SITRANS P300
for gauge and absolute pressure

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 Fieldbussignal, 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

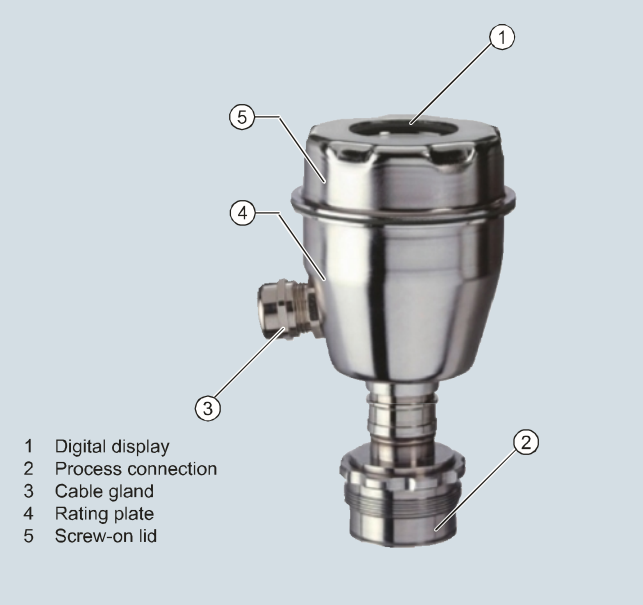
This variant measures the absolute pressure of aggressive, non-aggressive and hazardous gases, vapors and liquids.

The smallest span is 0.008 bar a (0.12 psia), the largest is 30 bar a (435 psia).

Design

The device comprises:

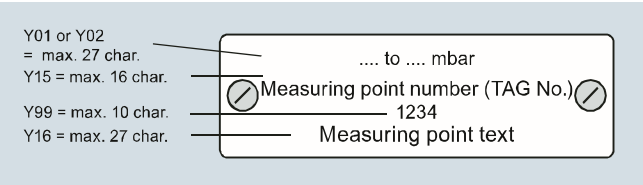
- Electronics
- Housing
- Measuring cell



Perspective view of SITRANS P300

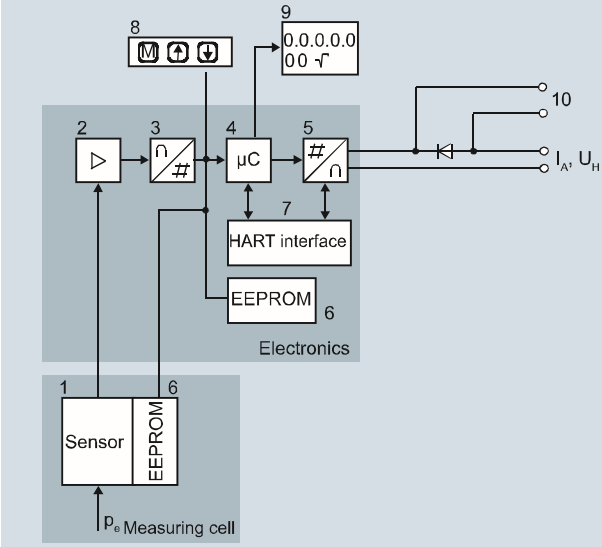
The housing has a screw-on lid (5) and, depending on the version, is with or without an inspection window. The electrical terminal housing, the buttons for operation of the device are located under this lid and, depending on the version, the display. The connections for the auxiliary power U_H and the 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



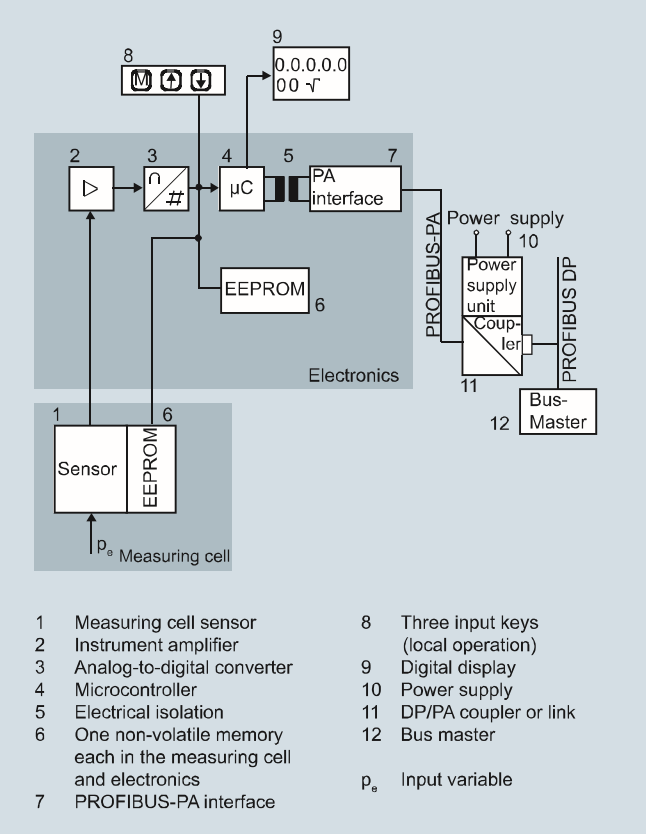
1 Measuring cell sensor
2 Instrument amplifier
3 Analog-to-digital converter
4 Microcontroller
5 Digital-to-analog converter
6 One non-volatile memory each in the measuring cell and electronics
7 HART interface
8 Three input keys (local operation)
9 Digital display
10 Diode circuit and connection for external ammeter
I_A Output current
U_H Power supply
P_e Input variable

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



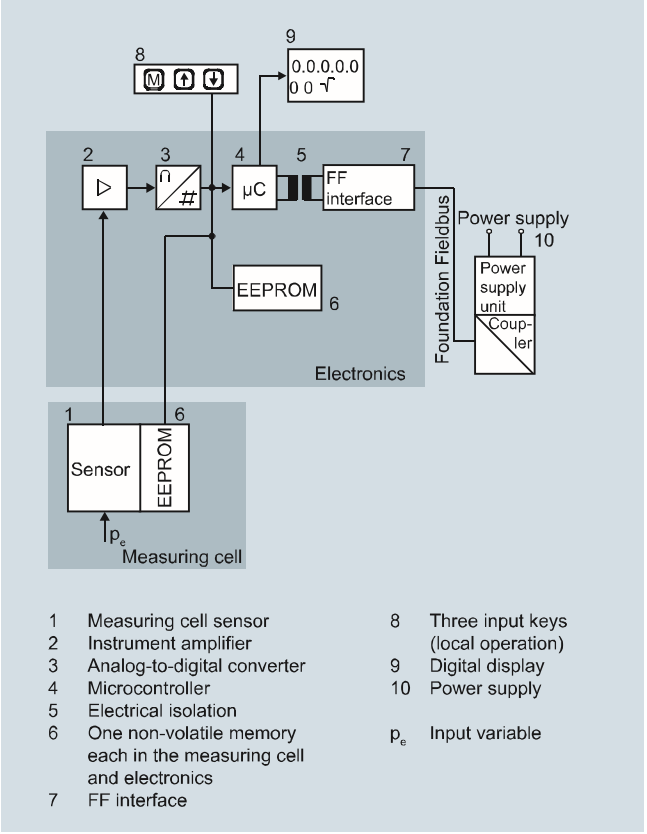
1	Measuring cell sensor	8	Three input keys (local operation)
2	Instrument amplifier	9	Digital display
3	Analog-to-digital converter	10	Power supply
4	Microcontroller	11	DP/PA coupler or link
5	Electrical isolation	12	Bus master
6	One non-volatile memory each in the measuring cell and electronics	p_e	Input variable
7	PROFIBUS-PA interface		

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



1	Measuring cell sensor	8	Three input keys (local operation)
2	Instrument amplifier	9	Digital display
3	Analog-to-digital converter	10	Power supply
4	Microcontroller		
5	Electrical isolation		
6	One non-volatile memory each in the measuring cell and electronics	p_e	Input variable
7	FF interface		

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 digitized in the analog-to-digital converter (3). The digital information is evaluated in the microcontroller, its linearity and temperature response corrected, and provided on the FOUNDATION Fieldbus through an electrically isolated FOUNDATION Fieldbus interface (7).

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

Using the three input 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).

