

### Overview



The SITRANS P300 is a digital pressure transmitter for relative and absolute pressure. The conventional thread versions are available as process connections, as are flush-mounted versions. A large number of the flush-mounted versions are suitable for food and pharmaceutical applications, and satisfy the EHEDG and 3A hygiene requirements.

The output signal is a load-independent direct current from 4 to 20 mA or a PROFIBUS PA or FOUNDATION signal, which is linearly proportional to the input pressure. Communication is via HART protocol or 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 service 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 0.008 bar to 400 bar (0.1 psi to 5802 psi)
- High measuring accuracy
- Parameterization over control keys and HART or PROFIBUS PA or FOUNDATION Fieldbus

### Application

The pressure transmitter is available in versions for gauge pressure and for absolute pressure. The output signal is always a load-independent direct current from 4 to 20 mA or a PROFIBUS PA or FOUNDATION Fieldbus 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:

- Gauge pressure
- Absolute pressure

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

- Level
- Volume
- Mass

The "intrinsically-safe" Ex 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.

#### **Gauge pressure**

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

The smallest span is 0.01 bar (0.15 psi), the largest is 400 bar (5802 psi).

#### **Level**

With appropriate parameter settings, the gauge 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 span is 0.008 bar a (0.12 psia), the largest is 30 bar a (435 psia).

## Pressure Measurement

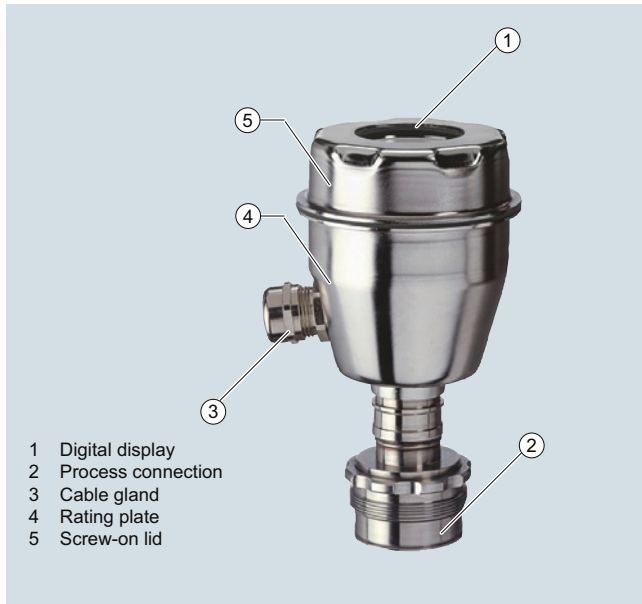
Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

#### Design

The device comprises:

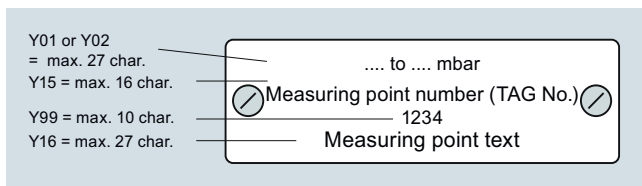
- Electronics
- Housing
- Measuring cell



Perspective view of SITRANS P300

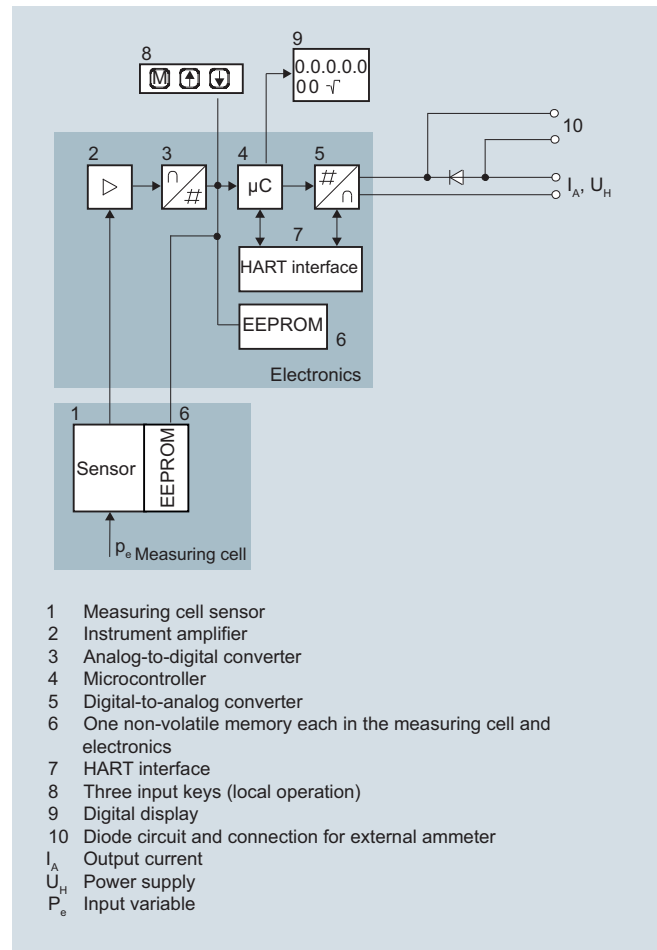
The housing has a screw-on lid (5) and, depending on the version, is with or without an inspection window. The electrical terminal housing, the buttons for operation of the device are located under this lid and, depending on the version, the display. The connections for the auxiliary power  $U_H$  and 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 (2) is located on the bottom of the housing. The measuring cell with the process connection may differ from the one shown in the diagram, depending on the device version.

#### Example of attached measuring points sign



#### Function

##### Operation of electronics with HART communication

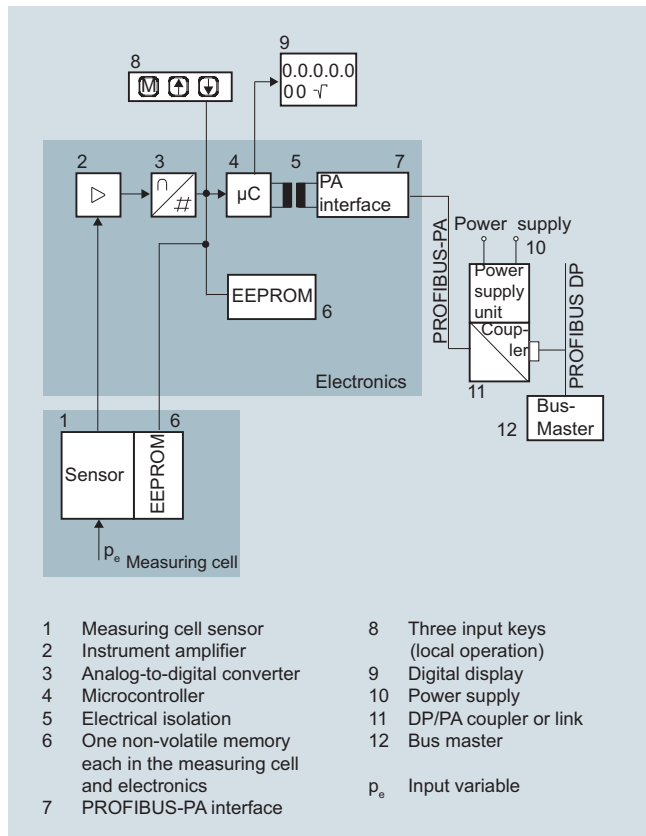


Function diagram of electronics

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 according 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 polarity 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 to the measuring cell, the second to the electronics.

The buttons (8) can be used to call up individual functions, so-called modes. If you have a device with a 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).

### Operation of electronics with PROFIBUS PA communication

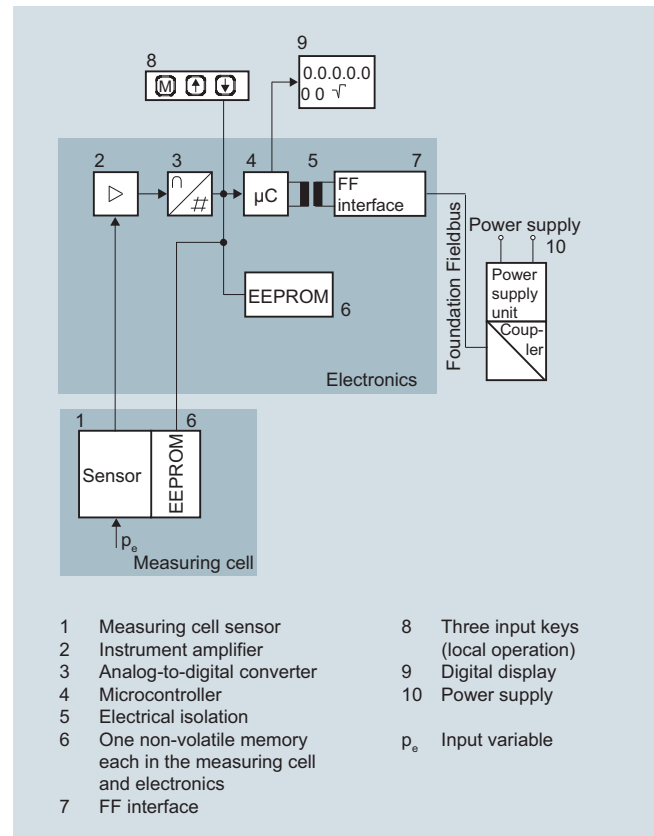


Function diagram of electronics

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 according to linearity and thermal characteristics. It is then made available at the PROFIBUS PA over an electrically isolated PROFIBUS PA 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 to the measuring cell, the second to the electronics.

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

### Operation of electronics with FOUNDATION Fieldbus communication



Function diagram of electronics

The bridge output voltage created by the sensor (1, Figure "Function diagram of electronics") amplified by the measuring amplifier (2) and digitalized 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 buttons (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 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:

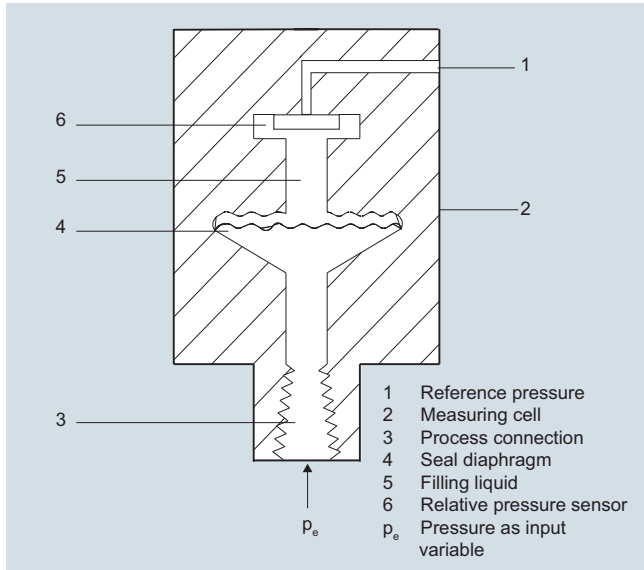
- G $\frac{1}{2}$
- $\frac{1}{2}$ -14 NPT
- Flush-mounted diaphragm:
  - Flanges to EN
  - Flanges to ASME
  - NuG and pharmaceutical connections

## Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

#### Measuring cell for gauge pressure

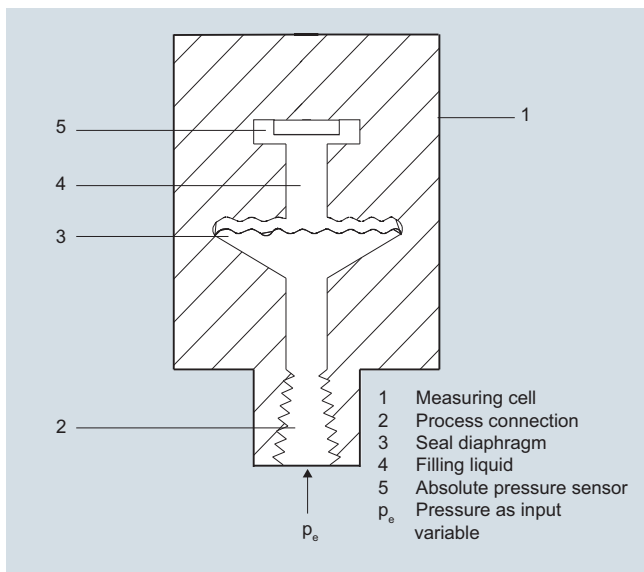


Measuring cell for gauge pressure, function diagram

The input pressure ( $p_e$ ) is transferred to the gauge 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.

