for mounting on valve manifold
- for valve manifolds 7MF9412-1B and -1C.
- for valve manifold 7MF9412-1D and -1E.

Mounting clip 2 off, to secure mounting bracket to pipe
- M14: 7MF9006-6LA
- M17: 7MF9006-6NA
- M18: 7MF9006-6PA

Valve manifold 100 bar suitable for oxygen
- for valve manifolds 7MF9412-1B and -1C.
- for valve manifold 7MF9412-1D.
- for valve manifold 7MF9412-1E.

When ordering accessory set or mounting together with the valve manifolds, please use Order code; otherwise use Order No.

2)Flange connections with M10 screws only permissible up to PN 160!
2-spindle valve manifold DN 5 (7MF9412-1C..), dimensions in mm

3-spindle valve manifold DN 5 (7MF9412-1D..), dimensions in mm

5-spindle valve manifold DN 5 (7MF9412-1E..), dimensions in mm
SITRANS P measuring instruments for pressure
Fittings - Shut-off valves for differential pressure transmitters

2-, 3- and 5-spindle valve manifolds for installing in protective boxes

Mounting bracket (7MF9006-6LA)/(M14) for 2-spindle valve manifolds, dimensions in mm

Mounting bracket (7MF9006-6NA)/(M17) for 3-spindle valve manifolds, dimensions in mm

Mounting bracket (7MF9006-6PA)/(M18) for 5-spindle valve manifolds, dimensions in mm

Schematics

2-spindle valve manifold DN 5 (with rotating sleeve G½ or flange connection), connections

3-spindle valve manifold DN 5, connections

5-spindle valve manifold DN 5, connections
Overview

These 3-spindle and 5-spindle valve manifolds 7MF9413-1.. were developed specially for vertical differential pressure lines. The valve manifolds are used to shut off the differential pressure lines and to check the pressure transmitter zero. The 5-spindle valve manifold permits venting on the transmitter side and checking of the pressure transmitter characteristic.

Benefits

- For vertical differential pressure lines
- Max. operating pressure 420 bar
- Transmitters of the DS series can be operated and read from the front.

Application

The 3-spindle and 5-spindle valve manifolds for vertical differential pressure lines are for liquids and gases. The valve manifolds are flanged on the pressure transmitter.

Design

All versions of the spindle valve manifolds have a process connection ½-14 NPT.

The connection for the pressure transmitter is always designed as a flange connection to EN 61518, form B.

The 2-spindle and the 5-spindle valve manifold have in addition a vent and test connection ¼-18 NPT.

Materials used:

<table>
<thead>
<tr>
<th>Component</th>
<th>Material</th>
<th>Mat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>X 2 CrNiMo 17 13 2</td>
<td>1.4404/316L</td>
</tr>
<tr>
<td>Cones</td>
<td>X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/316Ti</td>
</tr>
<tr>
<td>Spindles</td>
<td>X 2 CrNiMo 18 10</td>
<td>1.4404/316L</td>
</tr>
<tr>
<td>Head parts</td>
<td>X 5 CrNiMo 18 10</td>
<td>1.4401/316</td>
</tr>
<tr>
<td>Packings</td>
<td>PTFE</td>
<td>-</td>
</tr>
</tbody>
</table>

Function

Functions of all valve manifolds:
- Shutting off the differential pressure lines
- Checking the pressure transmitter zero

Additional functions of the 2-spindle and 5-spindle valve manifolds through the vent and test connection:
- Venting on the transmitter side
- Checking the pressure transmitter characteristic

Selection and Ordering data

<table>
<thead>
<tr>
<th>Valve manifolds for vertical differential pressure lines</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>for liquids and gases</td>
<td>7MF9413-1A</td>
</tr>
<tr>
<td>for flanging to pressure transmitters for absolute and differential pressure</td>
<td></td>
</tr>
<tr>
<td>Material: stainless steel, mat. No: 1.4404/316L</td>
<td></td>
</tr>
<tr>
<td>max. working pressure 420 bar (order accessory set with Order code), without certificate</td>
<td></td>
</tr>
<tr>
<td>• 3-spindle valve manifold</td>
<td>1d</td>
</tr>
<tr>
<td>• 5-spindle valve manifold</td>
<td>1e</td>
</tr>
</tbody>
</table>

Accessories

Factory test certificate EN 10204-2.2 7MF9000-8AB
Material acceptance test certificate EN 10204-3.1 7MF9000-8AD

Selection and Ordering data

Further designs

Please add "-Z" to Order No. and specify Order code.