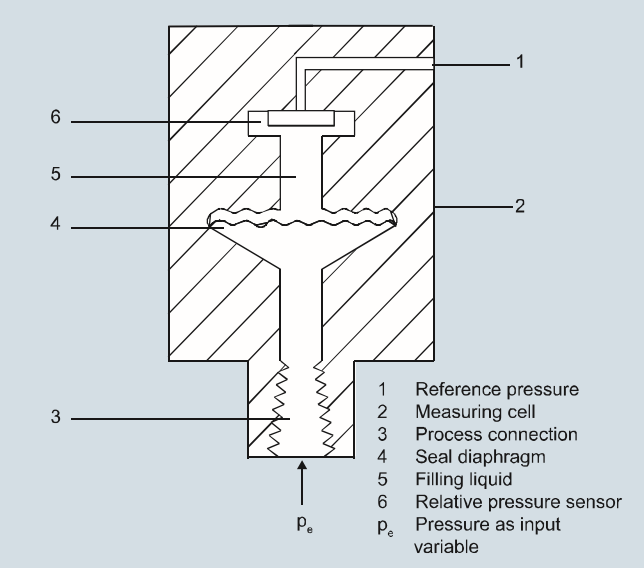
The results with status values and diagnostic values are transferred by cyclic data transmission on the FOUNDATION Fieldbus. Parameterization data and error messages are transferred by acyclic data transmission. Special software such as National Instruments Configurator is required for this.

Mode of operation of the measuring cells

The process connections available include the following:

- G½
- ½-14 NPT
- Flush-mounted diaphragm:
  - Flanges to EN
  - Flanges to ASME
  - NuG and pharmaceutical connections

Measuring cell for gauge pressure

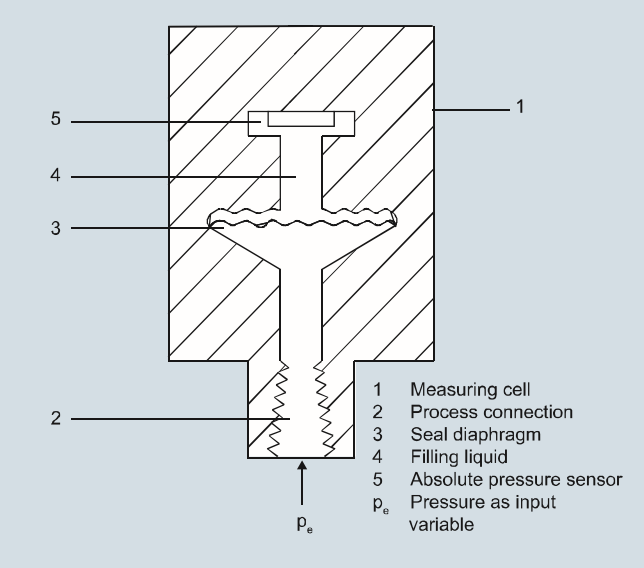


Measuring cell for gauge pressure, function diagram

The input pressure (p_e) is transferred to the gauge pressure sensor (6via 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 ≤ 63 bar (≤ 926.1 psi) measure the input pressure compared to atmospheric, transmitters with spans of ≥ 160 bar (≥ 2352 psi) compared to a vacuum.

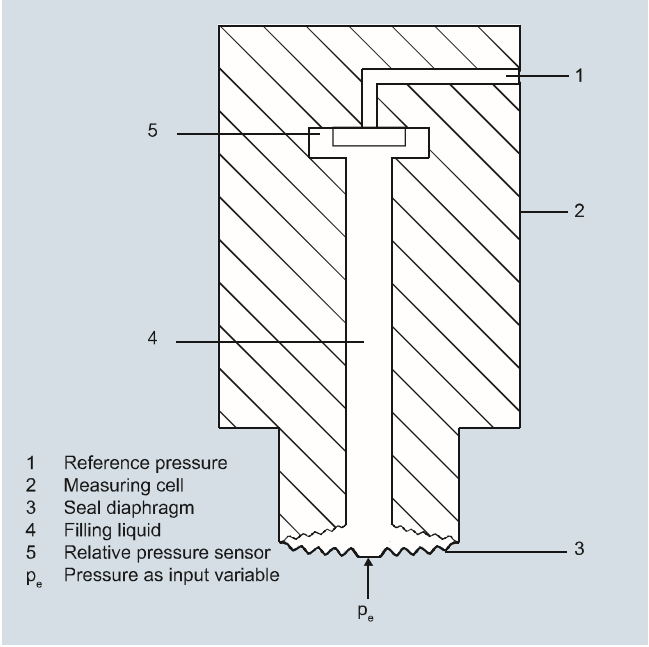
Measuring cell for absolute pressure



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

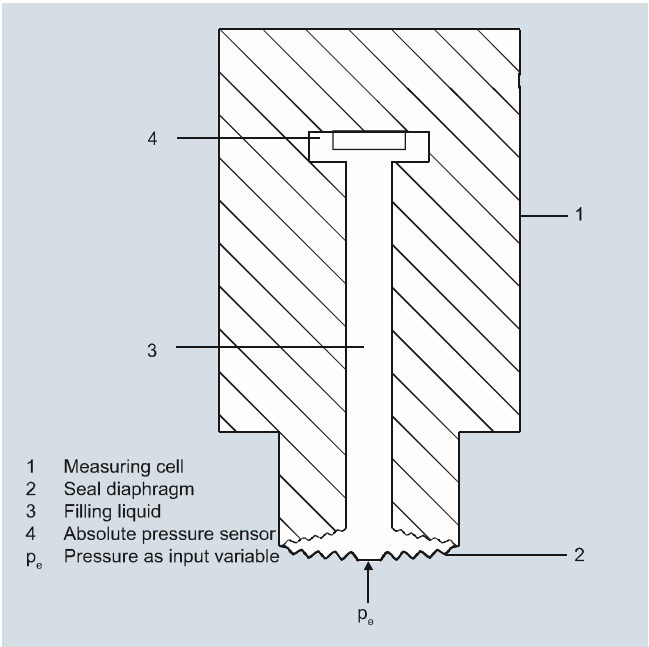


Measuring cell for gauge pressure, front-flush diaphragm, function diagram

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 ≤ 63 bar (≤ 926.1 psi) measure the input pressure compared to atmospheric, transmitters with spans of ≥ 160 bar (≥ 2352 psi) compared to a vacuum.

Measuring cell for absolute pressure, front-flush diaphragm



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

SITRANS P300
for gauge and absolute pressure

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

Parameterization

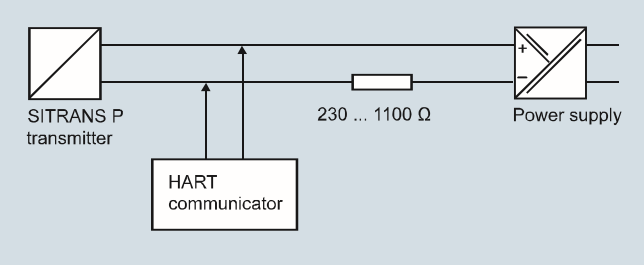
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

Parameterization using the input buttons (local operation)

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

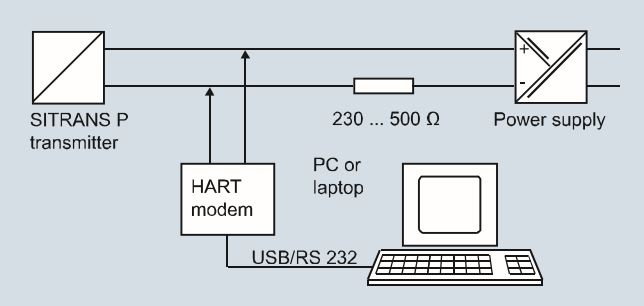
Parameterization using HART communication

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[1)]
Type of dimension and actual dimension	x	x
Input of characteristic		x
Freely-programmable LCD		x
Diagnostic functions		x

[1)] Cancel apart from write protection

Diagnostic functions for SITRANS P300 with HART communication

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

Available physical units of display for SITRANS P300 with HART communication

Table 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^2, kg/cm^2, inH_2O, inH_2O (4 °C), mmH_2O, ftH_2O (20 °C), inHg, mmHg
Level (height data)	m, cm, mm, ft, in
Volume	m^3, dm^3, hl, yd^3, ft^3, in^3, US gallon, Imp. gallon, bushel, barrel, barrel liquid
Mass	g, kg, t, lb, Ston, Lton, oz
Temperature	K, °C, °F, °R
Miscellaneous	%, mA

Parameterization through PROFIBUS PA interface

Fully digital communication through PROFIBUS PA, profile 3.0, is particularly user-friendly. The PROFIBUS 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^2, kg/cm^2, mmH_2O, mmH_2O (4 °C), inH_2O, in$H_2$0 (4 °C), ftH_2O (20 °C), mmHg, inHg
Level (height data)	m, cm, mm, ft, in, yd
Mass	g, kg, t, lb, Ston, Lton, oz
Volume	m^3, dm^3, hl, yd^3, ft^3, in^3, US gallon, Imp. gallon, bushel, barrel, barrel liquid
volume flow	m^3/s, m^3/min, m^3/h, m^3/d, l/s, l/min, l/h, l/ d, Ml/d, ft^3/s, ft^3/min, ft^3/h, ft^3/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.

