Overview

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

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

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

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

Various versions of the DS III pressure transmitters are available for measuring:

- Gauge pressure
- Absolute pressure
- Differential pressure
- Level
- Volume level
- Mass level
- Volume flow
- Mass flow

Benefits

- High quality and service life
- High reliability even under extreme chemical and mechanical loads
- For aggressive and non-aggressive gases, vapors and liquids
- Extensive diagnosis and simulation functions
- Separate replacement of measuring cell and electronics without recalibration
- Minimum conformity error
- Good long-term stability
- Wetted parts made of high-grade materials (e.g. stainless steel, Hastelloy, gold, Monel, tantalum)
- Infinitely adjustable span from 0.01 bar to 700 bar (0.15 psi to 10153 psi) for DS III with HART interface
- Nominal measuring range from 1 bar to 700 bar (14.5 psi to 10153 psi) for DS III with PROFIBUS PA and FOUNDATION Fieldbus interface
- High measuring accuracy
- Parameterization over control keys and HART or PROFIBUS PA, or FOUNDATION Fieldbus interface.

Application

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

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

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

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

The pressure transmitter can be programmed locally using the 3 control buttons or externally via HART or PROFIBUS PA or FOUNDATION Fieldbus interface.

Technical description

Pressure transmitter for gauge pressure

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

Span (infinitely adjustable)
for DS III with HART: 0.01 bar to 700 bar (0.15 psi to 10153 psi)

Nominal measuring range
for DS III with PROFIBUS PA and FOUNDATION Fieldbus:
1 bar to 700 bar (14.5 psi to 10153 psi)

Pressure transmitters for absolute pressure

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

Span (infinitely adjustable)
for DS III with HART: 8.3 mbar a ... 100 bar a (0.12 ... 1450 psi a)

Nominal measuring range
for DS III with PROFIBUS PA and FOUNDATION Fieldbus:
250 mbar a ... 100 bar a (3.6 ... 1450 psi a)

There are two series:

- Gauge pressure series
- Differential pressure series

Pressure transmitters for differential pressure and flow

Measured variables:

- Differential pressure
- Small positive or negative pressure
- Flow q ~ √Δp (together with a primary differential pressure device (see Chapter "Flow Meters"))

Span (infinitely adjustable)
for DS III with HART: 1 mbar ... 30 bar (0.0145 ... 435 psi)

Nominal measuring range
for DS III with PROFIBUS PA and FOUNDATION Fieldbus:
20 mbar ... 30 bar (0.29 ... 435 psi)

Pressure transmitters for level

Measured variable: Level of aggressive and non-aggressive liquids in open and closed vessels.

Span (infinitely adjustable)
for DS III with HART: 25 mbar ... 5 bar (0.363 ... 72.5 psi)

Nominal measuring range
for DS III with PROFIBUS PA and FOUNDATION Fieldbus:
250 mbar ... 5 bar (3.63 ... 72.5 psi)

Nominal diameter of the mounting flange

- DN 80 or DN 100
- 3 inch or 4 inch

In the case of level measurements in open containers, the low-pressure connection of the measuring cell remains open (measurement "compared to atmospheric").

In the case of measurements in closed containers, the lower-pressure connection has to be connected to the container in order to compensate the static pressure.

The wetted parts are made from a variety of materials, depending on the degree of corrosion resistance required.

Design

Front view

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

The rating plate (7, Figure "Front view") with the Article No. is located on the side of the housing. The specified number together with the ordering information provide details on the optional design details and on the possible measuring range (physical properties of built-in sensor element).

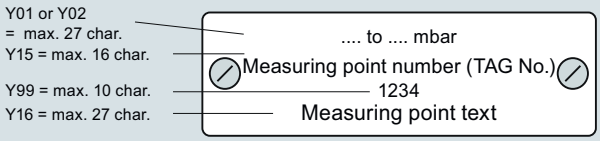
The approval label is located on the opposite side.

The housing is made of die-cast aluminium or stainless steel precision casting. A round cover (6) is screwed on at the front and rear of the housing. The front cover can be fitted with a viewing pane so that the measured values can be read directly on the display. The inlet (8) for the electrical connection is located either on the left or right side. The unused opening on the opposite side is sealed by a blanking plug. The protective earth connection is located on the rear of the housing.

The electrical connections for the power supply and screen are accessible by unscrewing the rear cover. The bottom part of the housing contains the measuring cell with process connection (5). The measuring cell is prevented from rotating by a locking screw (4). As the result of this modular design, the measuring cell and the electronics can be replaced separately from each other. The set parameter data are retained.

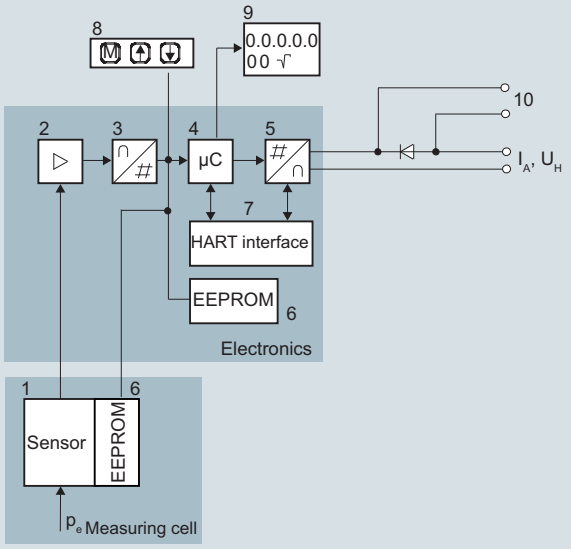
At the top of the housing is a plastic cover (1), which hides the input keys.

Example for an attached measuring point label



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

The diode circuit (10) protects against incorrect polarity.

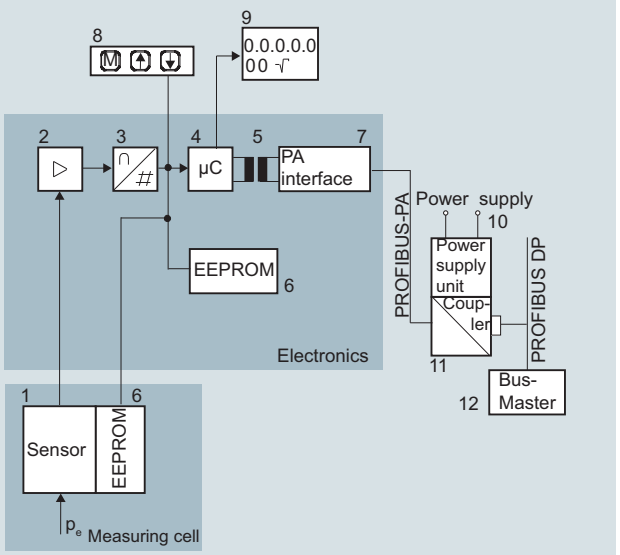
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

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

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

The pressure transmitters with spans ≤ 63 bar measure the input pressure compared to atmosphere, transmitters with spans ≥ 160 bar compared to vacuum.

Operation of electronics with PROFIBUS PA communication



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

Function diagram of electronics

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

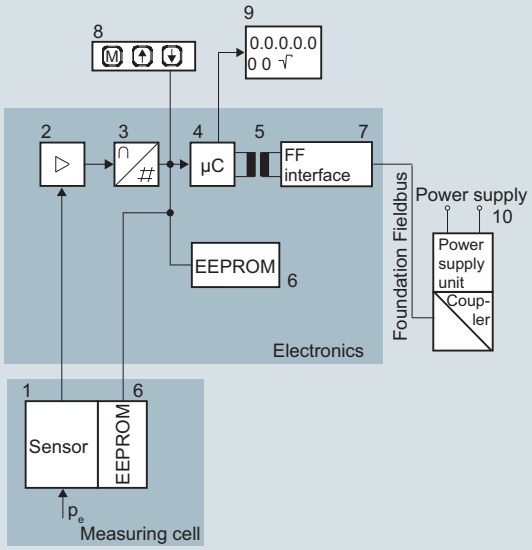
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced 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 PROFIBUS PA. Parameterization data and error messages are transferred by acyclic data transmission. Special software such as SIMATIC PDM is required for this.

Technical description

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	p_e	Input variable
6	One non-volatile memory each in the measuring cell and electronics		
7	FF interface		

Function diagram of electronics

The bridge output voltage created by the sensor (1, Figure "Function diagram of electronics") is 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).

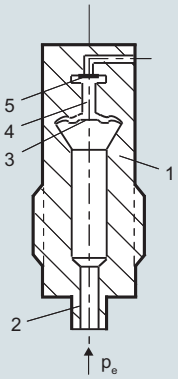
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

Measuring cell for gauge pressure

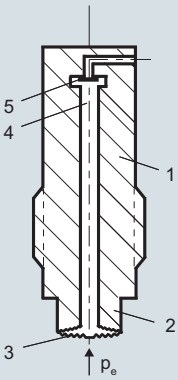


1	Measuring cell
2	Process connection
3	Seal diaphragm
4	Filling liquid
5	Silicon pressure sensor
p_e	Pressure as input variable

Measuring cell for gauge pressure, function diagram

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

Measuring cell for gauge pressure with front-flush diaphragm

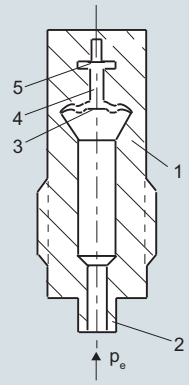


1	Measuring cell
2	Process connection
3	Seal diaphragm
4	Filling liquid
5	Silicon pressure sensor
p_e	Pressure as input variable

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

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

Measuring cell for absolute pressure from gauge pressure series

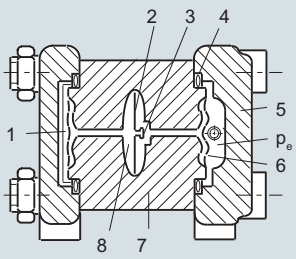


1 Measuring cell
2 Process connection
3 Seal diaphragm
4 Filling liquid
5 Silicon absolute pressure sensor
p_e Absolute pressure as input variable

Measuring cell for absolute pressure from the pressure series, function diagram

The absolute pressure p_e is transmitted through the seal diaphragm (3, Figure "Measuring cell for absolute pressure from pressure series, gauge pressure, function diagram ") and the filling liquid (4) to the silicon absolute pressure sensor (5) whose measuring diaphragm is then flexed. This changes the resistance of the four piezo-resistors fitted in the diaphragm in a bridge circuit. This change in resistance results in a bridge output voltage proportional to the absolute pressure.

Measuring cell for absolute pressure from differential pressure series



1 Reference vacuum
2 Overload diaphragm
3 Silicon pressure sensor
4 O-ring
5 Process flange
6 Seal diaphragm
7 Body of measuring cell
8 Filling liquid
p_e Absolute pressure as input variable

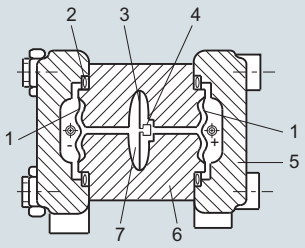
Measuring cell for absolute pressure from differential pressure series, function diagram

The input pressure p_e is transmitted through the seal diaphragm (6, Figure "Measuring cell for absolute pressure from differential pressure series, function diagram") and the filling liquid (8) to the silicon pressure sensor (3).

The difference in pressure between the input pressure p_e and the reference vacuum (1) on the low-pressure side of the measuring cell flexes the measuring diaphragm. This changes the resistance of the four piezo-resistors fitted in the diaphragm in a bridge circuit. This change in resistance results in a bridge output voltage proportional to the absolute pressure.

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

Measuring cell for differential pressure and flow



1 Seal diaphragm
2 O-ring
3 Overload diaphragm
4 Silicon pressure sensor
5 Process flange
6 Body of measuring cell
7 Filling liquid

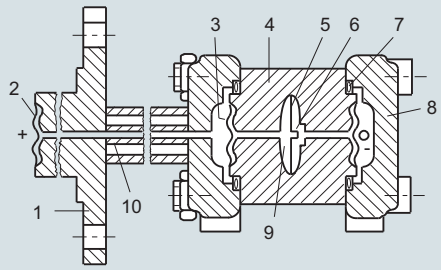
Measuring cell for differential pressure and flow, function diagram

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

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

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

Measuring cell for level



1 Flange with tube
2 Seal diaphragm on mounting flange
3 Seal diaphragm
4 Body of measuring cell
5 Overload diaphragm
6 Silicon pressure sensor
7 O-ring
8 Process flange
9 Filling liquid
10 Capillary with filling liquid of mounting flange

Measuring cell for level, function diagram

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

This changes the resistance of the four piezo-resistors fitted in the diaphragm in a bridge circuit.

This change in resistance results in a bridge output voltage proportional to the differential pressure.

An overload diaphragm is installed to provide protection from overloads. If the measuring limits are exceeded, the overload diaphragm (5) is flexed until the seal diaphragm rests on the body of the measuring cell (4), thus protecting the silicon pressure sensor from overloads.

Technical description

Parameterization DS III

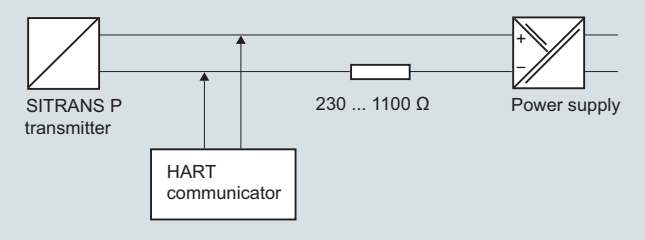
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

Parameterization using the input buttons (local operation)

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

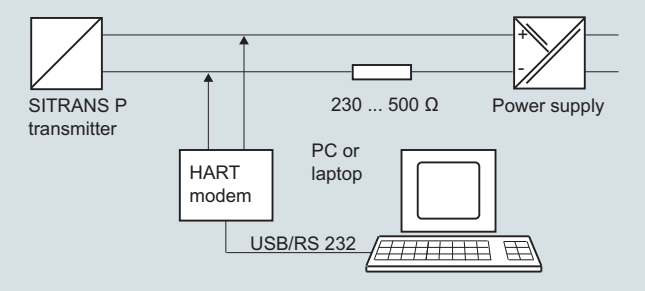
Parameterization using HART

Parameterization using HART is performed with a HART Communicator or a PC.



Communication between a HART Communicator and a pressure transmitter

When parameterizing with the HART Communicator, the connection is made directly to the 2-wire cable.



HART communication between a PC communicator and a pressure transmitter

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

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

Adjustable parameters, DS III with HART

Parameters	Input keys (DS III HART)	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
Characteristic (linear / square-rooted)	x[2)]	x[2)]
Input of characteristic		x
Freely-programmable LCD		x
Diagnostic functions		x

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

Diagnostic functions for DS III with HART

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

Available physical units of display for DS III with HART

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
volume flow	m^3/d, m^3/h, m^3/s, l/min, l/s, ft^3/d, ft^3/min, ft^3/s, US gallon/min, US gallon/s
Mass flow	t/d, t/h, t/min, kg/d, kg/h, kg/min, kg/s, g/d, g/h, g/min, g/s, lb/d, lb/h, lb/min, lb/s, LTon/d, LTon/h, STon/d, STon/h, STon/min
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. Through the PROFIBUS the DS III with PROFIBUS PA is connected 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 DS III with FOUNDATION Fieldbus is connected to a process control system. Communication is possible even in a potentially explosive environment.