Transmitters with spans  $\leq 63$  bar ( $\leq 926.1$  psi) measure the input pressure compared to atmospheric, transmitters with spans of  $\geq 160$  bar ( $\geq 2352$  psi) compared to a vacuum.

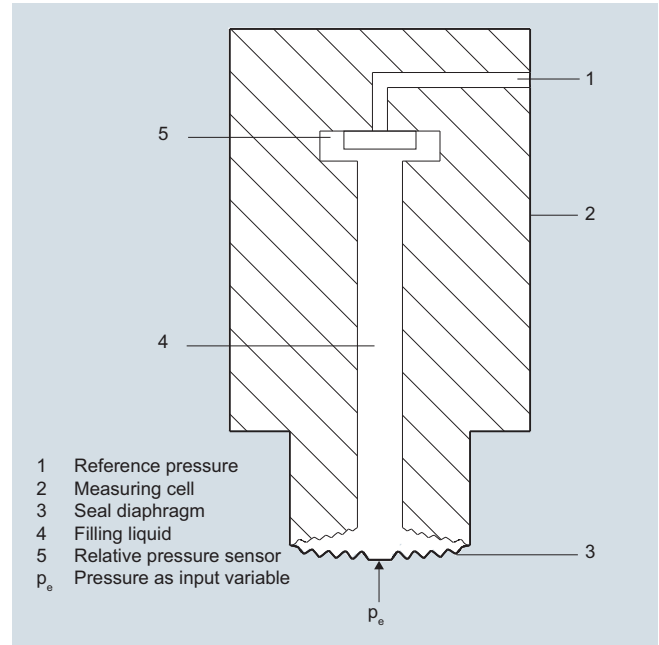
#### Measuring cell for absolute pressure



Measuring cell for absolute pressure, function diagram

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 gauge pressure, front-flush diaphragm

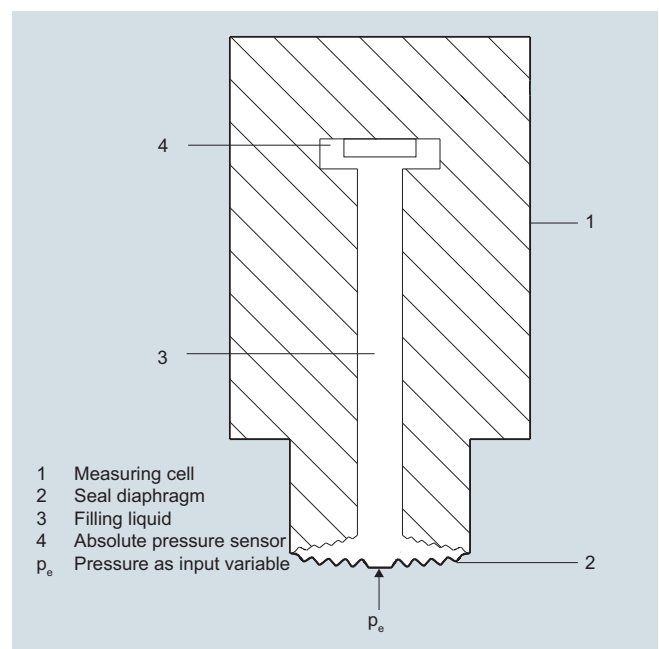


Measuring cell for gauge pressure, front-flush diaphragm, function diagram

The input pressure ( $p_e$ ) is transferred to the gauge 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.

Transmitters with spans  $\leq 63$  bar ( $\leq 926.1$  psi) measure the input pressure compared to atmospheric, transmitters with spans of  $\geq 160$  bar ( $\geq 2352$  psi) compared to a vacuum.

#### Measuring cell for absolute pressure, front-flush diaphragm



Measuring cell for absolute pressure, front-flush diaphragm, function diagram

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.

### Parameterization

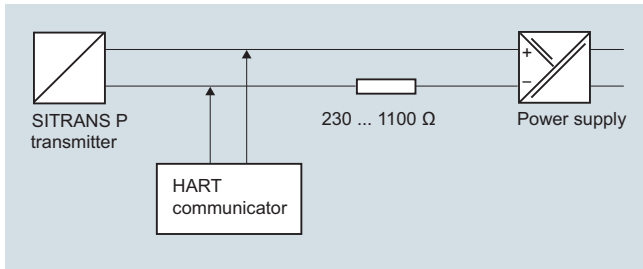
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

#### Parameterization using the input buttons (local operation)

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

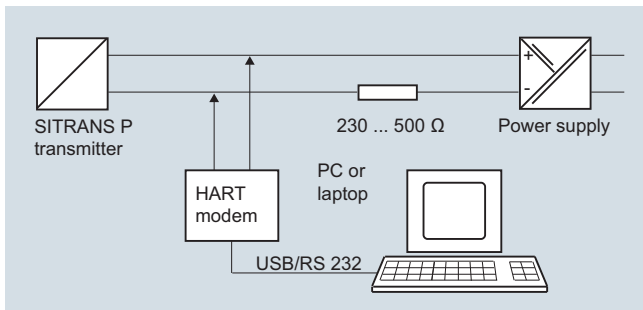
#### Parameterization using HART communication

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 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 on SITRANS P300 with HART communication

Parameters	Input keys	HART communication
Start of scale	x	x
Full-scale value	x	x
Electrical damping	x	x
Start-of-scale value without application of a pressure ("Blind setting")	x	x
Full-scale value without application of a pressure ("Blind setting")	x	x
Zero adjustment	x	x
current transmitter	x	x
Fault current	x	x
Disabling of buttons, write protection	x	x <sup>1)</sup>
Type of dimension and actual dimension	x	x
Input of characteristic		x
Freely-programmable LCD		x
Diagnostic functions		x

<sup>1)</sup> 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 style: Technical specifications 2

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	Pa, MPa, kPa, bar, mbar, torr, atm, psi, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , inH <sub>2</sub> O, inH <sub>2</sub> O (4 °C), mmH <sub>2</sub> O, ftH <sub>2</sub> O (20 °C), inHg, mmHg
Level (height data)	m, cm, mm, ft, in
Volume	m <sup>3</sup> , dm <sup>3</sup> , hl, yd <sup>3</sup> , ft <sup>3</sup> , in <sup>3</sup> , US gallon, Imp. gallon, bushel, barrel, barrel liquid
Mass	g, kg, t, lb, Ston, Lton, oz
Temperature	K, °C, °F, °R
Miscellaneous	%, mA

## Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

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### SITRANS P300 for gauge and absolute pressure

#### Parameterization through PROFIBUS PA interface

Fully digital communication through PROFIBUS PA, profile 3.0, is particularly user-friendly. The PROFIBUS connects the SITRANS P300 PA to 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 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 SITRANS P300 with PROFIBUS PA and FOUNDATION Fieldbus

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

#### Diagnostic functions for SITRANS P300 with PROFIBUS PA and FOUNDATION Fieldbus

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

#### Physical dimensions available for the display

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	MPa, kPa, Pa, bar, mbar, torr, atm, psi, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , mmH <sub>2</sub> O, mmH <sub>2</sub> O (4 °C), inH <sub>2</sub> O, inH <sub>2</sub> O (4 °C), ftH <sub>2</sub> O (20 °C), mmHg, inHg
Level (height data)	m, cm, mm, ft, in, yd
Mass	g, kg, t, lb, Ston, Lton, oz
Volume	m <sup>3</sup> , dm <sup>3</sup> , hl, yd <sup>3</sup> , ft <sup>3</sup> , in <sup>3</sup> , US gallon, Imp. gallon, bushel, barrel, barrel liquid
volume flow	m <sup>3</sup> /s, m <sup>3</sup> /min, m <sup>3</sup> /h, m <sup>3</sup> /d, l/s, l/min, l/h, l/d, Ml/d, ft <sup>3</sup> /s, ft <sup>3</sup> /min, ft <sup>3</sup> /h, ft <sup>3</sup> /d, US gallon/s, US gallon/min, US gallon/h, US gallon/d, bbl/s, bbl/min, bbl/h, bbl/d
Mass flow	g/s, g/min, g/h, 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
Total mass flow	t, kg, g, lb, oz, LTon, STon
Temperature	K, °C, °F, °R
Miscellaneous	%

#### 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.

# Pressure Measurement

## Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

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#### Technical specifications

##### SITRANS P300 for gauge and absolute pressure

###### Gauge pressure input

Measured variable

Span (fully adjustable) or measuring range, max. operating pressure (in accordance with 2014/68/EU Pressure Equipment Directive) and max. test pressure (pursuant to DIN 16086)

(for oxygen measurement, max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/process temperature)

	HART	PROFIBUS PA/ FOUNDATION Fieldbus		
Span		Nominal measuring range	Max. operating pressure MAWP (PS)	Max. perm. test pressure
8.3 ... 250 mbar 0.83 ... 25 kPa 0.12 ... 3.6 psi		250 mbar 25 kPa 3.6 psi	4 bar 400 kPa 58 psi	6 bar 600 kPa 87 psi
0.01 ... 1 bar 1 ... 100 kPa 0.15 ... 14.5 psi		1 bar 100 kPa 14.5 psi	4 bar 400 kPa 58 psi	6 bar 600 kPa 87 psi
0.04 ... 4 bar 4 ... 400 kPa 0.58 ... 58 psi		4 bar 400 kPa 58 psi	7 bar 0.7 MPa 102 psi	10 bar 1 MPa 145 psi
0.16 ... 16 bar 16 ... 1600 kPa 2.3 ... 232 psi		16 bar 1600 kPa 232 psi	21 bar 2.1 MPa 305 psi	32 bar 3.2 MPa 464 psi
0.63 ... 63 bar 63 ... 6300 kPa 9.1 ... 914 psi		63 bar 6300 kPa 914 psi	67 bar 6.7 MPa 972 psi	100 bar 10 MPa 1450 psi
1.6 ... 160 bar 0.16 ... 16 MPa 23 ... 2321 psi		160 bar 16 MPa 2321 psi	167 bar 16.7 MPa 2422 psi	250 bar 2.5 MPa 3626 psi
4 ... 400 bar 0.4 ... 40 kPa 58 ... 5802 psi		400 bar 40 kPa 5802 psi	400 bar 40 MPa 5802 psi	600 bar 60 MPa 8700 psi

Lower measuring limit

(for 250mbar/25 kPa/3.6 psi measuring cells, the lower measuring limit is 750 mbar a/75 kPa a/10.8 psi a. The measuring cell is vacuum-resistant up to 30 mbar a/3 kPa a/0.44 psi a.)