Accessory set to EN (connection between valve manifold and pressure transmitter)

4x screws 1/2-20 UNF x 1½ inch to ASME B18.2.1; chromized steel
2x flat gaskets made of PTFE, max. permissible 420 bar, 80 °C

Accessory set to DIN (connection between valve manifold and pressure transmitter)

4x screws M10x45 to DIN EN 24014; chromized steel
4x washers Ø 10.5 mm to DIN 125; 2x flat gaskets made of PTFE, max. permissible 420 bar, 80 °C
Flange connection with M10 screws only permissible up to PN 160.

Mounting bracket required for wall mounting or for securing to mounting rack, with bolts for mounting on valve manifold

- for valve manifold 7MF9413-1D. M17 7MF9006-6NA
- for valve manifold 7MF9413-1E. M18 7MF9006-6PA
required for mounting on 2” stand-pipe, with bolts for mounting on valve manifold

- for valve manifold 7MF9413-1D. M19 7MF9006-6QA

Mounting clip

2 off, to secure mounting bracket to pipe

Valve manifold 100 bar suitable for oxygen

- for valve manifold 7MF9413-1D. S13
- for valve manifold 7MF9413-1E. S14

1)When ordering accessory set or mounting together with the multiway cock, please use Order code; otherwise use Order No.
2)Flange connections to DIN 19213 only permissible up to 160!
**Accessories**

*Accessory set (connection between manifold and transmitter)*
- K36: 4 screws 7/16-20 UNF x 1¾ inch to ASME B18.2.1, 2 flat gaskets
- K16: 4 screws M10x45 to DIN EN 24014, 4 washers, 2 flat gaskets

Washers Ø 10.5 to DIN 125
Flat gaskets made of PTFE, max. 420 bar, 80 °C

**Note:** Flange connection with M10 screws only permissible up to PN 160!

**Mounting bracket for wall mounting or for securing to mounting rack**
With bolts for mounting on valve manifold
- M17: For 3-spindle valve manifold
- M18: For 5-spindle valve manifold

**Mounting bracket for mounting on 2” standpipe**
With bolts for mounting on valve manifold
- M19: For 3-spindle valve manifold

**Mounting clips (2 off)**
For securing the mounting brackets M17, M18 and M19 to pipe

**Valve manifold 100 bar, suitable for oxygen**
- For 3-spindle valve manifold
- For 5-spindle valve manifold

**Characteristic curves**

Permissible operating pressure as a function of the permissible operating temperature

**Dimensional drawings**

3-spindle valve manifold 7MF9413-1D. for vertical differential pressure lines, dimensions in mm

5-spindle valve manifold 7MF9413-1E. for vertical differential pressure lines, dimensions in mm

Mounting bracket (7MF9006-6NA)/(M17) for 3-spindle valve manifolds, dimensions in mm

Mounting bracket (7MF9006-6PA)/(M18) for 5-spindle valve manifolds, dimensions in mm
SITRANS P measuring instruments for pressure
Fittings - Shut-off valves for differential pressure transmitters

3- and 5-spindle valve manifolds for vertical angular differential pressure lines

Mounting bracket (7MF9006-6QA)/(M19) for 3-spindle and 5-spindle valve manifolds, dimensions in mm

Schematics

3-spindle valve manifold for vertical differential pressure lines, connections

5-spindle valve manifold for vertical differential pressure lines, connections
Overview

The low-pressure multiway cock 7MF9004-4CA/-4DA can be flanged to pressure transmitters for differential pressure.

Benefits

- Robust design
- For liquids and gases
- One-hand operation

Design

The multiway cock has 2 process connections and 2 test connections, which are available in 2 versions (with sealing screws G3/8 or quick-release couplings). The housing is made of hot-pressed brass CuZn39Pb3, CW 614N. Test connections with sealing screws or with self-sealing quick-release couplings.