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

Adjustable parameters for DS III with PROFIBUS PA and FOUNDATION Fieldbus

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
Diagnostics functions		x

Diagnostic functions for DS III 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
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	%

Technical specifications

SITRANS P, DS III series for gauge pressure

Input				
Measured variable	Gauge pressure			
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**		
(for oxygen measurement, max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/process temperature)	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 25 MPa 3626 psi
	4 ... 400 bar 0.4 ... 40 MPa 58 ... 5802 psi	400 bar 40 MPa 5802 psi	400 bar 40 MPa 5802 psi	600 bar 60 MPa 8702 psi
	7 ... 700 bar 0.7 ... 70 MPa 102 ... 10153 psi	700 bar 70 MPa 10153 psi	800 bar 80 MPa 11603 psi	800 bar 80 MPa 11603 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 upt to 30 mbar a/3 kPa a/0.44 psi a.)				
• Measuring cell with silicone oil filling	30 mbar a/3 kPa a/0.44 psi a			
• Measuring cell with inert filling liquid	30 mbar a/3 kPa a/0.44 psi a			
Upper measuring limit	100% of max. span (max. 100 bar/10 MPa/1450 psi for oxygen measurement) ambient temperature/process temperature 60 °C (140 °F)			

Output	**HART**	**PROFIBUS PA/FOUNDATION Fieldbus**
Output signal	4 ... 20 mA	Digital PROFIBUS PA and FOUNDATION Fieldbus signal
• Lower limit (infinitely adjustable)	3.55 mA, factory preset to 3.84 mA	-
• Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA	-
Load		
• Without HART	$R_B \leq (U_H - 10.5\ V)/0.023\ A$ in Ω, U_H: Power supply in V	-
• With HART	R_B = 230 ... 500 Ω (SIMATIC PDM) bzw. R_B = 230 ... 1100 Ω (HART-Communicator)	-
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 P, DS III series for gauge pressure	
Measuring accuracy	Acc. to IEC 60770-1
Reference conditions	• Increasing characteristic • Start-of-scale value 0 bar/kPa/psi • Stainless steel seal diaphragm • Silicone oil filling • Room temperature 25 °C (77 °F)
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span or nom. pressure range
Error in measurement at limit setting incl. hysteresis and reproducibility	
• Linear characteristic	
- 250 mbar/25 kPa/3.6 psi	$r \leq 1.25$: ≤ 0.065 % $1.25 < r \leq 30$: ≤ (0.008 · r + 0.055) %
- 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	$r \leq 5$: ≤ 0.065 % $5 < r \leq 100$: ≤ (0.004 · r + 0.045) %
- 400 bar/40 MPa/5802 psi 700 bar/70 MPa/10152 psi	$r \leq 3$: ≤ 0.075 % $3 < r \leq 10$: ≤ (0.0029 · r + 0.071) % $10 < r \leq 100$: ≤ (0.005 · r + 0.05) %
Influence of ambient temperature (in percent per 28 °C (50 °F))	
• 250 mbar/25 kPa/3.6 psi	≤ (0.16 · r + 0.1) %
• 1 bar/100 kPa/3.6 psi	≤ (0.05 · r + 0.1) %
• 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	≤ (0.025 · r + 0.125) %
• 700 bar/70 MPa/10152 psi	≤ (0.08 · r + 0.16) %
Long-term stability (temperature change ± 30 °C (± 54 °F))	
• 250 mbar/25 kPa/3.6 psi	≤ (0.25 · r) % per year
• 1 bar/100 kPa/3.6 psi 4 bar/400 kPa/58 psi	≤ (0.25 · 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	≤ (0.125 · r) % in 5 years
• 700 bar/70 MPa/10152 psi	≤ (0.25 · r) % in 5 years
Effect of mounting position	≤ 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 nominal measuring range

for gauge pressure

SITRANS P, DS III series for gauge pressure		
Rated conditions		
Degree of protection		
• according to EN 60529	IP66 (optional IP66/IP68)	
• according to NEMA 250	Type 4X	
Temperature of medium		
• Measuring cell with silicone oil filling	-40 ... +100 °C (-40 ... +212 °F)	
• Measuring cell with inert filling liquid		
- 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	-40 ... +85 °C (-40 ... +185 °F)	
- 160 bar/16 MPa/2321 psi 400 bar/40 MPa/5802 psi 700 bar/70 MPa/10152 psi	-20 ... +100 °C (-4 ... +212 °F)	
• Measuring cell with Neobee fill fluid (FDA-compliant)	-10 ... +100 °C (+14 ... +212 °F)	
• In conjunction with dust explosion protection	-20 ... +60 °C (-4 ... +140 °F)	
Ambient conditions		
• Ambient temperature (silicone oil and inert oil)		
- Transmitter	-40 ... +85 °C (-40 ... +185 °F)	
- Display readable	-30 ... +85 °C (-22 ... +185 °F)	
• Ambient temperature (Neobee fill fluid)		
- Transmitter	-10 ... +85 °C (+14 ... +185 °F)	
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F)	
• Climatic class		
- Condensation	Relative humidity 0 ... 100 %/Condensation permissible, suitable for use in the tropics	
• Electromagnetic Compatibility		
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21	
Design		
Weight (without options)	Die-cast aluminum: ≈ 2.0 kg (≈ 4.4 lb) Stainless steel precision casting: ≈ 4.6 kg (≈ 10.1 lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408	
Wetted parts materials		
• Connection shank	Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4602	
• Oval flange	Stainless steel, mat. no. 1.4404/316L	
• Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819	
Measuring cell filling	Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))	
Process connection	Connection shank G½B to DIN EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518	
Material of mounting bracket		
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plated	
• Stainless steel 304	Sheet stainless steel, mat. no. 1.4301 (SS 304)	
• Stainless steel 316L	Sheet stainless steel, mat. no. 1.4404 (SS 316L)	
Power supply U_H	**HART**	**PROFIBUS PA/FOUNDATION Fieldbus**
Terminal voltage on transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically-safe mode	-
Power supply	-	Supplied through bus
Separate 24 V power supply	-	Not necessary
Bus voltage		
• Not Ex	-	9 ... 32 V
• With intrinsically-safe operation	-	9 ... 24 V
Current consumption		
• Basic current (max.)	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
• Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	-	Yes

SITRANS P, DS III series for gauge pressure	HART	PROFIBUS PA/ FOUNDATION Fieldbus
Certificates and approvals		
Classification according to PED 2014/68/EU	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)	
Explosion protection		
• Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +70 °C (-40 ... +158 °F) temperature class T5; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To certified intrinsically-safe circuits with peak values: U_i = 30 V, I_i = 100 mA, P_i = 750 mW; R_i = 300 Ω	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 174 mA, P_o = 1 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC	To circuits with values: U_H = 9 ... 32 V DC
• Dust explosion protection for zone 20	PTB 01 ATEX 2055	
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F)	
- Max. surface temperature	120 °C (248 °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	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Dust explosion protection for zone 21/22	PTB 01 ATEX 2055	
- Marking	Ex II 2 D Ex tb IIIC T120°C Db	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC; P_{max} = 1.2 W	To circuits with values: U_H = 9 ... 32 V DC; P_{max} = 1 W
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X	
- Marking	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc	
- Connection (Ex nA)	U_m = 45 V	U_m = 32 V
- Connections (Ex ic)	To circuits with values: U_i = 45 V	FISCO supply unit ic: U_o = 17.5 V, I_o = 570 mA Linear barrier: U_o = 32 V, I_o = 132 mA, P_o = 1 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion protection acc. to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	
• Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	

for gauge pressure

HART communication	
HART	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 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, class B
Function blocks	2
• Analog input	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 ... 100 s
- Simulation function	Input /Output
- Failure mode	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
- Square-rooted characteristic for flow measurement	Yes
- Gradual volume suppression and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or over parameterizable ramp function

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

Selection and Ordering data		Article No.
Pressure transmitter for gauge pressure, SITRANS P DS III with HART		↗ 7MF4033 -
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid [1]	grease-free to cleanliness level 2	3
FDA compliant fill fluid[2]		
• Neobee oil	normal	4
Measuring span (min. ... max.)		
8.3 ... 250 mbar	(0.12 ... 3.6 psi)	A
0.01 ... 1 bar	(0.15 ... 14.5 psi)	B
0.04 ... 4 bar	(0.58 ... 58 psi)	C
0.16 ... 16 bar	(2.32 ... 232 psi)	D
0.63 ... 63 bar	(9.14 ... 914 psi)	E
1.6 ... 160 bar	(23.2 ... 2320 psi)	F
4.0 ... 400 bar	(58.0 ... 5802 psi)	G
7.0 ... 700 bar	(102.0 ...10153 psi)	J
Wetted parts materials		
Seal diaphragm	Process connection	
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)** [3) 4) 5) 6)]		Y 1
Version for diaphragm seals in conjunction with process connector "G½B connection shank"" [3) 4) 5) 6)]		Y 0
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)		
- 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
Non-wetted parts materials		
• Housing made of die-cast aluminium		0
• Housing stainless steel precision casting[7)]		3
Version		
• Standard version, German plate inscription, setting for pressure unit: bar		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		

Selection and Ordering data	Article No.
Pressure transmitter for gauge pressure, SITRANS P DS III with HART	7MF4033 -
Explosion protection	
• None	A
• With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)"	B
- "Explosion-proof (Ex d)"[8)]	D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"[9)]	P
- "Ex nA/ic (Zone 2)"[10)]	E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"[8)11)]	R
• FM + CSA intrinsic safe (is)[12)]	F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[9)11)12)]	S
• With FM + CSA, Type of protection:	
- "Intrinsic Safe and Explosion Proof (is + xp)"[7)12)]	N C
Electrical connection / cable entry	
• Screwed gland M20 x1 .5	B
• Screwed gland ½-14 NPT	C
• Han 7D device plug (plastic housing) incl. mating connector[13)]	D
• M12 device plugs (stainless steel)[13)14)]	F
Display	
• Without display	0
• Without visible display (display concealed, setting: mA)	1
• With visible display (setting: mA)	6
• with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)	7

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

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

1) For oxygen application, add Order code E10.
2) Available for measuring ranges 1 ... 63 bar.
3) 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.
4) 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.
5) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF403.-..Y..-.... and 7MF4900-1...-.B
6) The standard measuring cell filling of configurations with remote seals (Y) is silicone oil.
7) Not in conjunction with Electrical connection "Han 7D device plug".
8) Without cable gland, with blanking plug
9) With enclosed cable gland Ex ia and blanking plug
10) Configurations with Han and M12 device plugs are only available in Ex ic.
11) Only in connection with IP66.
12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
13) Only in connection with Ex approval A, B or E.
14) M12 delivered without cable socket

1

for gauge pressure

Selection and Ordering data		Article No.
Pressure transmitter for gauge pressure		
SITRANS P DS III with PROFIBUS PA (PA) ↗		7MF4034 -
SITRANS P DS III with FOUNDATION Fieldbus (FF) ↗		7MF4035 -
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		■■■■■ - ■■■■
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid[1]	grease-free to cleanliness level 2	3
FDA compliant fill fluid[2]		
• Neobee oil	normal	4
Nominal measuring range		
250 mbar	(3.6 psi)	A
1 bar	(14.5 psi)	B
4 bar	(58 psi)	C
16 bar	(232 psi)	D
63 bar	(914 psi)	E
160 bar	(2320 psi)	F
400 bar	(5802 psi)	G
700 bar	(10153 psi)	J
Wetted parts materials		
Seal diaphragm	Process connection	
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)** [3) 4) 5) 6)]		Y 1
Version for diaphragm seals in conjunction with process connector "G½B connection shank"" [3) 4) 5) 6)]		Y 0
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) [7)]		
- 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
Non-wetted parts materials		
• Housing made of die-cast aluminium		0
• Housing stainless steel precision casting		3
Version		
• Standard version, German label inscription, setting of pressure unit: bar		1
• International version, English label inscription, setting of pressure unit: psi		2
• Chinese version, English label inscription, setting of pressure unit: kPa		3
All versions include DVD with compact operating instructions in various EU languages.		

Selection and Ordering data	Article No.
Pressure transmitter for gauge pressure	
SITRANS P DS III with PROFIBUS PA (PA)	7MF4034 -
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7MF4035 -
	■■■■■ - ■■■■
Explosion protection	
• None	A
• With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)"	B
- "Explosion-proof (Ex d)"[8)]	D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"[9)]	P
- "Ex nA/ic (Zone 2)"[10)]	E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"[9) 11)]	R
• FM + CSA intrinsic safe (is)[12)]	F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[9)11)12)]	S
• With FM + CSA, Type of protection:	
- "Intrinsic Safe and Explosion Proof (is + xp)"[7)12)]	N C
Electrical connection/cable entry	
• Screwed gland M20 x 1.5	B
• Screwed gland ½-14 NPT	C
• M12 device plugs (stainless steel)[13)14)]	F
Display	
• Without display	0
• Without visible display (display concealed, setting: bar)	1
• With visible display (setting: bar)	6
• with customer-specific display (setting as specified, Order code "Y21" required)	7

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

1) For oxygen application, add Order code E10.
2) Available for measuring ranges 1 ... 63 bar.
3) 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.
4) 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.
5) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF403.-..Y..-.... and 7MF4900-1...-.B
6) The standard measuring cell filling of configurations with remote seals (Y) is silicone oil.
7) M10 fastening thread: Max. span 160 bar (2320 psi)
7/16-20 UNF and M12 fastening thread: Max. span 400 bar (5802 psi)
8) Without cable gland, with blanking plug.
9) With enclosed cable gland Ex ia and blanking plug.
10) Configurations with Han and M12 device plugs are only available in Ex ic.
11) Only in connection with IP66.
12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
13) M12 delivered without cable socket.
14) Only in connection with Ex approval A, B, E or F.

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 (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:				
• Steel	**A01**	✓	✓	✓
• Stainless steel 304	**A02**	✓	✓	✓
• Stainless steel 316L	**A03**	✓	✓	✓
Device plugs[1]				
• Han 7D (metal)	**A30**	✓		
• Han 8D (instead of Han 7D)	**A31**	✓		
• Angled	**A32**	✓		
• Han 8D (metal)	**A33**	✓		
Cable sockets for M12 device plugs (metal (CuZn))	**A50**	✓	✓	✓
Rating plate inscription (instead of German)				
• English	**B11**	✓	✓	✓
• French	**B12**	✓	✓	✓
• Spanish	**B13**	✓	✓	✓
• Italian	**B14**	✓	✓	✓
• Cyrillic (russian)	**B16**	✓	✓	✓
English rating plate Pressure units in inH_20 and/or psi	**B21**	✓	✓	✓
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2[2]	**C11**	✓	✓	✓
Inspection certificate[3] Acc. to EN 10204-3.1	**C12**	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	**C14**	✓	✓	✓
Acceptance certificate (EN 10204-3.1) PMI test of parts in contact with medium	**C15**	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C20**	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	**C21**[4]		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C23**	✓		
PED for Russia with initial calibration mark	**C99**	✓	✓	✓
Setting of the upper saturation limit of the output signal to 22.0 mA	**D05**	✓		
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)	**D07**	✓	✓	✓
Degree of protection IP66/IP68 (only for M20x1.5 and ½-14 NPT)	**D12**	✓	✓	✓
Supplied with oval flange (1 item), PTFE packing and screws in thread of oval flange	**D37**	✓	✓	✓
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	**D59**	✓	✓	✓
Use in or on zone 1D/2D[5] (only together with type of protection "Intrinsic safety" (transmitter 7MF4...-.....-.B.. Ex ia)" and IP66)	**E01**	✓	✓	✓
Oxygen application (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	**E10**	✓	✓	✓
Export approval Korea	**E11**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
CRN approval Canada (Canadian Registration Number)	**E22**[6]	✓	✓	✓
Dual seal	**E24**	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.B..)	**E25**[7]	✓	✓	✓
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.D..)	**E26**[7]	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.P..)	**E28**[7]	✓	✓	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4...-.....-.B..)	**E45**[7]	✓	✓	✓
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4...-.....-.D..)	**E46**[7]	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4...-.....-.B..)	**E5**[7]	✓	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4...-.....-.D..)	**E56**[7]	✓	✓	✓
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.E..)	**E57**[7]	✓	✓	✓
Ex protection „Ex ia", „Ex d" and „Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.R..)	**E58**[7]	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4...-.....-.[B, D]..-Z + E11)	**E70**[7]	✓	✓	✓
Ex-protection Ex ia according to EAC Ex (Russia) (only for transmitter 7MF4...-.....-.B..)	**E80**	✓	✓	✓
Ex-protection Ex d according to EAC Ex (Russia) (only for transmitter 7MF4...-.....-.D..)	**E81**	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia) (only for transmitter 7MF4...-.....-.E..)	**E82**	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) (only for transmitter 7MF4...-.....-.R..)	**E83**	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	**G10**	✓	✓	✓
Transient protector 6 kV (lightning protection)	**J01**	✓	✓	✓
Process connection Astava	**J06**	✓	✓	✓

for gauge pressure

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
Marine approvals				
• Det Norske Veritas Germanischer Lloyd (DNV-GL)	**S10**	✓	✓	✓
• Lloyds Register (LR)	**S11**	✓	✓	✓
• French marine classification society Bureau Veritas (BV)	**S12**	✓	✓	✓
• American Bureau of Shipping (ABS)	**S14**	✓	✓	✓
• Russian Maritime Register (RMR)	**S16**	✓	✓	✓
• Korean Register of Shipping (KR)	**S17**	✓	✓	✓

1) Han device plug IP65

2) 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.

3) 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.

4) Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H

5) Option does not contain gas explosion protection; only dust explosion protection: Use in or at Zone 1D/2D.

6) Cannot be ordered with remote seal.

7) When the additional ex option is selected, the ATEX marking on the device is omitted. Only the Ex option selected via the Z option is marked.