- Measuring cell with silicone oil
- Measuring cell with inert filling liquid

30 mbar a/3 kPa a/0.44 psia

30 mbar a/3 kPa a/0.44 psia

Upper measuring limit

100 % of max. span  
(for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 ° (140 °F) ambient temperature/process temperature)

###### Absolute pressure input

Measured variable

Span (fully adjustable) or measuring range, max. operating pressure (in accordance with 2014/68/EU Pressure Equipment Directive) and max. test pressure (pursuant to DIN 16086)

	HART	PROFIBUS PA/ FOUNDATION Fieldbus		
Absolute pressure		Nominal measuring range	Max. operating pressure MAWP (PS)	Max. perm. test pressure
Span				
8.3 ... 250 mbar a 0.83 ... 25 kPa a 3 ... 100 inH <sub>2</sub> O a		250 mbar a 25 kPa a 100 inH <sub>2</sub> O a	1.5 bar a 150 kPa a 21.8 psia	6 bar a 600 kPa a 87 psia
43 ... 1300 mbar a 4.3 ... 130 kPa a 17 ... 525 inH <sub>2</sub> O a		1300 mbar a 130 kPa a 525 inH <sub>2</sub> O	2.6 bar a 260 kPa a 37.7 psia	10 bar a 1 MPa a 145 psia
160 ... 5000 mbar a 16 ... 500 kPa a 2.32 ... 72.5 psia		5000 mbar a 500 kPa a 72.5 psia	10 bar a 1 MPa a 145 psia	30 bar a 3 MPa a 435 psia
1 ... 30 bar a 0.1 ... 3 MPa a 14.5 ... 435 psia		30 bar a 3 MPa a 435 psia	45 bar a 4.5 MPa a 653 psia	100 bar a 10 MPa a 1450 psia

## Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

SITRANS P300 for gauge and absolute pressure			
Lower measuring limit	0 mbar a/0 kPa a /0 psia		
<ul style="list-style-type: none"> <li>Measuring cell with silicone oil</li> <li>Measuring cell with inert filling liquid</li> </ul>			
- for process temperature -20 °C < $\vartheta$ ≤ +60 °C (-4 °F < $\vartheta$ ≤ +140 °F)	30 mbar a/3 kPa a/0.44 psia		
- for process temperature 60 °C < $\vartheta$ ≤ +100 °C (max. 85 °C for measuring cell 30 bar) (140 °F < $\vartheta$ ≤ +212 °F (max. 185 °F for meas. cell 435 psi))	30 mbar a + 20 mbar a · (9 - 60 °C)/°C 3 kPa a + 2 kPa a · (9 - 60 °C)/°C 0.44 psi a + 0.29 psi a · (9 - 140 °F)/°F		
Upper measuring limit	100 % of max. span (for oxygen measurement max. 100 bar/10 MPa/1450 psi und 60 °C (140 °F) ambient temperature/process temperature)		
Start of scale value	Between the measuring limits (fully adjustable)		
<b>Input of gauge pressure, with front-flush diaphragm</b>			
Measured variable	Gauge pressure, front-flush		
Span (continuously adjustable) or measuring range, max. operating pressure and max. test pressure	<b>HART</b>	<b>PROFIBUS PA/ FOUNDATION Fieldbus</b>	
	Span	Nominal measuring range	Max. operating pressure MAWP (PS)   Max. perm. test pressure
	0.01 ... 1 bar 1 ... 100 kPa 0.15 ... 14.5 psi	1 bar 100 kPa 14.5 psi	4 bar 400 kPa 58 psi   6 bar 600 kPa 87 psi)
	0.04 ... 4 bar 4 ... 400 kPa 0.58 ... 58 psi	4 bar 400 kPa 58 psi	7 bar 0.7 MPa 102 psi   10 bar 1 MPa 145 psi
	0.16 ... 16 bar 16 ... 1600 kPa 2.3 ... 232 psi	16 bar 1600 kPa 232 psi	21 bar 2.1 MPa 305 psi   32 bar 3.2 MPa 464 psi
	0.63 ... 63 bar 63 ... 6300 kPa 9.1 ... 914 psi	63 bar 6300 kPa 914 psi	67 bar 6.7 MPa 972 psi   100 bar 10 MPa 1450 psi
Lower measuring limit	100 mbar a/10 kPa a/1.45 psia		
<ul style="list-style-type: none"> <li>Measuring cell with silicone oil filling</li> <li>Measuring cell with inert filling liquid</li> <li>Measuring cell with Neobee</li> </ul>	100 mbar a/10 kPa a/1.45 psia		
Upper measuring limit	100% of max. span		
<b>Input of absolute pressure, with front-flush diaphragm</b>			
Measured variable	Absolute pressure, front-flush		
Span (continuously adjustable) or measuring range, max. operating pressure and max. test pressure	<b>HART</b>	<b>PROFIBUS PA/ FOUNDATION Fieldbus</b>	
	Span	Nominal measuring range	Max. operating pressure MAWP (PS)   Max. perm. test pressure
	43 ... 1300 mbar a 4.3 ... 130 kPa a 17 ... 525 inH <sub>2</sub> O a	1300 mbar a 130 kPa a 525 inH <sub>2</sub> O a	2.6 bar a 260 kPa a 37.7 psia   10 bar a 1 MPa a 145 psia
	160 ... 5000 mbar a 16 ... 500 kPa a 2.32 ... 72.5 psia	5000 mbar a 500 kPa a 72.5 psia	10 bar a 1 MPa a 145 psia   30 bar a 3 MPa a 435 psia
	1 ... 30 bar a 0.1 ... 3 MPa a 14.5 ... 435 psia	30 bar a 3 MPa a 435 psia	45 bar a 4.5 MPa a 653 psia   100 bar a 10 MPa a 1450 psia
	Depending on the process connection, the span may differ from these values		
Lower measuring limit	0 mbar a/0 kPa a/0 psia		
Upper measuring limit	100 % of max. span		
<b>Output</b>	<b>HART</b>	<b>PROFIBUS PA/ FOUNDATION Fieldbus</b>	
Output signal	4 ... 20 mA	Digital PROFIBUS PA or FOUNDATION Fieldbus signal	
Physical bus	-	IEC 61158-2	
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 P300 for gauge and absolute pressure

##### Measuring accuracy for gauge pressure

Reference conditions

According to IEC 60770-1

- Increasing characteristic
- Start-of-scale value 0 bar/kPa/psi
- Stainless steel seal diaphragm
- Measuring cell with silicone oil
- Room temperature 25 °C (77 °F)

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

$r = \text{max. measuring span} / \text{set measuring span or nominal pressure range}$

Error in measurement at limit setting incl. hysteresis and reproducibility

- Linear characteristic

- 250 mbar/25 kPa/3.6 psi

$r \leq 1.25$  :  $\leq 0.075$  %  
 $1.25 < r \leq 30$  :  $\leq (0.008 \cdot r + 0.065)$  %

- 1 bar/100 kPa/3.6 psi  
 4 bar/400 kPa/58 psi  
 16 bar/1.6 MPa/232 psi  
 63 bar/6.3 MPa/914 psi  
 160 bar/16 MPa/2321 psi

$r \leq 5$  :  $\leq 0.075$  %  
 $5 < r \leq 100$  :  $\leq (0.005 \cdot r + 0.05)$  %

- 400 bar/40 MPa/5802 psi

$r \leq 3$  :  $\leq 0.075$  %  
 $3 < r \leq 10$  :  $\leq (0.0029 \cdot r + 0.071)$  %  
 $10 < r \leq 100$  :  $\leq (0.005 \cdot r + 0.05)$  %

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

- 250 mbar/25 kPa/3.6 psi

$\leq (0.16 \cdot r + 0.1)$  %

- 1 bar/100 kPa/3.6 psi  
 4 bar/400 kPa/58 psi  
 16 bar/1.6 MPa/232 psi  
 63 bar/6.3 MPa/914 psi  
 160 bar/16 MPa/2321 psi  
 400 bar/40 MPa/5802 psi

$\leq (0.07 \cdot r + 0.08)$  %

Long-term stability (temperature change  $\pm 30$  °C ( $\pm 54$  °F))

- 250 mbar/25 kPa/3.6 psi

$\leq (0.25 \cdot r)$  % per year

- 1 bar/100 kPa/3.6 psi  
 4 bar/400 kPa/58 psi

$\leq (0.25 \cdot r)$  % in 5 years

- 16 bar/1.6 MPa/232 psi  
 63 bar/6.3 MPa/914 psi  
 160 bar/16 MPa/2321 psi  
 400 bar/40 MPa/5802 psi

$\leq (0.125 \cdot r)$  % in 5 years

Effect of mounting position

$\leq 0.05$  mbar/0.005 kPa/0.000725 psi per 10° inclination  
 (zero point correction is possible with position error compensation)

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

0.005 % per 1 V

Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus

$3 \cdot 10^{-5}$  of the rated measuring range

# Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

## SITRANS P300 for gauge and absolute pressure

### SITRANS P300 for gauge and absolute pressure

#### Measuring accuracy for absolute pressure

Reference conditions

According to IEC 60770-1

- Increasing characteristic
- Start-of-scale value 0 bar/kPa/psi
- Stainless steel seal diaphragm
- Measuring cell with silicone oil
- Room temperature 25 °C (77 °F)

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

$r = \text{max. measuring span/set measuring span or nominal pressure range}$

Error in measurement at limit setting incl. hysteresis and reproducibility

- Linear characteristic

-  $r \leq 10$

$\leq 0.1 \%$

-  $10 < r \leq 30$

$\leq 0.2 \%$

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

- 250 mbar a/25 kPa a/3.6 psi a

$\leq (0.15 \cdot r + 0.1) \%$

- 1300 mbar a/130 kPa a/18.8 psia  
5 bar a/500 kPa a/72.5 psia  
30 bar a/3000 kPa a/435 psia

$\leq (0.08 \cdot r + 0.16) \%$

Long-term stability (temperature change  $\pm 30$  °C ( $\pm 54$  °F))

$\leq (0.25 \cdot r) \%$  in 5 years

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

$\leq 0.05$  mbar/0.005 kPa/0.000725 psi per 10° inclination  
(zero point correction is possible with position error compensation)

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

0.005 % per 1 V

Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus

$3 \cdot 10^{-5}$  of the rated measuring range

#### Measuring accuracy for gauge and absolute pressure, with front-flush diaphragm

According to IEC 60770-1

Reference conditions

- Increasing characteristic
- Start-of-scale value 0 bar/kPa/psi
- Stainless steel seal diaphragm
- Measuring cell with silicone oil
- Room temperature 25 °C (77 °F)

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

$r = \text{max. measuring span/set measuring span or nom. pressure range}$

Error in measurement at limit setting incl. hysteresis and reproducibility

- Linear characteristic

-  $r \leq 5$

$\leq 0.075 \%$

-  $5 < r \leq 100$

$\leq (0.005 \cdot r + 0.05) \%$

-  $r \leq 10$

-

$\leq 0.2 \%$

-  $10 < r \leq 30$

-

$\leq 0.4 \%$

Influence of ambient temperature  
(as percentage per 28 °C (50 °F))

$\leq (0.08 \cdot r + 0.16) \%$

$\leq (0.16 \cdot r + 0.24) \%$

Effect of process temperature  
(in pressure per temperature change)

- Temperature difference between process temperature and ambient temperature

3 mbar/0.3 kPa/0.04 psi per 10 K

Long-term stability (temperature change  $\pm 30$  °C ( $\pm 54$  °F))

$(0.25 \cdot r) \%$  in 5 years

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

0.4 mbar/0.04 kPa/0.006 per 10° inclination  
(zero point correction is possible with position error compensation)

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

0.005 % per 1 V

Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus

$3 \cdot 10^{-5}$  of the rated measuring range

# Pressure Measurement

## Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

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#### SITRANS P300 for gauge and absolute pressure

##### Rated conditions

###### Installation conditions

Ambient temperature

- Measuring cell with silicone oil

- Measuring cell with Neobee oil (FDA-compliant, with flush-mounted diaphragm)

- Measuring cell with inert liquid

- Display readable

- Storage temperature

Observe the temperature class in areas subject to explosion hazard.