Note: An accessory set is always required for flanging of the multiway cock to a differential pressure transmitter.

Function

- Shutting off the differential pressure lines
- Testing the pressure transmitter zero
- Testing the pressure transmitter characteristic

Selection and Ordering data

<table>
<thead>
<tr>
<th>Low-pressure multiway cock</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>for liquids and gases, for flanging to pressure transmitters, max. working pressure 25 bar, max. working temperature 60 °C (up to 80 °C for a short time), weight 1.75 kg (without accessory set)</td>
<td>7MF9004-4CA</td>
</tr>
<tr>
<td>2x sealing screws G3/8</td>
<td>7MF9004-4DA</td>
</tr>
<tr>
<td>2x quick-release couplings</td>
<td></td>
</tr>
</tbody>
</table>

Selection and Ordering data

<table>
<thead>
<tr>
<th>Accessory set for low-pressure multiway cock</th>
<th>Order code</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(required for flanging, weight 0.2 kg)</td>
<td>L31</td>
<td>7MF9004-5CC</td>
</tr>
<tr>
<td>Accessory set to EN</td>
<td>4x screws 7/16-20 UNF x 1 inch to ASME B18.2.1; chromized steel</td>
<td>2x gaskets made of PTFE, max. permissible temperature 80 °C</td>
</tr>
<tr>
<td>Accessory set to DIN (required for flanging, weight 0.2 kg)</td>
<td>L11</td>
<td>7MF9004-6AD</td>
</tr>
<tr>
<td></td>
<td>L15</td>
<td>7MF9004-6AE</td>
</tr>
<tr>
<td>Multiway cock in oil-free and grease-free design</td>
<td>S11</td>
<td></td>
</tr>
<tr>
<td>BAM-tested lubricant, gasket suitable for oxygen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting bracket</td>
<td>M13</td>
<td>7MF9004-6AA</td>
</tr>
<tr>
<td></td>
<td>required for wall mounting or for securing on rack (72 mm grid), made of electrogalvanized sheet-steel, weight 0.85 kg</td>
<td></td>
</tr>
</tbody>
</table>

1) When ordering accessory set or mounting together with the multiway cock, please use Order code; otherwise use Order No.

Accessories

- L11: 4 screws M10x25 to DIN EN 24017, washers Ø 10.5 mm to DIN 125; 2 flat gaskets
- L15 (suitable for oxygen): 4 screws M10x25 to DIN EN 24017, 4 washers, 2 flat gaskets
- L31: 4 screws 7/16-20 UNF x 1 inch, 2 flat gaskets
- Washers Ø 10.5 to DIN 125

Flat gaskets made of PTFE, max. permissible temperature 80 °C

Multiway cock in oil-free and grease-free design

- S11: BAM-tested lubricant, gasket suitable for oxygen

Mounting brackets

- M13: Required for wall mounting or for securing on rack (72 mm grid); made of electrogalvanized sheet-steel
SITRANS P measuring instruments for pressure
Fittings - Shut-off valves for differential pressure transmitters

Low-pressure multiway cock

Options

Test connections
- 2 sealing screws G\(\frac{3}{8}\)
- 2 quick-release couplings

Characteristic curves

Low-pressure multiway cock, permissible operating pressure as a function of the permissible operating temperature

Dimensional drawings

Low-pressure multiway cock 7MF9004-4CA/-4DA for direct flanging to pressure transmitters for differential pressure, dimensions in mm

Mounting bracket 7MF9004-6AA (M13), dimensions in mm
Overview

The oval flange 7MF9408-2C, for pressure transmitters for absolute pressure and differential pressure has a ½-14 NPT female thread and is designed for max. operating pressure 400 bar.

Accessories

- E34: 2 screws 7/16-20 UNF x 1½ inch to ASME B18.3, 1 O-ring (FPM 90)
- E13: 2 screws M10x40 to DIN EN 4762, 2 washers, 1 O-ring (FPM 90)
- E36: 2 screws 7/16-20 UNF x 1½ inch to ASME B18.2.1, 1 flat gasket
- E16: 2 screws M10x40 to DIN EN ISO 4762, 2 washers, 1 flat gasket

Washers Ø 10.5 to DIN 125
Flat gaskets made of PTFE, max. 420 bar, 80 °C
O-ring to DIN 3771, 20 x 2.65 – S – FPM90, max. 420 bar, 120 °C

Note: M10 screws only permissible up to PN 160!