1

Technical specifications

SITRANS P300 for gauge and absolute pressure				
	HART		PROFIBUS PA and FOUNDATION Fieldbus	
Gauge pressure input				
Measured variable	Gauge pressure			
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min. ... max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure
	0.01 ... 1 bar (0.15 ... 14.5 psi)	6 bar (87 psi)	1 bar (14.5 psi)	6 bar (87 psi)
	0.04 ... 4 bar (0.58 ... 58 psi)	10 bar (145 psi)	4 bar (58 psi)	10 bar (145 psi)
	0.16 ... 16 bar (2.3 ... 232 psi)	32 bar (464 psi)	16 bar (232 psi)	32 bar (464 psi)
	0.6 ... 63 bar (9.1 ... 914 psi)	100 bar (1450 psi)	63 bar (914 psi)	100 bar (1450 psi)
	1.6 ... 160 bar (23.2 ... 2321 psi)	250 bar (3626 psi)	160 bar (2321 psi)	250 bar (3626 psi)
	4.0 ... 400 bar (58 ... 5802 psi)	600 bar (8700 psi)	400 bar (5802 psi)	600 bar (8700 psi)
	Depending on the process connection, the span may differ from these values		Depending on the process connection, the nominal measuring range may differ from these values	
Lower measuring limit				
• Measuring cell with silicone oil	30 mbar a (0.44 psia)			
Upper measuring limit				
• Measuring cell with silicone oil	100% of max. span		100 % of the max. nominal measuring range	
Absolute pressure input				
Measured variable	Absolute pressure			
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min. ... max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure
	8 ... 250 mbar a (0.12...3.63 psia)	6 bar a (87 psia)	250 mbar a (3.63 psia)	6 bar a (87 psia)
	43 ... 1300 mbar a (0.62...18.9 psia)	10 bar a (145 psia)	1.30 bar a (19 psia)	10 bar a (145 psia)
	0.16 ... 5 bar a (2.3 ... 73 psia)	30 bar a (435 psia)	5 bar a (73 psia)	30 bar a (435 psia)
	1 ... 30 bar a (14.5 ... 435 psia)	100 bar a (1450 psia)	30 bar a (435 psia)	100 bar a (1450 psia)
Lower measuring limit				
• Measuring cell with silicone oil	0 mbar a (0 psia)			
Upper measuring limit				
• Measuring cell with silicone oil	100 % of max. span		100 % of the max. nominal measuring range	
Input of gauge pressure, with front-flush diaphragm				
Measured variable	Gauge pressure, front-flush			
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min. ... max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure
	0.01 ... 1 bar (0.15 ... 14.5 psi)	6 bar (87 psi)	1 bar (14.5 psi)	6 bar (87 psi)
	0.04 ... 4 bar (0.58 ... 58 psi)	10 bar (145 psi)	4 bar (58 psi)	10 bar (145 psi)
	0.16 ... 16 bar (2.32 ... 232 psi)	32 bar (464 psi)	16 bar (232 psi)	32 bar (464 psi)
	0.6 ... 63 bar (9.14 ... 914 psi)	100 bar (1450 psi)	63 bar (914 psi)	100 bar (1450 psi)
Lower measuring limit	100 mbar a (1.45 psia)			
Upper measuring limit				
• Measuring cell with silicone oil	100% of max. span		100 % of the max. nominal measuring range	

SITRANS P300 for gauge and absolute pressure						
	HART			PROFIBUS PA and FOUNDATION Fieldbus		
Input of absolute pressure, with front-flush diaphragm						
Measured variable	Absolute pressure, front-flush					
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min. ... max.)	Max. perm. test pressure		Nominal measuring range	Max. perm. test pressure	
	43 ... 1300 mbar a (0.62 ... 18.85 psia)	10 bar a (145 psia)		1300 mbar a (18.85 psia)	10 bar a (145 psia)	
	0.16 ... 5 bar a (2.32 ... 72.5 psi a)	30 bar a (435 psia)		5 bar a (72.5 psia)	30 bar a (435 psia)	
	1 ... 30 bar a (14.5 ... 435 psia)	100 bar a (1450 psia)		30 bar a (435 psia)	100 bar a (1450 psia)	
	Depending on the process connection, the span may differ from these values			Depending on the process connection, the nominal measuring range may differ from these values		
Lower measuring limit	0 bar a (0 psia)					
Upper measuring limit						
• Measuring cell with silicone oil	100% of max. span			100 % of the max. nominal measuring range		
Output						
Output signal	4 ... 20 mA			Digital PROFIBUS PA 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 T_{63} (step width 0.1 s)	Set to 2 s (0 ... 100 s)					
Measuring accuracy	According to IEC 60770-1					
Reference conditions (All error data refer always refer to the set span)	Rising characteristic curve, start-of-scale value 0 bar, stainless steel seal diaphragm, measuring cell with silicone oil, room temperature 25 °C (77 °F), span ratio (r = max. span / set span)					
Error in measurement at limit setting incl. hysteresis and reproducibility						
	Gauge pressure	Absolute pressure	Absolute pressure, front-flush	Gauge pressure	Absolute pressure	Absolute pressure, front-flush
Linear characteristic				≤ 0.075 %	≤ 0.1 %	≤ 0.2 %
• r + 10	≤ (0.0029 · r + 0.071) %	≤ 0.1 %	≤ 0.2 %			
• 10 < r ≤ 30	≤ (0.0045 · r + 0.071) %	≤ 0.2 %	≤ 0.4 %			
• 30 < r ≤ 100	≤ (0.005 · r + 0.05) %	-	-			
Step response time T_{63}	approx. 0.2 s					
Long-term stability at ± 30 °C (± 54 °F)	≤ (0.25 · r) %/5 years	≤ (0.1 · r) %/year		≤ 0.25 %/5 years	≤ 0.1 %/year	
Influence of ambient temperature						
• at -10 ... +60 °C (14 ... 140 °F)	≤ (0.08· r + 0.1) %[1)]		≤ (0.2 · r + 0 3) %	≤ 0.3 %		≤ 0.5 %
• at -40 ... -10 °C and +60 ... +85 °C (-40 ... 14 °F and 140 ... 185 °F)	≤ (0.1 · r + 0.15) %/10 K		≤ (0.2 · r + 0.3) %/10 K	≤ 0.25 %/10 K		≤ 0.5 %/10 K
Influence of the medium temperature (only with front-flush diaphragm)						
• Temperature difference between medium temperature and ambient temperature	3 mbar/10 K (0.04 psi/10 K)					

SITRANS P300
for gauge and absolute pressure

SITRANS P300 for gauge and absolute pressure	HART	PROFIBUS PA and FOUNDATION Fieldbus
Rated conditions		
Installation conditions		
Ambient temperature	Observe the temperature class in areas subject to explosion hazard.	
• Measuring cell with silicone oil	-40 ... +85 °C (-40 ... +185 °F)	
• Measuring cell with Neobee oil (FDA-compliant, with flush-mounted diaphragm)	-10 ... +85 °C (14 ... +185 °F)	
• Measuring cell with inert liquid (not with front-flush diaphragm)	-20 ... +85 °C (-4 ... +185 °F)	
• Display readable	-30 ... +85 °C (-22 ... +185 °F)	
• Storage temperature	-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 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	•G½B to EN 837-1 •Female thread ½-14 NPT •Oval flange PN 160 (MAWP 2320 psi) with fastening thread: $-^{7}/_{16}$ -20 UNF to IEC 61518 •M10 as per DIN 19213	
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		
• Process connection	Stainless steel, mat. no. 1.4404/316L	
• Seal diaphragm	Stainless steel, mat. no. 1.4404/316L	
• Measuring cell filling	•Silicone oil •Inert filling liquid •FDA compliant fill fluid (Neobee oil)	
Process connection	•Flanges as per EN and ASME •F&B and pharmaceutical flanges	
Surface quality touched-by-media	R_a-values ≤ 0.8 µm (32 µ-inch)/welds $R_{a)}$ ≤ 1.6 µm (64 µ-inch) (Process connections acc. to 3A; R_a-values ≤ 0.8 µm (32 µ-inch)/welds R_a ≤ 0.8 µm (32 µ-inch)	