-40 ... +85 °C (-40 ... +185 °F)

-10 ... +85 °C (14 ... +185 °F)

-40 ... +85 °C (-40 ... +185 °F)

-30 ... +85 °C (-22 ... +185 °F)

-50 ... +85 °C (-58 ... +185 °F)

(for Neobee: -20 ... +85 °C (-4 ... +185 °F))

(for temperature oil: -10 ... +85 °C (14 ... +165 °F))

Climatic class

Condensation

Relative humidity 0 ... 100 %

Condensation permissible, suitable for use in the tropics

Degree of protection acc. to EN 60529

IP65, IP68, NEMA X, enclosure cleaning, resistant to lyes, steam to 150 °C (302 °F)

Electromagnetic Compatibility

- Emitted interference and interference immunity

Acc. to IEC 61326 and NAMUR NE 21

###### Medium conditions

Temperature of medium

- Measuring cell with silicone oil

-40 ... +100 °C (-40 ... +212 °F)

- Measuring cell with silicone oil (FDA-compliant, with flush-mounted diaphragm)

-40 ... +150 °C (-40 ... +302 °F)

- Measuring cell with Neobee oil "Measuring cell with Neobee oil (FDA-compliant, with flush-mounted diaphragm)

-10 ... +150 °C (-14 ... +302 °F)

- Measuring cell with silicone oil, with temperature decoupler (only for gauge pressure version with flush-mounted diaphragm)

-40 ... +200 °C (-40 ... +392 °F)

- Measuring cell with Neobee oil, with temperature decoupler (only for gauge pressure version with flush-mounted diaphragm)

-10 ... +200 °C (14 ... +392 °F)

- Measuring cell with inert liquid

-20 ... +100 °C (-4 ... +212 °F)

- Measuring cell with high-temperature oil (only for gauge pressure version with flush-mounted diaphragm)

-10 ... +250 °C (14 ... 482 °F)

##### Design (standard version)

Weight (without options)

Approx. 800 g (1.8 lb)

Enclosure material

Stainless steel, mat. no. 1.4301/304

Material of parts in contact with the medium

- Connection shank

Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819

- 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
- Inert filling liquid

Process connection

- G $\frac{1}{2}$ B to EN 837-1
- Female thread  $\frac{1}{2}$ -14 NPT
- Oval flange PN 160 (MAWP 2320 psi) with fastening thread:
  - $\frac{7}{16}$ -20 UNF to IEC 61518/DIN EN 61518
  - M10 as per DIN 19213

## Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

#### SITRANS P300 for gauge and absolute pressure

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

Weight (without options)	approx. 1 ... 13 kg (2.2 ... 29 lb)
Enclosure material	Stainless steel, mat. no. 1.4301/304
Material of parts in contact with the medium	Stainless steel, mat. no. 1.4404/316L
<ul style="list-style-type: none"> <li>• Process connection</li> <li>• Seal diaphragm</li> <li>• Measuring cell filling</li> </ul>	Stainless steel, mat. no. 1.4404/316L <ul style="list-style-type: none"> <li>• Silicone oil</li> <li>• Inert filling liquid</li> <li>• FDA compliant fill fluid (Neobee oil)</li> </ul>
Process connection	<ul style="list-style-type: none"> <li>• Flanges as per EN and ASME</li> <li>• F&amp;B and pharmaceutical flanges</li> </ul>
Surface quality touched-by-media	$R_a$ -values $\leq 0.8 \mu\text{m}$ (32 $\mu$ -inch)/welds $R_a \leq 1.6 \mu\text{m}$ (64 $\mu$ -inch) (Process connections acc. to 3A; $R_a$ -values $\leq 0.8 \mu\text{m}$ (32 $\mu$ -inch)/welds $R_a \leq 0.8 \mu\text{m}$ (32 $\mu$ -inch))

##### Power supply $U_H$

	HART	PROFIBUS PA/FOUNDATION Fieldbus
Terminal voltage on transmitter	10.5 ... 42 V DC for intrinsically safe operation: 10.5 ... 30 V DC	
Power supply	-	Supplied though bus
Separate power supply	-	Not necessary
Bus voltage		
<ul style="list-style-type: none"> <li>• Without Ex</li> <li>• With intrinsically-safe operation</li> </ul>	-	9 ... 32 V 9 ... 24 V
Current consumption		
<ul style="list-style-type: none"> <li>• Max. basic current</li> <li>• Start-up current <math>\leq</math> basic current</li> <li>• Max. fault current in the event of a fault</li> </ul>	-	12.5 mA Yes 15.5 mA
Fault disconnection electronics (FDE) available	-	Yes

# Pressure Measurement

## Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

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SITRANS P300 for gauge and absolute pressure		
Certificates and approvals	HART	PROFIBUS PA/ FOUNDATION Fieldbus
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)	
Water, waste water	Pending	
<u>Explosion protection</u>		
Intrinsic safety "i"	PTB 05 ATEX 2048	
• Marking	II 1/2 G Ex ia IIC/IIB T4/T5/T6 Ga/Gb	
• 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 peak values: $U_i = 30 \text{ V}$ , $I_i = 100 \text{ mA}$ , $P_i = 750 \text{ mW}$ , $R_i = 300 \Omega$	To certified intrinsically-safe circuits with peak values: <u>FISCO supply unit:</u> $U_i = 17.5 \text{ V}$ , $I_i = 380 \text{ mA}$ , $P_i = 5.32 \text{ W}$ <u>Linear barrier:</u> $U_i = 24 \text{ V}$ , $I_i = 250 \text{ mA}$ , $P_i = 1.2 \text{ W}$ $C_i = 1.1 \text{ nF}$ $L_i \leq 7 \mu\text{H}$
• Effective inner capacitance:	$C_i = 6 \text{ nF}$	
• Effective internal inductance:	$L_i = 0.4 \text{ mH}$	
Explosion protection to FM for USA <u>and</u> Canada (cFM <sub>US</sub> )	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); (NI)	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	
• Identification (DIP) or (IS)		
Dust explosion protection for zone 20/21/22	PTB 05 ATEX 2048	
• Marking	II 1 D Ex ia IIC T120 °C Da II 1/2 D Ex ia IIC T120 °C Da/Db II 2 D Ex ib IIC T120 °C Db	
• Permissible ambient temperature		
- Temperature class T4	-40 ... +85 °C (-40 ... +185 °F) (in the case of mineral glass windows only -20 ... +85 °C (-4 ... +185 °F))	
- Temperature class T5	-40 ... +70 °C (-40 ... +158 °F) (in the case of mineral glass windows only -20 ... +70 °C (-4 ... +158 °F))	
- Temperature class T6	-40 ... +60 °C (-40 ... +140 °F) (in the case of mineral glass windows only -20 ... +60 °C (-4 ... +140 °F))	
• Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}$ , $I_i = 100 \text{ mA}$ , $P_i = 750 \text{ mW}$ $C_i = 6 \text{ nF}$ $L_i = 0.4 \mu\text{H}$	To certified intrinsically-safe circuits with peak values: $U_i = 24 \text{ V}$ , $I_i = 380 \text{ mA}$ , $P_i = 5.32 \text{ mW}$ $C_i = 5 \text{ nF}$ $L_i = 10 \mu\text{H}$
• Effective inner capacitance:	$C_i = 6 \text{ nF}$	
• Effective internal inductance:	$L_i = 0.4 \mu\text{H}$	
Type of protection Ex nA/nL/ic (Zone 2)	PTB 05 ATEX 2048	
• Marking	II 2/3 G Ex ic IIC/IIB T4/T5/T6 Gb/Gc II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc	
• Permissible ambient temperature		
- Temperature class T4	-40 ... +85 °C (-40 ... +185 °F) (in the case of mineral glass windows only -20 ... +85 °C (-4 ... +185 °F))	
- Temperature class T5	-40 ... +70 °C (-40 ... +158 °F) (in the case of mineral glass windows only -20 ... +70 °C (-4 ... +158 °F))	
- Temperature class T6	-40 ... +60 °C (-40 ... +140 °F) (in the case of mineral glass windows only -20 ... +60 °C (-4 ... +140 °F))	
• Ex nA/nL connection	To certified intrinsically-safe circuits with peak values: $U_m = 45 \text{ V}$	To certified intrinsically-safe circuits with peak values: $U_m = 32 \text{ V}$
• Ex ic connection	To certified intrinsically-safe circuits with peak values: $U_i = 45 \text{ V}$	To certified intrinsically-safe circuits with peak values: $U_i = 32 \text{ V}$
• Effective inner capacitance:	$C_i = 6 \text{ nF}$	
• Effective internal inductance:	$L_i = 0.4 \text{ mH}$	
	$L_i = 20 \mu\text{H}$	

## Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

HART Communication		FOUNDATION Fieldbus communication	
HART communication	230 ... 1100 Ω	Function blocks	3 function blocks analog input, 1 function block PID
Protocol	HART Version 5.x	<ul style="list-style-type: none"> <li>Analog input           <ul style="list-style-type: none"> <li>- Adaptation to customer-specific process variables</li> <li>- Electrical damping, adjustable</li> <li>- Simulation function</li> </ul> </li> <li>Failure mode</li> <li>Limit monitoring</li> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes, linearly rising or falling characteristic 0 ... 100 s Output/input (can be locked within the device with a bridge) parameterizable (last good value, substitute value, incorrect value) Yes, one upper and lower warning limit and one alarm limit respectively Yes
Software for computer	SIMATIC PDM	<ul style="list-style-type: none"> <li>PID</li> <li>Physical block</li> </ul>	Standard FOUNDATION Fieldbus function block 1 resource block
PROFIBUS PA communication		Transducer blocks	
Simultaneous communication with master class 2 (max.)	4	<ul style="list-style-type: none"> <li>Pressure transducer block           <ul style="list-style-type: none"> <li>- Can be calibrated by applying two pressures</li> <li>- Monitoring of sensor limits</li> </ul> </li> <li>Simulation function: Measured pressure value, sensor temperature and electronics temperature</li> </ul>	1 transducer block Pressure with calibration, 1 transducer block LCD
The address can be set using	Configuration tool or local operation (standard setting Address 126)	<ul style="list-style-type: none"> <li>Pressure transducer block</li> </ul>	Yes Yes
Cyclic data usage			
<ul style="list-style-type: none"> <li>Output byte</li> <li>Input byte</li> <li>Internal preprocessing</li> </ul>	5 (one measured value) or 10 (two measured values) 0.1 or 2 (totalizer mode and reset function for dosing)		
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, class B		
Function blocks	2		
<ul style="list-style-type: none"> <li>Analog input           <ul style="list-style-type: none"> <li>- Adaptation to customer-specific process variables</li> <li>- Electrical damping adjustable</li> <li>- Simulation function</li> <li>- Failure function</li> <li>- Limit monitoring</li> </ul> </li> <li>Register (totalizer)           <ul style="list-style-type: none"> <li>- Failure mode</li> <li>- Limit monitoring</li> </ul> </li> <li>Physical block</li> </ul>	Yes, linearly rising or falling characteristic 0 ... 100 s Input /Output parameterizable (last good value, substitute value, incorrect value) Yes, one upper and lower warning limit and one alarm limit respectively Can be reset, preset, optional direction of counting, simulation function of register output parameterizable (summation with last good value, continuous summation, summation with incorrect value) One upper and lower warning limit and one alarm limit respectively		
Transducer blocks	2		
<ul style="list-style-type: none"> <li>Pressure transducer block           <ul style="list-style-type: none"> <li>- Can be calibrated by applying two pressures</li> <li>- Monitoring of sensor limits</li> <li>- Specification of a container characteristic with</li> <li>- Simulation function for measured pressure value and sensor temperature</li> </ul> </li> </ul>	Yes Yes Max. 30 nodes Constant value or over parameterizable ramp function		