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oval flange with female thread ½-14 NPT, max. working pressure 420 bar, flange connection to DIN EN 61518, form A</td>
<td>7MF9408-2CE</td>
</tr>
</tbody>
</table>

Material

P250GH, mat. No.: 1.0460
X 2 CrNiMo 17 13 2, mat. No. 1.4404/316L | 7MF9408-2CL |

Selection and Ordering data

Further designs

Please add ‘-Z’ to Order No. and specify Order code.

Accessory set to EN

2x screws 7/16-20 UNF x 1½ inch to ASME B18.2.3; chromized steel
1x flat gasket made of PTFE, max. permissible 420 bar, 80 °C
2x screws 7/16-20 UNF x 1½ inch to ASME B 18.2.3; chromized steel
1x O-ring to DIN 3771, 20 x 2.65 - S - FPM90, max. permissible 420 bar, 120 °C

Accessory set to DIN

2x screws M10x40 to DIN EN ISO 4762; chromized steel
2x washers Ø 10.5 mm to DIN 125; 1x O-ring to DIN 3771, 20 x 2.65 - S - FPM90, max. permissible 420 bar, 120 °C
2x screws M10x40 to DIN EN ISO 4762; chromized steel
2x washers Ø 10.5 mm to DIN 125; 1x flat gasket made of PTFE; max. permissible 420 bar, 80 °C

1) When ordering accessory set together with the oval flange, please use Order code; otherwise use Order No.

2) Flange connections with M10 screws only permissible up to PN 160!

Dimensional drawings

Oval flange 7MF9408-2C., dimensions in mm
Overview
Adapters enable e.g. a transition from medium connections with NPT thread to shut-off valves to DIN 16270...16272 or pipes in conjunction with a connection gland (e.g. 7MF9008).

Design
The connection pieces are made of X 6 CrNiMoTi 17 12 2, mat. No. 1.4571 and available in 3 versions
- Thread ¼-18 NPT and connection shank G½ to DIN EN 837-1
- Thread ½-14 NPT and connection shank G½ to DIN EN 837-1
- Thread ½-14 NPT and thread ½-14 NPT

Selection and Ordering data
<table>
<thead>
<tr>
<th>Adapter</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(weight 0.2 kg)</td>
<td></td>
</tr>
<tr>
<td>with thread ¼-18 NPT – G½</td>
<td>7MF9001-1AA</td>
</tr>
<tr>
<td>with thread ½-14 NPT – G½</td>
<td>7MF9001-1CA</td>
</tr>
<tr>
<td>with thread ½-14 NPT – ½-14 NPT</td>
<td>7MF9001-1DA</td>
</tr>
<tr>
<td>with thread ½-14 NPT – M20 x 1.5</td>
<td>7MF9001-1EA</td>
</tr>
</tbody>
</table>

(Subject to export regulations AL: 9I999, ECCN: N.)

Overview
Connection glands to connect medium or differential pressure lines to collars G½ to DIN EN 837-1
- For rated pressures up to PN 630
- For oxygen only up to PN 250

Selection and Ordering data
<table>
<thead>
<tr>
<th>Connection screwed gland for pipelines</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(weight 0.2 kg)</td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Design</td>
</tr>
<tr>
<td>11SMn30 (mat. No. 1.0715)</td>
<td>Standard</td>
</tr>
<tr>
<td>X 6 CrNiMoTi 17 12 2 (mat. No. 1.4571/316Ti)</td>
<td>Standard</td>
</tr>
<tr>
<td>X 6 CrNiMoTi 17 12 2</td>
<td>Grease-free</td>
</tr>
<tr>
<td>7MF9008-1GA</td>
<td></td>
</tr>
<tr>
<td>7MF9008-1GB</td>
<td></td>
</tr>
<tr>
<td>7MF9008-1GC</td>
<td></td>
</tr>
</tbody>
</table>