SITRANS P300 for gauge and absolute pressure		
	HART	**PROFIBUS PA and FOUNDATION Fieldbus**
Power supply U_H		
Terminal voltage on transmitter	10.5 ... 42 V DC for intrinsically safe operation: 10.5 ... 30 V DC	Supplied through bus
Separate power supply	-	Not necessary
Bus voltage		
• Without Ex	-	9 ... 32 V
• With intrinsically-safe operation	-	9 ... 24 V
Current consumption		
• Max. basic current	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
• Max. fault current in the event of a fault	-	15.5 mA
Fault disconnection electronics (FDE)	-	Available
Certificates and approvals		
Classification according to PED 97/23/EC	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)	
Water, waste water	In preparation	
Explosion protection		
Intrinsic safety "i"	PTB 05 ATEX 2048	
• Marking	Ex II 1/2 G Ex ia/ib IIB/IIC T4, T5, T6	
• Permissible ambient temperature		
- Temperature class T4	-40 ... +85 °C (-40 ... +185 °F)	
- Temperature class T5	-40 ... +70 °C (-40 ... +158 °F)	
- Temperature class T6	-40 ... +60 °C (-40 ... +140 °F)	
• Connection	To certified intrinsically-safe circuits with peak values: U_i = 30 V, I_i = 100 mA, P_i = 750 mW, R_i = 300 Ω	To certified intrinsically-safe circuits with peak values: FISCO supply unit: U_i = 17.5 V, I_i = 380 mA, P_i = 5.32 W Linear barrier: U_i = 24 V, I_i = 250 mA, P_i = 1.2 W
• Effective inner capacitance:	C_i = 6 nF	C_i = 1.1 nF
• Effective internal inductance:	L_i = 0.4 mH	L_i ≤ 7 µH
Explosion protection to FM for USA and Canada (cFM_{US})		
• Identification (DIP) or (IS); (NI)	Certificate of Compliance 3025099 CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4 ... T6; CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III	
• Identification (DIP) or (IS)	Certificate of Compliance 3025099C CL I, DIV 1, GP ABCD T4 ... T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC 4 ... T6; CL I, DIV 2, GP ABCD T4 ... T6; CL II, DIV 2, GP FG; CL III	
Dust explosion protection for zone 20/21/22	PTB 05 ATEX 2048	
• Marking	Ex II 1D Ex ia D 20 T 120 °C Ex II 2D Ex ib D 21 T 120 °C Ex II 3D Ex ib D 21 T 120 °C	
• 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 V, I_i = 100 mA, P_i = 750 mW	To certified intrinsically-safe circuits with peak values: U_i = 24 V, I_i = 380 mA, P_i = 5.32 mW
• Effective inner capacitance:	C_i = 6 nF	C_i = 5 nF
• Effective internal inductance:	L_i = 0.4 µH	L_i = 10 µH

SITRANS P300 for gauge and absolute pressure		
	HART	**PROFIBUS PA and FOUNDATION Fieldbus**
Type of protection Ex nA/nL/ic (Zone 2)	PTB 05 ATEX 2048	
• Marking	II 2/3 G Ex nA T4/T5/T6 II 2/3 G Ex nL IIB/IIC T4/T5/T6	
• 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 V	To certified intrinsically-safe circuits with peak values: U_m = 32 V
• Ex ic connection	To certified intrinsically-safe circuits with peak values: U_i = 45 V	To certified intrinsically-safe circuits with peak values: U_i = 32 V
• Effective inner capacitance:	C_i = 6 nF	C_i = 5 nF
• Effective internal inductance:	L_i = 0.4 mH	L_i = 20 µH

1) Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.064 . r + 0.08) %/28 °C (50 °F).

HART Communication	
HART communication	230 ... 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (standard setting Address 126)
Cyclic data usage	
• Output byte	5 (one measured value) or 10 (two measured values)
• Input byte	0.1 or 2 (totalizer mode and reset function for dosing)
• Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
• Analog input	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
- Electrical damping adjustable	0 … 100 s
- Simulation function	Input /Output
- Failure function	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
• Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
• Physical block	1
Transducer blocks	2
• Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Specification of a container characteristic with	Max. 30 nodes
- Simulation function for measured pressure value and sensor temperature	Constant value or over parameterizable ramp function

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

SITRANS P300
for gauge and absolute pressure

Selection and Ordering data — Article No.

SITRANS P300 pressure transmitters for relative and absolute pressure, single-chamber measuring housing, rating plate inscription in English

	Article No.
4 ... 20 mA/HART	**7MF8023-**
PROFIBUS PA	**7MF8024-**
FOUNDATION Fieldbus (FF)	**7MF8025-**

Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid	Cleanliness level 2 to DIN 25410	3
max. span (min. ... max.)		
0.01 ... 1 bar	(0.145 ... 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 ... 400 bar	(58 ... 5802 psi)	G
2.5 ... 250 mbar a	(0.04 ... 3.63 psia)	Q
13 ... 1300 mbar a	(0.19 ... 18.86 psia)	N
0.05 ... 5 bar a	(0.7 ... 72.5 psia)	T
0.3 ... 30 bar a	(4.35 ... 435 psia)	U

Wetted parts materials Seal diaphragm	Measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B
Hastelloy	Hastelloy	C
Version for diaphragm seal[1) 2) 3) 4) 5)]		Y
Process connection		
• 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) [6)]		
- Mounting thread $^7/_{16}$-20 UNF to 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
Non-wetted parts materials		
• Stainless steel, deep-drawn and electrolytically polished		4
Version		
• Standard versions		1
Explosion protection		
• None		A
• With ATEX, Type of protection:		
- "Intrinsic safety (Ex ia)"		B
• Zone 20/21/22[7)]		C
• Ex nA/nL (Zone 2)[8)]		E
• with FM "intrinsic safety" (cFM$_{US}$)		M
Electrical connection / cable entry		
• Screwed gland M20x1.5 (polyamide)[9)]		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 [10)]		H
• Screwed gland ½-14 NPT stainless steel thread		J

Selection and Ordering data — Article No.

SITRANS P300 pressure transmitters for relative and absolute pressure, single-chamber measuring housing, rating plate inscription in English

	Article No.
4 ... 20 mA/HART	**7MF8023-**
PROFIBUS PA	**7MF8024-**
FOUNDATION Fieldbus (FF)	**7MF8025-**

Display	
• Without display, with keys, closed lid	1
• With display and keys, closed lid[11)]	2
• With display and keys, lid with Makrolon pane (setting on HART devices: mA, with PROFIBUS PA and FOUNDATION Fieldbus equipment: pressure units)[11)]	4
• With display and keys (setting acc. to specifications, Order code "Y21" or "Y22" required), lid with Makrolon pane[11)]	5
• With display and keys, lid with glass pane (setting on HART devices: mA, with PROFIBUS and FOUNDATION Fieldbus equipment: pressure units)[11)]	6
• With display and keys (setting acc. to specifications, Order code "Y21" or "Y22" required), lid with glass pane[11)]	7

Power supply units see Chap. 7 "Supplementary Components".

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

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 7MF802.-..Y..-.... and 7MF4900-1...-.B

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

5) Remote seal for direct mounting only available in combination with process connection ½-14 NPT.

6) M10 fastening thread: Max. span 160 bar (2320 psi)
7/16-20 UNF and M12 fastening thread: Max. span 400 bar (5802 psi)

7) Only available together with electrical connection option A

8) Only available together with electrical connection options B, C, F or G.

9) Only together with HART electronics.

10) Without cable gland.

11) Display cannot be turned.

Selection and Ordering data		Article No.
SITRANS P300 pressure transmitters for relative and absolute pressure with front-flush membrane, single-chamber measuring housing, rating plate inscription in English		
4 ... 20 mA/HART		**7MF8123-**
PROFIBUS PA		**7MF8124-**
FOUNDATION Fieldbus (FF)		**7MF8125-**
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid	Cleanliness level 2 to DIN 25410	3
FDA compliant fill fluid		
• Neobee oil	normal	4
max. span		
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
13 ... 1300 mbar a[1]	(0.19 ... 18.9 psia)[1]	S
0.05 ... 5 bar a[1]	(0.7 ... 72.5 psia)[1]	T
0.03 ... 30 bar a[1]	(4.35 ... 435 psia)[1]	U
Wetted parts materials		
Seal diaphragm	Measuring cell	
Stainless steel	Stainless steel	A
Hastelloy[2]	Stainless steel	B
Process connection		
• Flange version with Order code M.., N.., R.. or Q.. (see "Further designs")		7
Non-wetted parts materials		
• Stainless steel, deep-drawn and electrolytically polished		4
Version		
• Standard versions		1
Explosion protection		
• None		A
• With ATEX, Type of protection:		
- "Intrinsic safety (Ex ia)"		B
• Zone 20/21/22[3]		C
• Ex nA/nL (Zone 2)[4]		E
• with FM "intrinsic safety" (cFM$_{US}$)		M
Electrical connection / cable entry		
• Screwed gland M20x1.5 (polyamide) [5]		A
• Screwed gland M20x1.5 (metal)		B
• Screwed gland M20x1.5 (stainless steel)		C
• M12 connectors (without cable socket)		F
• M12 connectors (stainless steel), without cable socket)		G
• Screwed gland ½-14 NPT metal thread [6]		H
• Screwed gland ½-14 NPT stainless steel thread [6]		J

Selection and Ordering data	Article No.
SITRANS P300 pressure transmitters for relative and absolute pressure with front-flush membrane, single-chamber measuring housing, rating plate inscription in English	
4 ... 20 mA/HART	**7MF8123-**
PROFIBUS PA	**7MF8124-**
FOUNDATION Fieldbus (FF)	**7MF8125-**
Display	
• Without display, with keys, closed lid	1
• With display and keys, closed lid[7]	2
• With display and keys, lid with Makrolon pane (setting on HART devices: mA, with PROFIBUS PA and FOUNDATION Fieldbus equipment: pressure units)[7]	4
• With display and keys (setting acc. to specifications, Order code "Y21" or "Y22" required), lid with Makrolon pane[7]	5
• With display and keys, lid with glass pane (setting on HART devices: mA, with PROFIBUS PA and FOUNDATION Fieldbus equipment: pressure units)[7]	6
• With display and keys (setting acc. to specifications, Order code "Y21" or "Y22" required), lid with glass pane[7]	7

Power supply units see Chap. 7 "Supplementary Components"

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

1) 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.
2) Only available for flanges with options M.., N.. and Q..
3) Only together with electrical connection option A.
4) Only available together with electrical connection options B, C, F or G.
5) Only together with HART electronics.
6) Without cable gland.
7) Display cannot be turned.