# Pressure Measurement

## Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

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Selection and Ordering data		Article No.	Selection and Ordering data		Article No.
<b>SITRANS P300 pressure transmitters for relative and absolute pressure</b> , single-chamber measuring housing, rating plate inscription in English			<b>SITRANS P300 pressure transmitters for relative and absolute pressure</b> , single-chamber measuring housing, rating plate inscription in English		
<b>4 ... 20 mA/HART</b>		<b>7MF8023-</b>	<b>4 ... 20 mA/HART</b>		<b>7MF8023-</b>
<b>PROFIBUS PA</b>		<b>7MF8024-</b>	<b>PROFIBUS PA</b>		<b>7MF8024-</b>
<b>FOUNDATION Fieldbus (FF)</b>		<b>7MF8025-</b>	<b>FOUNDATION Fieldbus (FF)</b>		<b>7MF8025-</b>
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.					
<b>Measuring cell filling</b>	<b>Measuring cell cleaning</b>		<b>Display</b>		
Silicone oil	normal	1	• Without display, with keys, closed lid		1
Inert liquid	Cleanliness level 2 to DIN 25410	3	• With display and keys, closed lid <sup>11)</sup>		2
			• With display and keys, lid with Makrolon pane (setting on HART devices: mA, with PROFIBUS PA and FOUNDATION Fieldbus equipment: pressure units) <sup>11)</sup>		4
			• With display and keys (setting acc. to specifications, Order code "Y21" or "Y22" required), lid with Makrolon pane <sup>11)</sup>		5
			• With display and keys, lid with glass pane (setting on HART devices: mA, with PROFIBUS and FOUNDATION Fieldbus equipment: pressure units) <sup>11)</sup>		6
			• With display and keys (setting acc. to specifications, Order code "Y21" or "Y22" required), lid with glass pane <sup>11)</sup>		7
<b>max. span (min. ... max.)</b>			Power supply units see Chap. 7 "Supplementary Components".		
8.3 ... 250 mbar	(0.12 ... 3.63 psi)	A	A quick-start guide is included in the scope of delivery of the device.		
0.01 ... 1 bar	(0.145 ... 14.5 psi)	B	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 <u>total</u> combination is certified here.		
0.04 ... 4 bar	(0.58 ... 58 psi)	C	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.		
0.16 ... 16 bar	(2.32 ... 232 psi)	D	3) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF802-..Y.-... and 7MF4900-1...-B		
0.63 ... 63 bar	(9.14 ... 914 psi)	E	4) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.		
1.6 ... 160 bar	(23.2 ... 2320 psi)	F	5) Remote seal for direct mounting only available in combination with process connection ½-14 NPT.		
4 ... 400 bar	(58 ... 5802 psi)	G	6) M10 fastening thread: Max. span 160 bar (2320 psi) 7/16-20 UNF and M12 fastening thread: Max. span 400 bar (5802 psi)		
2.5 ... 250 mbar a	(0.04 ... 3.63 psia)	Q	7) Only available together with electrical connection option A		
13 ... 1300 mbar a	(0.19 ... 18.86 psia)	S	8) Only available together with electrical connection options B, C or G.		
0.05 ... 5 bar a	(0.7 ... 72.5 psia)	T	9) Only together with HART electronics.		
0.3 ... 30 bar a	(4.35 ... 435 psia)	U	10) Without cable gland.		
			11) Display cannot be turned.		
<b>Wetted parts materials</b>					
Seal diaphragm	Measuring cell				
Stainless steel	Stainless steel	A			
Hastelloy	Stainless steel	B			
Hastelloy	Hastelloy	C			
Version for diaphragm seals in conjunction with process connector "female thread ½-14 NPT" (recommended version) <sup>1) 2) 3) 4) 5)</sup>		Y			
<b>Process connection</b>					
• Connection shank G½B to EN 837-1		0			
• Female thread ½-14 NPT		1			
• Stainless steel oval flange with process connection (Oval flange has no female thread) <sup>6)</sup>					
- Mounting thread 7/16-20 UNF to IEC 61518/DIN EN 61518		2			
- Mounting thread M10 to DIN 19213		3			
- Mounting thread M12 to DIN 19213		4			
• Male thread M20 x 1.5		5			
• Male thread ½ -14 NPT		6			
<b>Non-wetted parts materials</b>					
• Stainless steel, deep-drawn and electrolytically polished		4			
<b>Version</b>					
• Standard versions		1			
<b>Explosion protection</b>					
• None		A			
• With ATEX, Type of protection:					
- "Intrinsic safety (Ex ia)"		B			
• Zone 20/21/22 <sup>7)</sup>		C			
• Ex nA/nL (Zone 2) <sup>8)</sup>		E			
• with FM "intrinsic safety" (cFM <sub>US</sub> )		M			
<b>Electrical connection / cable entry</b>					
• Screwed gland M20x1.5 (polyamide) <sup>9)</sup>		A			
• Screwed gland M20x1.5 (metal)		B			
• Screwed gland M20x1.5 (stainless steel)		C			
• M12 connectors (metal), without cable socket		F			
• M12 connectors (stainless steel), without cable		G			
• Screwed gland ½-14 NPT metal thread <sup>10)</sup>		H			
• Screwed gland ½-14 NPT stainless steel thread		J			

# Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

## SITRANS P300 for gauge and absolute pressure

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Selection and Ordering data		Article No.
<b>SITRANS P300 pressure transmitters for relative and absolute pressure with front-flush membrane</b> , single-chamber measuring housing, rating plate inscription in English		
<b>4 ... 20 mA/HART</b>		<b>7 MF 8 1 2 3 -</b>
<b>PROFIBUS PA</b>		<b>7 MF 8 1 2 4 -</b>
<b>FOUNDATION Fieldbus (FF)</b>		<b>7 MF 8 1 2 5 -</b>
<a href="#">↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.</a>		
<b>Measuring cell filling</b>	<b>Measuring cell cleaning</b>	
Silicone oil	normal	<b>1</b>
Inert liquid	Cleanliness level 2 to DIN 25410 <sup>1)</sup>	<b>3</b>
FDA compliant fill fluid		
• Neobee oil	normal	<b>4</b>
<b>max. span</b>		
0.01 ... 1 bar	(0.15 ... 14.5 psi)	<b>B</b>
0.04 ... 4 bar	(0.58 ... 58 psi)	<b>C</b>
0.16 ... 16 bar	(2.32 ... 232 psi)	<b>D</b>
0.63 ... 63 bar	(9.14 ... 914 psi)	<b>E</b>
13 ... 1300 mbar a <sup>2)</sup>	(0.19 ... 18.9 psia) <sup>2)</sup>	<b>S</b>
0.05 ... 5 bar a <sup>2)</sup>	(0.7 ... 72.5 psia) <sup>2)</sup>	<b>T</b>
0.03 ... 30 bar a <sup>2)</sup>	(4.35 ... 435 psia) <sup>2)</sup>	<b>U</b>
<b>Wetted parts materials</b>		
Seal diaphragm	Measuring cell	
Stainless steel	Stainless steel	<b>A</b>
Hastelloy <sup>3)</sup>	Stainless steel	<b>B</b>
<b>Process connection</b>		
• Flange version with Order code M.., N.., R.. or Q.. (see "Further designs")		<b>7</b>
<b>Non-wetted parts materials</b>		
• Stainless steel, deep-drawn and electrolytically polished		<b>4</b>
<b>Version</b>		
• Standard versions		<b>1</b>
<b>Explosion protection</b>		
• None		<b>A</b>
• With ATEX, Type of protection: - "Intrinsic safety (Ex ia)"		<b>B</b>
• Zone 20/21/22 <sup>4)</sup>		<b>C</b>
• Ex nA/nL (Zone 2) <sup>5)</sup>		<b>E</b>
• with FM "intrinsic safety" (cFM <sub>US</sub> )		<b>M</b>
<b>Electrical connection / cable entry</b>		
• Screwed gland M20x1.5 (polyamide) <sup>6)</sup>		<b>A</b>
• Screwed gland M20x1.5 (metal)		<b>B</b>
• Screwed gland M20x1.5 (stainless steel)		<b>C</b>
• M12 connectors (without cable socket)		<b>F</b>
• M12 connectors (stainless steel), without cable socket		<b>G</b>
• Screwed gland ½-14 NPT metal thread <sup>7)</sup>		<b>H</b>
• Screwed gland ½-14 NPT stainless steel thread <sup>7)</sup>		<b>J</b>

Selection and Ordering data		Article No.
<b>SITRANS P300 pressure transmitters for relative and absolute pressure with front-flush membrane</b> , single-chamber measuring housing, rating plate inscription in English		
<b>4 ... 20 mA/HART</b>		<b>7 MF 8 1 2 3 -</b>
<b>PROFIBUS PA</b>		<b>7 MF 8 1 2 4 -</b>
<b>FOUNDATION Fieldbus (FF)</b>		<b>7 MF 8 1 2 5 -</b>
<a href="#">↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.</a>		
<b>Display</b>		
• Without display, with keys, closed lid		<b>1</b>
• With display and keys, closed lid <sup>8)</sup>		<b>2</b>
• With display and keys, lid with Makrolon pane (setting on HART devices: mA, with PROFIBUS PA and FOUNDATION Fieldbus equipment: pressure units) <sup>8)</sup>		<b>4</b>
• With display and keys (setting acc. to specifications, Order code "Y21" or "Y22" required), lid with Makrolon pane <sup>8)</sup>		<b>5</b>
• With display and keys, lid with glass pane (setting on HART devices: mA, with PROFIBUS PA and FOUNDATION Fieldbus equipment: pressure units) <sup>8)</sup>		<b>6</b>
• With display and keys (setting acc. to specifications, Order code "Y21" or "Y22" required), lid with glass pane <sup>8)</sup>		<b>7</b>

Power supply units see Chap. 7 "Supplementary Components"

A quick-start guide is included in the scope of delivery of the device.

<sup>1)</sup> Not suitable for oxygen applications.

<sup>2)</sup> Not with temperature decoupler P00 and P10, not for process connections R01, R02, R04, R10 and R11, and can only be ordered in conjunction with silicone oil.

<sup>3)</sup> Only available for flanges with options M.., N.. and Q..

<sup>4)</sup> Only together with electrical connection option A.

<sup>5)</sup> Only available together with electrical connection options B, C or G.

<sup>6)</sup> Only together with HART electronics.

<sup>7)</sup> Without cable gland.

<sup>8)</sup> Display cannot be turned.