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**	✓	✓[1]	
Stainless steel tag plate and entry in device variable (measuring point description) Max. 16 characters, specify in plain text: Y15:	**Y15**[2]	✓	✓	✓
Measuring point text (entry in device variable) Max. 27 characters, specify in plain text: Y16:	**Y16**	✓	✓	✓
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	**Y17**	✓		
Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, ... Note: The following pressure units can be selected: bar, mbar, mm 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 pressure indication in non-pressure units[3] Specify in plain text: Y22: ..... up to ..... l/min, m³/h, m, USgpm, ... (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	**Y22 + Y01**	✓		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	**Y25**		✓	✓
Damping adjustment in seconds (0 ... 100 s)	**Y30**	✓	✓	✓

Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and D05 can be factory preset

✓ = available

Ordering example

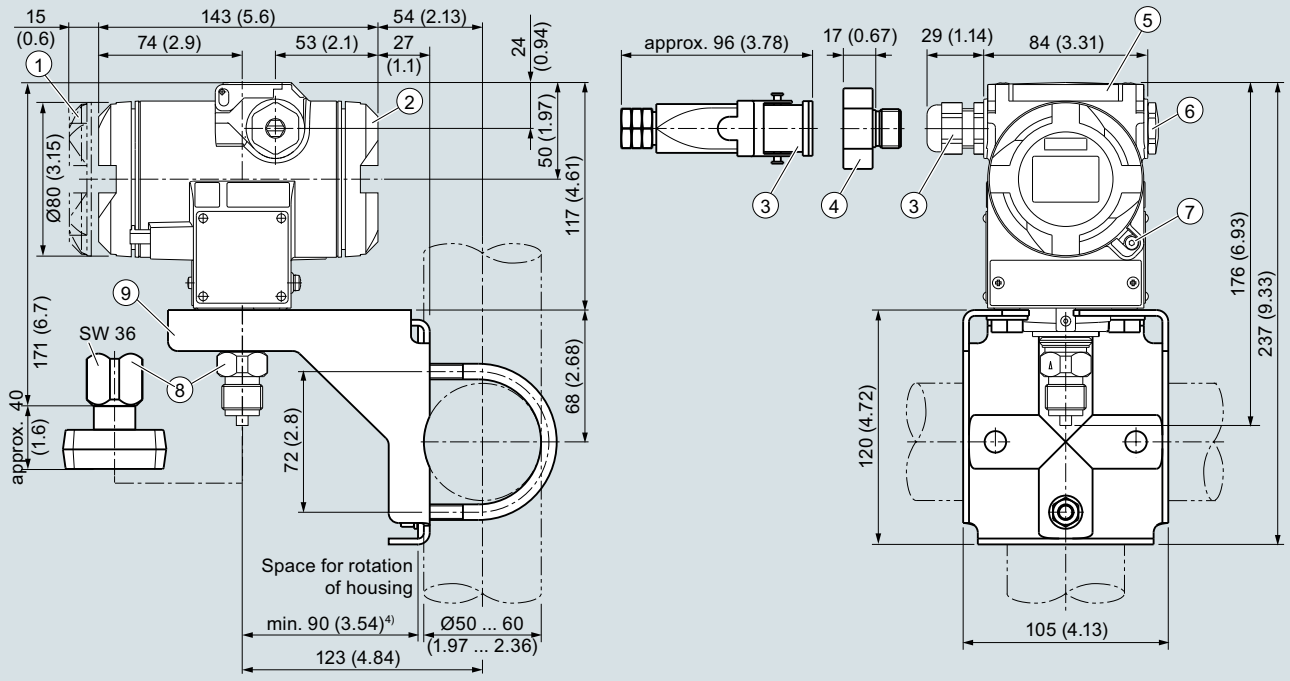
Item line:	7MF4033-1EA00-1AA7-Z
B line:	A01 + Y01 + Y21
C line:	Y01: 10 ... 20 bar (145 ... 290 psi)
C line:	Y21: bar (psi)

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

2) If you do not wish to have any text engraved for Y15, then do not make any further text entries as "Y15:".

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

Dimensional drawings



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

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "Explosion-proof enclosure"
3) Not with type of protection "FM + CSA" [IS + XP]"
4) Minimum distance for rotating

SITRANS P DS III pressure transmitters for gauge pressure, dimensions in mm (inch)

Technical specifications

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

Input of gauge pressure, with front-flush diaphragm

Measured variable	Gauge pressure, front-flush

Span (continuously adjustable) or measuring range, max. operating pressure and max. test pressure

HART	**PROFIBUS PA/ FOUNDATION Fieldbus**		
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 6.7MPa 972 psi	100 bar 10 MPa 1450 psi

Lower measuring limit	
• Measuring cell with silicone oil filling	100 mbar a/10 kPa a/1.45 psi a
• Measuring cell with inert filling liquid	100 mbar a/10 kPa a/1.45 psi a
• Measuring cell with Neobee	100 mbar a/10 kPa a/1.45 psi a
Upper measuring limit	100 % of max. span

Input of absolute pressure, with front-flush diaphragm

Measured variable	Absolute pressure, front-flush

Span (continuously adjustable) or measuring range, max. operating pressure and max. test pressure

HART	**PROFIBUS PA/ FOUNDATION Fieldbus**		
Span	Nominal measuring range	Max. operating pressure MAWP (PS)	Max. perm. test pressure
43.34 ... 1300 mbar a 4.33 ... 130 kPa a 17 ... 525 inH_2O a	1300 mbar a 130 kPa a 525 inH_2O a	2.6 bar a 260 kPa a 37.7 psi a	10 bar a 1 MPa a 145 psi a
160 ... 5000 mbar a 16 ... 500 kPa a 2.32 ... 72.5 psi a	5000 mbar a 500 kPa a 72.5 psi a	10 bar a 1 MPa a 145 psi a	30 bar a 3 MPa a 435 psi a
1 ... 30 bar a 0.1 ... 3 MPa a 14.6 ... 435 psi a	30 bar a 3 MPa a 435 psi a	45 bar a 4.5 MPa a 653 psi a	100 bar a 10 MPa a 1450 psi a

Depending on the process connection, the span may differ from these values

Lower measuring limit	0 mbar a/0 kPa a/0 psi a
Upper measuring limit	100 % of max. span

Output	**HART**	**PROFIBUS PA/FOUNDATION Fieldbus**
Output signal	4 ... 20 mA	Digital PROFIBUS PA and FOUNDATION Fieldbus signal
• Lower limit (infinitely adjustable)	3.55 mA, factory preset to 3.84 mA	-
• Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA	-
Load		
• Without HART	$R_B \leq (U_H - 10.5\ V)/0.023\ A$ in Ω, U_H: Power supply in V	-
• With HART	R_B = 230 ... 500 Ω (SIMATIC PDM) or R_B = 230 ... 1100 Ω (HART Communicator)	-
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 P DS III series for gauge and absolute pressure, with front-flush diaphragm		
Measuring accuracy	Acc. to IEC 60770-1	
Reference conditions (All error data refer always refer to the set span)	• Increasing characteristic • Start-of-scale value 0 bar/kPa/psi • Stainless steel seal diaphragm • Silicone oil filling • Room temperature 25 °C (77 °F)	
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span or nom. pressure range	
Error in measurement at limit setting incl. hysteresis and reproducibility		
• Linear characteristic	**Gauge pressure, front-flush**	**Absolute pressure, front-flush**
- r ≤ 5	≤ 0.075 %	-
- 5 < r ≤ 100	≤ (0.005 · r + 0.05) %	-
- r ≤ 10	-	≤ 0.2 %
- 10 < r ≤ 30	-	≤ 0.4 %
Influence of ambient temperature (in percent per 28 °C (50 °F))	≤ (0.08 · r + 0.16) %	≤ (0.16 · r + 0.24) %
Effect of ambient temperature (in pressure per temperature change)		
• Temperature difference between medium temperature and ambient temperature	3 mbar/0.3 kPa/0.04 psi per 10 K	
Long-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.25 · 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 nominal measuring range	
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 (with front-flush diaphragm)	-10 ... +85 °C (14 ... +185 °F)	
• Measuring cell with inert liquid	-40 ... +85 °C (-40 ... +185 °F)	
• Transmitter	-40 ... +85 °C (-40 ... +185 °F)	
• Display readable	-30 ... +85 °C (-22 ... +185 °F)	
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F) (in the case of Neobee: -20 ... +85 °C (-4 ... +185/°F)) (for high temperature oil: -10 ... + 85 °C (14 ... 185 °F))	
Climatic class		
• Condensation	Relative humidity 0 ... 100 % Condensation permissible, suitable for use in the tropics	
Degree of protection		
• according to EN 60529	IP66 (optional IP66/IP68)	
• according to NEMA 250	Type 4X	
Electromagnetic Compatibility		
• Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21	
Medium conditions	The max. medium temperature of the front-flush process connections is to be taken into account in accordance with the relevant connection standards (e. g. DIN 32676, DIN 11851 etc.).	
Temperature of medium		
• Measuring cell with silicone oil	-40 ... +100 °C (-40 ... +212 °F)	
• Measuring cell with silicone oil (with front-flush diaphragm)	-40 ... +150 °C (-40 ... +302 °F)	
• Measuring cell with Neobee oil (with front-flush diaphragm)	-10 ... +150 °C (14 ... 302 °F)	
• Measuring cell with silicone oil, with temperature decoupler (only for gauge pressure version with front-flush diaphragm)	-40 ... +200 °C (-40 ... +392 °F)	
• Measuring cell with Neobee oil, with temp. decoupler (only for gauge pressure version with flush-mounted diaphragm)	-10 ... +200 °C (14 ... 392 °F)	
• Measuring cell with inert filling liquid	-20 ... +100 °C (-4 ... +212 °F)	
• Measuring cell with high-temperature oil (only for gauge pressure version with front-flush diaphragm)	-10 ... +250 °C (14 ... 482 °F)	

for gauge/absolute pressure, with front-flush diaphragm

SITRANS P DS III series for gauge and absolute pressure, with front-flush diaphragm		
Design		
Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408	
Wetted parts materials	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819	
Measuring cell filling	Silicone oil or inert filling liquid	
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)	
Power supply U_H	**HART**	**PROFIBUS PA/FOUNDATION Fieldbus**
Terminal voltage on transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically-safe mode	-
Power supply	-	Supplied through bus
Separate 24 V power supply necessary	-	No
Bus voltage		
• Not Ex	-	9 ... 32 V
• With intrinsically-safe operation	-	9 ... 24 V
Current consumption		
• Basic current (max.)	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
• Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	-	Yes

SITRANS P DS III series for gauge and absolute pressure, with front-flush diaphragm		
Certificates and approvals		
Classification according to PED 2014/68/EU	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)	
Explosion protection		
• Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +70 °C (-40 ... +158 °F) temperature class T5; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To certified intrinsically-safe circuits with peak values: U_i = 30 V, I_i = 100 mA, P_i = 750 mW; R_i = 300 Ω	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1.2 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC	To circuits with values: U_H = 9 ... 32 V DC
• Dust explosion protection for zone 20	PTB 01 ATEX 2055	
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F)	
- Max. surface temperature	120 °C (248 °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	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Dust explosion protection for zone 21/22	Ex II 2 D Ex tb IIIC T120°C Db	
- Marking	Ex II 2 D IP65 T 120 °C	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC; P_{max} = 1.2 W	To circuits with values: U_H = 9 ... 32 V DC; P_{max} = 1 W
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X	
- Marking	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc	
- Connection (Ex nA)	U_m = 45 V	U_m = 32 V
- Connections (Ex ic)	To circuits with values: U_i = 45 V	FISCO supply unit ic: U_o = 17.5 V, I_o = 570 mA Linear barrier: U_o = 32 V, I_o = 132 mA, P_o = 1 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion protection acc. to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	
• Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	

Hygiene version

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

for gauge/absolute pressure, with front-flush diaphragm

HART communication	
HART	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 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, class B
Function blocks	2
• Analog input	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 ... 100 s
- Simulation function	Input /Output
- Failure mode	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
- Square-rooted characteristic for flow measurement	Yes
- Gradual volume suppression and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or over parameterizable ramp function

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

Selection and Ordering data		Article No.
Pressure transmitter for gauge and absolute pressure, front-flush diaphragm, SITRANS P DS III HART	↗	**7MF4133 -**
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid		3
FDA compliant fill fluid		
• Neobee oil	normal	4
Measuring span (min. ... max.)		
0.01 ... 1 bar	(0.15 ... 14.5 psi)	B
0.04 ... 4 bar	(0.58 ... 58 psi)	C
0.16 ... 16 bar	(2.32 ... 232 psi)	D
0.63 ... 63 bar	(9.14 ... 914 psi)	E
43.34 ... 1300 mbar a[1]	(0.63 ... 18.86 psi a)[1]	S
0.17 ... 5 bar a[1]	(2.43 ... 72.5 psi a)[1]	T
1 ... 30 bar a[1]	(4.35 ... 435 psi a)[1]	U
Wetted parts materials		
Seal diaphragm	Connection shank	
Stainless steel	Stainless steel	A
Hastelloy[2]	Stainless steel	B
Process connection		
• Flange version with Order code M.., N.., R.. or Q..		7
Non-wetted parts materials		
• Housing made of die-cast aluminium		0
• Housing stainless steel precision casting		3
Version		
• Standard version, German plate inscription, setting for pressure unit: bar		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		
Explosion protection		
• None		A
• With ATEX, Type of protection:		
- "Intrinsic safety (Ex ia)"		B
- "Explosion-proof (Ex d)" [3]		D
- „Ex nA/ic (Zone 2)"[4]		E
• FM + CSA intrinsic safe (is)[5]		F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[5][6][7]		S
• With FM + CSA, Type of protection:		
- "Intrinsic Safe and Explosion Proof (is + xp)"[3][5]		N C
Electrical connection/cable entry		
• Inner thread M20 x 1.5		B
• Female thread ½-14 NPT		C
• Han 7D device plug (plastic housing) incl. mating connector[8]		D
• M12 device plugs (stainless steel)[9] [10]		F

Selection and Ordering data	Article No.
Pressure transmitter for gauge and absolute pressure, front-flush diaphragm, SITRANS P DS III HART	**7MF4133 -**
Display	
• Without display	0
• Without visible display (display concealed, setting: mA)	1
• With visible display (setting: mA)	6
• With customer-specific display (setting as specified, Order code "Y21" or "Y22" required)	7

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

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

1) Not with temperature decoupler P00, not for process connections 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) Without cable gland, with blanking plug
4) Configurations with Han and M12 device plugs are only available in Ex ic.
5) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
6) Only in connection with IP66.
7) With enclosed cable gland Ex ia and blanking plug.
8) Only in connection with Ex approval A, B or E.
9) Only in connection with Ex approval A, B, E or F.
10) M12 delivered without cable socket

1

for gauge/absolute pressure, with front-flush diaphragm

Selection and Ordering data		Article No.
Pressure transmitter P for gauge and absolute pressure, front-flush diaphragm:		
SITRANS P DS III with PROFIBUS PA (PA) ↗		7MF4134-
SITRANS P DS III with FOUNDATION Fieldbus (FF) ↗		7MF4135-
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		■■■■■-■■■■
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid		3
FDA compliant fill fluid		
• Neobee oil	normal	4
Nominal measuring range		
1 bar	(14.5 psi)	B
4 bar	(58 psi)	C
16 bar	(232 psi)	D
63 bar	(914 psi)	E
1300 mbar a[1]	(18.86 psi a)[1]	S
5 bar a[1]	(72.5 psi a)[1]	T
30 bar a[1]	(435 psi a)[1]	U
Wetted parts materials		
Seal diaphragm	Connection shank	
Stainless steel	Stainless steel	A
Hastelloy[2]	Stainless steel	B
Process connection		
• Flange version with Order code M.., N.., R.. or Q..		7
Non-wetted parts materials		
• Housing made of die-cast aluminium		0
• Housing stainless steel precision casting		3
Version		
• Standard version, German plate inscription, setting for pressure unit: bar		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		
Explosion protection		
• None		A
• With ATEX, Type of protection:		
- "Intrinsic safety (Ex ia)"		B
- "Explosion-proof (Ex d)"[3]		D
- „Ex nA/ic (Zone 2)"[4]		E
• FM + CSA intrinsic safe (is)[5]		F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[5][6][7]		S
• With FM + CSA, Type of protection:		
- "Intrinsic Safe and Explosion Proof (is + xp)"[3][5] (available soon)		N C
Electrical connection/cable entry		
• Screwed gland M20 x 1.5		B
• Screwed gland ½-14 NPT		C
• M12 device plugs (stainless steel)[8] [9]		F

Selection and Ordering data	Article No.
Pressure transmitter P for gauge and absolute pressure, front-flush diaphragm:	
SITRANS P DS III with PROFIBUS PA (PA)	7MF4134-
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7MF4135-
	■■■■■-■■■■
Display	
• Without display	0
• Without visible display (display concealed, setting: bar)	1
• With visible display (setting: bar)	6
• With customer-specific display (setting as specified, Order code "Y21" required)	7

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

1) Not with temperature decoupler P00, 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) Without cable gland, with blanking plug
4) Configurations with Han and M12 device plugs are only available in Ex ic.
5) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
6) Only in connection with IP66.
7) With enclosed cable gland Ex ia and blanking plug.
8) Only in connection with Ex approval A, B, E or F.
9) M12 delivered without cable socket

