**Overview**

SITRANS P310 pressure transmitters are digital pressure transmitters with a high level of operating convenience. With a measurement accuracy of 0.075 %, they complement the SITRANS P DS III and round off the portfolio. The parameterization is performed using input buttons or the HART 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.

SITRANS P310 pressure transmitters are available in various versions for measuring:

- Gauge pressure
- Differential pressure
- Volume flow
- Mass flow

**Benefits**

- High quality and service life
- High reliability even under extreme chemical and mechanical loads
- For aggressive and non-aggressive gases, vapors and liquids
- Extensive diagnosis and simulation functions
- Good long-term stability
- Wetted parts made of high-grade materials (stainless steel, Hastelloy)
- Infinitely adjustable spans from 0.01 bar to 700 bar (0.15 psi to 10153 psi)
- Measuring accuracy 0.075 %
- Parameterization over input buttons and HART interface

**Application**

SITRANS P310 pressure transmitters are particularly suited for use in the industrial areas of Energy, Oil & Gas as well as Water/Wastewater. Electromagnetic compatibility in the range 10 kHz to 1 GHz makes them 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 input buttons or programmed externally over HART interface.

**Pressure transmitter for gauge pressure**

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

Span (infinitely adjustable): 0.01 bar to 700 bar (0.15 psi to 10153 psi)

**Pressure transmitters for differential pressure and flow**

Measured variables:

- Differential pressure
- Small positive or negative pressure
- Flow \( q = \sqrt{\Delta p} \) (together with a primary differential pressure device (see Chapter "Flow Meters")

Span (infinitely adjustable): 1 mbar ... 30 bar (0.0145 ... 435 psi)
Design

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 (7, Figure "Front view") with the Article 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 (6) is screwed on at the front and rear of the housing. The front cover can be fitted with a viewing pane so that the measured values can be read directly on the display. The inlet (8) 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 (5). The measuring cell is prevented from rotating by a locking screw (4). As a 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 (1), which hides the input keys.

Example for an attached measuring point label

![Image showing a plastic cover as access to the input keys.

Y01 or Y02 = max. 27 char.
Y15 = max. 16 char.
Y99 = max. 10 char.
Y16 = max. 27 char.

Measuring point number (TAG No.)

1234

Measuring point text

Function

Operation of electronics with HART communication

The bridge output voltage created by the sensor (1, Figure "Function diagram of the electronics") is amplified by the measuring amplifier (2) and digitized in the analog-to-digital converter (3). The digital information is evaluated in a 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 measuring point. The input buttons can also be used to control the view of the results, the error messages and the operating modes on the display (9).

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

The pressure transmitters with spans \( \leq 63 \text{ bar} \) measure the input pressure compared to atmosphere, transmitters with spans \( \geq 160 \text{ bar} \) compared to vacuum.
Pressure Measurement
Transmitters for applications with basic requirements (Basic)

SITRANS P310 - Technical description

**Mode of operation of the measuring cells**

**Measuring cell for gauge pressure**

The pressure $p_e$ is applied through the process connection (2, Figure “Measuring cell for gauge 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 absolute pressure.

**Measuring cell for differential pressure and flow**

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 differential pressure.

An overload diaphragm is installed to provide protection from overloads. If the measuring limits are exceeded, the overload diaphragm (3) is flexed until the seal diaphragm rests on the body of the measuring cell (6), thus protecting the silicon pressure sensor from overloads.

**Parameterization SITRANS P310**

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 buttons (local operation)

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

Parameterization using HART

Parameterization using HART 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 cable.

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, DS III with HART

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Input keys (DS III HART)</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>Fault current</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Disabling of buttons, 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 / square-rooted)</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>x</td>
<td>x</td>
</tr>
</tbody>
</table>

1) Cancel apart from write protection
2) Only differential pressure

Power supply

SITRANS P transmitter

HART communicator

230 ... 1100 Ω

Power supply

SITRANS P transmitter

HART modem

230 ... 500 Ω

PC or laptop

USB/RS 232
### Available physical units of display for SITRANS P310 with HART

<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, 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, 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>
## Pressure Measurement
Transmitters for applications with basic requirements (Basic)

### SITRANS P310 for gauge pressure

#### Technical specifications

<table>
<thead>
<tr>
<th>Measured variable</th>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measured variable</strong></td>
<td><strong>Input</strong></td>
<td><strong>Output</strong></td>
</tr>
<tr>
<td>Gauge pressure</td>
<td><strong>Span</strong></td>
<td><strong>Max. operating pressure MAWP (PS)</strong></td>
</tr>
<tr>
<td>0.01 ... 1 bar</td>
<td>4 bar</td>
<td>6 bar</td>
</tr>
<tr>
<td>0.04 ... 4 bar</td>
<td>7 bar</td>
<td>10 bar</td>
</tr>
<tr>
<td>0.15 ... 14.5 psi</td>
<td>58 psi</td>
<td>87 psi</td>
</tr>
<tr>
<td>0.16 ... 16 bar</td>
<td>21 bar</td>
<td>32 bar</td>
</tr>
<tr>
<td>2.3 ... 232 psi</td>
<td>305 psi</td>
<td>464 psi</td>
</tr>
<tr>
<td>63 ... 6300 kPa</td>
<td>6.7 MPa</td>
<td>10 MPa</td>
</tr>
<tr>
<td>9.1 ... 914 psi</td>
<td>972 psi</td>
<td>1450 psi</td>
</tr>
<tr>
<td>1.6 ... 16 MPa</td>
<td>167 bar</td>
<td>250 bar</td>
</tr>
<tr>
<td>23 ... 2321 psi</td>
<td>16.7 MPa</td>
<td>25 MPa</td>
</tr>
<tr>
<td>4 ... 400 bar</td>
<td>2422 psi</td>
<td>3626 psi</td>
</tr>
<tr>
<td>0.4 ... 40 MPa</td>
<td>400 bar</td>
<td>600 bar</td>
</tr>
<tr>
<td>58 ... 5802 psi</td>
<td>40 MPa</td>
<td>60 MPa</td>
</tr>
<tr>
<td>7 ... 700 bar</td>
<td>5802 psi</td>
<td>8700 psi</td>
</tr>
<tr>
<td>0.7 ... 70 MPa</td>
<td>800 bar</td>
<td>800 bar</td>
</tr>
<tr>
<td>102 ... 10153 psi</td>
<td>80 MPa</td>
<td>80 MPa</td>
</tr>
<tr>
<td>4 ... 20 mA</td>
<td>11603 psi</td>
<td>11603 psi</td>
</tr>
</tbody>
</table>

**Lower measuring limit**
- Measuring cell with silicone oil filling
  - 30 mbar a/3 kPa a/0.44 psia

**Upper measuring limit**
- 100 % of max. span

**Start of scale value**
- Between the measuring limits continuously adjustable

#### Output signal
- 4 ... 20 mA
- 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**
  - $R_B \leq (U_H - 10.5 \text{ V})/0.023 \text{ A in } \Omega$
  - $U_H$: Power supply in V

- **With HART**
  - $R_B = 230 \ldots 500 \Omega$ (SIMATIC PDM) or
  - $R_B = 230 \ldots 1100 \Omega$ (HART Communicator)

#### Protection against polarity reversal
- Protected against short-circuit and polarity reversal. Each connection against the other with max. supply voltage.