# Pressure Measurement

## Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

1

Selection and Ordering data	Order code			
<i>Further designs</i>		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
<b>Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:</b> made completely of stainless steel, for wall or pipe mounting	<b>A02</b>	✓	✓	✓
<b>Cable socket for M12 plug</b> • Stainless steel	<b>A51</b>	✓	✓	✓
<b>Rating plate inscription</b> (instead of English)				
• German	<b>B10</b>	✓	✓	✓
• French	<b>B12</b>	✓	✓	✓
• Spanish	<b>B13</b>	✓	✓	✓
• Italian	<b>B14</b>	✓	✓	✓
<b>English rating plate</b> Pressure units in inH <sub>2</sub> O and/or psi	<b>B21</b>	✓	✓	✓
<b>Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2<sup>1)</sup></b>	<b>C11</b>	✓	✓	✓
<b>Inspection certificate<sup>2)</sup></b> Acc. to EN 10204-3.1	<b>C12</b>	✓	✓	✓
<b>Factory certificate</b> Acc. to EN 10204-2.2	<b>C14</b>	✓	✓	✓
<b>Degree of protection IP65/IP68</b> (only for M20x1.5 and ½-14 NPT)	<b>D12</b>	✓	✓	✓
<b>Degree of protection IP6k9k</b> (only for M20x1.5)	<b>D46</b>	✓	✓	✓
<b>CRN approval Canada</b> (Canadian Registration Number)	<b>E22</b>	✓	✓	✓
<b>Export approval Korea</b>	<b>E11</b>	✓	✓	✓
<b>Ex-protection Ex ia according to EAC Ex (Russia)</b>	<b>E80</b>	✓	✓	✓
<b>Ex Approval Ex ia/ib NEPSI</b>	<b>E55</b>	✓	✓	✓
<b>Only for SITRANS P300 with front-flush diaphragm (7MF81...-...)</b>				
<b>Flange to EN 1092-1, Form B1</b> • DN 25, PN 40 <sup>3)</sup> • DN 40, PN 40 • DN 40, PN 100 • DN 50, PN 16 • DN 50, PN 40 • DN 80, PN 16 • DN 80, PN 40	<b>M11</b> <b>M13</b> <b>M23</b> <b>M04</b> <b>M14</b> <b>M06</b> <b>M16</b>	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓
<b>Flanges to ASME B16.5</b> • 1", class 150 <sup>4)</sup> • 1½", class 150 • 2", class 150 • 3", class 150 • 4", class 150 • 1", class 300 <sup>4)</sup> • 1½", class 300 • 2", class 300 • 3", class 300 • 4", class 300	<b>M40</b> <b>M41</b> <b>M42</b> <b>M43</b> <b>M44</b> <b>M45</b> <b>M46</b> <b>M47</b> <b>M48</b> <b>M49</b>	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
<b>Threaded connector to DIN 3852-2, form A, thread to ISO 228</b> • G ¾"-A, front-flush <sup>4)</sup> • G 1"-A, front-flush <sup>4)</sup> • G 2"-A, front-flush	<b>R01</b> <b>R02</b> <b>R04</b>	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
<b>Tank connection<sup>5)</sup></b> Sealing is included in delivery • TG 52/50, PN 40 • TG 52/150, PN 40	<b>R10</b> <b>R11</b>	✓ ✓	✓ ✓	✓ ✓
Selection and Ordering data	Order code			
<i>Further designs</i>		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
<b>Sanitary process connection according DIN 11851 (Dairy connection with slotted union nut)</b> • DN 50, PN 25 • DN 80, PN 25	<b>N04</b> <b>N06</b>	✓ ✓	✓ ✓	✓ ✓
<b>Tri-Clamp connection according DIN 32676/ISO 2852</b> 3A compliant <sup>6)</sup> • DN 50/2", PN 16 • DN 65/3", PN 10	<b>N14</b> <b>N15</b>	✓ ✓	✓ ✓	✓ ✓
<b>Varivent connection</b> 3A and EHEDG compliant <sup>6)</sup> • Type N = 68 for Varivent housing DN 40 ... 125 and 1½" ... 6", PN 40	<b>N28</b>	✓	✓	✓
<b>Temperature decoupler up to 200 °C<sup>7)</sup></b> for front-flush diaphragm version	<b>P00</b>	✓	✓	✓
<b>Bio-Control sanitary process connection</b> EHEDG compliant <sup>6)</sup> • DN 50, PN 16 • DN 65, PN 16	<b>Q53</b> <b>Q54</b>	✓ ✓	✓ ✓	✓ ✓
<b>Sanitary process connection to DRD</b> • DN 50, PN 40	<b>M32</b>	✓	✓	✓
<b>SMS socket with union nut</b> • 2" • 2½" • 3"	<b>M67</b> <b>M68</b> <b>M69</b>	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
<b>SMS threaded socket</b> • 2" • 2½" • 3"	<b>M73</b> <b>M74</b> <b>M75</b>	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
<b>IDF socket with union nut ISO 2853</b> • 2" • 2½" • 3"	<b>M82</b> <b>M83</b> <b>M84</b>	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
<b>IDF threaded socket ISO 2853</b> • 2" • 2½" • 3"	<b>M92</b> <b>M93</b> <b>M94</b>	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
<b>Sanitary process connection to NEUMO Bio-Connect screw connection</b> 3A and EHEDG compliant <sup>6)</sup> • DN 50, PN 16 • DN 65, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 2½", PN 16 • DN 3", PN 16 • DN 4", PN 16	<b>Q05</b> <b>Q06</b> <b>Q07</b> <b>Q08</b> <b>Q13</b> <b>Q14</b> <b>Q15</b> <b>Q16</b>	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
<b>Sanitary process connection to NEUMO Bio-Connect flange connection</b> 3A and EHEDG compliant <sup>6)</sup> • DN 50, PN 16 • DN 65, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 2", PN 16 • DN 2½", PN 16 • DN 3", PN 16 • DN 4", PN 16	<b>Q23</b> <b>Q24</b> <b>Q25</b> <b>Q26</b> <b>Q31</b> <b>Q32</b> <b>Q33</b> <b>Q34</b>	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓

# Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

## SITRANS P300 for gauge and absolute pressure

Selection and Ordering data	Order code		
Further designs	HART	PA	FF
Add "-Z" to Article No. and specify Order code.			
<b>Sanitary process connection to NEUMO Bio-Connect clamp connection</b> 3A and EHEDG compliant <sup>6)</sup>			
• DN 50, PN 16	Q39	✓	✓
• DN 65, PN 10	Q40	✓	✓
• DN 80, PN 10	Q41	✓	✓
• DN 100, PN 10	Q42	✓	✓
• DN 2½", PN 16	Q48	✓	✓
• DN 3", PN 10	Q49	✓	✓
• DN 4", PN 10	Q50	✓	✓
<b>Sanitary process connection to NEUMO Bio-Connect S flange connection</b> 3A and EHEDG compliant <sup>6)</sup>			
• DN 2", PN 16	Q72	✓	✓
<b>Aseptic threaded socket to DIN 11864-1 Form A</b> 3A and EHEDG compliant <sup>6)</sup>			
• DN 50, PN 25	N33	✓	✓
• DN 65, PN 25	N34	✓	✓
• DN 80, PN 25	N35	✓	✓
• DN 100, PN 25	N36	✓	✓
<b>Aseptic flange with notch to DIN 11864-2 Form A</b> 3A and EHEDG compliant <sup>6)</sup>			
• DN 50, PN 16	N43	✓	✓
• DN 65, PN 16	N44	✓	✓
• DN 80, PN 16	N45	✓	✓
• DN 100, PN 16	N46	✓	✓
<b>Aseptic flange with groove to DIN 11864-2 Form A</b> 3A and EHEDG compliant <sup>6)</sup>			
• DN 50, PN 16	N43 + P11	✓	✓
• DN 65, PN 16	N44 + P11	✓	✓
• DN 80, PN 16	N45 + P11	✓	✓
• DN 100, PN 16	N46 + P11	✓	✓
<b>Aseptic clamp with groove to DIN 11864-3 Form A</b> 3A and EHEDG compliant <sup>6)</sup>			
• DN 50, PN 25	N53	✓	✓
• DN 65, PN 25	N54	✓	✓
• DN 80, PN 16	N55	✓	✓
• DN 100, PN 16	N56	✓	✓

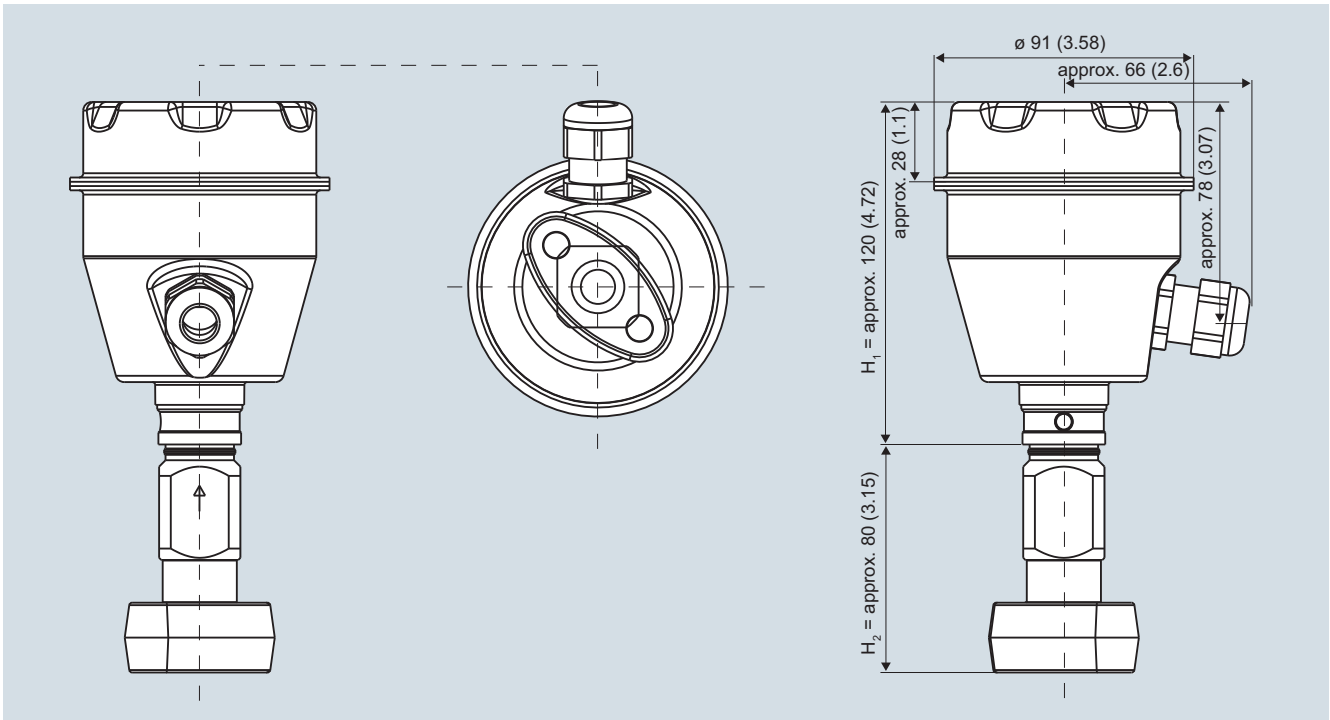
Selection and Ordering data	Order code		
Additional data	HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.			
<b>Measuring range to be set</b> Specify in plain text (max. 5 characters): Y01: ... up to ... mbar, bar, kPa, MPa, psi	Y01	✓	✓ <sup>8)</sup>
<b>Stainless steel tag plate and entry in device variable (measuring point description)</b> Max. 16 characters, specify in plain text: Y15: .....	Y15	✓	✓
<b>Measuring point text (entry in device variable)</b> Max. 27 characters, specify in plain text: Y16: .....	Y16	✓	✓
<b>Entry of HART TAG</b> Max. 8 characters, specify in plain text: Y17: .....	Y17	✓	
<b>Setting of the display in pressure units</b> Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, ... Note: The following pressure units can be selected: bar, mbar, mm H <sub>2</sub> O <sup>1)</sup> , inH <sub>2</sub> O <sup>1)</sup> , ftH <sub>2</sub> O <sup>1)</sup> , mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % ) ref. temperature 20 °C	Y21	✓	✓
<b>Setting of the display in non-pressure units<sup>9)</sup></b> Specify in plain text: Y22: .... up to .... l, m <sup>3</sup> , m, USg, ... (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01	✓	
<b>Preset bus address</b> (possible between 1 ... 126) Specify in plain text: Y25: .....	Y25		✓
Factory mounting of valve manifolds, see accessories.			
Only Y01, Y15, Y16, Y17, Y21, Y22 and Y25 can be factory preset			
✓ = available			