Dimensional drawings
Connection piece with thread ¼--18 NPT and connection shank G½ 7MF9001-1AA, dimensions in mm
Connection piece with thread ½--14 NPT and connection shank G½ 7MF9001-1CA, dimensions in mm
Connection piece with thread ½-14 NPT and thread ½-14 NPT 7MF9001-1DA, dimensions in mm
Connection piece with thread ½-14 NPT and thread M20 x 1.5 7MF9001-1EA, dimensions in mm
Connection gland 7MF9008-1G., dimensions in mm
Overview
Connection parts G½ for pressure gages and shut-off fittings are available in 3 versions:
- Nipple connection
- Clamping sleeve
- Collar connection piece

Selection and Ordering data

Adapters G½ for pressure gages and shut-off fittings

Nipple connection
G½ to DIN 16284 (union nut with nipple and gasket); max. working pressure 400 bar; weight 0.1 kg;
connection: G½ to DIN EN 837-1;
Female thread G½

<table>
<thead>
<tr>
<th>Material</th>
<th>Mat. No.</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CuZn39Pb3</td>
<td>CW 614N</td>
<td>M56340-A0001</td>
</tr>
<tr>
<td>Union nut</td>
<td>1.0715</td>
<td>M56340-A0002</td>
</tr>
<tr>
<td>Nipple: RSt 37-2</td>
<td>1.0037</td>
<td></td>
</tr>
<tr>
<td>Union nut</td>
<td>1.4305</td>
<td>M56340-A0003</td>
</tr>
<tr>
<td>Nipple: X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/316Ti</td>
<td></td>
</tr>
</tbody>
</table>

Nipple connection
M20 x 1.5 to DIN 16284 (union nut with nipple and gasket); max. working pressure 400 bar;
weight 0.1 kg;
connection: G½ to DIN EN 837-1;
Female thread G½

<table>
<thead>
<tr>
<th>Material</th>
<th>Mat. No.</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/316Ti</td>
<td></td>
</tr>
<tr>
<td>Union nut</td>
<td>1.4305</td>
<td>M56340-A0008</td>
</tr>
</tbody>
</table>

Clamping sleeve
G½ to DIN 16283; max. working pressure 400 bar; weight 0.1 kg;
Connections: G½ to DIN EN 837-1;
Female thread: G½ right-hand G½ left-hand

<table>
<thead>
<tr>
<th>Material</th>
<th>Mat. No.</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CuZn39Pb3</td>
<td>CW614N</td>
<td>M56340-A0004</td>
</tr>
<tr>
<td>9 SMn 28 k</td>
<td>1.0715</td>
<td>M56340-A0005</td>
</tr>
</tbody>
</table>

Collar-adapter
max. working pressure: weight 0.1 kg;
Connections: G½ to DIN EN 837-1;
Male thread: G½, G½

<table>
<thead>
<tr>
<th>Material</th>
<th>Mat. No.</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CuZn39Pb3</td>
<td>CW614N</td>
<td>M56340-A0006</td>
</tr>
<tr>
<td>9 SMn 28 k</td>
<td>1.0715</td>
<td>M56340-A0007</td>
</tr>
</tbody>
</table>

Dimensional drawings

Nipple connection (G) M56340-A0001 to -A0003, dimensions in mm

Nipple connection (M20 x 1.5) M56340-A0008, dimensions in mm

Collar connection piece M56340-A0006/-A0007, dimensions in mm
SITRANS P measuring instruments for pressure

Fittings - Accessories

Water traps, Sealing rings to EN 837-1

Overview
Water traps protect pressure gauges and shut-off fittings from heating up (e.g. by steam) by the water column produced by the water trap.

The max. working temperature is 120 °C at 160 bar or 400 °C at 104 bar. If the temperature of the measured medium is higher, a sufficiently long line has to be connected upstream of the trap to enable heat dissipation.

Design
The water traps are available in U shape (type B) or circular shape (type D) to DIN 16282. They have a weld-on end Ø 20 mm × 2.6 mm on the measurement side. The connection on the device side is a clamping sleeve G½ to DIN 16283.