#### Electrical damping (step width 0.1 s)
- Set to 2 s (0 ... 100 s)
### Pressure Measurement

**Transmitters for applications with basic requirements (Basic)**

<table>
<thead>
<tr>
<th><strong>SITRANS P310 for gauge pressure</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measuring accuracy</strong></td>
</tr>
<tr>
<td>Reference conditions</td>
</tr>
</tbody>
</table>

Measuring span ratio \( r \) (spread, Turn-Down)

Error in measurement at limit setting incl. hysteresis and reproducibility

- **Linear characteristic**
  - \( 1 \text{ bar}/100 \text{ kPa}/3.6 \text{ psi} \)
  - \( 4 \text{ bar}/400 \text{ kPa}/58 \text{ psi} \)
  - \( 16 \text{ bar}/1.6 \text{ MPa}/232 \text{ psi} \)
  - \( 63 \text{ bar}/6.3 \text{ MPa}/914 \text{ psi} \)
  - \( 160 \text{ bar}/16 \text{ MPa}/2321 \text{ psi} \)

- **- 400 bar/40 MPa/5802 psi**
  - **700 bar/70 MPa/10152 psi**

Influence of ambient temperature (in percent per 28 °C (50 °F))

- at \(-40 \text{ ... } +85 \text{ °C} (-40 \text{ ... } 185 \text{ °F})\)
- Long-term stability (temperature change ± 30 °C (± 54 °F))

Effect of mounting position

Effect of auxiliary power supply (in percent per change in voltage)

<table>
<thead>
<tr>
<th><strong>Rated conditions</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree of protection (to EN 60529)</td>
</tr>
<tr>
<td>Temperature of medium</td>
</tr>
<tr>
<td>- Measuring cell with silicone oil filling</td>
</tr>
<tr>
<td>- In conjunction with dust explosion protection</td>
</tr>
<tr>
<td>- Ambient temperature</td>
</tr>
<tr>
<td>- Transmitter</td>
</tr>
<tr>
<td>- Display readable</td>
</tr>
<tr>
<td>- Storage temperature</td>
</tr>
<tr>
<td>- Climatic class</td>
</tr>
<tr>
<td>- Condensation</td>
</tr>
<tr>
<td>- Electromagnetic Compatibility</td>
</tr>
<tr>
<td>- Emitted interference immunity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Design</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (without options)</td>
</tr>
<tr>
<td>Enclosure material</td>
</tr>
<tr>
<td>Wetted parts materials</td>
</tr>
<tr>
<td>- Connection shank</td>
</tr>
<tr>
<td>- Seal diaphragm</td>
</tr>
<tr>
<td>Measuring cell filling</td>
</tr>
<tr>
<td>Process connection</td>
</tr>
<tr>
<td>Material of mounting bracket</td>
</tr>
<tr>
<td>Stainless steel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Power supply ( U_{\text{H}} )</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal voltage on transmitter</td>
</tr>
</tbody>
</table>

---

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Pressure Measurement
Transmitters for applications with basic requirements (Basic)

SITRANS P310 for gauge pressure

Certificates and approvals

Classification according to PED 2014/68/EU

For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)

Explosion protection

• Intrinsic safety "i"
  - Marking
  - 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
    - Effective internal inductance/capacitance
      \[ L_i = 0.4 \text{ mH}, \ C_i = 6 \text{ nF} \]
  - Explosion-proof "d"
    - Marking
    - 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
      - Effective internal inductance/capacitance
        \[ L_i = 0.4 \text{ mH}, \ C_i = 6 \text{ nF} \]

• Dust explosion protection for zone 20 (pending)
  - Marking
  - Connection
    - Effective internal inductance/capacitance
      \[ L_i = 0.4 \text{ mH}, \ C_i = 6 \text{ nF} \]

• Dust explosion protection for zone 21/22 (pending)
  - Marking
  - Connection
    - Effective internal inductance/capacitance
      \[ L_i = 0.4 \text{ mH}, \ C_i = 6 \text{ nF} \]

• Type of protection "n" (zone 2)
  - Marking
  - Connection (Ex nA)
  - Connections (Ex ic)
    - Effective internal inductance/capacitance
      \[ L_i = 0.4 \text{ mH}, \ C_i = 6 \text{ nF} \]

• Explosion protection acc. to FM (pending)
  - Identification (XP/DIP) or (IS); (NI)
    - Effective internal inductance/capacitance
      \[ L_i = 0.4 \text{ mH}, \ C_i = 6 \text{ nF} \]

• Explosion protection to CSA (pending)
  - Identification (XP/DIP) or (IS)
    - Effective internal inductance/capacitance
      \[ L_i = 0.4 \text{ mH}, \ C_i = 6 \text{ nF} \]

HART communication

HART
Protocol
Software for computer

PTB 13 ATEX 2007 X
Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb

PTB 99 ATEX 1160
Ex II 1/2 G Ex d IIC T4/T6 Gb

PTB 01 ATEX 2055
Ex II 1/2 D Ex ta IIIC T120 °C Da
Ex II 1/2 D Ex ta/tb IIIC T120 °C Da/Db

PTB 13 ATEX 2007 X
Ex II 1/2 G Ex nA II T4/T5/T6 Gc
Ex II 1/2 G Ex ic IIC T4/T5/T6 Gc

Certificate of Compliance 3008490
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

Certificate of Compliance 1153651
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

HART Version 5.x
SIMATIC PDM

U_i = 30 V, I_i = 100 mA,
R_i = 750 mW, R_i = 300 Ω

\[ U_i = 30 \text{ V}, \ i = 100 \text{ mA}, \ R_i = 750 \text{ mW}, \ R_i = 300 \text{ Ω} \]

\[ U_i = 30 \text{ V}, \ i = 100 \text{ mA}, \ R_i = 750 \text{ mW}, \ R_i = 300 \text{ Ω} \]

\[ U_i = 30 \text{ V}, \ i = 100 \text{ mA}, \ R_i = 750 \text{ mW}, \ R_i = 300 \text{ Ω} \]

\[ U_i = 30 \text{ V}, \ i = 100 \text{ mA}, \ R_i = 750 \text{ mW}, \ R_i = 300 \text{ Ω} \]

\[ U_i = 30 \text{ V}, \ i = 100 \text{ mA}, \ R_i = 750 \text{ mW}, \ R_i = 300 \text{ Ω} \]
## Selection and Ordering data

<table>
<thead>
<tr>
<th>Measuring cell filling</th>
<th>Measuring cell cleaning</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil</td>
<td>normal</td>
<td>7 MF 2 0 3 3</td>
</tr>
</tbody>
</table>