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
Device plugs[1]				
• Han 7D (metal)	**A30**	✓		
• Han 8D (instead of Han 7D)	**A31**	✓		
• Angled	**A32**	✓		
• Han 8D (metal)	**A33**	✓		
Cable sockets for M12 device plugs (metal (CuZn))	**A50**	✓	✓	✓
Rating plate inscription (instead of German)				
• English	**B11**	✓	✓	✓
• French	**B12**	✓	✓	✓
• Spanish	**B13**	✓	✓	✓
• Italian	**B14**	✓	✓	✓
• Cyrillic (russian)	**B16**	✓	✓	✓
English rating plate Pressure units in inH_20 and/or psi	**B21**	✓	✓	✓
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2	**C11**	✓	✓	✓
Inspection certificate Acc. to EN 10204-3.1	**C12**	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	**C14**	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C20**	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	**C21**[2]		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C23**	✓		
PED for Russia with initial calibration mark	**C99**	✓	✓	✓
Setting of the upper saturation limit of the output signal to 22.0 mA	**D05**	✓		
Degree of protection IP66/IP68 (only for M20x1.5 and ½-14 NPT)	**D12**	✓	✓	✓
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	**D59**	✓	✓	✓
Oxygen application (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	**E10**	✓	✓	✓
Export approval Korea	**E11**	✓	✓	✓
CRN approval Canada (Canadian Registration Number)	**E22**[3]	✓	✓	✓
Dual seal	**E24**	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.B..)	**E25**[4]	✓	✓	✓
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.D..)	**E26**[4]	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.P..)	**E28**[4]	✓	✓	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4...-.....-.B..)	**E45**[4]	✓	✓	✓
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4...-.....-.D..)	**E46**[4]	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4...-.....-.B..)	**E55**[4]	✓	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4...-.....-.D..)	**E56**[4]	✓	✓	✓
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.E..)	**E57**[4]	✓	✓	✓
Ex protection „Ex ia", „Ex d" and „Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.R..)	**E58**[4]	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4...-.....-.[B, D]..-Z + E11)	**E70**[4]	✓	✓	✓
Ex-protection Ex ia according to EAC Ex (Russia)	**E80**	✓	✓	✓
Ex-protection Ex d according to EAC Ex (Russia)	**E81**	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	**E82**	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	**E83**	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	**G10**	✓	✓	✓
Transient protector 6 kV (lightning protection)	**J01**	✓	✓	✓
Flanges to EN 1092-1, Form B1				
• DN 25, PN 40[5]	**M11**	✓	✓	✓
• 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				
• Stainless steel flange 1" class 150[5]	**M40**	✓	✓	✓
• Stainless steel flange 1½" class 150	**M41**	✓	✓	✓
• Stainless steel flange 2" class 150	**M42**	✓	✓	✓
• Stainless steel flange 3" class 150	**M43**	✓	✓	✓
• Stainless steel flange 4" class 150	**M44**	✓	✓	✓
• Stainless steel flange 1½" class 300	**M46**	✓	✓	✓
• Stainless steel flange 2" class 300	**M47**	✓	✓	✓
• Stainless steel flange 3" class 300	**M48**	✓	✓	✓
• Stainless steel flange 4" class 300	**M49**	✓	✓	✓
Threaded connector to DIN 3852-2, form A, thread to ISO 228				
• G ¾"-A, front-flush[6]	**R01**	✓	✓	✓
• G 1"-A, front-flush[6]	**R02**	✓	✓	✓
• G 2"-A, front-flush	**R04**	✓	✓	✓
Tank connection[7]				
Sealing is included in delivery				
• TG 52/50, PN 40	**R10**	✓	✓	✓
• TG 52/150, PN 40	**R11**	✓	✓	✓

1

for gauge/absolute pressure, with front-flush diaphragm

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)				
• DN 50, PN 25	**N04**	✓	✓	✓
• DN 80, PN 25	**N06**	✓	✓	✓
Tri-Clamp connection according DIN 32676/ISO 2852				
• DN 50/2", PN 16	**N14**	✓	✓	✓
• DN 65/2.5", PN 10	**N15**	✓	✓	✓
Varivent connection EHEDG compliant				
• Type N = 68 for Varivent housing DN 40 ... 125 and 1½" ... 6", PN 40	**N28**	✓	✓	✓
Temperature decoupler up to 200 °C[8)] for version with front-flush diaphragm	**P00**	✓	✓	✓
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 EHEDG compliant				
• 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 EHEDG compliant				
• 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 EHEDG compliant				
• 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**	✓	✓	✓
Bio-Control sanitary process connection				
• DN 50, PN 16	**Q53**	✓	✓	✓
• DN 65, PN 16	**Q54**	✓	✓	✓
Sanitary process connection to NEUMO Bio-Connect S flange connection				
• DN 2", PN 16	**Q72**	✓	✓	✓
Aseptic threaded socket to DIN 11864-1 Form A				
• 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				
• 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				
• 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 Form A				
• DN 50, PN 25	**N53**	✓	✓	✓
• DN 65, PN 25	**N54**	✓	✓	✓
• DN 80, PN 16	**N55**	✓	✓	✓
• DN 100, PN 16	**N56**	✓	✓	✓

1) Han device plug IP65
2) Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H.
3) Cannot be ordered with remote seal.
4) When the additional ex option is selected, the ATEX marking on the device is omitted. Only the Ex option selected via the Z option is marked.
5) Special seal in Viton included in the scope of delivery. FKM; temperature range -20 ... +200 °C (-4 ... +392 °C)
6) Cannot be combined with Order code P00. Can only be ordered with silicone oil measuring cell filling.
7) The weldable socket can be ordered under accessories.
8) 3A and EHEDG compliant. The maximum permissible temperatures of the medium depend on the respective cell fillings (see medium conditions).

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.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: ... up to ... mbar, bar, kPa, MPa, psi	**Y01**	✓	✓[1)]	
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 address (TAG) Max. 8 characters, specify in plain text: Y17:	**Y17**	✓		
Setting of pressure indicator 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/cm^2, kg/cm^2, Torr, ATM or % [*)] ref. temperature 20 °C	**Y21**	✓	✓	✓
Setting of pressure indication in non-pressure units[2)] Specify in plain text: Y22: ..... up to ..... l/min, m^3/h, m, USgpm, ... (specification of measuring range in pressure units **"Y01"** is essential, unit with max. 5 characters)	**Y22 + Y01**	✓		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	**Y25**		✓	✓
Damping adjustment in seconds (0 ... 100 s)	**Y30**	✓	✓	✓

Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and D05 can be factory preset

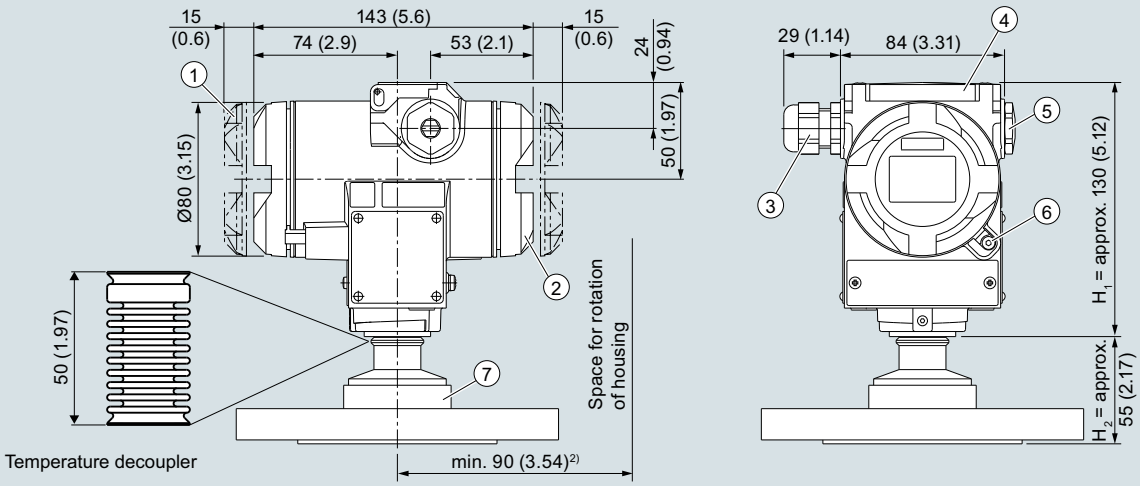
✓ = available

ordering example

Item line:	7MF4133-1DB20-1AB7-Z
B line:	A22 + Y01 + Y21
C line:	Y01: 1 ... 10 bar (14.5 ... 145 psi)
C line:	Y21: bar (psi)

1) Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.
2) Preset values can only be changed over SIMATIC PDM.

Dimensional drawings



1. Electronic side, digital display (longer overall length for cover with window)[1)]
2. Terminal side[1)]
3. Electrical connection: Screwed gland M20 x 1,5 or screwed gland ½-14 NPT or M12 device plug
4. Protective cover over keys
5. Blanking plug
6. Screw cover - safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
7. Process connection: see flange tables

1)
2) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
92 mm (3.6 inch) for minimum distance to permit rotation with indicator

SITRANS P pressure transmitters, DS III series for gauge pressure, with front-flush diaphragm, dimensions in mm (inch)

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

H_1 = Height of the SITRANS P300 up to a defined cross-section

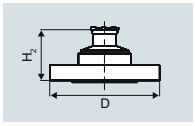
H_2 = Height of the flange up to this defined cross-section

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

Flanges as per EN and ASME

Flange to EN

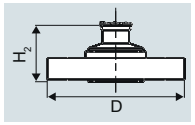
EN 1092-1



Order code	DN	PN	∅D	H_2
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

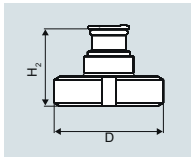


Order code	DN	PN	∅D	H_2
M40	1"	150	110 mm (4.3")	Approx. 52 mm (2")
M41	1½"	150	130 mm (5.1")	
M42	2"	150	150 mm (5.9")	
M43	3"	150	190 mm (7.5")	
M44	4"	150	230 mm (9.1")	
M46	1½"	300	155 mm (6.1")	
M47	2"	300	165 mm (6.5")	
M48	3"	300	210 mm (8.1")	
M49	4"	300	255 mm (10.0")	

NuG and pharmaceutical connections

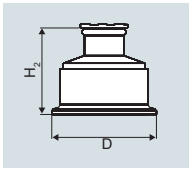
Connections to DIN

DIN 11851 (milk pipe union with slotted union nut)



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

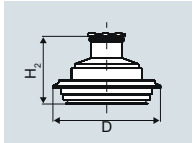
Tri-Clamp nach DIN 32676



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

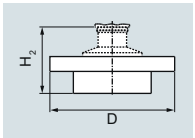
Other connections

Varivent connection



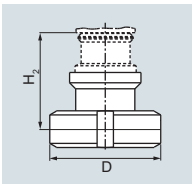
Order code	DN	PN	∅D	H_2
N28	40 ... 125	40	84 mm (3.3")	Approx. 52 mm (2")

Sanitary process connection to DRD



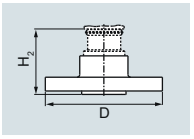
Order code	DN	PN	∅D	H_2
M32	50	40	105 mm (4.1")	Approx. 52 mm (2")

Sanitary process screw connection to NEUMO Bio-Connect



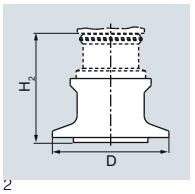
Order code	DN	PN	∅D	H_2
Q05	50	16	82 mm (3.2")	Approx. 52 mm (2")
Q06	65	16	105 mm (4.1")	
Q07	80	16	115 mm (4.5")	
Q08	100	16	145 mm (5.7")	
Q13	2"	16	82 mm (3.2")	
Q14	2½"	16	105 mm (4.1")	
Q15	3"	16	105 mm (4.1")	
Q16	4"	16	145 mm (5.7")	

Sanitary process connection to NEUMO Bio-Connect flange connection



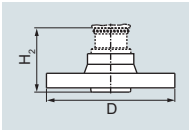
Order code	DN	PN	∅D	H_2
Q23	50	16	110 mm (4.3")	Approx. 52 mm (2")
Q24	65	16	140 mm (5.5")	
Q25	80	16	150 mm (5.9")	
Q26	100	16	175 mm (6.9")	
Q31	2"	16	100 mm (3.9")	
Q32	2½"	16	110 mm (4.3")	
Q33	3"	16	140 mm (5.5")	
Q34	4"	16	175 mm (6.9")	

Sanitary process connection to NEUMO Bio-Connect clamp connection



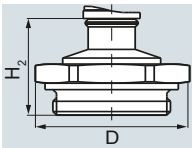
Order code	DN	PN	∅D	H_2
Q39	50	16	77.4 mm (3.0")	Approx. 52 mm (2")
Q40	65	10	90.9 mm (3.6")	
Q41	80	10	106 mm (4.2")	
Q42	100	10	119 mm (4.7")	
Q48	2½"	16	90.9 mm (3.6")	
Q49	3"	10	106 mm (4.2")	
Q50	4"	10	119 mm (4.7")	

Sanitary process connection to NEUMO Bio-Connect S flange connection



Order code	DN	PN	∅D	H_2
Q72	2"	16	125 mm (4.9")	Approx. 52 mm (2")

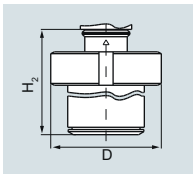
Threaded connection G¾", G1" and G2" acc. to DIN 3852



Order code	DN	PN	∅D	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")

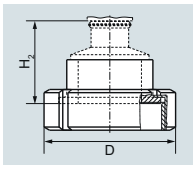
for gauge/absolute pressure, with front-flush diaphragm

Tank connection TG 52/50 and TG52/150



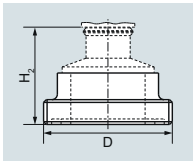
Order code	DN	PN	∅D	H_2
R10	25	40	63 mm (2.5")	Approx. 63 mm (2.5")
R11	25	40	63 mm (2.5")	Approx. 170 mm (6.7")

SMS socket with union nut



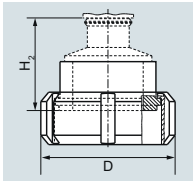
Order code	DN	PN	∅D	H_2
M67	2"	25	84 mm (3.3")	Approx. 52 mm (2")
M68	2½"	25	100 mm (3.9")	
M69	3"	25	114 mm (4.5")	

SMS threaded socket



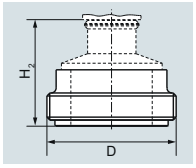
Order code	DN	PN	∅D	H_2
M73	2"	25	70 x 1/6 mm	Approx. 52 mm (2")
M74	2½"	25	85 x 1/6 mm	
M75	3"	25	98 x 1/6 mm	

IDF socket with union nut



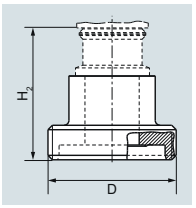
Order code	DN	PN	∅D	H_2
M82	2"	25	77 mm (3")	Approx. 52 mm (2")
M83	2½"	25	91 mm (3.6")	
M84	3"	25	106 mm (4.2")	

IDF threaded socket



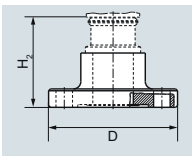
Order code	DN	PN	∅D	H_2
M92	2"	25	64 mm (2.5")	Approx. 52 mm (2")
M93	2½"	25	77.5 mm (3.1")	
M94	3"	25	91 mm (3.6")	

Aseptic threaded socket to DIN 11864-1 Form A



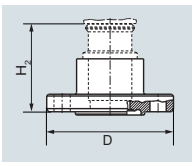
Order code	DN	PN	∅D	H_2
N33	50	25	78 x 1/6"	Approx. 52 mm (2")
N34	65	25	95 x 1/6"	
N35	80	25	110 x ¼"	
N36	100	25	130 x ¼"	

Aseptic flange with notch to DIN 11864-2 Form A



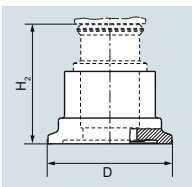
Order code	DN	PN	∅D	H_2
N43	50	16	94	Approx. 52 mm (2")
N44	65	16	113	
N45	80	16	133	
N46	100	16	159	

Aseptic flange with groove to DIN 11864-2 Form A



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

Technical specifications

SITRANS P DS III series for absolute pressure (from the gauge pressure series)