SITRANS P300
for gauge and absolute pressure

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of: made completely of stainless steel, for wall or pipe mounting	**A02**	✓	✓	✓
Cable socket for M12 plug				
• Metal	**A50**		✓	✓
• Stainless steel	**A51**		✓	✓
Rating plate inscription (instead of English)				
• German	**B10**	✓	✓	✓
• French	**B12**	✓	✓	✓
• Spanish	**B13**	✓	✓	✓
• Italian	**B14**	✓	✓	✓
English rating plate Pressure units in in$H_2$0 and/or psi	**B21**	✓	✓	✓
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2[1]	**C11**	✓	✓	✓
Inspection certificate[2] Acc. to EN 10204-3.1	**C12**	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	**C14**	✓	✓	✓
Degree of protection IP65/IP68 (only for M20x1.5 and ½-14 NPT)	**D12**	✓	✓	✓
Degree of protection IP6k9k (only for M20x1.5)	**D46**	✓	✓	✓
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF8...-.....-.B..)	**E45**	✓	✓	✓
Ex Approval Ex ia/ib NEPSI	**E55**	✓	✓	✓
Only for SITRANS P300 with front-flush diaphragm (7MF81..-...)				
Flange to EN 1092-1, Form b1				
• DN 25, PN 40[3]	**M11**	✓	✓	✓
• DN 25, PN 100[4]	**M21**	✓	✓	✓
• DN 40, PN 40	**M13**	✓	✓	✓
• DN 40, PN 100	**M23**	✓	✓	✓
• DN 50, PN 16	**M04**	✓	✓	✓
• DN 50, PN 40	**M14**	✓	✓	✓
• DN 80, PN 16	**M06**	✓	✓	✓
• DN 80, PN 40	**M16**	✓	✓	✓
Flanges to ASME B16.5				
• 1", class 150[4]	**M40**	✓	✓	✓
• 1½", class 150	**M41**	✓	✓	✓
• 2", class 150	**M42**	✓	✓	✓
• 3", class 150	**M43**	✓	✓	✓
• 4", class 150	**M44**	✓	✓	✓
• 1", class 300[4]	**M45**	✓	✓	✓
• 1½", class 300	**M46**	✓	✓	✓
• 2", class 300	**M47**	✓	✓	✓
• 3", class 300	**M48**	✓	✓	✓
• 4", class 300	**M49**	✓	✓	✓
Threaded connector to DIN 3852-2, form A, thread to ISO 228				
• G ¾"-A, front-flush[4]	**R01**	✓	✓	✓
• G 1"-A, front-flush[4]	**R02**	✓	✓	✓
• G 2"-A, front-flush[4]	**R04**	✓	✓	✓
Tank connection[5] Sealing is included in delivery				
• TG 52/50, PN 40	**R10**	✓	✓	✓
• TG 52/150, PN 40	**R11**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
Sanitary process connection according DIN 11851 (Dairy connection with slotted union nut) Certified to 3A[6]				
• DN 50, PN 25	**N04**	✓	✓	✓
• DN 80, PN 25	**N06**	✓	✓	✓
Tri-Clamp connection according DIN 32676/ISO 2852 Certified to 3A[6]				
• DN 50/2", PN 16	**N14**	✓	✓	✓
• DN 65/3", PN 10	**N15**	✓	✓	✓
Varivent connection Certified to 3A and EHEDG[6]				
• Type N = 68 for Varivent housing DN 40 ... 125 und 1½" ... 6", PN 40	**N28**	✓	✓	✓
Temperature decoupler up to 200 °C[7] for front-flush diaphragm version	**P00**	✓	✓	✓
Temperature decoupler up to 250 °C Measuring cell filling: High-temperature oil (Silicone oil)	**P10**	✓	✓	✓
Bio-Control sanitary process connection Certified to 3A and EHEDG[6]				
• DN 50, PN 16	**Q53**	✓	✓	✓
• DN 65, PN 16	**Q54**	✓	✓	✓
Sanitary process connection to DRD				
• DN 50, PN 40	**M32**	✓	✓	✓
SMS socket with union nut				
• 2"	**M67**	✓	✓	✓
• 2½"	**M68**	✓	✓	✓
• 3"	**M69**	✓	✓	✓
SMS threaded socket				
• 2"	**M73**	✓	✓	✓
• 2½"	**M74**	✓	✓	✓
• 3"	**M75**	✓	✓	✓
IDF socket with union nut ISO 2853				
• 2"	**M82**	✓	✓	✓
• 2½"	**M83**	✓	✓	✓
• 3"	**M84**	✓	✓	✓
IDF threaded socket ISO 2853				
• 2"	**M92**	✓	✓	✓
• 2½"	**M93**	✓	✓	✓
• 3"	**M94**	✓	✓	✓
Sanitary process connection to NEUMO Bio-Connect screw connection Certified to 3A and EHEDG[6]				
• DN 50, PN 16	**Q05**	✓	✓	✓
• DN 65, PN 16	**Q06**	✓	✓	✓
• DN 80, PN 16	**Q07**	✓	✓	✓
• DN 100, PN 16	**Q08**	✓	✓	✓
• DN 2", PN 16	**Q13**	✓	✓	✓
• DN 2½", PN 16	**Q14**	✓	✓	✓
• DN 3", PN 16	**Q15**	✓	✓	✓
• DN 4", PN 16	**Q16**	✓	✓	✓
Sanitary process connection to NEUMO Bio-Connect flange connection Certified to 3A and EHEDG[6]				
• DN 50, PN 16	**Q23**	✓	✓	✓
• DN 65, PN 16	**Q24**	✓	✓	✓
• DN 80, PN 16	**Q25**	✓	✓	✓
• DN 100, PN 16	**Q26**	✓	✓	✓
• DN 2", PN 16	**Q31**	✓	✓	✓
• DN 2½", PN 16	**Q32**	✓	✓	✓
• DN 3", PN 16	**Q33**	✓	✓	✓
• DN 4", PN 16	**Q34**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs				
Add "**-Z**" to Article No. and specify Order code.				
Sanitary process connection to NEUMO Bio-Connect clamp connection Certified to 3A and EHEDG[6]				
• DN 50, PN 16	**Q39**	✓	✓	✓
• DN 65, PN 10	**Q40**	✓	✓	✓
• DN 80, PN10	**Q41**	✓	✓	✓
• DN 100, PN 10	**Q42**	✓	✓	✓
• DN 2½", PN 16	**Q48**	✓	✓	✓
• DN 3", PN 10	**Q49**	✓	✓	✓
• DN 4", PN 10	**Q50**	✓	✓	✓
Sanitary process connection to NEUMO Bio-Connect S flange connection Certified to 3A and EHEDG				
• DN 50, PN 16	**Q63**	✓	✓	✓
• DN 65, PN 10	**Q64**	✓	✓	✓
• DN 80, PN 10	**Q65**	✓	✓	✓
• DN 100, PN 10	**Q66**	✓	✓	✓
• DN 2", PN 16	**Q72**	✓	✓	✓
• DN 2½", PN 10	**Q73**	✓	✓	✓
• DN 3", PN 10	**Q74**	✓	✓	✓
• DN 4", PN 10	**Q75**	✓	✓	✓
Aseptic threaded socket to DIN 11864-1 Form A Certified to 3A and EHEDG				
• DN 50, PN 25	**N33**	✓	✓	✓
• DN 65, PN 25	**N34**	✓	✓	✓
• DN 80, PN 25	**N35**	✓	✓	✓
• DN 100, PN 25	**N36**	✓	✓	✓
Aseptic flange with notch to DIN 11864-2 Form A Certified to 3A and EHEDG				
• DN 50, PN 16	**N43**	✓	✓	✓
• DN 65, PN 16	**N44**	✓	✓	✓
• DN 80, PN 16	**N45**	✓	✓	✓
• DN 100, PN 16	**N46**	✓	✓	✓
Aseptic flange with groove to DIN 11864-2 Form A Certified to 3A and EHEDG				
• DN 50, PN 16	**N43 + P11**	✓	✓	✓
• DN 65, PN 16	**N44 + P11**	✓	✓	✓
• DN 80, PN 16	**N45 + P11**	✓	✓	✓
• DN 100, PN 16	**N46 + P11**	✓	✓	✓
Aseptic clamp with groove to DIN 11864-3 FormA Certified to 3A and EHEDG				
• 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	HART	PA	FF
Additional data				
Please add "**-Z**" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: ... up to ... mbar, bar, kPa, MPa, psi	**Y01**	✓	✓[8]	
Stainless steel tag plate and entry in device variable (measuring point description) Max. 16 characters, specify in plain text: Y15:	**Y15**	✓	✓	✓
Measuring point text (entry in device variable) Max. 27 characters, specify in plain text: Y16:	**Y16**	✓	✓	✓
Entry of HART TAG Max. 8 characters, specify in plain text: Y17:	**Y17**	✓		
Setting of the display 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 H_2O*), inH_2O*), ftH_2O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C	**Y21**	✓	✓	✓
Setting of the display in non-pressure units[8] Specify in plain text: Y22: ..... up to ..... l, m³, m, USg, ... (specification of measuring range in pressure units "**Y01**" is essential, unit with max. 5 characters)	**Y22 + Y01**	✓		
Preset bus address (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)

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) Special seal in Viton included in the scope of delivery

4) Cannot be combined with Order codes P00 and P10. Can only be ordered with silicone oil measuring cell filling.