### Measuring span (min. ... max.)

- 0.01 ... 1 bar (0.15 ... 14.5 psi) **B**
- 0.04 ... 4 bar (0.58 ... 58 psi) **C**
- 0.16 ... 16 bar (2.32 ... 232 psi) **D**
- 0.63 ... 63 bar (9.14 ... 914 psi) **E**
- 1.6 ... 160 bar (23.2 ... 2320 psi) **F**
- 4.0 ... 400 bar (58.0 ... 5802 psi) **G**
- 7.0 ... 700 bar (102.0 ... 10153 psi) **J**

### Wetted parts materials

- Seal diaphragm: **A**
- Process connection: **Y 1**

### Non-wetted parts materials

- Housing made of die-cast aluminium: **0**
- Housing stainless steel precision casting: **3**

### Explosion protection

- None: **A**
- With ATEX, Type of protection: **y**
  - "Intrinsic safety (Ex ia)"  **B**
  - "Explosion-proof (Ex d)"  **D**
  - "Ex nA/ic (Zone 2)"  **R**
  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"  **S**
  - "FM + CSA intrinsic safe (is)"  **F**
  - "FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D"  **S**

### Electrical connection / cable entry

- Screwed gland M20 x 1.5: **B**
- Screwed gland ½-14 NPT: **C**
- Han 7D plug (plastic housing) incl. mating connector: **D**

### Power supply units

- **NM**

---

1) When the manufacture’s certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

2) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.

3) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF403-...Y...-.B and 7MF4001-...-B.

4) The standard measuring cell filling of configurations with remote seals (Y) is silicone oil.

5) Not in connection with Electrical connection "Han7D plug".

6) Without cable gland, with blanking plug.

7) Configurations with HAN and M12 connectors are only available in Ex ic.

8) With enclosed cable gland Ex ia and blanking plug.

9) Only in connection with IP66.

10) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.

11) Only in connection with Ex approval A, B or E.
Pressure Measurement
Transmitters for applications with basic requirements (Basic)

### SITRANS P310 for gauge pressure

#### 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 Article No. and specify Order code.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:</th>
<th>A01</th>
<th>A02</th>
<th>A03</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Steel</td>
<td>B12</td>
<td>B13</td>
<td>B21</td>
</tr>
<tr>
<td>• Stainless steel 304</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Stainless steel 316L</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plug</th>
<th>A30</th>
<th>A31</th>
<th>A32</th>
<th>A33</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Han 7D (metal)</td>
<td>C11</td>
<td>C12</td>
<td>C14</td>
<td>C20</td>
</tr>
<tr>
<td>• Han 8D (instead of Han 7D)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Angled</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Han 8D (metal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rating plate inscription (instead of German)</th>
<th>B12</th>
<th>B13</th>
<th>B21</th>
</tr>
</thead>
<tbody>
<tr>
<td>• French</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Spanish</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>English rating plate</th>
<th>B12</th>
<th>B13</th>
<th>B21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure units in mbar, bar, kPa, MPa, psi</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2-1</th>
<th>C11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspection certificate²</td>
<td>C12</td>
</tr>
<tr>
<td>Acc. to EN 10204-3.1</td>
<td>C14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Factory certificate</th>
<th>C15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acc. to EN 10204-2.2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acceptance certificate (EN 10204-3.1)</th>
<th>C20</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMI test of parts in contact with medium</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Functional safety (SIL2) (pending)</th>
<th>C23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Functional safety (SIL2/3)</th>
<th>C99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PED for Russia with initial calibration mark</th>
<th>E01</th>
</tr>
</thead>
<tbody>
<tr>
<td>C line: Y21: bar (psi)</td>
<td></td>
</tr>
<tr>
<td>B line: A01 + Y01 + Y21</td>
<td></td>
</tr>
<tr>
<td>Item line: 7MF2033-1EA00-1AA7-Z</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rating plate inscription (instead of German)</th>
<th>E22</th>
</tr>
</thead>
<tbody>
<tr>
<td>• French</td>
<td></td>
</tr>
<tr>
<td>• Spanish</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rating plate inscription (instead of German)</th>
<th>E24</th>
</tr>
</thead>
<tbody>
<tr>
<td>• French</td>
<td></td>
</tr>
<tr>
<td>• Spanish</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rating plate inscription (instead of German)</th>
<th>E56³</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Stainless steel 316L</td>
<td></td>
</tr>
<tr>
<td>• Stainless steel 304</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rating plate inscription (instead of German)</th>
<th>E57³</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Stainless steel 316L</td>
<td></td>
</tr>
<tr>
<td>• Stainless steel 304</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Manufacturer’s declaration acc. to NACE (MR 0150-2012 and MR 0175-2009)</th>
<th>E01</th>
</tr>
</thead>
<tbody>
<tr>
<td>C line: Y21: bar (psi)</td>
<td></td>
</tr>
<tr>
<td>B line: A01 + Y01 + Y21</td>
<td></td>
</tr>
<tr>
<td>Item line: 7MF2033-1EA00-1AA7-Z</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Degree of protection IP66/IP68 (only for M20x1.5 and ½-14 NPT)</th>
<th>E01</th>
</tr>
</thead>
<tbody>
<tr>
<td>C line: Y21: bar (psi)</td>
<td></td>
</tr>
<tr>
<td>B line: A01 + Y01 + Y21</td>
<td></td>
</tr>
<tr>
<td>Item line: 7MF2033-1EA00-1AA7-Z</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cable gland and sealing plug made of metal</th>
<th>E01</th>
</tr>
</thead>
<tbody>
<tr>
<td>C line: Y21: bar (psi)</td>
<td></td>
</tr>
<tr>
<td>B line: A01 + Y01 + Y21</td>
<td></td>
</tr>
<tr>
<td>Item line: 7MF2033-1EA00-1AA7-Z</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Export approval Korea</th>
<th>E01</th>
</tr>
</thead>
<tbody>
<tr>
<td>C line: Y21: bar (psi)</td>
<td></td>
</tr>
<tr>
<td>B line: A01 + Y01 + Y21</td>
<td></td>
</tr>
<tr>
<td>Item line: 7MF2033-1EA00-1AA7-Z</td>
<td></td>
</tr>
</tbody>
</table>

### 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 Article No. and specify Order code.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transient protection 6 kV (lightning protection)</th>
<th>J01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine approvals</td>
<td>S10</td>
</tr>
<tr>
<td>• Det Norske Veritas Germanischer Lloyd (DNV-GL)</td>
<td></td>
</tr>
<tr>
<td>• Lloyd's Register (LR)</td>
<td></td>
</tr>
<tr>
<td>• French marine classification society Bureau Veritas (BV)</td>
<td></td>
</tr>
<tr>
<td>• American Bureau of Shipping (ABS)</td>
<td></td>
</tr>
<tr>
<td>• Russian Maritime Register (RMR)</td>
<td></td>
</tr>
<tr>
<td>• Korean Register of Shipping (KR)</td>
<td></td>
</tr>
</tbody>
</table>

1) When the manufacturer’s certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

2) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.