Input				
Measured variable	Absolute pressure			
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**		
	Span	Nominal measuring range	Max. operating pressure MAWP (PS)	Max. perm. test pressure
	8.34 ... 250 mbar a 0.83 ... 25 kPa a 3.35 ... 100 inH_2O a	250 mbar a 25 kPa a 100 inH_2O a	1.5 bar a 150 kPa a 21.8 psi a	6 bar a 600 kPa a 87 psi a
	43.34 ... 1300 mbar a 4.33 ... 130 kPa a 17.42 ... 522.4 inH_2O a	1300 mbar a 130 kPa a 525 inH_2O a	2.6 bar a 260 kPa a 37.7 psi a	10 bar a 1 MPa a 145 psi a
	170 ... 5000 mbar a 17 ... 500 kPa a 2.43 ... 72.5 psi a	5000 mbar a 500 kPa a 72.5 psi a	10 bar a 1 MPa a 145 psi a	30 bar a 3 MPa a 435 psi a
	1 ... 30 bar a 0.1 ... 3 MPa a 14.6 ... 435 psi a	30 bar a 3 MPa a 435 psi a	45 bar a 4.5 MPa a 653 psi a	100 bar a 10 MPa a 1450 psi a
	5,34 ... 160 bar a 0.53 ... 16 MPa a 77.4 ... 2321 psi a	160 bar a 16 MPa a 2321 psi	167 bar a 16,7 MPa a 2422 psi	250 bar a 25 MPa a 3626 psi
	13.34 ... 400 bar a 1.3 ... 40 MPa a 193.4 ... 5802 psi a	400 bar a 40 MPa a 5802 psi a	400 bar a 40 MPa a 5802 psi a	600 bar a 60 MPa a 8702 psi a
	23.34 ... 700 bar a 2.33 ... 70 MPa a 338.43 ... 10153 psi a	700 bar a 70 MPa a 10153 psi a	800 bar a 80 MPa a 11603 psi a	800 bar a 80 MPa a 11603 psi a
Lower measuring limit				
• Measuring cell with silicone oil filling	0 mbar a/0 kPa a/0 psi a			
• Measuring cell with inert filling liquid				
- for process temperature -20 °C < ϑ ≤ +60 °C (-4 °F < ϑ ≤ +140 °F)	30 mbar a/3 kPa a/0.44 psi a			
- for process temperature 60 °C < ϑ ≤ +100 °C (max. 85 °C for measuring cell 30 bar) (140 °F < ϑ ≤ +212 °F (max. 185 °F for measuring cell 435 psi))	30 mbar a + 20 mbar a · (ϑ - 60 °C)/°C 3 kPa a + 2 kPa a · (ϑ - 60 °C)/°C 0.44 psi a + 0.29 psi a · (ϑ - 140 °F)/°F			
Upper measuring limit	100 % of max. span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/process temperature)			
Start of scale value	Between the measuring limits (fully adjustable)			
Output	**HART**	**PROFIBUS PA/FOUNDATION Fieldbus**		
Output signal	4 ... 20 mA	Digital PROFIBUS PA and FOUNDATION Fieldbus signal		
• Lower limit (infinitely adjustable)	3.55 mA, factory preset to 3.84 mA	-		
• Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA	-		
Load				
• Without HART	$R_B \leq (U_H - 10.5\ V)/0.023\ A$ in Ω, U_H: Power supply in V	-		
• With HART	R_B = 230 ... 500 Ω (SIMATIC PDM) or R_B = 230 ... 1100 Ω (HART Communicator)	-		
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)			

for absolute pressure (from gauge pressure series)

SITRANS P DS III series for absolute pressure (from the gauge pressure series)	
Measuring accuracy	Acc. to IEC 60770-1
Reference conditions (All error data refer always refer to the set span)	• Increasing characteristic • Start-of-scale value 0 bar/kPa/psi • Stainless steel seal diaphragm • Silicone oil filling • Room temperature 25 °C (77 °F)
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span or nom. pressure range
Error in measurement at limit setting incl. hysteresis and reproducibility	
• Linear characteristic	
- $r \leq 10$	≤ 0.1 %
- $10 < r \leq 30$	≤ 0.2 %
Influence of ambient temperature (in percent per 28 °C (50 °F))	
• 250 mbar a/25 kPa a/3.6 psi a	≤ (0.15 · r + 0.1) %
• 1300 mbar a/130 kPa a/18.8 psi a 5 bar a/500 kPa a/72.5 psi a 30 bar a/3000 kPa a/435 psi a 100 bar a/10 MPa a/1450 psi a 160 bar a/16 MPa a/2321 psi a 400 bar a/40 MPa a/5802 psi a 700 bar a/50 MPa a/10152 psi a	≤ (0.08 · r + 0.16) %
Long-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.25 · r) % in 5 years
Effect of mounting position (in pressure per change in angle)	≤ 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 nominal measuring range
Rated conditions	
Degree of protection	
• according to EN 60529	IP66 (optional IP66/IP68)
• according to NEMA 250	Type 4X
Temperature of medium	
• Measuring cell with silicone oil filling	-40 ... +100 °C (-40 ... +212 °F) -20 ... +100 °C (-4 ... +212 °F) with 30 bar a measuring cell
• Measuring cell with inert filling liquid	-20 ... +100 °C (-4 ... +212 °F)
• In conjunction with dust explosion protection	-20 ... +60 °C (-4 ... +140 °F)
Ambient conditions	
• Ambient temperature	
- Transmitter	-40 ... +85 °C (-40 ... +185 °F)
- Display readable	-30 ... +85 °C (-22 ... +185 °F)
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F)
• Climatic class	
- Condensation	Relative humidity 0 ... 100 % Condensation permissible, suitable for use in the tropics
• Electromagnetic Compatibility	
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21

SITRANS P DS III series for absolute pressure (from the gauge pressure series)		
Design		
Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408	
Wetted parts materials		
• Connection shank	Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4602	
• Oval flange	Stainless steel, mat. no. 1.4404/316L	
• Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819	
Measuring cell filling	Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))	
Process connection	Connection shank G½B to EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518	
Material of mounting bracket		
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plated	
• Stainless steel 304	Sheet stainless steel, mat. no. 1.4301 (SS 304)	
• Stainless steel 316L	Sheet stainless steel, mat. no. 1.4404 (SS 316L)	
Power supply U_H	**HART**	**PROFIBUS PA/FOUNDATION Fieldbus**
Terminal voltage on transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically-safe mode	-
Power supply		Supplied through bus
Separate 24 V power supply necessary	-	No
Bus voltage		
• Not Ex	-	9 ... 32 V
• With intrinsically-safe operation	-	9 ... 24 V
Current consumption		
• Basic current (max.)	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
• Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	-	Yes

for absolute pressure (from gauge pressure series)

SITRANS P DS III series for absolute pressure (from the gauge pressure series)		
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)	
Explosion protection		
• Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +70 °C (-40 ... +158 °F) temperature class T5; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To certified intrinsically-safe circuits with peak values: U_i = 30 V, I_i = 100 mA, P_i = 750 mW; R_i = 300 Ω	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1.2 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC	To circuits with values: U_H = 9 ... 32 V DC
• Dust explosion protection for zone 20	PTB 01 ATEX 2055	
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F)	
- Max. surface temperature	120 °C (248 °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	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1.2 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Dust explosion protection for zone 21/22	PTB 01 ATEX 2055	
- Marking	Ex II 2 D Ex tb IIIC T120°C Db	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC; P_{max} = 1.2 W	To circuits with values: U_H = 9 ... 32 V DC; P_{max} = 1 W
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X	
- Marking	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc	
- Connection (Ex nA)	U_m = 45 V	U_m = 32 V
- Connection (Ex ic)	To circuits with values: U_i = 45 V	FISCO supply unit ic: U_o = 17.5 V, I_o = 570 mA Linear barrier: U_o = 32 V, I_o = 132 mA, P_o = 1 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion protection acc. to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	
• Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	

HART communication	
HART	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 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, class B
Function blocks	2
• Analog input	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 to 100 s
- Simulation function	Input /Output
- Failure mode	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
- Square-rooted characteristic for flow measurement	Yes
- Gradual volume suppression and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or over parameterizable ramp function

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

1

for absolute pressure (from gauge pressure series)

Selection and Ordering data		Article No.
Pressure transmitters for absolute pressure from gauge pressure series SITRANS P DS III with HART		7MF4233 -
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid[1]	grease-free to cleanliness level 2	3
Measuring span (min. ... max.)		
8.34 ... 250 mbar a	(0.13 ... 3.63 psi a)	D
43.34 ... 1300 mbar a	(0.63 ... 18.86 psi a)	F
0.17 ... 5 bar a	(2.43 ... 72.5 psi a)	G
1 ... 30 bar a	(14.6 ... 435 psi a)	H
5.34 ... 160 bar a [2]	(77.4 ... 2 321 psi a)	L
13.34 ... 400 bar a [2]	(193.4 ... 5 802 psi a)	M
23.34 ... 700 bar a [2]	(338.43 ... 10 153 psi a)	N
Wetted parts materials		
Seal diaphragm	Process connection	
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)** [3) 4) 5) 6) 7)]		Y 1
Version for diaphragm seals in conjunction with process connector "G½B connection shank" [3) 4) 5) 6) 7)]		Y 0
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)		
- 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
Non-wetted parts materials		
• Housing made of die-cast aluminium		0
• Housing stainless steel precision casting[8)]		3
Version		
• Standard version, German plate inscription, setting for pressure unit: bar		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		
Explosion protection		
• None		A
• With ATEX, Type of protection:		
- "Intrinsic safety (Ex ia)"		B
- "Explosion-proof (Ex d)"[9)]		D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"[10)]		P
- "Ex nA/ic (Zone 2)"[11)]		E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia+ Ex d + Zone 1D/2D)"[10)12)]		R
• FM + CSA intrinsic safe (is)[13)]		F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[10)12)13)]		S
• With FM + CSA, Type of protection:		
- "Intrinsic Safe and Explosion Proof (is + xp)"[9)13)]		N C

Selection and Ordering data	Article No.
Pressure transmitters for absolute pressure from gauge pressure series SITRANS P DS III with HART	7MF4233 -
Electrical connection/cable entry	
• Screwed gland M20x1.5	B
• Screwed gland ½-14 NPT	C
• Han 7D device plug (plastic housing) incl. mating connector[14)]	D
• M12 device plugs (stainless steel) [15) 16)]	F
Display	
• Without display	0
• Without visible display (display concealed, setting: mA)	1
• With visible display (setting: mA)	6
• with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)	7

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

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

1) For oxygen application, add Order code E10.
2) Available soon
3) Version 7MF4233-1DY... only up to max. span 200 mbar a (80 inH_2O a).
4) 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.
5) 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.
6) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF423.-..Y..-.... and 7MF4900-1...-.B
7) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
8) Not in conjunction with Electrical connection "Han 7D device plug".
9) Without cable gland, with blanking plug.
10) With enclosed cable gland Ex ia and blanking plug.
11) Configurations with Han and M12 device plugs are only available in Ex ic.
12) Only in connection with IP66.
13) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
14) Only in connection with Ex apporval A, B or E.
15) Only in connection with Ex apporval A, B, E or F.
16) M12 delivered without cable socket

Selection and Ordering data		Article No.
Pressure transmitters for absolute pressure from gauge pressure series		
SITRANS P DS III with PROFIBUS PA (PA) ↗		7MF4234 -
SITRANS P DS III with FOUNDATION Fieldbus (FF) ↗		7MF4235 -
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid[1]	grease-free to cleanliness level 2	3
Nominal measuring range		
250 mbar a	(3.63 psi a)	D
1300 mbar a	(18.86 psi a)	F
5 bar a	(72.5 psi a)	G
30 bar a	(435 psi a)	H
160 bar a [2]	(2 321 psi a)	L
400 bar a [2]	(5 802 psi a)	M
700 bar a [2]	(10 153 psi a)	N
Wetted parts materials		
Seal diaphragm	Process connection	
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)** [3) 4) 5) 6) 7)]		Y 1
Version for diaphragm seals in conjunction with process connector "G½B connection shank"" [3) 4) 5) 6) 7)]		Y 0
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)		
- 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
Non-wetted parts materials		
• Housing made of die-cast aluminium		0
• Housing stainless steel precision casting		3
Version		
• Standard version, German plate inscription, setting for pressure unit: bar		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		

Selection and Ordering data	Article No.
Pressure transmitters for absolute pressure from gauge pressure series	
SITRANS P DS III with PROFIBUS PA (PA)	7MF4234 -
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7MF4235 -
Explosion protection	
• None	A
• With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)"	B
- "Explosion-proof (Ex d)"[8)]	D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"[9)]	P
- "Ex nA/ic (Zone 2)" [10)]	E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"[9) 11)]	R
• FM + CSA intrinsic safe (is)[12)]	F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[9)11)12)]	S
• With FM + CSA, Type of protection:	
- "Intrinsic Safe and Explosion Proof (is + xp)"[8)12)]	N C
Electrical connection/cable entry	
• Screwed gland M20 x 1.5	B
• Screwed gland ½-14 NPT	C
• M12 device plugs (stainless steel)[13) 14)]	F
Display	
• Without display	0
• Without visible display (display concealed, setting: bar)	1
• With visible display (setting: bar)	6
• with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)	7

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

1) For oxygen application, add Order code E10.
2) Available soon
3) Version 7MF4233-1DY... only up to max. span 200 mbar a (2.9 psi a).
4) 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.
5) 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.
6) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF423.-..Y..-.... and 7MF4900-1...-.B
7) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
8) Without cable gland, with blanking plug.
9) With enclosed cable gland Ex ia and blanking plug.
10) Configurations with Han and M12 device plugs are only available in Ex ic.
11) Only in connection with IP66.
12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
13) Only in connection with Ex approval A, B, E or F.
14) M12 delivered without cable socket.

1

for absolute pressure (from gauge pressure series)

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 (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:				
• Steel	**A01**	✓	✓	✓
• Stainless steel 304	**A02**	✓	✓	✓
• Stainless steel 316L	**A03**	✓	✓	✓
Device plugs[1]				
• Han 7D (metal)	**A30**	✓		
• Han 8D (instead of Han 7D)	**A31**	✓		
• Angled	**A32**	✓		
• Han 8D (metal)	**A33**	✓		
Cable sockets for M12 device plugs (metal (CuZn))	**A50**	✓	✓	✓
Rating plate inscription (instead of German)				
• English	**B11**	✓	✓	✓
• French	**B12**	✓	✓	✓
• Spanish	**B13**	✓	✓	✓
• Italian	**B14**	✓	✓	✓
• Cyrillic (russian)	**B16**	✓	✓	✓
English rating plate Pressure units in inH_20 and/or psi	**B21**	✓	✓	✓
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2[2]	**C11**	✓	✓	✓
Inspection certificate[3] Acc. to EN 10204-3.1	**C12**	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	**C14**	✓	✓	✓
Acceptance certificate (EN 10204-3.1) PMI test of parts in contact with medium	**C15**	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C20**	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	**C21**[4]		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C23**	✓		
PED for Russia with initial calibration mark	**C99**	✓	✓	✓
Setting of the upper saturation limit of the output signal to 22.0 mA	**D05**	✓		
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)	**D07**	✓	✓	✓
Degree of protection IP66/IP68 (only for M20 x 1.5 and ½-14 NPT)	**D12**	✓	✓	✓
Supplied with oval flange (1 item), PTFE packing and screws in thread of oval flange	**D37**	✓	✓	✓
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	**D59**	✓	✓	✓
Use in or on zone 1D/2D[5] (only together with type of protection "Intrinsic safety" (transmitter 7MF4...-.....-.B.. Ex ia) and IP65)	**E01**	✓	✓	✓
Oxygen application (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	**E10**	✓	✓	✓
Export approval Korea	**E11**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs				
Add "**-Z**" to Article No. and specify Order code.				
CRN approval Canada (Canadian Registration Number)	**E22**[6]	✓	✓	✓
Dual seal	**E24**	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.B..)	**E25**[7]	✓	✓	✓
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.D..)	**E26**[7]	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.P..)	**E28**[7]	✓	✓	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4...-.....-.B..)	**E45**[7]	✓	✓	✓
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4...-.....-.D..)	**E46**[7]	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4...-.....-.B..)	**E55**[7]	✓	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4...-.....-.D..)	**E56**[7]	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.E..)	**E57**[7]	✓	✓	✓
Ex protection „Ex ia", „Ex d" and „Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.R..)	**E58**[7]	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4...-.....-.[B, D]..-Z + E11)	**E70**[7]	✓	✓	✓
Ex-protection Ex ia according to EAC Ex (Russia)	**E80**	✓	✓	✓
Ex-protection Ex d according to EAC Ex (Russia)	**E81**	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	**E82**	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	**E83**	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	**G10**	✓	✓	✓
Transient protector 6 kV (lightning protect.)	**J01**	✓	✓	✓
Oval flange NAM (ASTAVA)	**J06**	✓	✓	✓
Marine approvals				
• Det Norske Veritas Germanischer Lloyd (DNV-GL)	**S10**	✓	✓	✓
• Lloyds Register (LR)	**S11**	✓	✓	✓
• French marine classification society Bureau Veritas (BV)	**S12**	✓	✓	✓
• American Bureau of Shipping (ABS)	**S14**	✓	✓	✓
• Russian Maritime Register (RMR)	**S16**	✓	✓	✓
• Korean Register of Shipping (KR)	**S17**	✓	✓	✓

1) Han device plug IP65

2) 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.

3) 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.

4) Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H.

5) Option does not contain gas explosion protection; only dust explosion protection: Use in or at Zone 1D/2D.

6) Cannot be ordered with remote seal.

7) When the additional ex option is selected, the ATEX marking on the device is omitted. Only the Ex option selected via the Z option is marked.

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.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: ... up to ..., mbar a, bar a, kPa_{abs}, MPa_{abs}, psi a[2]	**Y01**	✓	✓[1]	
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 address (TAG) Max. 8 characters, specify in plain text: Y17:	**Y17**	✓		
Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, ... Note: The following pressure units can be selected: bar, mbar, mm H_2O[*], inH_2O[*], ftH_2O[*], mmHG, inHG, psi, Pa, kPa, MPa, g/cm^2, kg/cm^2, Torr, ATM or % *) ref. temperature 20 °C	**Y21**	✓	✓	✓
Setting of pressure indication in non-pressure units[3] Specify in plain text: Y22: ..... up to ..... l/min, m^3/h, m, USgpm, ... (specification of measuring range in pressure units **"Y01"** is essential, unit with max. 5 characters)	**Y22 + Y01**	✓		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	**Y25**		✓	✓
Damping adjustment in seconds (0 ... 100 s)	**Y30**	✓	✓	✓

Factory mounting of valve manifolds, see accessories.

Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and D05 can be factory preset

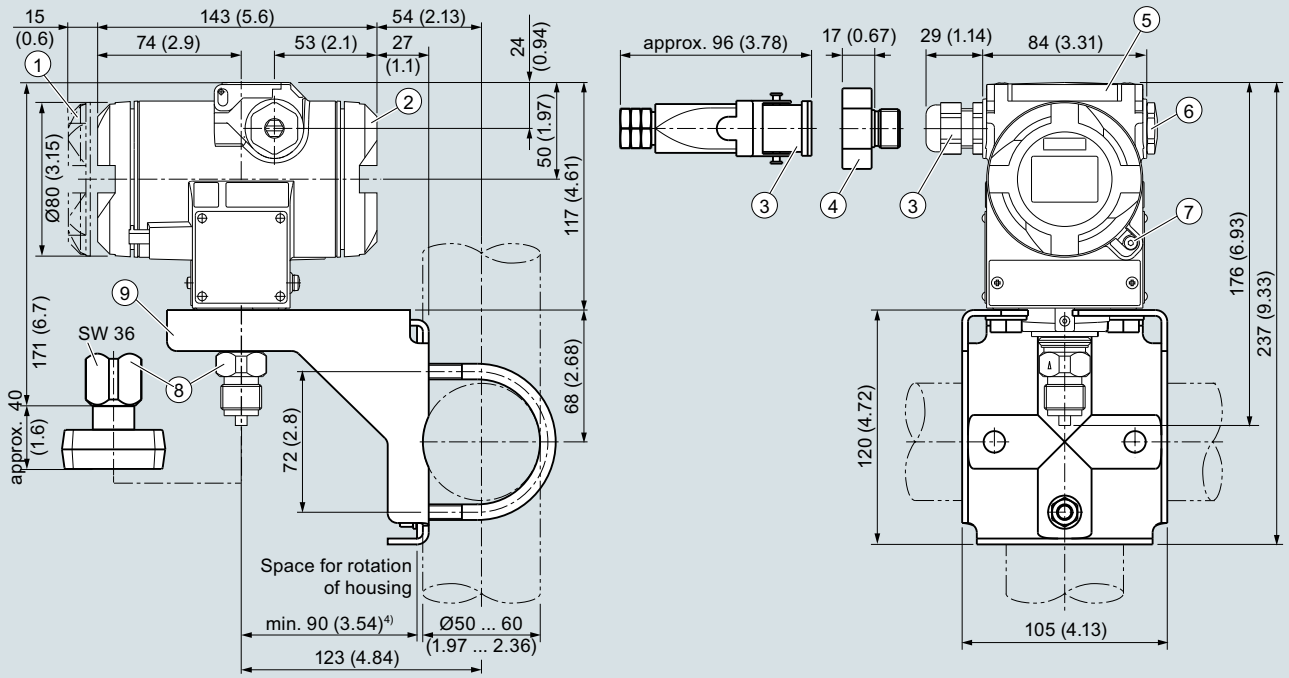
✓ = available

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

2) Only absolute pressure units selectable. Negative pressure values not permitted.

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

Dimensional drawings



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

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "Explosion-proof enclosure"
3) Not with type of protection "FM + CSA" [IS + XP]"
4) Minimum distance for rotating

SITRANS P DS III pressure transmitters for absolute pressure, from the pressure series, dimensions in mm (inch)

Technical specifications

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

Input			
Measured variable	Absolute pressure		
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**	
	Span	Nominal measuring range	Max. operating pressure MAWP (PS)
	8.34 ... 250 mbar a 0.834 ... 25 kPa a 3 ... 100 inH_2O a	250 mbar a 25 kPa a 100 inH_2O a	32 bar a 3.2 MPa a 464 psi a
	43.34 ... 1300 mbar a 4.33 ... 130 kPa a 17 ... 525 inH_2O a	1300 mbar a 130 kPa a 525 inH_2O a	32 bar a 3.2 MPa a 464 psi a
	170 ... 5000 mbar a 17 ... 500 kPa a 2.43 ... 72.5 psi a	5000 mbar a 500 kPa a 72.5 psi a	32 bar a 3.2 MPa a 464 psi a
	1 ... 30 bar a 0.1 ... 3 MPa a 14.6 ... 435 psi a	30 bar a 3 MPa a 435 psi a	160 bar a 16 MPa a 2320 psi a
	5.3 ... 100 bar a 0.5 ... 10 MPa a 76.9 ... 1450 psi a	100 bar a 10 MPa a 1450 psi a	160 bar a 16 MPa a 2320 psi a
Lower measuring limit			
• Measuring cell with silicone oil filling	0 mbar a/0 kPa a/0 psi a		
• Measuring cell with inert filling liquid			
- for process temperature -20 °C < ϑ ≤ +60 °C (-4 °F < ϑ ≤ +140 °F)	30 mbar a/3 kPa a/0.44 psi a		
- for process temperature 60 °C < ϑ ≤ +100 °C (max. 85 °C for measuring cell 30 bar) (140 °F < ϑ ≤ +212 °F (max. 185 °F for measuring cell 435 psi))	30 mbar a + 20 mbar a · (ϑ - 60 °C)/°C 3 kPa a + 2 kPa a · (ϑ - 60 °C)/°C 0.44 psi a + 0.29 psi a · (ϑ - 140 °F)/°F		
Upper measuring limit	100 % of max. span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/process temperature)		
Start of scale value	Between the measuring limits (fully adjustable)		
Output	**HART**	**PROFIBUS PA/ FOUNDATION Fieldbus**	
Output signal	4 ... 20 mA	Digital PROFIBUS PA and FOUNDATION Fieldbus signal	
• Lower limit (infinitely adjustable)	3.55 mA, factory preset to 3.84 mA	-	
• Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA	-	
Load			
• Without HART	$R_B \leq (U_H - 10.5\ V)/0.023\ A$ in Ω, U_H: Power supply in V	-	
• With HART	R_B = 230 ... 500 Ω (SIMATIC PDM) or R_B = 230 ... 1100 Ω (HART Communicator)	-	
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)		

for absolute pressure (from differential pressure series)

SITRANS P, DS III for absolute pressure (from the differential pressure series)	
Measuring accuracy	Acc. to IEC 60770-1
Reference conditions (All error data refer always refer to the set span)	• Increasing characteristic • Start-of-scale value 0 bar/kPa/psi • Stainless steel seal diaphragm • Silicone oil filling • Room temperature 25 °C (77 °F)
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span or nom. pressure range
Error in measurement at limit setting incl. hysteresis and reproducibility	
• Linear characteristic	
- $r \leq 10$	≤ 0.1 %
- $10 < r \leq 30$	≤ 0.2 %
Influence of ambient temperature (in percent per 28 °C (50 °F))	
• 250 mbar a/25 kPa a/3.6 psi a	≤ (0.15 · r + 0.1) %
• 1300 mbar a/130 kPa a/18.8 psi a 5 bar a/500 kPa a/72.5 psi a 30 bar a/3000 kPa a/435 psi a 100 bar a/10 MPa a/1450 psi a	≤ (0.08 · r + 0.16) %
Long-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.25 · r) % in 5 years
Effect of mounting position (in pressure per change in angle)	≤ 0.7 mbar/0.07 kPa/0.001015 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 nominal measuring range
Rated conditions	
Degree of protection	
• according to EN 60529	IP66 (optional IP66/IP68)
• according to NEMA 250	Type 4X
Temperature of medium	
• Measuring cell with silicone oil filling	-40 ... +100 °C (-40 ... +212 °F)
• Measuring cell with inert filling liquid	-20 ... +100 °C (-4 ... +212 °F)
• In conjunction with dust explosion protection	-20 ... +60 °C (-4 ... +140 °F)
Ambient conditions	
• Ambient temperature	
- Transmitter	-40 ... +85 °C (-40 ... +185 °F)
- Display readable	-30 ... +85 °C (-22 ... +185 °F)
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F)
• Climatic class	
- Condensation	Relative humidity 0 ... 100 % Condensation permissible, suitable for use in the tropics
• Electromagnetic Compatibility	
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21

SITRANS P, DS III for absolute pressure (from the differential pressure series)		
Design		
Weight (without options)	≈ 4.5 kg (≈ 9.9 (lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408	
Wetted parts materials		
• Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold	
• Process flanges and sealing screw	Stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4602 or Monel, mat. no. 2.4360	
• O-Ring	FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR	
Measuring cell filling	Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))	
Process connection	¼-18 NPT and flange connection with mounting thread M10 to DIN 19213 or $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518	
Material of mounting bracket		
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plated	
• Stainless steel 304	Sheet stainless steel, mat. no. 1.4301 (SS 304)	
• Stainless steel 316L	Sheet stainless steel, mat. no. 1.4404 (SS 316L)	
Power supply U_H	**HART**	**PROFIBUS PA/FOUNDATION Fieldbus**
Terminal voltage on transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically-safe mode	-
Power supply		Supplied through bus
Separate 24 V power supply necessary	-	No
Bus voltage		
• Not Ex	-	9 ... 32 V
• With intrinsically-safe operation	-	9 ... 24 V
Current consumption		
• Basic current (max.)	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
• Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	-	Yes

for absolute pressure (from differential pressure series)

SITRANS P, DS III for absolute pressure (from the differential pressure series)		
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)	
Explosion protection		
• Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +70 °C (-40 ... +158 °F) temperature class T5; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To certified intrinsically-safe circuits with peak values: U_i = 30 V, I_i = 100 mA, P_i = 750 mW; R_i = 300 Ω	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1.2 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC	To circuits with values: U_H = 9 ... 32 V DC
• Dust explosion protection for zone 20	PTB 01 ATEX 2055	
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F)	
- Max. surface temperature	120 °C (248 °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	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1.2 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Dust explosion protection for zone 21/22	PTB 01 ATEX 2055	
- Marking	Ex II 2 D Ex tb IIIC T120°C Db	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC; P_{max} = 1.2 W	To circuits with values: U_H = 9 ... 32 V DC; P_{max} = 1 W
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X	
- Marking	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc	
- Connection (Ex nA)	U_m = 45 V	U_m = 32 V
- Connection (Ex ic)	To circuits with values: U_i = 45 V	FISCO supply unit ic: U_o = 17.5 V, I_o = 570 mA Linear barrier: U_o = 32 V, I_o = 132 mA, P_o = 1 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion protection acc. to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	
• Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	

HART communication	
HART	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 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, class B
Function blocks	2
• Analog input	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 ... 100 s
- Simulation function	Input /Output
- Failure mode	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
- Square-rooted characteristic for flow measurement	Yes
- Gradual volume suppression and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or over parameterizable ramp function

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 to 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

Selection and Ordering data — Article No.

Pressure transmitters for absolute pressure from differential pressure series, SITRANS P DS III with HART ↗ — Article No. **7MF4333-**

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

Measuring cell filling	Measuring cell cleaning	
Silicone oil	normal	1
Inert liquid[1]	grease-free to cleanliness level 2	3

Measuring span (min. ... max.)

8.34 ... 250 mbar a	(0.13 ... 3.63 psi a)	D
43.34 ... 1300 mbar a	(0.63 ... 18.86 psi a)	F
0.17 ... 5 bar a	(2.43 ... 72.5 psi a)	G
1 ... 30 bar a	(14.6 ... 435 psi a)	H
5.3 ... 100 bar a	(76.9 ... 1450 psi a)	K E

Wetted parts materials

Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B
Hastelloy	Hastelloy	C
Tantalum	Tantalum	E
Monel	Monel	H
Gold	Gold	L
Version for diaphragm seal[2) 3) 4) 5) 6)]		Y

Process connection

Female thread ¼-18 NPT with flange connection	
• Sealing screw opposite process connection	
- Mounting thread $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518	2
- Mounting thread M10 to DIN 19213 (only for replacement requirement)	0
• Vent on side of process flange [7)]	
- Mounting thread $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518	6
- Mounting thread M10 to DIN 19213 (only for replacement requirement)	4

Non-wetted parts materials

process flange screws	Electronics housing	
Stainless steel	Die-cast aluminum	2
Stainless steel	Stainless steel precision casting[8)]	3

Version

• Standard version, German plate inscription, setting for pressure unit: bar	1
• International version, English plate inscription, setting for pressure unit: bar	2
• Chinese version, English plate inscription, setting for pressure unit: Pascal	3

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

Explosion protection

• None	A
• With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)"	B
- "Explosion-proof (Ex d)"[9)]	D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)" [10)]	P
- "Ex nA/ic (Zone 2)"[11)]	E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia+ Ex d + Zone 1D/2D)"[10)12)]	R
• FM + CSA intrinsic safe (is)[13)]	F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[10)12)13)]	S
• With FM + CSA, Type of protection:	
- "Intrinsic Safe and Explosion Proof (is + xp)" [9)13)]	N C

Selection and Ordering data — Article No.

Pressure transmitters for absolute pressure from differential pressure series, SITRANS P DS III with HART — Article No. **7MF4333-**

Electrical connection/cable entry

• Screwed gland M20 x 1.5	B
• Screwed gland ½-14 NPT	C
• Han 7D device plug (plastic housing) incl. mating connector[14)]	D
• M12 device plugs (stainless steel) [15) 16)]	F

Display

• Without display	0
• Without visible display (display concealed, setting: mA)	1
• With visible display (setting: mA)	6
• with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)	7

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

Included in delivery of the device:
- Quick-start guide
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

1) For oxygen applications, add Order code E10.
2) Version 7MF4333-1DY... only up to max. span 200 mbar a (2.9 psi a).
3) When the 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.
4) 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.
5) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF433.-..Y..-.... and 7MF4900-1...-.B
6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
7) Not for span "5.3 ... 100 bar a (76.9 ... 1450 psi a)". Position of the top vent valve in the process flange (see dimensional drawing).
8) Not in conjunction with Electrical connection "Han 7D device plug".
9) Without cable gland, with blanking plug
10) With enclosed cable gland Ex ia and blanking plug
11) Configurations with Han and M12 device plugs are only available in Ex ic.
12) Only in connection with IP66.
13) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
14) Only in connection with Ex apporval A, B or E.
15) Only in connection with Ex approval A, B, E or F.
16) M12 delivered without cable socket.

Selection and Ordering data	Article No.
Pressure transmitter for absolute pressure from differential pressure series	
SITRANS P DS III with PROFIBUS PA (PA) ↗	7MF4334-
SITRANS P DS III with FOUNDATION Fieldbus (FF) ↗	7MF4335-
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.	■■■■■-■■■■

Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid[1]	grease-free to cleanliness level 2	3

Nominal measuring range		
250 mbar a	(3.63 psi a)	D
1300 mbar a	(18.86 psi a)	F
5 bar a	(72.5 psi a)	G
30 bar a	(435 psi a)	H
100 bar a	(1450 psi a)	K E

Wetted parts materials Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B
Hastelloy	Hastelloy	C
Tantalum	Tantalum	E
Monel	Monel	H
Gold	Gold	L
Version as diaphragm seal [2) 3) 4) 5) 6)]		Y

Process connection	
Female thread ¼-18 NPT with flange connection	
• Sealing screw opposite process connection	
- Mounting thread $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518	2
- Mounting thread M10 to DIN 19213 (only for replacement requirement)	0
• Vent on side of process flange [7)]	
- Mounting thread $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518	6
- Mounting thread M10 to DIN 19213 (only for replacement requirement)	4

Non-wetted parts materials process flange screws	Electronics housing	
Stainless steel	Die-cast aluminum	2
Stainless steel	Stainless steel precision casting	3

Version	
• Standard version, German plate inscription, setting for pressure unit: bar	1
• International version, English plate inscription, setting for pressure unit: bar	2
• Chinese version, English plate inscription, setting for pressure unit: Pascal	3
All versions include DVD with compact operating instructions in various EU languages.	