5) The weldable socket can be ordered under accessories.

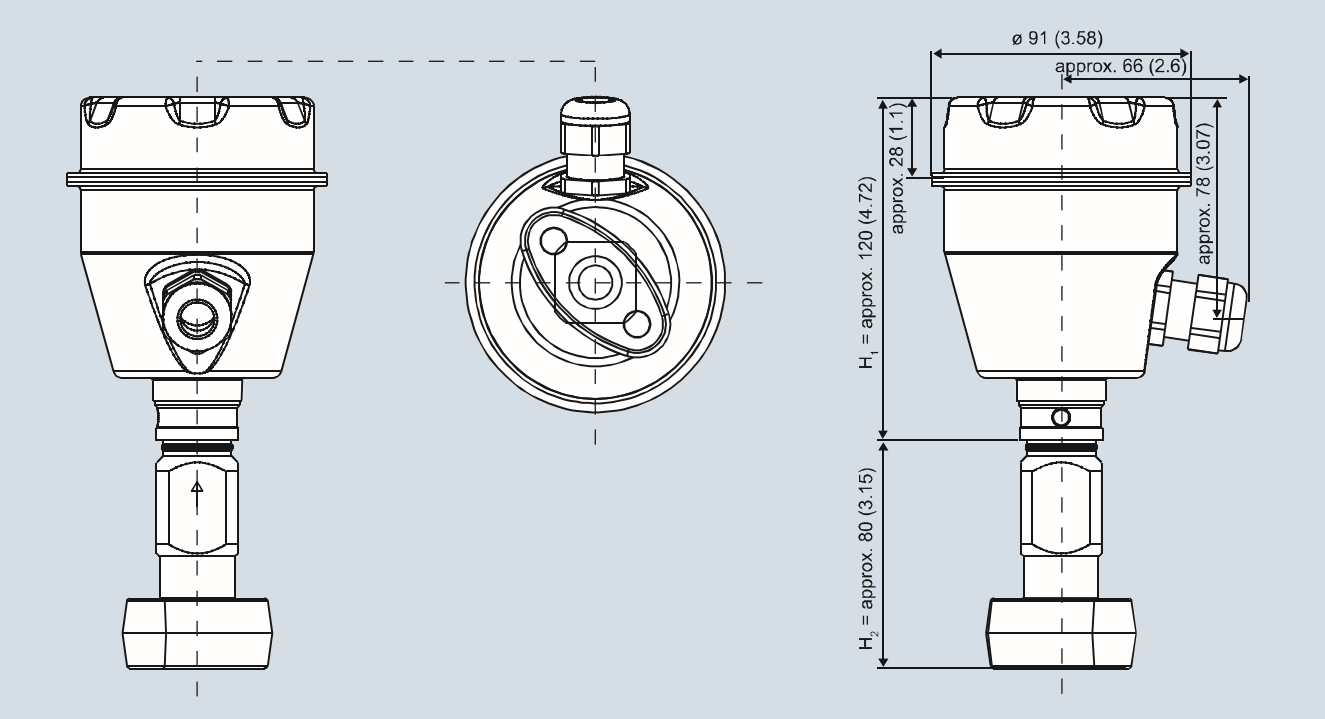
6) 3A certification only if used in conjunction with 3A-compliant sealing rings.

7) Certified to 3A.
The maximum permissible temperatures of the medium depend on the respective cell fillings.

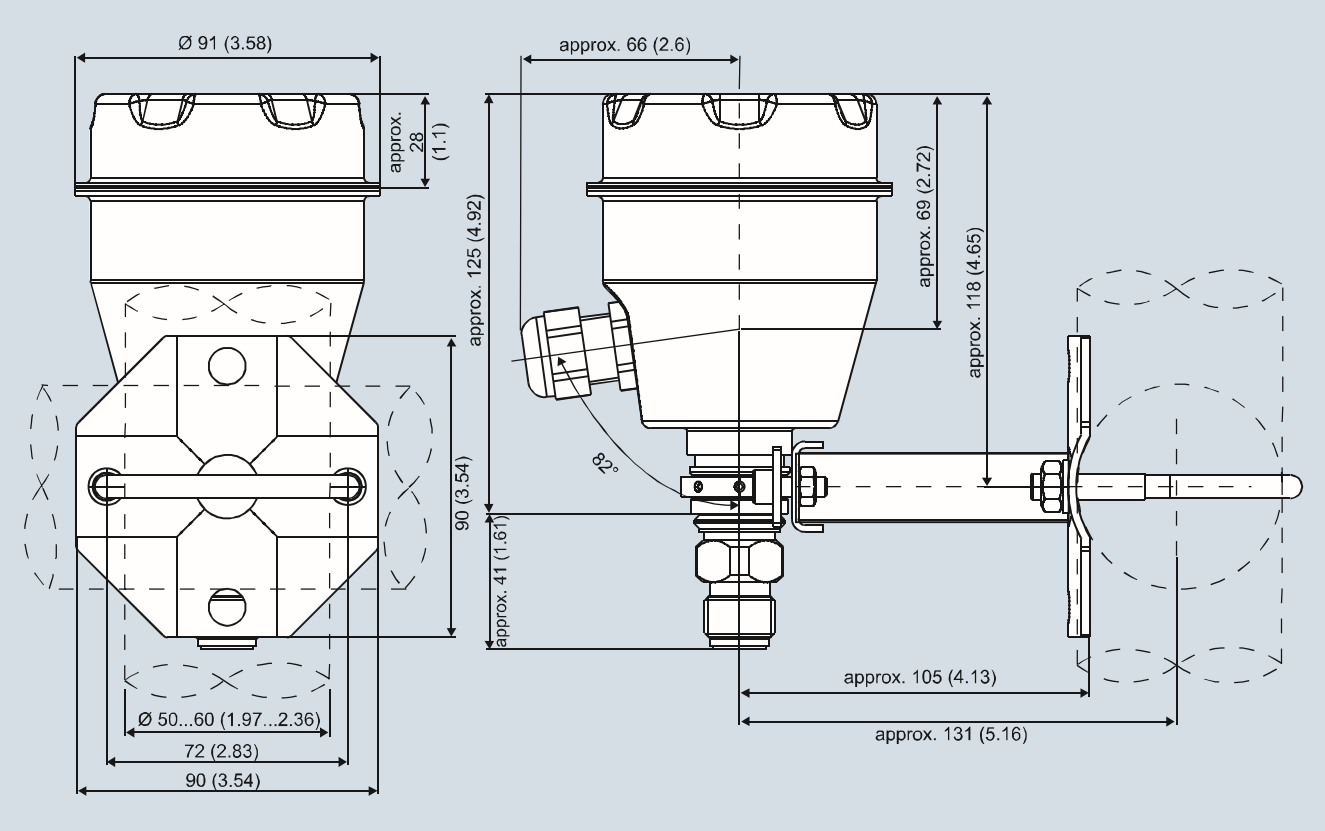
8) Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.