3) Option does not include ATEX approval, but instead includes only the country-specific approval.

### Selection and Ordering data

<table>
<thead>
<tr>
<th>Additional data</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please add &quot;-Z&quot; to Article No. and specify Order code(s) and plain text.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measuring range to be set</th>
<th>Y01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify in plain text (max. 5 characters):</td>
<td></td>
</tr>
<tr>
<td>Y01: ... up to ... mbar, bar, kPa, MPa, psi</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stainless steel tag plate and entry in device variable (measuring point description)</th>
<th>Y15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. 16 characters, specify in plain text:</td>
<td></td>
</tr>
<tr>
<td>Y15: ...........................................</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measuring point text (entry in device variable)</th>
<th>Y16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. 27 characters, specify in plain text:</td>
<td></td>
</tr>
<tr>
<td>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:</td>
<td></td>
</tr>
<tr>
<td>Y17: ...........................................</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting of pressure indication in pressure units</th>
<th>Y21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify in plain text (standard setting: bar):</td>
<td></td>
</tr>
<tr>
<td>Y21: mbar, bar, kPa, MPa, psi, ...</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting of pressure indication in non-pressure units¹</th>
<th>Y22 + Y01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specify in plain text:</td>
<td></td>
</tr>
<tr>
<td>Y22: ... up to ..... (min, m³/h, m, USgpm, ...)</td>
<td></td>
</tr>
</tbody>
</table>

¹) Preset values can only be changed over SIMATIC PDM.
SITRANS P310 pressure transmitters for gauge pressure, dimensions in mm (inch)

1. Electronic side, digital display (longer overall length for cover with window)
2. Terminal side
3. Electrical connection: Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han T7/Han 8D plug
4. Harting adapter
5. Protective cover over keys
6. Blanking plug
7. Screw cover - safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
8. Process connection: Connection shank G½B
9. Mounting bracket (option)

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) Minimum distance for rotating
## Technical specifications

### SITRANS P310 for differential pressure and flow

#### Input

- **Measured variable**
  - Span (fully adjustable), max. operating pressure (in accordance with 2014/68/EU Pressure Equipment Directive)

<table>
<thead>
<tr>
<th>Measured variable</th>
<th>Differential pressure and flow</th>
<th>Max. operating pressure MAWP (PS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong></td>
<td><strong>Span</strong></td>
<td><strong>MAWP (PS)</strong></td>
</tr>
<tr>
<td>1 ... 60 mbar</td>
<td>160 bar</td>
<td>16 MPa</td>
</tr>
<tr>
<td>0.1 ... 6 kPa</td>
<td>16 MPa</td>
<td>2320 psi</td>
</tr>
<tr>
<td>0.4 ... 24 inH₂O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5 ... 250 mbar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.2 ... 25 kPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 ... 100 inH₂O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 ... 600 mbar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.6 ... 60 kPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4 ... 240 inH₂O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 ... 1600 mbar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.6 ... 150 kPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.4 ... 642 inH₂O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 ... 5000 mbar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 ... 500 kPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 ... 2000 inH₂O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.3 ... 30 bar</td>
<td>-100 % of max. measuring range (-33 % for 30 bar/3 MPa/435 psi cell) or 30 mbar a/3 kPa a/0.44 psia</td>
<td></td>
</tr>
<tr>
<td>0.03 ... 3 MPa</td>
<td>100 % of max. span</td>
<td></td>
</tr>
<tr>
<td>4.35 ... 435 psi</td>
<td>Between the measuring limits continuously adjustable</td>
<td></td>
</tr>
</tbody>
</table>

#### Output

- **Output signal**
  - 4 ... 20 mA

- 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
    - \[ R_B \leq \left( \frac{U_H - 10.5 \text{ V}}{0.023 \text{ A}} \right) \text{ in } \Omega \]
    - \( U_H \): Power supply in V
  - With HART
    - \[ R_B = 230 \ldots 500 \text{ } \Omega \text{ } \text{ (SIMATIC PDM)} \] or
    - \[ R_B = 230 \ldots 1100 \text{ } \Omega \text{ } \text{ (HART Communicator)} \]

- **Protection against polarity reversal**
  - Protected against short-circuit and polarity reversal. Each connection against the other with max. supply voltage.

- **Electrical damping (step width 0.1 s)**
  - Set to 2 s (0 ... 100 s)
SITRANS P310 for differential pressure and flow

Measuring accuracy

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

Measuring span ratio r (spread, Turn-Down)

Error in measurement at limit setting incl.
hysteresis and reproducibility

• Linear characteristic
  - 60 mbar/6 kPa/0.87 psi
  - 250 mbar/25 kPa/3.6 psi
    600 mbar/60 kPa/8.7 psi
    1600 mbar/160 kPa/23.2 psi
    5000 mbar/500 kPa/72.5 psi
    30 bar/3000 kPa/435 psi

• Square-rooted characteristic (flow > 50 %)
  - 60 mbar/6 kPa/0.87 psi
  - 250 mbar/25 kPa/3.6 psi
    600 mbar/60 kPa/8.7 psi
    1600 mbar/160 kPa/23.2 psi
    5000 mbar/500 kPa/72.5 psi
    30 bar/3000 kPa/435 psi

• Square-rooted characteristic
  (flow > 25 ... 50 %)
  - 60 mbar/6 kPa/0.87 psi
  - 250 mbar/25 kPa/3.6 psi
    600 mbar/60 kPa/8.7 psi
    1600 mbar/160 kPa/23.2 psi
    5000 mbar/500 kPa/72.5 psi
    30 bar/3000 kPa/435 psi

Influence of ambient temperature
(in percent per 28 °C (50 °F))

• at -40 ... +85 °C (-40 ... -185 °F)

Influence of static pressure

• on the zero point
  - 60 mbar/6 kPa/0.87 psi
  250 mbar/25 kPa/3.63 psi
  600 mbar/60 kPa/8.7 psi
  1600 mbar/160 kPa/23.21 psi
  - 5 bar/500 kPa/72.5 psi
  30 bar/3 MPa/435 psi

• on the span

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

Effect of mounting position (in pressure per change in angle)

Effect of auxiliary power supply
(in percent per change in voltage)