Explosion protection	
• None	A
• With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)"	B
- "Explosion-proof (Ex d)"[8)]	D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)" [9)]	P
- "Ex nA/ic (Zone 2)"[10)]	E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"[9) 11)]	R
• FM + CSA intrinsic safe (is)[12)]	F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[9)11)12)]	S
• With FM + CSA, Type of protection:	
- "Intrinsic Safe and Explosion Proof (is + xp)" [8)12)]	N C

Selection and Ordering data	Article No.
Pressure transmitter for absolute pressure from differential pressure series	
SITRANS P DS III with PROFIBUS PA (PA)	7MF4334-
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7MF4335-
	■■■■■-■■■■

Electrical connection/cable entry	
• Screwed gland M20 x 1.5	B
• Screwed gland ½-14 NPT	C
• M12 device plugs (stainless steel)[13)14)]	F

Display	
• Without display	0
• Without visible display (display concealed, setting: bar)	1
• With visible display (setting: bar)	6
• With customer-specific display (setting as specified, Order code "Y21" required)	7

Included in delivery of the device:
- Quick-start guide
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

1) For oxygen application, add Order code E10.
2) Version 7MF4334-1DY... only up to max. span 200 mbar a (80 inH_2O a).
3) 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.
4) 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.
5) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF433.-..Y..-.... and 7MF4900-1...-.B
6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
7) Not for nominal measuring range 100 bar a (1450 psi a). Position of the top vent valve in the process flange (see dimensional drawing).
8) Without cable gland, with blanking plug
9) With enclosed cable gland Ex ia and blanking plug
10) Configurations with Han and M12 device plugs are only available in Ex ic.
11) Only in connection with IP66.
12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
13) 11Only in connection with Ex approval A, B, E or F.
14) M12 delivered without cable socket

1

for absolute pressure (from differential pressure series)

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 (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:				
• Steel	**A01**	✓	✓	✓
• Stainless steel 304	**A02**	✓	✓	✓
• Stainless steel 316L	**A03**	✓	✓	✓
O-rings for process flanges (instead of FPM (Viton))				
• PTFE (Teflon)	**A20**	✓	✓	✓
• FEP (with silicone core, approved for food)	**A21**	✓	✓	✓
• FFPM (Kalrez, compound 4079), for measured medium temperatures -15 ... 100 °C (5 ... 212 °F))	**A22**	✓	✓	✓
• NBR (Buna N)	**A23**	✓	✓	✓
Device plugs[1]				
• Han 7D (metal)	**A30**	✓		
• Han 8D (instead of Han 7D)	**A31**	✓		
• Angled	**A32**	✓		
• Han 8D (metal)	**A33**	✓		
Sealing screw ¼-18 NPT, with valve in mat. of process flanges	**A40**	✓	✓	✓
Cable sockets for M12 device plugs (metal (CuZn))	**A50**	✓	✓	✓
Rating plate inscription (instead of German)				
• English	**B11**	✓	✓	✓
• French	**B12**	✓	✓	✓
• Spanish	**B13**	✓	✓	✓
• Italian	**B14**	✓	✓	✓
• Cyrillic (russian)	**B16**	✓	✓	✓
English rating plate Pressure units in in$H_2$0 and/or psi	**B21**	✓	✓	✓
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2[2]	**C11**	✓	✓	✓
Inspection certificate[3] Acc. to EN 10204-3.1	**C12**	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	**C14**	✓	✓	✓
Acceptance certificate (EN 10204-3.1) PMI test of parts in contact with medium	**C15**	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C20**	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	**C21**[4]		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C23**	✓		
PED for Russia with initial calibration mark	**C99**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
Setting of the upper saturation limit of the output signal to 22.0 mA	**D05**	✓		
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)	**D07**	✓	✓	✓
Degree of protection IP66/IP68 (only for M20 x 1.5 and ½-14 NPT)	**D12**	✓	✓	✓
Supplied with oval flange (1 item), PTFE packing and screws in thread of process flange	**D37**	✓	✓	✓
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	**D59**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
Use in or on zone 1D/2D[5] (only together with type of protection "Intrinsic safety" (transmitter 7MF4...-.....-.B.. Ex ia)" and IP66)	**E01**	✓	✓	✓
Oxygen application (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	**E10**	✓	✓	✓
Export approval Korea	**E11**	✓	✓	✓
CRN approval Canada (Canadian Registration Number)	**E22**[6]	✓	✓	✓
Dual seal	**E24**	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.B..)	**E25**[7]	✓	✓	✓
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.D..)	**E26**[7]	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.P..)	**E28**[7]	✓	✓	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4...-.....-.B..)	**E45**[7]	✓	✓	✓
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4...-.....-.D..)	**E46**[7]	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4...-.....-.B..)	**E55**[7]	✓	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4...-.....-.D..)	**E56**[7]	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.E..)	**E57**[7]	✓	✓	✓
Ex protection „Ex ia", „Ex d" and „Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.R..)	**E58**[7]	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4...-.....-.[B, D]..-Z + E11)	**E70**[7]	✓	✓	✓
Ex-protection Ex ia according to EAC Ex (Russia)	**E80**	✓	✓	✓
Ex-protection Ex d according to EAC Ex (Russia)	**E81**	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	**E82**	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	**E83**	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	**G10**	✓	✓	✓
Interchanging of process connection side	**H01**	✓	✓	✓
Vent on side for gas measurements	**H02**	✓	✓	✓
Stainless steel process flanges for vertical differential pressure lines (not together with K01, K02 and K04)[8]	**H03**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
Transient protector 6 kV (lightning protection)	**J01**	✓	✓	✓
Chambered graphite gasket for process flange	**J02**	✓	✓	✓
Chambered PTFE graphite gasket	**J03**	✓	✓	✓
EPDM O-rings for process flange with approval (WRC/WRAS)	**J05**	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display)[9]	**J08**	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display)[9]	**J09**	✓	✓	✓
Process flange				
• Hastelloy	**K01**	✓	✓	✓
• Monel	**K02**	✓	✓	✓
• Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F) For ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible	**K04**	✓	✓	✓
Marine approvals				
• Det Norske Veritas Germanischer Lloyd (DNV-GL)	**S10**	✓	✓	✓
• Lloyds Register (LR)	**S11**	✓	✓	✓
• French marine classification society Bureau Veritas (BV)	**S12**	✓	✓	✓
• American Bureau of Shipping (ABS)	**S14**	✓	✓	✓
• Russian Maritime Register (RMR)	**S16**	✓	✓	✓
• Korean Register of Shipping (KR)	**S17**	✓	✓	✓

1) Han device plug IP65

2) 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.

3) 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.

4) Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H

5) Option does not contain gas explosion protection; only dust explosion protection: Use in or at Zone 1D/2D.

6) Cannot be ordered with remote seal.

7) When the additional ex option is selected, the ATEX marking on the device is omitted. Only the Ex option selected via the Z option is marked.

8) Not suitable for connection of remote seals.

9) Blanking plug is standard configuration. Order option A40 if a vent valve is required instead of a blanking plug.

for absolute pressure (from differential pressure series)

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 a, bar a, kPa_{abs}, MPa_{abs}, psi a[2)]	**Y01**	✓	✓[1)]	
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 address (TAG) Max. 8 characters, specify in plain text: Y17:	**Y17**	✓		
Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, ... Note: The following pressure units can be selected: bar, mbar, mm H_2O[*)], inH_2O[*)], ftH_2O[*)], mmHG, inHG, psi, Pa, kPa, MPa, g/cm^2, kg/cm^2, Torr, ATM or % *) ref. temperature 20 °C	**Y21**	✓	✓	✓
Setting of pressure indication in non-pressure units[3)] Specify in plain text: Y22: ..... up to ..... l/min, m^3/h, m, USgpm, ... (specification of measuring range in pressure units **"Y01"** is essential, unit with max. 5 characters)	**Y22 + Y01**	✓		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	**Y25**		✓	✓
Damping adjustment in seconds (0 ... 100 s)	**Y30**	✓	✓	✓

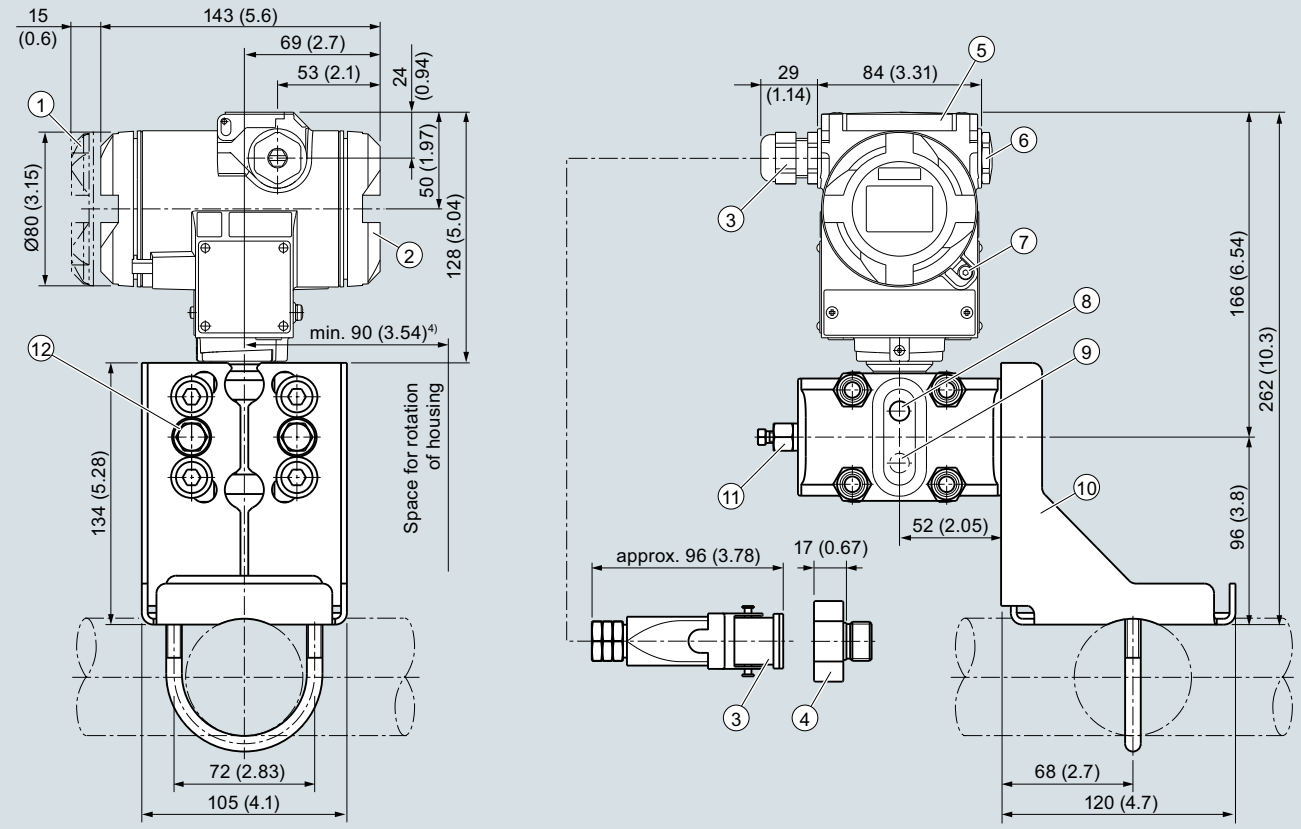
Factory mounting of valve manifolds, see accessories.

Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and D05 can be factory preset

✓ = available

1) Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.
2) Only absolute pressure units selectable. Negative pressure values not permitted.
3) Preset values can only be changed over SIMATIC PDM.

Dimensional drawings



1. Electronic side, digital display (longer overall length for cover with window)[1]
2. Terminal side[1]
3. Electrical connection: Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/8D device plug[2] [3]
4. Harting adapter
5. Protective cover over keys
6. Blanking plug
7. Screw cover - safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
8. Lateral venting for liquid measurement (Standard)
9. Lateral venting for gas measurement (suffix H02)
10. Mounting bracket (option)
11. Sealing screw with valve (option)
12. Process connection: ¼-18 NPT (IEC 61518)

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "Explosion-proof enclosure"
3) Not with type of protection "FM + CSA" [IS + XP]"
4) 92 mm (3.62 inch) for minimum distance to permit rotation with indicator

SITRANS P DS III pressure transmitters for absolute pressure, from the differential pressure series, dimensions in mm (inch)

Technical specifications

SITRANS P, DS III for differential pressure and flow

Input

Measured variable	Differential pressure and flow		
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**	
	Span	Nominal measuring range	Max. operating pressure MAWP (PS)
	1 ... 20 mbar 0.1 ... 2 kPa 0.4 ... 8 inH_2O	20 mbar 2 kPa 8 inH_2O	32 bar 3.2 MPa 464 psi
	1 ... 60 mbar 0.1 ... 6 kPa 0.4 ... 24 inH_2O	60 mbar 6 kPa 24.1 inH_2O	160 bar 16 MPa 2320 psi
	2.5 ... 250 mbar 0.2 ... 25 kPa 1 ... 100 inH_2O	250 mbar 25 kPa 100 inH_2O	
	6 ... 600 mbar 0.6 ...60 kPa 2.4 ... 240 inH_2O	600 mbar 60 kPa 240 inH_2O	
	16 ... 1600 mbar 1.6 ...160 kPa 6.4 ... 642 inH_2O	1600 mbar 160 kPa 642 inH_2O	
	50 ... 5000 mbar 5 ...500 kPa 20 ... 2000 inH_2O	5000 mbar 500 kPa 2000 inH_2O	
	0.3 ... 30 bar 0.03 ... 3 MPa 4.35 ... 435 psi	30 bar 3 MPa 435 psi	
	2.5 ... 250 mbar 0.2 ... 25 kPa 1 ... 100 inH_2O	250 mbar 25 kPa 100 inH_2O	420 bar 42 MPa 6091 psi
	6 ... 600 mbar 0.6 ...60 kPa 2.4 ... 240 inH_2O	600 mbar 60 kPa 240 inH_2O	(500 bar/50 MPa/7250 psi can be ordered optionally with Order Code D56)
	16 ... 1600 mbar 1.6 ...160 kPa 6.4 ... 642 inH_2O	1600 mbar 160 kPa 642 inH_2O	
	50 ... 5000 mbar 5 ...500 kPa 20 ... 2000 inH_2O	5000 mbar 500 kPa 2000 inH_2O	
	0.3 ... 30 bar 0.03 ... 3 MPa 4.35 ... 435 psi	30 bar 3 MPa 435 psi	
Lower measuring limit			
• Measuring cell with silicone oil filling	-100 % of max. span (-33 % with measuring cell 30 bar/3 MPa/435 psi) or 30 mbar a/3 kPa a/0.44 psi a		
• Measuring cell with inert filling liquid			
- for process temperature -20 °C < ϑ ≤ +60 °C (-4 °F < ϑ ≤ +140 °F)	-100 % of max. span (-33 % with measuring cell 30 bar/3 MPa/435 psi) or 30 mbar a/3 kPa a/0.44 psi a		
- for process temperature 60 °C < ϑ ≤ +100 °C (max. 85 °C for measuring cell 30 bar) (140 °F < ϑ ≤ +212 °F (max. 185 °F for measuring cell 435 psi))	30 mbar a + 20 mbar a · (ϑ - 60 °C)/°C 3 kPa a + 2 kPa a · (ϑ - 60 °C)/°C 0.44 psi a + 0.29 psi a · (ϑ - 140 °F)/°F		
Upper measuring limit	100 % of max. span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/process temperature)		
Start of scale value	Between the measuring limits (fully adjustable)		

SITRANS P, DS III for differential pressure and flow		
Output	**HART**	**PROFIBUS PA/FOUNDATION Fieldbus**
Output signal	4 ... 20 mA	Digital PROFIBUS PA and FOUNDATION Fieldbus signal
• Lower limit (infinitely adjustable)	3.55 mA, factory preset to 3.84 mA	-
• Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA (with order code D05)	-
Load		
• Without HART	$R_B \leq (U_H - 10.5\ V)/0.023\ A$ in Ω, U_H: Power supply in V	-
• With HART	R_B = 230 ... 500 Ω (SIMATIC PDM) or R_B = 230 ... 1100 Ω (HART Communicator)	-
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)	
Measuring accuracy	Acc. to IEC 60770-1	
Reference conditions (All error data refer always refer to the set span)	• Increasing characteristic • Start-of-scale value 0 bar/kPa/psi • Stainless steel seal diaphragm • Silicone oil filling • Room temperature 25 °C (77 °F)	
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span or nom. pressure range	
Error in measurement at limit setting incl. hysteresis and reproducibility		
• Linear characteristic		
- 20 mbar/2 kPa/0.29 psi	r ≤ 5 : ≤ 0.075 % 5 < r ≤ 10 : ≤ (0.0029 · r + 0.071) % 10 < r ≤ 20 : ≤ (0.0045 · r + 0.071) %	
- 60 mbar/6 kPa/0.87 psi	r ≤ 5 : ≤ 0.075 % 5 < r ≤ 60 : ≤ (0.005 · r + 0.05) %	
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kpa/72.5 psi 30 bar/3 MPa/435 psi	r ≤ 5 : ≤ 0.065 % 5 < r ≤ 100 : ≤ (0.004 · r + 0.045) %	
• Square-rooted characteristic (flow > 50 %)		
- 20 mbar/2 kPa/0.29 psi	r ≤ 5 : ≤ 0.075 % 5 < r ≤ 10 : ≤ (0.0029 · r + 0.071) % 10 < r ≤ 20 : ≤ (0.0045 · r + 0.071) %	
- 60 mbar/6 kPa/0.87 psi	r ≤ 5 : ≤ 0.075 % 5 < r ≤ 60 : ≤ (0.005 · r + 0.05) %	
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kpa/72.5 psi 30 bar/3 MPa/435 psi	r ≤ 5 : ≤ 0.065 % 5 < r ≤ 100 : ≤ (0.004 · r + 0.045) %	
• Square-rooted characteristic (flow > 25 ... 50 %)		
- 20 mbar/2 kPa/0.29 psi	r ≤ 5 : ≤ 0.15 % 5 < r ≤ 10 : ≤ (0.0058 · r + 0.142) % 10 < r ≤ 20 : ≤ (0.009 · r + 0.142) %	
- 60 mbar/6 kPa/0.87 psi	r ≤ 5 : ≤ 0.015 % 5 < r ≤ 60 : ≤ (0.01 · r + 0.1) %	
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kpa/72.5 psi 30 bar/3 MPa/435 psi	r ≤ 5 : ≤ 0.13 % 5 < r ≤ 100 : ≤ (0.008 · r + 0.09) %	