The water traps are made of steel (P250GH) or stainless steel (X 6 CrNiMoTi 17 12 2)

Water traps are designed as standard for max. operating temperature 120 °C at max. operating pressure 160 bar (400 °C at 104 bar). Water traps for higher operating pressures and temperatures are available on request.

Selection and Ordering data

| Water traps for pressure gauges and pressure transmitters, max. working temperature 120 °C, max. working pressure 160 bar (or 400 °C and 104 bar), weight 0.7 kg |
|---|---|---|---|
| Water trap B to DIN 16282 | Material | Mat. No. |
| P235GH | 1.0345 |
| X 6 CrNiMoTi 17 12 2 | 1.4571/316Ti |
| Water trap D to DIN 16282 | Material | Mat. No. |
| P235GH | 1.0345 |
| X 6 CrNiMoTi 17 12 2 | 1.4571/316Ti |

Selection and Ordering data

| Sealing ring to EN 837-1 for thread G½ made of (packing unit 100 pcs) | Order No. |
|---|---|---|---|
| copper | 7MF9007-7AA |
| soft iron | 7MF9007-7AB |
| stainless steel, mat.-No. 1.4571 | 7MF9007-7AC |
| PTFE | 7MF9007-7AD |

F) Subject to export regulations AL: 9I9999, ECCN: N.

Dimensional drawings

Water traps, type B, M56340-A0043/-A0061, dimensions in mm

Water traps, type D, M56340-A0045/-A0063, dimensions in mm
Overview

The pressure surge reducer protects the pressure gage against damage, premature wear and tear and inaccurate/fluctuating indications.

Application

The pressure reducer is used when pulsations occur in the measured medium (e.g. in slow-running vapor engines, piston pumps and compressors), or if drastic fluctuations are likely to occur in the measured medium (e.g. in hydraulic presses and tensile testing machines).

Design

- Enclosure made of brass or stainless steel
- Adjustable nozzle
- Sleeve for connection to the measuring instrument
- Pin for connection to supply lead

Selection and Ordering data

<table>
<thead>
<tr>
<th>Material</th>
<th>Full-scale value</th>
<th>Weight approx. in kg</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brass</td>
<td>250 bar</td>
<td>0.21</td>
<td>M56340-A54</td>
</tr>
<tr>
<td>Stainless steel</td>
<td>600 bar</td>
<td>0.21</td>
<td>M56340-A59</td>
</tr>
</tbody>
</table>

Dimensional drawings

![Pressure surge reducer, dimensions in mm](image-url)
Primary shut-off valves

Overview
Primary shut-off valves are available in the following versions:
- For non-corrosive liquids, gases and vapors
- For corrosive liquids and gases
- Grease-free for oxygen

The shut-off valves are available in various materials and with various connections (see Selection and Ordering data)

Characteristic curves

Shut-off valve 7MF9017-1, permissible working pressure as a function of the permissible working temperature

Shut-off valve 7MF9017-2 and -3, permissible working pressure as a function of the permissible working temperature

Dimensional drawings

Shut-off valve 7MF9017–1A, dimensions in mm

Shut-off valve 7MF9017-1B and -2B, dimensions in mm

Shut-off valves 7MF9017-1C, -1D and -2C, dimensions in mm
Shut-off valves 7MF9017-, dimensions in mm