Measuring accuracy

Acc. to IEC 60770-1

• Increasing characteristic
• Start-of-scale value 0 bar/kPa/psi
• Stainless steel seal diaphragm
• Silicone oil filling
• Room temperature 25 °C (77 °F)

r = max. measuring span/set measuring span or nom. pressure range

\[
\begin{align*}
\text{r} \leq 5 : & \quad \leq 0.075 \% \\
5 < \text{r} \leq 60 : & \quad \leq (0.005 \cdot \text{r} + 0.07) \% \\
\text{r} \leq 5 : & \quad \leq 0.075 \% \\
5 < \text{r} \leq 100 : & \quad \leq (0.005 \cdot \text{r} + 0.07) \%
\end{align*}
\]

\[
\begin{align*}
\text{r} \leq 5 : & \quad \leq 0.15 \% \\
5 < \text{r} \leq 60 : & \quad \leq (0.01 \cdot \text{r} + 0.14) \% \\
\text{r} \leq 5 : & \quad \leq 0.15 \% \\
5 < \text{r} \leq 100 : & \quad \leq (0.01 \cdot \text{r} + 0.14) \%
\end{align*}
\]

\[
\begin{align*}
\leq (0.15 \cdot \text{r} + 0.25) \%
\end{align*}
\]

\[
\leq (0.15 \cdot \text{r}) \% \text{ per 70 bar} \\
(\text{zero point correction is possible with position error compensation})
\]

\[
\leq (0.2 \cdot \text{r}) \% \text{ per 70 bar} \\
(\text{zero point correction is possible with position error compensation}) \leq 0.14 \% \text{ per 70 bar/7 MPa/1015 psi} \\
(\text{zero point correction is possible with position error compensation}) \leq 0.7 \text{ mbar/0.07 kPa/0001015 psi per 10° inclination} \\
(\text{zero point correction is possible with position error compensation}) \leq 0.005 \% \text{ per 1 V}
\]
**Pressure Measurement**

Transmitters for applications with basic requirements (Basic)

---

### SITRANS P310 for differential pressure and flow

#### Rated conditions

- **Degree of protection (to EN 60529)**
  - IP66 (optional IP66/IP68), NEMA 4X

- **Temperature of medium**
  - Measuring cell with silicone oil filling
    - -40 ... +100 °C (-40 ... +212 °F);
    - -20 ... +100 °C (-4 ... +212 °F) with 30 bar measuring cell

- **In conjunction with dust explosion protection**
  - -20 ... +60 °C (-4 ... +140 °F)

- **Ambient conditions**
  - **Ambient temperature**
    - Transmitter: -40 ... +85 °C (-40 ... +185 °F)
    - Display readable: -30 ... +85 °C (-22 ... +185 °F)
  - **Storage temperature**
    - -50 ... +85 °C (-58 ... +185 °F)
  - **Climatic class**
    - Condensation
      - Relative humidity 0 ... 100 %
      - Condensation permissible, suitable for use in the tropics

- **Electromagnetic Compatibility**
  - Emitted interference and interference immunity
    - Acc. to IEC 61326 and NAMUR NE 21

#### Design

- **Weight (without options)**
  - Die-cast aluminum: ≈ 4.5 kg (≈ 9.9 lb)
  - Stainless steel precision casting: ≈ 7.1 kg (≈ 15.6 lb)

- **Enclosure material**
  - Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408

- **Wetted parts materials**
  - **Seal diaphragm**
    - Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819
  - **Process flanges and sealing screw**
    - Stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4602
  - **O-Ring**
    - FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR

- **Measuring cell filling**
  - Silicone oil

- **Process connection**
  - Female thread ¼-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16-20 UNF to IEC 61518/DIN EN 61518

- **Material of mounting bracket**
  - **Steel**
    - Sheet-steel, Mat. No. 1.0330, chrome-plated
  - **Stainless steel**
    - Sheet stainless steel, mat. no. 1.4301 (SS 304)

#### Power supply $U_{H}$

- **Terminal voltage on transmitter**
  - 10.5 ... 45 V DC
  - 10.5 ... 30 V DC in intrinsically-safe mode
## SITRANS P310 for differential pressure and flow

### Certificates and approvals

<table>
<thead>
<tr>
<th>Classification according to PED 2014/68/EU</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrinsic safety &quot;i&quot;</strong></td>
<td>PTB 13 ATEX 2007 X</td>
</tr>
<tr>
<td>- Marking</td>
<td>Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb</td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-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</td>
</tr>
<tr>
<td>- Connection</td>
<td></td>
</tr>
<tr>
<td>- Effective internal inductance/capacitance</td>
<td>To certified intrinsically-safe circuits with peak values: $U_i = 30$ V, $I_i = 100$ mA, $P_i = 750$ mW, $R_i = 300$ Ω</td>
</tr>
<tr>
<td><strong>Explosion-proof &quot;d&quot;</strong></td>
<td>PTB 99 ATEX 1160</td>
</tr>
<tr>
<td>- Marking</td>
<td>Ex II 1/2 G Ex d IIC T4/T6 Gb</td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6</td>
</tr>
<tr>
<td>- Max. surface temperature</td>
<td>120 °C (248 °F)</td>
</tr>
<tr>
<td>- Connection</td>
<td>To certified intrinsically-safe circuits with peak values: $U_i = 30$ V, $I_i = 100$ mA, $P_i = 750$ mW, $R_i = 300$ Ω</td>
</tr>
<tr>
<td>- Effective internal inductance/capacitance</td>
<td>$L_i = 0.4$ mH, $C_i = 6$ nF</td>
</tr>
<tr>
<td><strong>Dust explosion protection for zone 20 (pending)</strong></td>
<td>PTB 01 ATEX 2055</td>
</tr>
<tr>
<td>- Marking</td>
<td>Ex II 1 D Ex ta IIC T120 °C Da</td>
</tr>
<tr>
<td>- Permissible ambient temperature</td>
<td>-40 ... +85 °C (-40 ... +185 °F)</td>
</tr>
<tr>
<td>- Max. surface temperature</td>
<td>120 °C (248 °F)</td>
</tr>
<tr>
<td>- Connection</td>
<td>To circuits with values: $U_i = 10.5$ ... 45 V DC, $P_{max} = 1.2$ W</td>
</tr>
<tr>
<td>- Effective internal inductance/capacitance</td>
<td></td>
</tr>
<tr>
<td><strong>Dust explosion protection for zone 21/22 (pending)</strong></td>
<td></td>
</tr>
<tr>
<td>- Marking</td>
<td>Ex II 2 D Ex tb IIC T120 °C Db</td>
</tr>
<tr>
<td>- Connection</td>
<td>To circuits with values: $U_i = 10.5$ ... 45 V DC, $P_{max} = 1.2$ W</td>
</tr>
<tr>
<td><strong>Type of protection &quot;n&quot; (zone 2)</strong></td>
<td>PTB 13 ATEX 2007 X</td>
</tr>
<tr>
<td>- Identification (Ex nA)</td>
<td>Ex II 2/3 G Ex nA IIC T4/T5/T6 Gc</td>
</tr>
<tr>
<td>- Connection (Ex nA)</td>
<td>To circuits with values: $U_i = 45$ V</td>
</tr>
<tr>
<td>- Effective internal inductance/capacitance</td>
<td></td>
</tr>
<tr>
<td><strong>Explosion protection acc. to FM (pending)</strong></td>
<td>Certificate of Compliance 3008490</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>
</tr>
<tr>
<td>- Connection</td>
<td></td>
</tr>
<tr>
<td><strong>Explosion protection to CSA (pending)</strong></td>
<td>Certificate of Compliance 1153651</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>
</tr>
</tbody>
</table>

### HART communication

| HART | 230 ... 1100 Ω |
| Protocol | HART Version 5.x |
| Software for PC | SIMATIC PDM |
Pressure Measurement
Transmitters for applications with basic requirements (Basic)

SITRANS P310 for differential pressure and flow

Selection and Ordering data

SITRANS P DS III with HART pressure transmitters for differential pressure and flow, PN 32/160 (MAWP 464/2320 psi)

Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Measuring cell filling

Silicone oil

Measuring span (min. ... max.)