### Ordering example

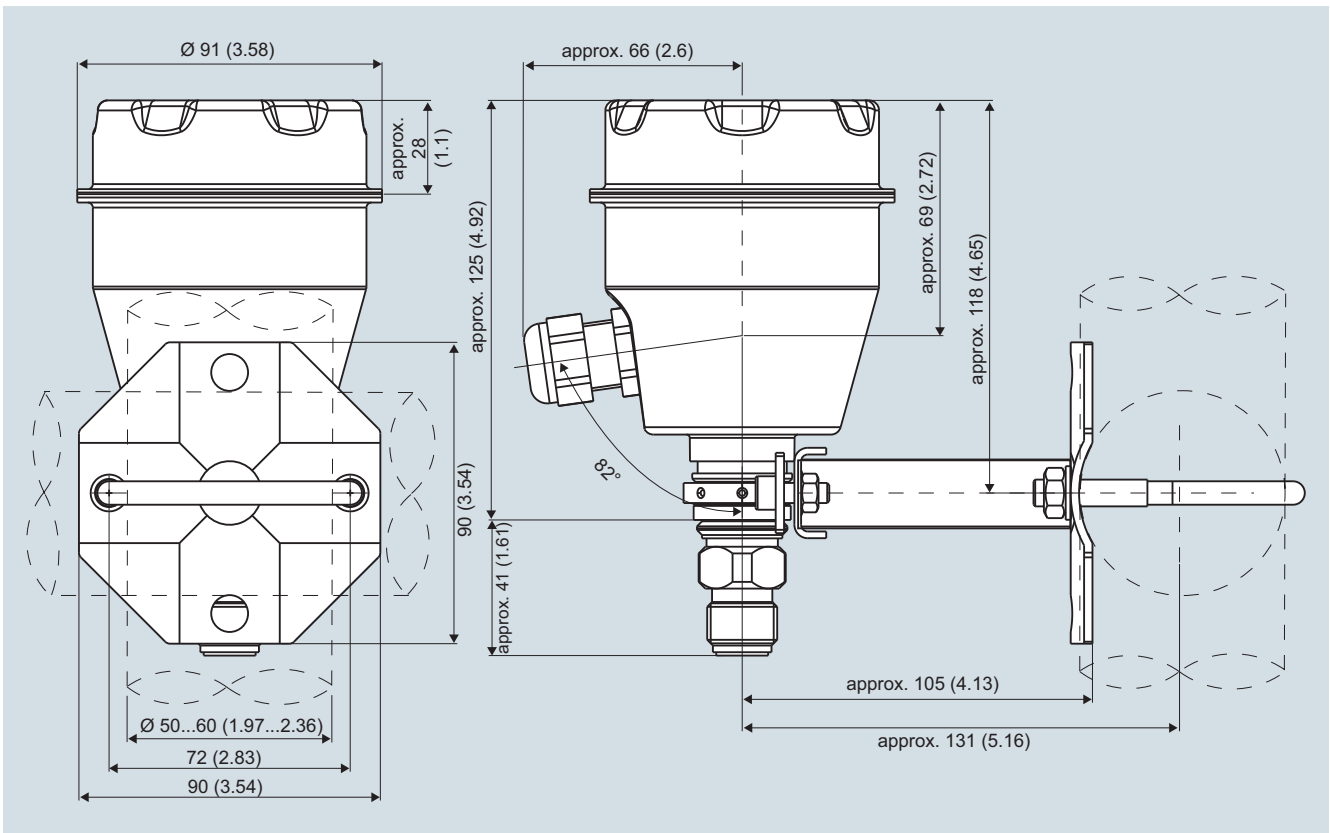
Item line: 7MF8023-1DB24-1AB7-Z  
 B line: A02 + Y01 + Y21  
 C line: Y01: 1 ... 10 bar (14.5 ... 145 psi)  
 C line: Y21: bar (psi)

- 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.
- 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.
- Special seal in Viton included in the scope of delivery (FKM; temperature range -20 ... +200 °C (-4 ... +392 °F))
- Cannot be combined with Order codes P00 and P10. Can only be ordered with silicone oil measuring cell filling.
- The weldable socket can be ordered under accessories.
- 3A compliance ensured only when 3A compliant sealing rings are used.
- Conformity according to 3A and EHEDG. The maximum permissible temperatures of the medium depend on the respective cell fillings (see medium conditions).
- Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.
- Preset values can only be changed over SIMATIC PDM.

## Dimensional drawings



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

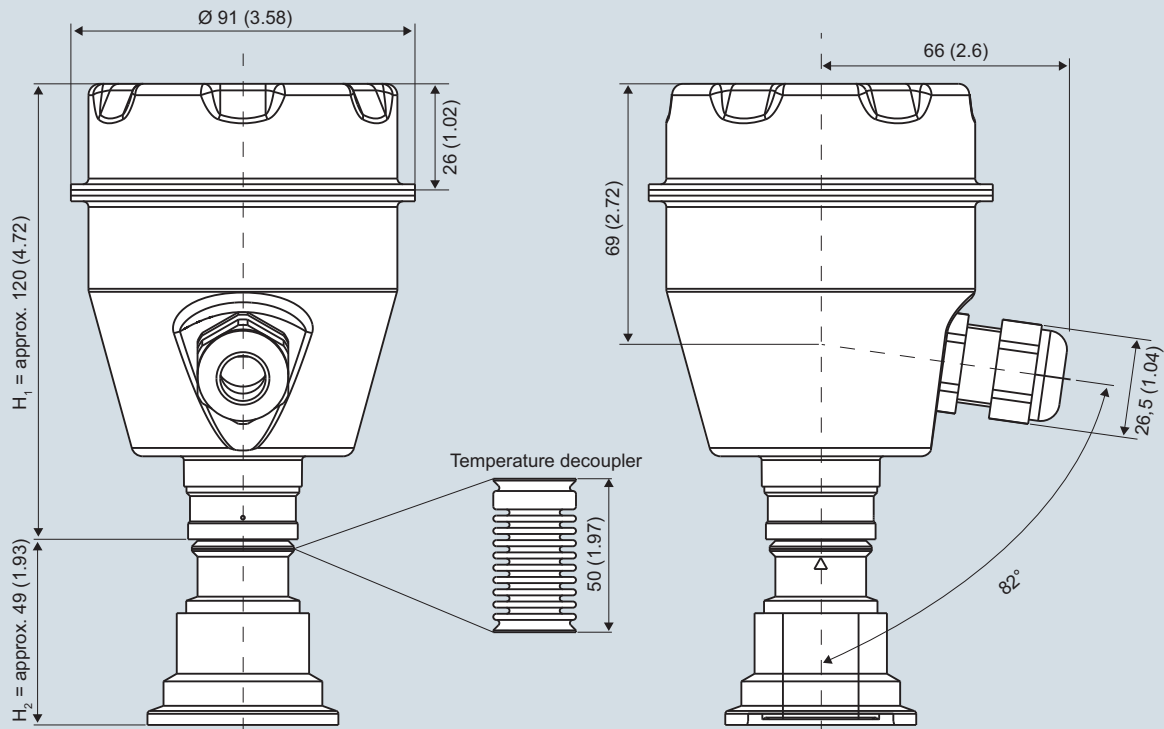


SITRANS P300, process connection M20 x 1.5, with mounted mounting bracket, dimensions in mm (inch)

## Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure



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.

# Pressure Measurement

## Transmitters for food, pharmaceuticals and biotechnology

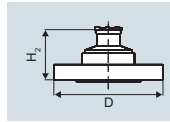
### SITRANS P300 for gauge and absolute pressure

1

#### Flanges as per EN and ASME

##### Flange to EN

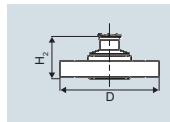
###### EN 1092-1



Order code	DN	PN	ØD	H <sub>2</sub>
M11	25	40	115 mm (4.5")	Approx. 52 mm (2")
M13	40	40	150 mm (5.9")	
M23	40	100	170 mm (6.7")	
M04	50	16	165 mm (6.5")	
M14	50	40	165 mm (6.5")	
M06	80	16	200 mm (7.9")	
M16	80	40	200 mm (7.9")	

##### Flanges to ASME

###### ASME B16.5

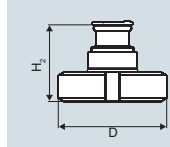


Order code	DN	PN	ØD	H <sub>2</sub>
M40	1"	150	110 mm (4.3")	Approx. 52 mm (2")
M41	1½"	150	130 mm (5.1")	
M42	2"	150	150 mm (5.9")	
M43	3"	150	190 mm (7.5")	
M44	4"	150	230 mm (9.1")	
M46	1½"	300	155 mm (6.1")	
M47	2"	300	165 mm (6.5")	
M48	3"	300	210 mm (8.1")	
M49	4"	300	255 mm (10.0")	

#### NuG and pharmaceutical connections

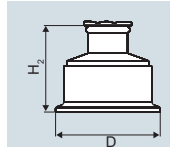
##### Connections to DIN

###### DIN 11851 (milk pipe union with slotted union nut)



Order code	DN	PN	ØD	H <sub>2</sub>
N04	50	25	92 mm (3.6")	Approx. 52 mm (2")
N06	80	25	127 mm (5.0")	

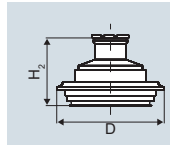
###### Tri-Clamp nach DIN 32676



Order code	DN	PN	ØD	H <sub>2</sub>
N14	50	16	64 mm (2.5")	Approx. 52 mm (2")
N15	65	10	91 mm (3.6")	

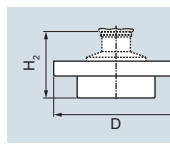
##### Other connections

###### Varivent connection



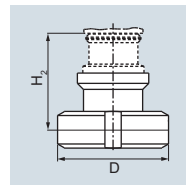
Order code	DN	PN	ØD	H <sub>2</sub>
N28	40 ... 125	40	84 mm (3.3")	Approx. 52 mm (2")

###### Sanitary process connection to DRD



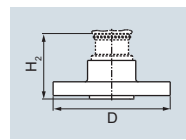
Order code	DN	PN	ØD	H <sub>2</sub>
M32	50	40	105 mm (4.1")	Approx. 52 mm (2")

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



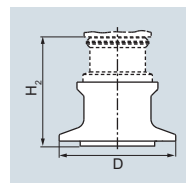
Order code	DN	PN	ØD	H <sub>2</sub>
Q05	50	16	82 mm (3.2")	Approx. 52 mm (2")
Q06	65	16	105 mm (4.1")	
Q07	80	16	115 mm (4.5")	
Q08	100	16	145 mm (5.7")	
Q13	2"	16	82 mm (3.2")	
Q14	2½"	16	105 mm (4.1")	
Q15	3"	16	105 mm (4.1")	
Q16	4"	16	145 mm (5.7")	

##### Sanitary process connection to NEUMO Bio-Connect flange connection



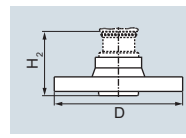
Order code	DN	PN	ØD	H <sub>2</sub>
Q23	50	16	110 mm (4.3")	Approx. 52 mm (2")
Q24	65	16	140 mm (5.5")	
Q25	80	16	150 mm (5.9")	
Q26	100	16	175 mm (6.9")	
Q31	2"	16	100 mm (3.9")	
Q32	2½"	16	110 mm (4.3")	
Q33	3"	16	140 mm (5.5")	
Q34	4"	16	175 mm (6.9")	

##### Sanitary process connection to NEUMO Bio-Connect clamp connection



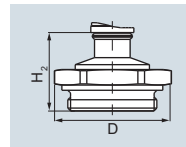
Order code	DN	PN	ØD	H <sub>2</sub>
Q39	50	16	77.4 mm (3.0")	Approx. 52 mm (2")
Q40	65	10	90.9 mm (3.6")	
Q41	80	10	106 mm (4.2")	
Q42	100	10	119 mm (4.7")	
Q48	2½"	16	90.9 mm (3.6")	
Q49	3"	10	106 mm (4.2")	
Q50	4"	10	119 mm (4.7")	