### Selection and Ordering data

#### Primary shut-off valves, without certificate

<table>
<thead>
<tr>
<th>Max. working pressure</th>
<th>Characteristic</th>
<th>Material</th>
<th>Mat. No.</th>
<th>Spindle thread</th>
<th>Connections</th>
<th>Approx. weight kg</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>160 bar A P250GH</td>
<td>1.0460</td>
<td>Internal</td>
<td>Threaded G½ form R, DIN 19207</td>
<td>0.8</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 bar A P250GH</td>
<td>1.0460</td>
<td>Internal</td>
<td>Threaded G½ form R, DIN 19207</td>
<td>0.8</td>
<td>b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>400 bar C P250GH</td>
<td>1.0460</td>
<td>Internal</td>
<td>Pipe union with ferrule for pipe Ø 12 mm, S series</td>
<td>1</td>
<td>c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>400 bar C P250GH</td>
<td>1.0460</td>
<td>Internal</td>
<td>Pipe union with ferrule for pipe Ø 14 mm, S series</td>
<td>1</td>
<td>d</td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 bar D 16 Mo 3</td>
<td>1.5415</td>
<td>External</td>
<td>Welding sleeves Ø 14 mm x 2.5 mm</td>
<td>1.6</td>
<td>f</td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 bar E 11 CrMo 9 10</td>
<td>1.7383</td>
<td>External</td>
<td>Welding sleeves Ø 14 mm x 2.5 mm</td>
<td>1.6</td>
<td>g</td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 bar D 16 Mo 3</td>
<td>1.5415</td>
<td>External</td>
<td>Welding sleeves Ø 14 mm x 2.5 mm</td>
<td>1.6</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 bar E 11 CrMo 9 10</td>
<td>1.7383</td>
<td>External</td>
<td>Welding sleeves Ø 24 mm x 7.1 mm</td>
<td>1.6</td>
<td>j</td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 bar E 11 CrMo 9 10</td>
<td>1.7383</td>
<td>External</td>
<td>Welding sleeves Ø 24 mm x 7.1 mm</td>
<td>1.6</td>
<td>k</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Shut-off valve for aggressive liquids and gases

<table>
<thead>
<tr>
<th>Max. working pressure</th>
<th>Characteristic</th>
<th>Material</th>
<th>Mat. No.</th>
<th>Spindle thread</th>
<th>Connections</th>
<th>Approx. weight kg</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>160 bar F X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/ 316Ti</td>
<td>Internal</td>
<td>Threaded G½ form R, DIN 19207</td>
<td>0.8</td>
<td>b</td>
<td></td>
<td></td>
</tr>
<tr>
<td>400 bar G X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/ 316Ti</td>
<td>Internal</td>
<td>Pipe union with ferrule for pipe Ø 12 mm, S series</td>
<td>1</td>
<td>c</td>
<td></td>
<td></td>
</tr>
<tr>
<td>400 bar H X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/ 316Ti</td>
<td>External</td>
<td>Welding sleeves Ø 21.3 mm x 6.3 mm</td>
<td>1.6</td>
<td>h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>400 bar H X 6 CrNiMoTi 17 12 2</td>
<td>1.4571/ 316Ti</td>
<td>External</td>
<td>Welding sleeves Ø 24 mm x 7.1 mm</td>
<td>1.6</td>
<td>j</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Accessories

- Factory test certificate EN 10204–2.2
- Material acceptance test certificate EN 10204-3.1

1)See Figure "Permissible working pressure as a function of the permissible working temperature"
Compensation - Accessories

### Overview

The compensation vessels prevent the level difference which occurs with pressure changes in the pressure lines and which falsifies the measurement.

According to DIN 19211, the temperature in the compensation vessel must be assumed to be 50 K less than the steam temperature when calculating the wall thicknesses. This is because the temperature in the compensation vessel during operation can only rise up to the saturated steam temperature.

A material acceptance test certificate A to EN 10204-3.1 is available for the materials from which the compensation vessels are made.

### Characteristic curves

Permissible operating pressure as a function of the permissible operating temperature