<table>
<thead>
<tr>
<th></th>
<th>Article No.</th>
<th>7MF 2 4 3 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PN 160 (MAWP 2320 psi)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 ... 60 mbar (0.4015 ... 24.09 inH₂O)</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>2.5 ... 250 mbar (1.004 ... 100.4 inH₂O)</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>6 ... 600 mbar (2.409 ... 240.9 inH₂O)</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>16 ... 1600 mbar (6.424 ... 642.4 inH₂O)</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>50 ... 5000 mbar (20.08 ... 2008 inH₂O)</td>
<td>G</td>
<td></td>
</tr>
<tr>
<td>0.3 ... 30 bar (4.35 ... 435 psi)</td>
<td>H</td>
<td></td>
</tr>
</tbody>
</table>

Wetted parts materials

(stainless steel process flanges)

Seal diaphragm

Stainless steel

Hastelloy

Version for diaphragm seal

A 1 2 3 4 5 6 7

Process connection

Female thread ¼-18 NPT with flange connection

- Sealing screw opposite process connection
  - Mounting thread 7/16-20 UNF to IEC 61518/DIN EN 61518
  - Mounting thread M10 to DIN 19213 (only for replacement requirement)
- Vent on side of process flange
  - Mounting thread 7/16-20 UNF to IEC 61518/DIN EN 61518
  - Mounting thread M10 to DIN 19213 (only for replacement requirement)

Non-wetted parts materials

process flange screws Electronics housing

Stainless steel

Die-cast aluminum

Stainless steel

Stainless steel precision casting

Version

Standard version, German plate inscription, setting for pressure unit: bar

- International version, English plate inscription, setting for pressure unit: bar
- Chinese version, English plate inscription, setting for pressure unit: Pascal

All versions include DVD with compact operating instructions in various EU languages.

Explosion protection

- None
- With ATEX, Type of protection:
  - "Intrinsic safety (Ex ia)"
  - "Explosion-proof (Ex d)"
  - "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d) (pending)
  - "Ex nA/ic (Zone 2)"
  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)" (pending)
- FM + CSA, Type of Protection:
  - "Intrinsic Safe and Explosion Proof (is + xp)" (pending)

Selection and Ordering data

SITRANS P DS III with HART pressure transmitters for differential pressure and flow, PN 32/160 (MAWP 464/2320 psi)

Electrical connection/cable entry

- Screwed gland M20 x 1.5
- Screwed gland ¼-14 NPT
- Han 7D plug (plastic housing) incl. mating connector

Display

- Without display
- Without visible display (display concealed, setting: mA)
- With visible display (setting: mA)
- With customer-specific display (setting as specified, Order code “Y21” or “Y22” required)

Power supply units see Chap. 7 “Supplementary Components”.

Included in delivery of the device:

- Quick-start guide
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

1) When the manufacturer's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

2) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.

3) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF443.-..Y..-. and 7MF4900-1...-.B

4) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.

5) Not suitable for connection of remote seal. Position of the top vent valve in the process flange (see dimensional drawing).

6) Not in conjunction with Electrical connection “Han7D plug”.

7) Without cable gland, with blanking plug

8) With enclosed cable gland Ex ia and blanking plug

9) Only in connection with Ex ic.

10) Permissible only for crimp-contact of conductor cross-section 1 mm²

11) Only in connection with Ex approval A, B or E.
## Selection and Ordering data

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

<table>
<thead>
<tr>
<th>Further designs</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure transmitter with mounting bracket</td>
<td>A01</td>
</tr>
<tr>
<td>(1x fixing angle, 2 x nut, 2 x U-washer or</td>
<td>A02</td>
</tr>
<tr>
<td>1 x bracket, 2 x nut, 2 x U-washer) made of:</td>
<td>A03</td>
</tr>
<tr>
<td>• Steel</td>
<td>A20</td>
</tr>
<tr>
<td>• Stainless steel 304</td>
<td>A21</td>
</tr>
<tr>
<td>• Stainless steel 316L</td>
<td>A22</td>
</tr>
<tr>
<td>O-rings for process flanges (instead of FPM (Viton))</td>
<td>A23</td>
</tr>
<tr>
<td>• PTFE (Teflon)</td>
<td>A24</td>
</tr>
<tr>
<td>• FEP (with silicone core, approved for food)</td>
<td>A25</td>
</tr>
<tr>
<td>• FFPM (Kalrez, compound 4079), for measured medium</td>
<td>A26</td>
</tr>
<tr>
<td>temperatures -15...100 °C (5...212 °F)</td>
<td>A27</td>
</tr>
<tr>
<td>• NBR (Buna N)</td>
<td>A28</td>
</tr>
<tr>
<td>plug</td>
<td>A30</td>
</tr>
<tr>
<td>• Han 7D (metal)</td>
<td>A31</td>
</tr>
<tr>
<td>• Han 8D (instead of Han 7D)</td>
<td>A32</td>
</tr>
<tr>
<td>• Angled</td>
<td>A33</td>
</tr>
<tr>
<td>• Han 8D (metal)</td>
<td>A34</td>
</tr>
<tr>
<td>Sealing screws (2 units)</td>
<td>A40</td>
</tr>
<tr>
<td>¼-18 NPT, with valve in mat. of process flanges</td>
<td></td>
</tr>
<tr>
<td>Rating plate inscription (instead of German)</td>
<td>B12</td>
</tr>
<tr>
<td>• French</td>
<td>B13</td>
</tr>
<tr>
<td>• Spanish</td>
<td>B21</td>
</tr>
<tr>
<td>English rating plate</td>
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<tr>
<td>Pressure units in inH₂O and/or psi</td>
<td></td>
</tr>
<tr>
<td>Quality Inspection Certificate (5-point characteristic</td>
<td>C11</td>
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<tr>
<td>curve test) according to IEC 60770-2</td>
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<tr>
<td>Inspection certificate</td>
<td>C12</td>
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<tr>
<td>(pending) to EN 10204.3-1</td>
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<tr>
<td>Factory certificate</td>
<td>C14</td>
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<tr>
<td>(EN 10204-3.1)</td>
<td>C15</td>
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<tr>
<td>Acceptance certificate</td>
<td></td>
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<tr>
<td>PMI test of parts in contact with medium</td>
<td>C20</td>
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<tr>
<td>Functional safety (SIL2) (pending)</td>
<td>C23</td>
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<tr>
<td>Devices suitable for use according to IEC 61508</td>
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<tr>
<td>and IEC 61511. Includes SIL conformity declaration</td>
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<tr>
<td>Device passport Russia</td>
<td>C99</td>
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<tr>
<td>Manufacturer's declaration acc. to NACE (MR 0103-2012</td>
<td>D07</td>
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<tr>
<td>and MR 0175-2009) (only together with seal</td>
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<tr>
<td>diaphragm made of Hastelloy and stainless steel)</td>
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<tr>
<td>Degree of protection IP66/IP68 (only for M20 x 1.5 and</td>
<td>D12</td>
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<tr>
<td>½-14 NPT)</td>
<td>D32</td>
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<tr>
<td>Cable gland and sealing plug made of metal</td>
<td>D37</td>
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<tr>
<td>Supplied with oval flange set</td>
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<tr>
<td>(2 items), PTFE packings and screws in thread of</td>
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</tr>
<tr>
<td>process flanges</td>
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<tr>
<td>TAG plate empty (no inscription)</td>
<td>D61</td>
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### Selection and Ordering data