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

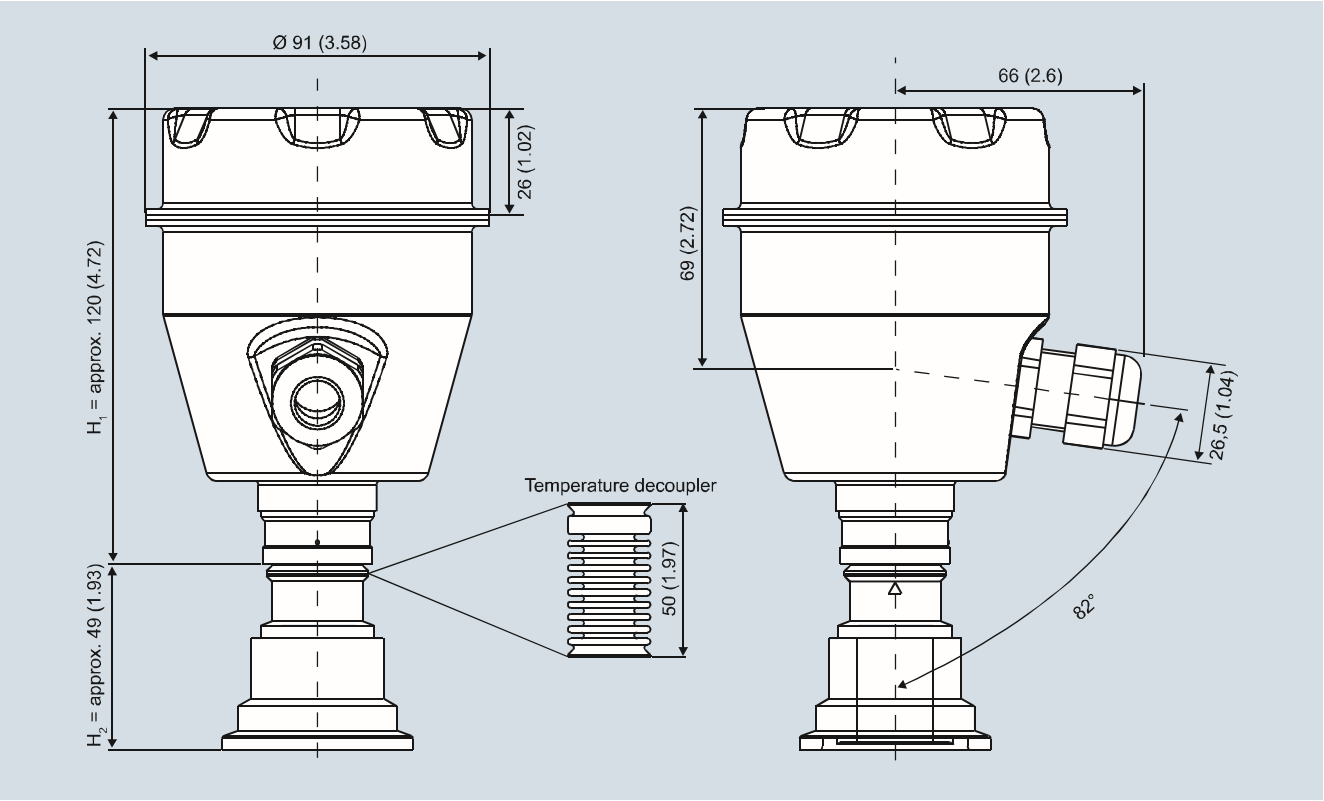
Dimensional drawings



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)



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

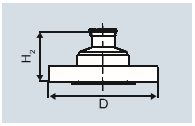
Only the height H_2 is indicated in the dimensions of the flanges.

SITRANS P300
for gauge and absolute pressure

Flanges as per EN and ASME

Flange to EN

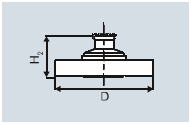
EN 1092-1



Order code	DN	PN	ØD	H_2
M11	25	40	115 mm (4.5“)	Approx. 52 mm (2“)
M21	25	100	140 mm (5.5“)	
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

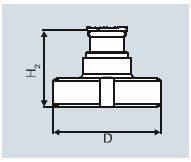


Order code	DN	PN	ØD	H_2
M40	1“	150	110 mm (4.3“)	Approx. 52 mm (2“)
M41	1½“	150	130 mm (5.1“)	
M42	2“	150	150 mm (5.9“)	
M43	3“	150	190 mm (7.5“)	
M44	4“	150	230 mm (9.1“)	
M45	1“	300	125 mm (4.9“)	
M46	1½“	300	155 mm (6.1“)	
M47	2“	300	165 mm (6.5“)	
M48	3“	300	210 mm (8.1“)	
M49	4“	300	255 mm (10.0“)	

NuG and pharmaceutical connections

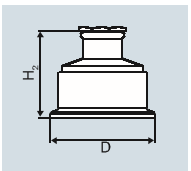
Connections to DIN

DIN 11851 (milk pipe union with slotted union nut)



Order code	DN	PN	ØD	H_2
N04	50	25	92 mm (3.6“)	Approx. 52 mm (2“)
N06	80	25	127 mm (5.0“)	

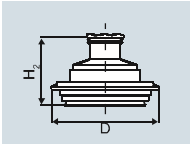
Tri-Clamp nach DIN 32676



Order code	DN	PN	ØD	H_2
N14	50	16	64 mm (2.5“)	Approx. 52 mm (2“)
N15	65	10	91 mm (3.6“)	

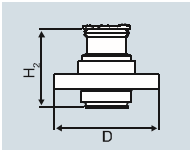
Other connections

Varivent connection



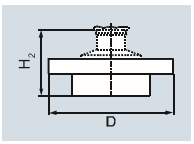
Order code	DN	PN	ØD	H_2
N28	40 ... 125	40	84 mm (3.3“)	Approx. 52 mm (2“)

Biocontrol connection



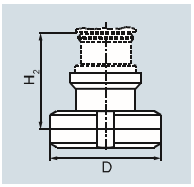
Order code	DN	PN	ØD	H_2
Q53	50	16	90 mm (3.5“)	Approx. 52 mm (2“)
Q54	65	16	120 mm (4.7“)	

Sanitary process connection to DRD



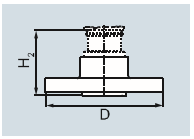
Order code	DN	PN	ØD	H_2
M32	50	40	105 mm (4.1“)	Approx. 52 mm (2“)

Sanitary process screw connection to NEUMO Bio-Connect



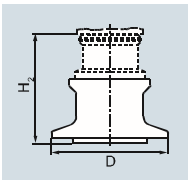
Order code	DN	PN	ØD	H_2
Q05	50	16	82 mm (3.2“)	Approx. 52 mm (2“)
Q06	65	16	105 mm (4.1“)	
Q07	80	16	115 mm (4.5“)	
Q08	100	16	145 mm (5.7“)	
Q13	2“	16	82 mm (3.2“)	
Q14	2½“	16	105 mm (4.1“)	
Q15	3“	16	105 mm (4.1“)	
Q16	4“	16	145 mm (5.7“)	

Sanitary process connection to NEUMO Bio-Connect flange connection



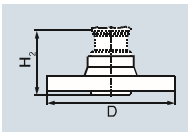
Order code	DN	PN	ØD	H_2
Q23	50	16	110 mm (4.3“)	Approx. 52 mm (2“)
Q24	65	16	140 mm (5.5“)	
Q25	80	16	150 mm (5.9“)	
Q26	100	16	175 mm (6.9“)	
Q31	2“	16	100 mm (3.9“)	
Q32	2½“	16	110 mm (4.3“)	
Q33	3“	16	140 mm (5.5“)	
Q34	4“	16	175 mm (6.9“)	

Sanitary process connection to NEUMO Bio-Connect clamp connection



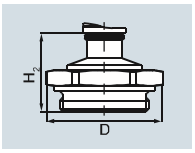
Order code	DN	PN	ØD	H_2
Q39	50	16	77.4 mm (3.0“)	Approx. 52 mm (2“)
Q40	65	10	90.9 mm (3.6“)	
Q41	80	10	106 mm (4.2“)	
Q42	100	10	119 mm (4.7“)	
Q48	2½“	16	77.4 mm (3.0“)	
Q49	3“	10	90.9 mm (3.6“)	
Q50	4“	10	119 mm (4.7“)	

Sanitary process connection to NEUMO Bio-Connect S flange connection



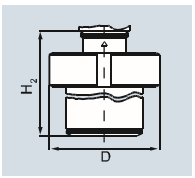
Order code	DN	PN	ØD	H_2
Q63	50	16	125 mm (4.9“)	Approx. 52 mm (2“)
Q64	65	10	145 mm (5.7“)	
Q65	80	10	155 mm (6.1“)	
Q66	100	10	180 mm (7.1“)	
Q72	2“	16	125 mm (4.9“)	
Q73	2½“	10	135 mm (5.3“)	
Q74	3“	10	145 mm (5.7“)	
Q75	4“	10	180 mm (7.1“)	

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



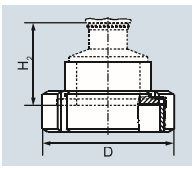
Order code	DN	PN	ØD	H_2
R01	¾"	60	37 mm (1.5")	Approx. 45 mm (1.8")
R02	1"	60	48 mm (1.9")	Approx. 47 mm (1.9")
R04	2"	60	78 mm (3.1")	Approx. 52 mm (2")

Tank connection TG 52/50 and TG52/150



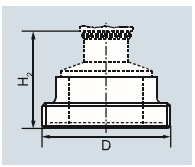
Order code	DN	PN	ØD	H_2
R10	25	40	63 mm (2.5")	Approx. 63 mm (2.5")
R11	25	40	63 mm (2.5")	Approx. 170 mm (6.7")