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Compensation vessel, without certificate</th>
<th>Characteristic 1) Material Mat. No. Connections</th>
<th>Input</th>
<th>Output</th>
<th>Approx. contents cm³</th>
<th>Approx. weight kg</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. working pressure</td>
<td>Characteristic 1) Material Mat. No. Connections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 bar A 16 Mo 3 1.5415 Threaded socket G½, form R, DIN 19207</td>
<td>250 0.8</td>
<td>7 MF 9 0 1 5 A 1a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250 bar B 16 Mo 3 1.5415 Welding sleeve Ø 21 mm × 6.3 mm</td>
<td>250 0.8</td>
<td>7 MF 9 0 1 5 A 1b</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250 bar B 16 Mo 3 1.5415 Welding sleeve Ø 24 mm × 7.1 mm</td>
<td>250 1</td>
<td>7 MF 9 0 1 5 A 1c</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250 bar C 11 CrMo 9 10 1.7383 Welding sleeve Ø 24 mm × 7.1 mm</td>
<td>250 1</td>
<td>7 MF 9 0 1 5 A 1d</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250 bar B 16 Mo 3 1.5415 Welding sleeve Ø 33.7 mm × 4.5 mm</td>
<td>250 0.7</td>
<td>7 MF 9 0 1 5 A 1e</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160 bar A 16 Mo 3 1.5415 Threaded socket G½, form R, DIN 19207</td>
<td>20 1.6</td>
<td>7 MF 9 0 0 0 0 8 A B 5 a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 bar D 16 Mo 3 1.5415 Welding sleeve Ø 21 mm × 6.3 mm</td>
<td>20 1.6</td>
<td>7 MF 9 0 0 0 0 8 A D 5 b</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 bar D 16 Mo 3 1.5415 Welding sleeve Ø 24 mm × 7.1 mm</td>
<td>20 1.6</td>
<td>7 MF 9 0 0 0 0 8 A D 5 c</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500 bar E 11 CrMo 9 10 1.7383 Welding sleeve Ø 24 mm × 7.1 mm</td>
<td>20 1.6</td>
<td>7 MF 9 0 0 0 0 8 A D 5 d</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Accessories

Factory test certificate EN 10204-2.2
Material acceptance test certificate EN 10204-3.1

1) See Figure "Permissible working pressure as a function of the permissible working temperature"
Overview

Connection parts are available in the following versions:

- Threaded flange pair G½ with stainless steel gasket
- Nipple G½ form V to DIN 19207
- Union nut G½ made of C 35 to DIN 16284
- Gasket G½ (grooved) to DIN 19207

All connection parts are also available grease-free for oxygen.

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Connection part</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Threaded flange pair G½</strong></td>
<td></td>
</tr>
<tr>
<td>with stainless steel gasket</td>
<td>7MF9007-4CA</td>
</tr>
<tr>
<td>grease-free for oxygen, with stainless steel gasket</td>
<td>7MF9007-4DA</td>
</tr>
<tr>
<td>Scope of delivery:</td>
<td></td>
</tr>
<tr>
<td>2x threaded flanges G½ to DIN 19207; material: P250GH (mat. No. 1.0460)</td>
<td></td>
</tr>
<tr>
<td>4x hexagon screws M10x45 to DIN EN 24014; Material: C35E (mat. No. 1.1181)</td>
<td></td>
</tr>
<tr>
<td>4x hexagon screws M10x50 to DIN EN 24032</td>
<td></td>
</tr>
<tr>
<td>1x gasket G½ (7MF9007-6BA) grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti)</td>
<td></td>
</tr>
<tr>
<td>Only for 7MF9007-4CA!</td>
<td></td>
</tr>
<tr>
<td>1x gasket G½ (7MF9007-6CA), grease-free for oxygen, grooved, to DIN 19207; Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti)</td>
<td>Only for 7MF9007-4DA!</td>
</tr>
<tr>
<td><strong>Nipple G½</strong></td>
<td></td>
</tr>
<tr>
<td>to DIN 19207</td>
<td>7MF9007-4KA</td>
</tr>
<tr>
<td>Material: 16 Mo 3 (mat. No. 1.5415)</td>
<td></td>
</tr>
<tr>
<td>grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti)</td>
<td></td>
</tr>
<tr>
<td><strong>Union nut G½</strong></td>
<td></td>
</tr>
<tr>
<td>to DIN 16284</td>
<td>7MF9007-4MA</td>
</tr>
<tr>
<td>Material: C35E (mat. No. 1.1181)</td>
<td></td>
</tr>
<tr>
<td>grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti)</td>
<td></td>
</tr>
<tr>
<td><strong>Gasket G½</strong></td>
<td></td>
</tr>
<tr>
<td>to DIN 19207, grooved</td>
<td>F) 7MF9007-6BA</td>
</tr>
<tr>
<td>Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti)</td>
<td></td>
</tr>
<tr>
<td>grease-free for oxygen, Material: X 6 CrNiMoTi 17 12 2 (mat. No. 14571/316Ti)</td>
<td>F) 7MF9007-6CA</td>
</tr>
</tbody>
</table>

F) Subject to export regulations AL: 9I999, ECCN: N.