<table>
<thead>
<tr>
<th>Order code</th>
<th>Selection and Ordering data</th>
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<tbody>
<tr>
<td>E11</td>
<td>Export approval Korea</td>
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<tr>
<td>E24</td>
<td>Dual seal</td>
</tr>
<tr>
<td>E55</td>
<td>Explosion-proof &quot;Intrinsic</td>
</tr>
<tr>
<td></td>
<td>safety&quot; to NEPSI (China)</td>
</tr>
<tr>
<td>E56</td>
<td>(only for transmitter 7MF4-</td>
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<td></td>
<td>. . . . . . . . . . . . . . .</td>
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<tr>
<td>E57</td>
<td>Explosion protection &quot;Ex-</td>
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<tr>
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<td>proof&quot; to NEPSI (China)</td>
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<tr>
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<td>(only for transmitter 7MF4-</td>
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<tr>
<td>E80</td>
<td>Ex-protection Ex ia</td>
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<tr>
<td></td>
<td>according to EAC Ex (Russia)</td>
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<tr>
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<td>(only for transmitter 7MF2-</td>
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<tr>
<td>E81</td>
<td>Ex-protection Ex d</td>
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<tr>
<td>E82</td>
<td>Ex-protection Ex nA/ic</td>
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<td></td>
<td>(Zone 2) according to EAC</td>
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<td></td>
<td>Ex (Russia)</td>
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<tr>
<td></td>
<td>(only for transmitter 7MF2-</td>
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<td>. . . . . . . . . . . . . . .</td>
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<tr>
<td>H02</td>
<td>Vent on side for gas</td>
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<tr>
<td></td>
<td>measurements</td>
</tr>
<tr>
<td>H03</td>
<td>Stainless steel process</td>
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<tr>
<td></td>
<td>flanges for vertical</td>
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<tr>
<td></td>
<td>differential pressure lines</td>
</tr>
<tr>
<td>J01</td>
<td>Transient protector 6 kV</td>
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<td></td>
<td>(lightning protection)</td>
</tr>
<tr>
<td>S10</td>
<td>Marine approvals</td>
</tr>
<tr>
<td>S11</td>
<td>• Det Norske Veritas</td>
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<tr>
<td>S12</td>
<td>Germanischer Lloyd (DNV-GL)</td>
</tr>
<tr>
<td>S14</td>
<td>• American Bureau of</td>
</tr>
<tr>
<td>S16</td>
<td>Shipping (ABS)</td>
</tr>
<tr>
<td>S17</td>
<td>• Korean Register of</td>
</tr>
<tr>
<td></td>
<td>Shipping (KR)</td>
</tr>
</tbody>
</table>

1) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

2) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.

3) Options does not include ATEX approval, but instead includes only the country-specific approval.

### Additional notes

- **Export approval Korea**: E11
- **Dual seal**: E24
- **Explosion-proof "Intrinsic safety" to NEPSI (China)**: E55
- **Explosion protection "Explosion-proof" to NEPSI (China)**: E56
- **Explosion-proof "Zone 2" to NEPSI (China)**: E57
- **Ex-protection Ex ia according to EAC Ex (Russia)**: E80
- **Ex-protection Ex d according to EAC Ex (Russia)**: E81
- **Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)**: E82
- **Vent on side for gas measurements**: H02
- **Stainless steel process flanges for vertical differential pressure lines**: H03
- **Transient protector 6 kV (lightning protection)**: J01

### Marine approvals

- **Det Norske Veritas Germanischer Lloyd (DNV-GL)**: S10
- **Lloyds Register (LR)**: S11
- **French marine classification society Bureau Veritas (BV)**: S12
- **American Bureau of Shipping (ABS)**: S14
- **Russian Maritime Register (RMR)**: S16
- **Korean Register of Shipping (KR)**: S17
## Pressure Measurement
Transmitters for applications with basic requirements (Basic)

### SITRANS P310 for differential pressure and flow

<table>
<thead>
<tr>
<th>Selection and Ordering data</th>
<th>Order code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Additional data</strong></td>
<td></td>
</tr>
<tr>
<td>Please add <code>-Z</code> to Article No. and specify Order code(s) and plain text.</td>
<td></td>
</tr>
</tbody>
</table>

### Measuring range to be set
Specify in plain text:
- in the case of linear characteristic curve (max. 5 characters):
  Y01: ... up to ... mbar, bar, kPa, MPa, psi
- in the case of square rooted characteristic (max. 5 characters):
  Y02: ... up to ... mbar, bar, kPa, MPa, psi

### Stainless steel tag plate and entry in device variable (measuring point description)
Max. 16 characters, specify in plain text:
Y15: ...........................................

### Measuring point text (entry in device variable)
Max. 27 char., specify in plain text:
Y16: ..............

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

### Setting of pressure indication in pressure units
Specify in plain text (standard setting: bar):
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 indication in non-pressure units
1) Specify in plain text:
Y22: ..... up to ..... l/min, m³/h, m, USgpm, ...

1) Preset values can only be changed over SIMATIC PDM.