##### Sanitary process connection to NEUMO Bio-Connect S flange connection



Order code	DN	PN	ØD	H <sub>2</sub>
Q72	2"	16	125 mm (4.9")	Approx. 52 mm (2")

##### Threaded connection G¾", G1" and G2" acc. to DIN 3852



Order code	DN	PN	ØD	H <sub>2</sub>
R01	¾"	60	37 mm (1.5")	Approx. 45 mm (1.8")
R02	1"	60	48 mm (1.9")	Approx. 47 mm (1.9")
R04	2"	60	78 mm (3.1")	Approx. 52 mm (2")

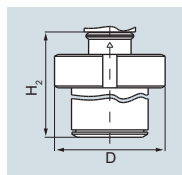
## Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 for gauge and absolute pressure

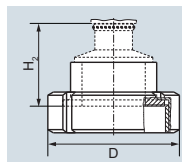
1

#### Tank connection TG 52/50 and TG52/150



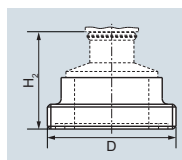
Order code	DN	PN	ØD	H <sub>2</sub>
<b>R10</b>	25	40	63 mm (2.5")	Approx. 63 mm (2.5")
<b>R11</b>	25	40	63 mm (2.5")	Approx. 170 mm (6.7")

#### SMS socket with union nut



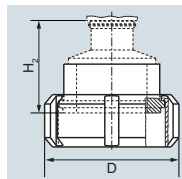
Order code	DN	PN	ØD	H <sub>2</sub>
<b>M67</b>	2"	25	84 mm (3.3")	Approx. 52 mm (2")
<b>M68</b>	2½"	25	100 mm (3.9")	
<b>M69</b>	3"	25	114 mm (4.5")	

#### SMS threaded socket



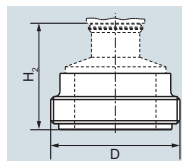
Order code	DN	PN	ØD	H <sub>2</sub>
<b>M73</b>	2"	25	70 x 1/6 mm	Approx. 52 mm (2")
<b>M74</b>	2½"	25	85 x 1/6 mm	
<b>M75</b>	3"	25	98 x 1/6 mm	

#### IDF socket with union nut



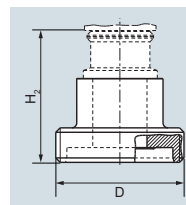
Order code	DN	PN	ØD	H <sub>2</sub>
<b>M82</b>	2"	25	77 mm (3")	Approx. 52 mm (2")
<b>M83</b>	2½"	25	91 mm (3.6")	
<b>M84</b>	3"	25	106 mm (4.2")	

#### IDF threaded socket



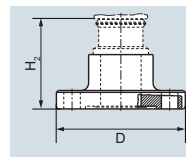
Order code	DN	PN	ØD	H <sub>2</sub>
<b>M92</b>	2"	25	64 mm (2.5")	Approx. 52 mm (2")
<b>M93</b>	2½"	25	77.5 mm (3.1")	
<b>M94</b>	3"	25	91 mm (3.6")	

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



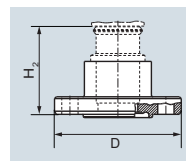
Order code	DN	PN	ØD	H <sub>2</sub>
<b>N33</b>	50	25	78 x 1/6"	Approx. 52 mm (2")
<b>N34</b>	65	25	95 x 1/6"	
<b>N35</b>	80	25	110 x ¼"	
<b>N36</b>	100	25	130 x ¼"	

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



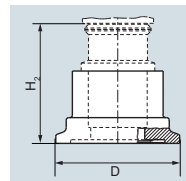
Order code	DN	PN	ØD	H <sub>2</sub>
<b>N43</b>	50	16	94	Approx. 52 mm (2")
<b>N44</b>	65	16	113	
<b>N45</b>	80	16	133	
<b>N46</b>	100	16	159	

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



Order code	DN	PN	ØD	H <sub>2</sub>
<b>N43 + P11</b>	50	16	94	Approx. 52 mm (2")
<b>N44 + P11</b>	65	16	113	
<b>N45 + P11</b>	80	16	133	
<b>N46 + P11</b>	100	16	159	

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



Order code	DN	PN	ØD	H <sub>2</sub>
<b>N53</b>	50	25	77.5	Approx. 52 mm (2")
<b>N54</b>	65	25	91	
<b>N55</b>	80	16	106	
<b>N56</b>	100	16	130	

# Pressure Measurement

## Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 Accessories/Spare parts

1

Selection and Ordering data	Article No.
<i>Spare parts / Accessories</i>	
<b>Mounting bracket and fastening parts kit</b> made of stainless steel	<b>7MF8997-1AA</b>
<b>Lid without window</b> gasket not included	<b>7MF8997-1BA</b>
<b>Lid with glass window</b> gasket not included	<b>7MF8997-1BD</b>
<b>NBR enclosure sealing</b>	<b>7MF8997-1BG</b>
<b>Measuring point label</b> unlabeled	<b>7MF8997-1CA</b>
<b>Cable gland</b> • metal • plastic (blue)	<b>7MF8997-1EA</b> <b>7MF8997-1EB</b>
<b>Weldable sockets for PMC connection</b> • PMC Style Standard: Thread 1½" • PMC Style Minibolt: front-flush 1"	<b>7MF4997-2HA</b> <b>7MF4997-2HB</b>
<b>Gaskets for PMC connection</b> (packing unit = 5 units) • PTFE seal for PMC Style Standard: Thread 1½" • Gasket made of Viton for PMC Style Minibolt: front-flush 1"	<b>7MF4997-2HC</b> <b>7MF4997-2HD</b>
<b>Weldable socket for TG 52/50 and TG 52/150 connection</b> • TG 52/50 connection • TG5 2/150 connection	<b>7MF4997-2HE</b> <b>7MF4997-2HF</b>
<b>Seals for TG 52/50 and TG 52/150 made of silicone</b>	<b>7MF4997-2HG</b>
<b>Seals for flange connection with front-flush diaphragm</b> Material FKM (Viton); temperature range: -20 ... +200 °C (-4 ... +392 °F), 10 units • DN 25, PN 40 (M11) • 1", class 150 (M40)	<b>7MF4997-2HH</b> <b>7MF4997-2HK</b>

Selection and Ordering data	Article No.
<b>Documentation</b> The entire documentation is available for download free-of-charge in various languages at: <a href="http://www.siemens.com/processinstrumentation/documentation">http://www.siemens.com/processinstrumentation/documentation</a> Compact operating instructions • English, German, Spanish, French, Italian, Dutch	<b>A5E03434657</b>
<b>Certificates (order only via SAP)</b> instead of Internet download • hard copy (to order) • on DVD (to order)	<b>A5E03252406</b> <b>A5E03252407</b>
<b>HART modem</b> with USB interface ▶ Available ex stock	<b>7MF4997-1DB</b>
Power supply units see Chap. 7 "Supplementary Components".	

## Pressure Measurement

Transmitters for food, pharmaceuticals and biotechnology

### SITRANS P300 - Factory-mounting of valve manifolds on transmitters

#### Overview

The SITRANS P300 transmitter for gauge and absolute pressure can be delivered factory-fitted with the following valve manifolds:

- 7MF9011-4EA and 7MF9011-4FA valve manifolds for gauge pressure and absolute 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.

The 7MF9011-4FA valve manifolds are sealed with PTFE sealing tape between the transmitter and the valve manifold.

Once installed, the complete unit is checked under pressure for leaks (compressed air 6 bar (87 psi)) and is certified leak-proof with a test report to EN 10204 - 2.2.

All valve manifolds should preferably be secured with the respective mounting brackets. The transmitters are mounted on the valve manifold and not on the unit itself.

If you order a mounting bracket when choosing the option "Factory mounting of valve manifolds", you will receive a mounting bracket for the valve manifold instead of a bracket for mounting the transmitter.

If you order an acceptance test certificate 3.1 to EN 10204 when choosing the option "Factory mounting of valve manifolds", a separate certificate is provided for the transmitters and the valve manifolds respectively.

#### Selection and Ordering data

##### 7MF9011-4FA valve manifold on gauge and absolute pressure transmitters



Add **-Z** to the Article No. of the transmitter and add Order codes

SITRANS P300  
7MF802.-...1.-...

With process connection female thread 1/2-14 NPT in-sealed with PTFE sealing tape

Delivery incl. high-pressure test certified by test report to EN 10204-2.2

##### 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 EN 10204- 3.1 for transmitters and mounted valve manifold

**T03**

**A02**

**C12**

##### 7MF9011-4EA valve manifold on gauge and absolute pressure transmitters



Add **-Z** to the Article No. of the transmitter and add Order codes

SITRANS P300  
7MF802.-...0.-...

with process connection collar G1/2 A to EN 837-1 with gasket made of PTFE between valve manifold and transmitter

##### Alternative sealing material:

- Soft iron
- Stainless steel, Mat. No. 14571
- copper

Delivery incl. high-pressure test certified by test report to EN 10204-2.2

##### 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 EN 10204- 3.1 for transmitters and mounted valve manifold

**T02**

**A70**

**A71**

**A72**

**A02**

**C12**

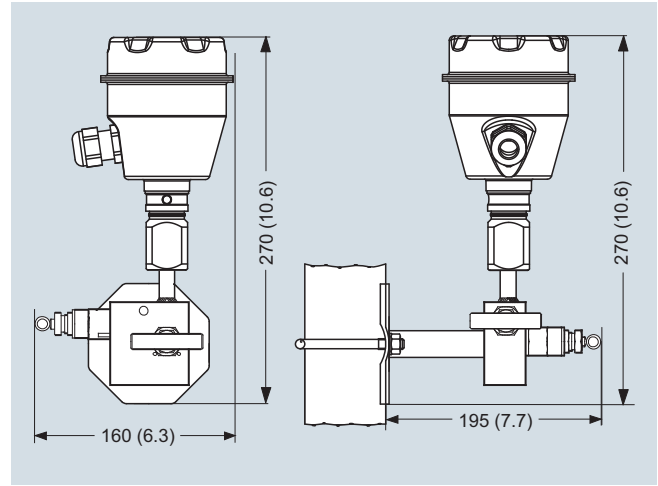


**Dimensional drawings**

**Valve manifolds mounted on SITRANS P300**



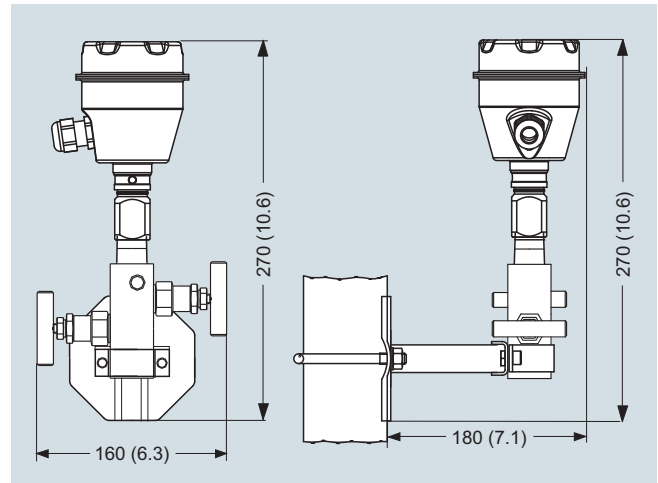
7MF9011-4EA valve manifold with mounted gauge pressure and absolute pressure transmitters



7MF9011-4EA valve manifold with mounted gauge pressure and absolute pressure transmitters, dimensions in mm (inch)



7MF9011-4FA valve manifold with mounted gauge pressure and absolute pressure transmitters



7MF9011-4FA valve manifold with mounted gauge pressure and absolute pressure transmitters, dimensions in mm (inch)