SMS socket with union nut



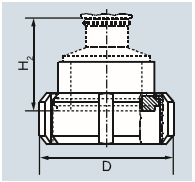
Order code	DN	PN	ØD	H_2
M67	2"	25	84 mm (3.3")	Approx. 52 mm (2")
M68	2½"	25	100 mm (3.9")	
M69	3"	25	114 mm (4.5")	

SMS threaded socket



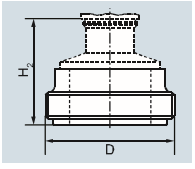
Order code	DN	PN	ØD	H_2
M73	2"	25	70 x 1/6 mm	Approx. 52 mm (2")
M74	2½"	25	85 x 1/6 mm	
M75	3"	25	98 x 1/6 mm	

IDF socket with union nut



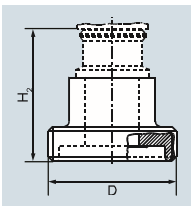
Order code	DN	PN	ØD	H_2
M82	2"	25	77 mm (3")	Approx. 52 mm (2")
M83	2½"	25	91 mm (3.6")	
M84	3"	25	106 mm (4.2")	

IDF threaded socket



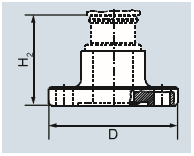
Order code	DN	PN	ØD	H_2
M92	2"	25	64 mm (2.5")	Approx. 52 mm (2")
M93	2½"	25	77.5 mm (3.1")	
M94	3"	25	91 mm (3.6")	

Aseptic threaded socket to DIN 11864-1 Form A



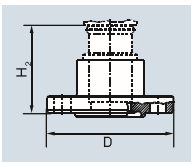
Order code	DN	PN	ØD	H_2
N33	50	25	78 x 1/6"	Approx. 52 mm (2")
N34	65	25	95 x 1/6"	
N35	80	25	110 x ¼"	
N36	100	25	130 x ¼"	

Aseptic flange with notch to DIN 11864-2 Form A



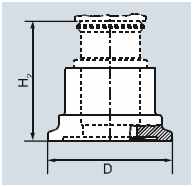
Order code	DN	PN	ØD	H_2
N43	50	16	94	Approx. 52 mm (2")
N44	65	16	113	
N45	80	16	133	
N46	100	16	159	

Aseptic flange with groove to DIN 11864-2 Form A



Order code	DN	PN	ØD	H_2
N43 + P11	50	16	94	Approx. 52 mm (2")
N44 + P11	65	16	113	
N45 + P11	80	16	133	
N46 + P11	100	16	159	

Aseptic clamp with groove to DIN 11864-3 Form A



Order code	DN	PN	ØD	H_2
N53	50	25	77.5	Approx. 52 mm (2")
N54	65	25	91	
N55	80	16	106	
N56	100	16	130	

SITRANS P300
Accessories/Spare parts

Selection and Ordering data	Article No.
Spare parts / Accessories	
Mounting bracket and fastening parts kit made of stainless steel	**7MF8997-1AA**
Lid without window gasket not included	**7MF8997-1BA**
Lid with glass window gasket not included	**7MF8997-1BD**
NBR enclosure sealing	**7MF8997-1BG**
Measuring point label unlabeled	**7MF8997-1CA**
Cable gland	
• metal	**7MF8997-1EA**
• plastic (blue)	**7MF8997-1EB**
Weldable sockets for PMC connection	
• PMC Style Standard: Thread 1½"	**7MF4997-2HA**
• PMC Style Minibolt: front-flush 1"	**7MF4997-2HB**
Gaskets for PMC connection (packing unit = 5 units)	
• PTFE seal for PMC Style Standard: Thread 1½"	**7MF4997-2HC**
• Gasket made of Viton for PMC Style Minibolt: front-flush 1"	**7MF4997-2HD**
Weldable socket for TG52/50 and TG52/150 connection	
• TG52/50 connection	**7MF4997-2HE**
• TG52/150 connection02	**7MF4997-2HF**
Seals for TG 52/50 and TG 52/150 made of silicone	**7MF4997-2HG**
Seals for flange connection with front-flush diaphragm Material FPM (Viton), 10 units	
• DN 25, PN 40 (M11)	**7MF4997-2HH**
• DN 25, PN 100 (M21)	**7MF4997-2HJ**
• 1", class 150 (M40)	**7MF4997-2HK**
• 1", class 300 (M45)	**7MF4997-2HL**

Selection and Ordering data	Article No.
Operating Instructions[1]	
• for SITRANS P300 series with HART	
- German	**A5E00359580**
- English	**A5E00359579**
- French	**A5E00359578**
- Spanish	**A5E00359576**
- Italian	**A5E00359577**
- Leporello German/English	**A5E00359581**
• for SITRANS P300 series with PROFIBUS PA	
- German	**A5E00414587**
- English	**A5E00414588**
- French	**A5E00414589**
- Spanish	**A5E00414590**
- Italian	**A5E00414591**
- Leporello German/English	**A5E00414592**
Compact operating instructions The compact operating instructions are available in 21 EU languages on the product CD supplied with each transmitter. They can also be downloaded from the SITRANS P web page.	
Brief instructions (Leporello)	
• for SITRANS P300 with HART	
- German/English	**A5E00359581**
• for SITRANS P300 with PROFIBUS PA	
- German/English	**A5E00414592**
• for SITRANS P300 with FOUNDATION Fieldbus	
- German/English	**A5E01176733**
CD with SITRANS P documentation	
• German, English, French, Spanish, Italian including compact operating instructions in 21 EU languages	**A5E00090345**
Certificates (order only via SAP) instead of Internet download	
• hard copy (to order)	**A5E03252406**
• on CD (to order)	**A5E03252407**
HART modem	
• with RS232 interface ▶	**7MF4997-1DA**
• with USB interface ▶	**7MF4997-1DB**

▶ Available ex stock

Power supply units see Chap. 7 "Supplementary Components".

[1] You can download these operating instructions free-of-charge from our Internet site at www.siemens.com/sitransp.

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	Order code
SITRANS P300 7MF802.-...1.-... With process connection female thread ½-14 NPT in-sealed with PTFE sealing tape Delivery incl. high-pressure test certified by test report to EN 10204-2.2	**T03**
Further designs:	
Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	**A02**
Supplied acceptance test certificate to EN 10204- 3.1 for transmitters and mounted valve manifold	**C12**

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

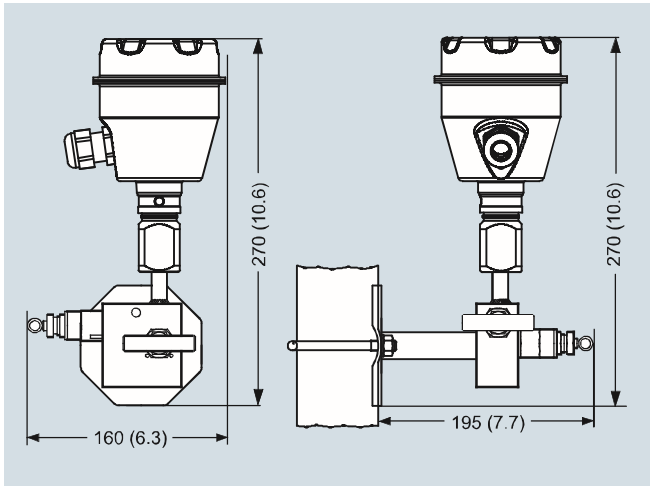
Add **-Z** to the Article No. of the transmitter and add Order codes	Order code
SITRANS P300 7MF802.-...0.-... with process connection collar G½ A to EN 837-1 with gasket made of PTFE between valve manifold and transmitter	**T02**
Alternative sealing material:	
• Soft iron	**A70**
• Stainless steel, Mat. No. 14571	**A71**
• copper	**A72**
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)	**A02**
Supplied acceptance test certificate to EN 10204- 3.1 for transmitters and mounted valve manifold	**C12**

SITRANS P300 - Factory-mounting of valve manifolds on transmitters

Dimensional drawings

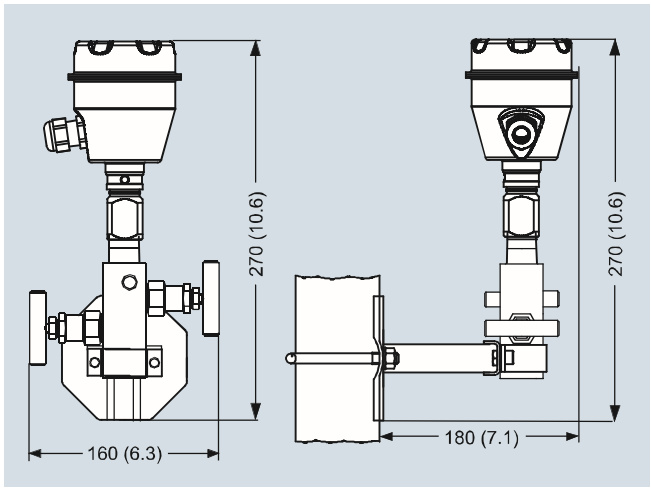
Valve manifolds mounted on SITRANS P300

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)