Only Y01, Y15, Y16, Y17, Y21 and Y22 can be factory preset.
SITRANS P310 pressure transmitters for differential pressure and flow, 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" [IS + XP]
4) 92 mm (3.62 inch) for minimum distance to permit rotation with indicator
Pressure Measurement
Transmitters for applications with basic requirements (Basic)

SITRANS P310 for differential pressure and flow

SITRANS P310 pressure transmitters for differential pressure and flow, with process covers for vertical differential pressure lines, optional "H03", dimensional drawing, 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 [IS + XP]"
4) 92 mm (3.6 inch) for minimum distance to permit rotation with indicator
5) 91 mm (3.6 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)
6) 219 mm (8.62 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)

SITRANS P310 pressure transmitters for differential pressure and flow, with process covers for vertical differential pressure lines

1 Electronic side, digital display (longer overall length for cover with window)
2 Terminal side
3 Electrical connection:
   Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/ Han 8D plug
4 Harting adapter
5 Protective cover over keys
6 Blanking plug
7 Screw cover - safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
8 Sealing screw with valve (option)
9 Process connection: ¼-18 NPT (IEC 61518)
### Selection and Ordering data

#### Spare parts/Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Article No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mounting bracket and fastening parts</strong> for pressure transmitters</td>
<td></td>
</tr>
<tr>
<td>SITRANS P310 (7MF2033-.....-C.)</td>
<td></td>
</tr>
<tr>
<td>• made of steel</td>
<td>7MF4997-1AB</td>
</tr>
<tr>
<td>• made of stainless steel 304/1.4301</td>
<td>7MF4997-1AH</td>
</tr>
<tr>
<td>• made of stainless steel 316L/1.4404</td>
<td>7MF4997-1AP</td>
</tr>
<tr>
<td><strong>Mounting bracket and fastening parts</strong> for pressure transmitters</td>
<td></td>
</tr>
<tr>
<td>SITRANS P310 (7MF2033-.....-A., -B., -D. and -F.)</td>
<td></td>
</tr>
<tr>
<td>• made of steel</td>
<td>7MF4997-1AC</td>
</tr>
<tr>
<td>• made of stainless steel 304/1.4301</td>
<td>7MF4997-1AJ</td>
</tr>
<tr>
<td>• made of stainless steel 316L/1.4404</td>
<td>7MF4997-1AQ</td>
</tr>
<tr>
<td><strong>Mounting and fastening brackets</strong></td>
<td></td>
</tr>
<tr>
<td>For differential pressure transmitters with flange thread M10</td>
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</tr>
<tr>
<td>SITRANS P310 (7MF2433-...)</td>
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<tr>
<td>• made of steel</td>
<td>7MF4997-1AD</td>
</tr>
<tr>
<td>• made of stainless steel 304/1.4301</td>
<td>7MF4997-1AK</td>
</tr>
<tr>
<td>• made of stainless steel 316L/1.4404</td>
<td>7MF4997-1AR</td>
</tr>
<tr>
<td><strong>Mounting and fastening brackets</strong></td>
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</tr>
<tr>
<td>For differential pressure transmitters with flange thread 7/16-20 UNF SITRANS P310 (7MF2533-...)</td>
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<tr>
<td>• made of steel</td>
<td>7MF4997-1AF</td>
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<tr>
<td>• made of stainless steel 304/1.4301</td>
<td>7MF4997-1AM</td>
</tr>
<tr>
<td>• made of stainless steel 316L/1.4404</td>
<td>7MF4997-1AT</td>
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<tr>
<td><strong>Cover</strong></td>
<td></td>
</tr>
<tr>
<td>Made of die-cast aluminum, including gasket. Compatible for Ex and non-Ex transmitters</td>
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</tr>
<tr>
<td>• without window</td>
<td>7MF4997-1BB</td>
</tr>
<tr>
<td>• with window</td>
<td>7MF4997-1BE</td>
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<tr>
<td><strong>Cover</strong></td>
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</tr>
<tr>
<td>Made of stainless steel, including gasket. Compatible for Ex and non-Ex transmitters</td>
<td></td>
</tr>
<tr>
<td>• without window</td>
<td>7MF4997-1BC</td>
</tr>
<tr>
<td>• with window</td>
<td>7MF4997-1BF</td>
</tr>
<tr>
<td><strong>Digital indicator</strong></td>
<td></td>
</tr>
<tr>
<td>Including mounting material</td>
<td>7MF4997-1BR</td>
</tr>
<tr>
<td><strong>Measuring point label</strong></td>
<td></td>
</tr>
<tr>
<td>• without inscription (5 units)</td>
<td>7MF4997-1CA</td>
</tr>
<tr>
<td>• Printed (1 unit) Data according to Y01 or Y02, Y15, Y16 and Y99 (see “Pressure transmitters”)</td>
<td>7MF4997-1CB-Z</td>
</tr>
<tr>
<td>• Y..: ..................</td>
<td></td>
</tr>
<tr>
<td><strong>Mounting screws</strong></td>
<td></td>
</tr>
<tr>
<td>For measuring point label, grounding and connection terminals or for display (50 units)</td>
<td>7MF4997-1CD</td>
</tr>
<tr>
<td><strong>Sealing screws</strong></td>
<td></td>
</tr>
<tr>
<td>(1 set = 2 units) for process flange</td>
<td></td>
</tr>
<tr>
<td>• made of stainless steel</td>
<td>7MF4997-1CG</td>
</tr>
<tr>
<td>• made of Hastelloy</td>
<td>7MF4997-1CH</td>
</tr>
<tr>
<td><strong>Sealing screws with vent valve</strong></td>
<td></td>
</tr>
<tr>
<td>Complete (1 set = 2 units)</td>
<td></td>
</tr>
<tr>
<td>• made of stainless steel</td>
<td>7MF4997-1CP</td>
</tr>
<tr>
<td>• made of Hastelloy</td>
<td>7MF4997-1CQ</td>
</tr>
<tr>
<td><strong>O-rings for process flanges made of:</strong></td>
<td></td>
</tr>
<tr>
<td>• FPM (Viton)</td>
<td>7MF4997-2DA</td>
</tr>
<tr>
<td>• PTFE (Teflon)</td>
<td>7MF4997-2DB</td>
</tr>
<tr>
<td>• FEP (with silicone core, approved for food)</td>
<td>7MF4997-2DC</td>
</tr>
<tr>
<td>• FFPM (Kalrez, compound 4079)</td>
<td>7MF4997-2DD</td>
</tr>
<tr>
<td>• NBR (Buna N)</td>
<td>7MF4997-2DE</td>
</tr>
<tr>
<td><strong>Sealing ring</strong></td>
<td></td>
</tr>
<tr>
<td>For process connection</td>
<td></td>
</tr>
<tr>
<td>Available ex stock</td>
<td></td>
</tr>
</tbody>
</table>

### Selection and Ordering data

#### Documentation

The entire documentation is available for download free-of-charge in various languages at: [http://www.siemens.com/processinstrumentation/documentation](http://www.siemens.com/processinstrumentation/documentation)

#### Certificates (order only via SAP)

- hard copy (to order)
- on DVD (to order)

#### HART modem with USB interface

7MF4997-1DB

Power supply units see Chap. 7 “Supplementary Components”.

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Pressure Measurement
Transmitters for applications with basic requirements (Basic)

SITRANS P310 Accessories/Spare Parts

■ Dimensional drawings

Mounting bracket for SITRANS P310 gauge and absolute pressure-transmitters, dimensions in mm
mounting bracket material: Sheet-steel Mat. No. 1.0330, chrome-plated, or stainless steel Mat. No. 1.4301 (304)

Mounting bracket for SITRANS P310 differential pressure transmitter, dimensions in mm
mounting bracket material: Sheet-steel Mat. No. 1.0330, chrome-plated, or stainless steel Mat. No. 1.4301 (304)