SITRANS P, DS III for differential pressure and flow	
Measuring accuracy (continued)	Acc. IEC 60770-1
Influence of ambient temperature (in percent per 28 °C (50 °F))	
• 20 mbar/2 kPa/0.29 psi	≤ (0.15 · r + 0.1) %
• 60 mbar/6 kPa/0.87 psi	≤ (0.075 · r + 0.1) %
• 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kpa/72.5 psi 30 bar/3 MPa/435 psi	≤ (0.025 · r + 0.125) %
Influence of static pressure	
• on the zero point	
- 20 mbar/2 kPa/0.29 psi	≤ (0.15 · r) % per 32 bar (zero-point correction is possible with position error adjustment)
- 60 mbar/6 kPa/0.87 psi 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi	≤ (0.1 · r) % per 70 bar (zero-point correction is possible with position error adjustment)
- 5 bar/500 kpa/72.5 psi 30 bar/3 MPa/435 psi	≤ (0.2 · r) % per 70 bar (zero-point correction is possible with position error adjustment)
• on the span	
- 20 mbar/2 kPa/0.29 psi	≤ 0.2 % per 32 bar
- 60 mbar/6 kPa/0.87 psi 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kpa/72.5 psi 30 bar/3 MPa/435 psi	≤ 0.14 % per 70 bar
Long-term stability (temperature change ± 30 °C (± 54 °F))	Static pressure max. 70 bar/7 MPa/ 1015 psi
• 20 mbar/2 kPa/0.29 psi	≤ (0.2 · r) % per year
• 60 mbar/6 kPa/0.87 psi 30 bar/3 MPa/435 psi	≤ (0.25 · r) % in 5 years
• 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kpa/72.5 psi	≤ (0.125 · r) % in 5 years
Effect of mounting position (in pressure per change in angle)	≤ 0.7 mbar/0.07 kPa/0.028 inH_2O per 10° inclination (zero-point correction is possible with position error adjustment)
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 nominal measuring range

SITRANS P, DS III for differential pressure and flow		
Rated conditions		
Degree of protection		
• according to EN 60529	IP66 (optional IP66/IP68)	
• according to NEMA 250	Type 4X	
Temperature of medium		
• Measuring cell with silicone oil filling	-40 ... +100 °C (-40 ... +212 °F) -20 ... +100 °C (-4 ... +212 °F) with 30 bar measuring cell	
• Measuring cell with inert filling liquid	-20 ... +100 °C (-4 ... +212 °F)	
• Measuring cell with Neobee fill fluid (FDA-compliant)	-10 ... +100 °C (+14 ... +212 °F)	
• In conjunction with dust explosion protection	-20 ... +60 °C (-4 ... +140 °F)	
Ambient conditions		
• Ambient temperature (silicone oil and inert oil)		
- Transmitter	-40 ... +85 °C (-40 ... +185 °F) -20 ... +85 °C (-4 ... +185 °F) with 30 bar measuring cell	
- Display readable	-30 ... +85 °C (-22 ... +185 °F)	
• Ambient temperature (Neobee fill fluid)		
- Transmitter	-10 ... +85 °C (+14 ... +185 °F)	
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F)	
• Climatic class		
- Condensation	Relative humidity 0 ... 100 % Condensation permissible, suitable for use in the tropics	
• Electromagnetic Compatibility		
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21	
Design		
Weight (without options)	Die-cast aluminum: ≈ 4.5 kg (≈ 9.9 lb) Stainless steel precision casting: ≈ 7.1 kg (≈ 15.6 lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408	
Wetted parts materials		
• Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, tantalum or gold	
• Process flanges and sealing screw	Stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4602 or Monel, mat. no. 2.4360	
• O-Ring	FPM (Viton) or optionally: PTFE, FEP, FEPM and NBR	
Measuring cell filling	Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))	
Process connection	Female thread ¼-18 NPT and flange connection with mounting thread M10 to DIN 19213 or $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518	
Material of mounting bracket		
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plated	
• Stainless steel 304	Sheet stainless steel, mat. no. 1.4301 (SS 304)	
• Stainless steel 316L	Sheet stainless steel, mat. no. 1.4404 (SS 316L)	
Power supply U_H	**HART**	**PROFIBUS PA/ FOUNDATION Fieldbus**
Terminal voltage on transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically-safe mode	-
Power supply	-	Supplied through bus
Separate 24 V power supply necessary	-	No
Bus voltage		
• Not Ex	-	9 ... 32 V
• With intrinsically-safe operation	-	9 ... 24 V
Current consumption		
• Basic current (max.)	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
• Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	-	Yes

SITRANS P, DS III for differential pressure and flow		
Certificates and approvals	**HART**	**PROFIBUS PA/ FOUNDATION Fieldbus**
Classification according to PED 2014/68/EU	• PN 32/160 (MAWP 464/2320 psi) for gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice) • PN 420 (MAWP 6092) for gases of fluid group 1 and liquids of fluid group 1; complies with basic safety requirements of Article 4, paragraph 1 (appendix 1); assigned to category III, conformity evaluation module H by the TÜV Nord.	
Explosion protection		
• Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +70 °C (-40 ... +158 °F) temperature class T5; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To certified intrinsically-safe circuits with peak values: U_i = 30 V, I_i = 100 mA, P_i = 750 mW; R_i = 300 Ω	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1.2 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC	To circuits with values: U_H = 9 ... 32 V DC
• Dust explosion protection for zone 20	PTB 01 ATEX 2055	
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F)	
- Max. surface temperature	120 °C (248 °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	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Dust explosion protection for zone 21/22	PTB 01 ATEX 2055	
- Marking	Ex II 2 D Ex tb IIIC T120°C Db	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC; P_{max} = 1.2 W	To circuits with values: U_H = 9 ... 32 V DC; P_{max} = 1 W
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X	
- Marking	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc	
- Connection (Ex nA)	U_m = 45 V	U_m = 32 V
- Connection (Ex ic)	To circuits with values: U_i = 45 V	FISCO supply unit ic: U_o = 17.5 V, I_o = 570 mA Linear barrier: U_o = 32 V, I_o = 132 mA, P_o = 1 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion protection acc. to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	
• Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	

HART communication	
HART	230 ... 1100 Ω
Protocol	HART Version 5.x
Software for PC	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 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, class B
Function blocks	2
• Analog input	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 ... 100 s
- Simulation function	Input /Output
- Failure mode	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
- Square-rooted characteristic for flow measurement	Yes
- Gradual volume suppression and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or over parameterizable ramp function

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

Selection and Ordering data		Article No.
SITRANS P DS III with HART pressure transmitters for differential pressure and flow, PN 32/160 (MAWP 464/2320 psi)		↗ 7MF4433 -
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid[1]	grease-free to cleanliness level 2	3
FDA compliant fill fluid [2]		
• Neobee oil	normal	4
Measuring span (min. ... max.)		
PN 32 (MAWP 464 psi)		
1 ... 20 mbar[3]	(0.4 ... 8 inH_2O)	B
PN 160 (MAWP 2320 psi)		
1 ... 60 mbar	(0.4 ... 24 inH_2O)	C
2.5 ... 250 mbar	(1.004 ... 100.4 inH_2O)	D
6 ... 600 mbar	(2.4 ... 240 inH_2O)	E
16 ... 1600 mbar	(6.4 ... 642 inH_2O)	F
50 ... 5000 mbar	(20 ... 2000 inH_2O)	G
0.3 ... 30 bar	(4.35 ... 435 psi)	H
Wetted parts materials		
(stainless steel process flanges)		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B
Hastelloy	Hastelloy	C
Tantalum[4]	Tantalum	E
Monel[4]	Monel	H
Gold[4]	Gold	L
Version for diaphragm seal[5] [6] [7] [8]		Y
Process connection		
Female thread ¼-18 NPT with flange connection		
• Sealing screw opposite process connection		
- Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		2
- Mounting thread M10 to DIN 19213 (only for replacement requirement)		0
• Vent on side of process flange [3]		
- Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		6
- Mounting thread M10 to DIN 19213 (only for replacement requirement)		4
Non-wetted parts materials		
process flange screws	Electronics housing	
Stainless steel	Die-cast aluminum	2
Stainless steel	Stainless steel precision casting[9]	3
Version		
• Standard version, German plate inscription, setting for pressure unit: bar		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		

Selection and Ordering data	Article No.
SITRANS P DS III with HART pressure transmitters for differential pressure and flow, PN 32/160 (MAWP 464/2320 psi)	7MF4433 -
Explosion protection	
• None	A
• With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)"	B
- "Explosion-proof (Ex d)"[10]	D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"[11]	P
- "Ex nA/ic (Zone 2)"[12]	E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia+ Ex d + Zone 1D/2D)"[11][13]	R
• FM + CSA intrinsic safe (is)[14]	F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[11][13][14]	S
• With FM + CSA, Type of protection:	
- "Intrinsic Safe and Explosion Proof (is + xp)"[10][14]	N C
Electrical connection/cable entry	
• Screwed gland M20 x 1.5	B
• Screwed gland ½-14 NPT	C
• Han 7D device plug (plastic housing) incl. mating connector[15][16]	D
• M12 device plugs (stainless steel)[17][18]	F
Display	
• Without display	0
• Without visible display (display concealed, setting: mA)	1
• With visible display (setting: mA)	6
• with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)	7

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

Included in delivery of the device:
- Quick-start guide
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

1) For oxygen application, add Order code E10.

2) Available for measuring ranges 250 mbar ... 5 bar.

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

4) Not in conjunction with max. span 20 and 60 mbar (8.03 and 24.09 inH_2O))

5) 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.

6) 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.

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

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

9) Not in conjunction with Electrical connection "Han 7D device plug".

10) Without cable gland, with blanking plug

11) With enclosed cable gland Ex ia and blanking plug

12) Configurations with Han and M12 device plugs are only available in Ex ic.

13) Only in connection with IP66.

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

15) Only in connection with Ex apporval A, B or E.

16) Permissible only for crimp-contact of conductor cross-section 1 mm^2

17) Only in connection with Ex approval A, B, E or F.

18) M12 delivered without cable socket.

Selection and Ordering data		Article No.
Pressure transmitters for differential pressure and flow PN 32/160 (MAWP 464/2320 psi)		
SITRANS P DS III with PROFIBUS PA (PA) ↗		7 M F 4 4 3 4 -
SITRANS P DS III with FOUNDATION Fieldbus (FF) ↗		7 M F 4 4 3 5 -
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		■■■■ - ■■■■
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid[1]	grease-free to cleanliness level 2	3
FDA compliant fill fluid [2]		
• Neobee oil	normal	4
Nominal measuring range		
PN 32 (MAWP 464 psi)		
20 mbar [3]	(8.03 inH_2O)	B
PN 160 (MAWP 2320 psi)		
60 mbar	(24 inH_2O)	C
250 mbar	(100 inH_2O)	D
600 mbar	(240 inH_2O)	E
1600 mbar	(642 inH_2O)	F
5 bar	(2000 inH_2O)	G
30 bar	(435 psi)	H
Wetted parts materials		
(stainless steel process flanges)		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B
Hastelloy	Hastelloy	C
Tantalum [4]	Tantalum	E
Monel[4]	Monel	H
Gold [4]	Gold	L
Version as diaphragm seal [5] [6] [7] [8]		Y
Process connection		
Female thread ¼-18 NPT with flange connection		
• Sealing screw opposite process connection		
- Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		2
- Mounting thread M10 to DIN 19213 (only for replacement requirement)		0
• Venting on side of process flanges[3]		
- Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		6
- Mounting thread M10 to DIN 19213 (only for replacement requirement)		4
Non-wetted parts materials		
process flange screws	Electronics housing	
Stainless steel	Die-cast aluminum	2
Stainless steel	Stainless steel precision casting	3
Version		
• Standard versions		1
• International version, English label inscriptions, documentation in 5 languages on DVD (no Order code selectable)		2
Version		
• Standard version, German plate inscription, setting for pressure unit: bar		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		

Selection and Ordering data	Article No.
Pressure transmitters for differential pressure and flow PN 32/160 (MAWP 464/2320 psi)	
SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 4 3 4 -
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 4 3 5 -
	■■■■ - ■■■■
Explosion protection	
• None	A
• With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)"	B
- "Explosion-proof (Ex d)"[9]	D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"[10]	P
- "Ex nA/ic (Zone 2)" [11]	E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"[10][12]	R
• FM + CSA intrinsic safe (is)[13]	F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX)+ Zone 1D/2D[10][12][13]	S
• With FM + CSA, Type of protection:	
- "Intrinsic Safe and Explosion Proof (is + xp)"[9][13]	N C
Electrical connection/cable entry	
• Screwed gland M20 x 1.5	B
• Screwed gland ½-14 NPT	C
• M12 device plugs (stainless steel)[14] [15]	F
Display	
• Without display	0
• Without visible display (display concealed, setting: bar)	1
• With visible display (setting: bar)	6
• With customer-specific display (setting as specified, Order code "Y21" required)	7

Included in delivery of the device:
- Quick-start guide
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

1) For oxygen application, add Order code E10.
2) Available for measuring ranges 250 mbar ... 5 bar.
3) Not suitable for connection of remote seal. Position of the top vent valve in the process flange (see dimensional drawing).
4) Not in conjunction with max. span 20 and 60 mbar (8.03 and 24.09 inH_2O))
5) 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.
6) 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.
7) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF443.-..Y..-.... and 7MF4900-1...-.B
8) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
9) Without cable gland, with blanking plug.
10) With enclosed cable gland Ex ia and blanking plug.
11) Configurations with Han and M12 device plugs are only available in Ex ic.
12) Only in connection with IP66.
13) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
14) Only in connection with Ex approval A, B, E or F.
15) M12 delivered without cable socket

for differential pressure and flow

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 (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:				
• Steel	**A01**	✓	✓	✓
• Stainless steel 304	**A02**	✓	✓	✓
• Stainless steel 316L	**A03**	✓	✓	✓
O-rings for process flanges (instead of FPM (Viton))				
• PTFE (Teflon)	**A20**	✓	✓	✓
• FEP (with silicone core, approved for food)	**A21**	✓	✓	✓
• FFPM (Kalrez, compound 4079), for measured medium temperatures -15 ... 100 °C (5 ... 212 °F)	**A22**	✓	✓	✓
• NBR (Buna N)	**A23**	✓	✓	✓
Device plugs[1]				
• Han 7D (metal)	**A30**	✓		
• Han 8D (instead of Han 7D)	**A31**	✓		
• Angled	**A32**	✓		
• Han 8D (metal)	**A33**	✓		
Sealing screws (2 units) ¼-18 NPT, with valve in mat. of process flanges	**A40**	✓	✓	✓
Cable sockets for M12 device plugs (metal (CuZn))	**A50**	✓	✓	✓
Rating plate inscription (instead of German)				
• English	**B11**	✓	✓	✓
• French	**B12**	✓	✓	✓
• Spanish	**B13**	✓	✓	✓
• Italian	**B14**	✓	✓	✓
• Cyrillic (russian)	**B16**	✓	✓	✓
English rating plate Pressure units in inH_2O and/or psi	**B21**	✓	✓	✓
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2[2]	**C11**	✓	✓	✓
Inspection certificate[3] to EN 10204-3.1	**C12**	✓	✓	✓
Factory certificate to EN 10204-2.2	**C14**	✓	✓	✓
Acceptance certificate (EN 10204-3.1) PMI test of parts in contact with medium	**C15**	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C20**	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	**C21**[4]		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C23**	✓		
PED for Russia with initial calibration mark	**C99**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
Setting of the upper saturation limit of the output signal to 22.0 mA	**D05**	✓		
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)	**D07**	✓	✓	✓
Degree of protection IP66/IP68 (only for M20 x 1.5 and ½-14 NPT)	**D12**	✓	✓	✓
Process flange screws made of Monel (max. nominal pressure PN20)	**D34**	✓	✓	✓
Supplied with oval flange set (2 items), PTFE packings and screws in thread of process flanges	**D37**	✓	✓	✓
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	**D59**	✓	✓	✓
Use in or on zone 1D/2D[5]	**E01**	✓	✓	✓
(only together with type of protection "Intrinsic safety" (transmitter 7MF4...-.....-.B.. Ex ia)"and IP66)				
Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MAWP 464 psi), basic device with type of protection "Intrinsic safety (Ex ia)", to WHG and VbF, not together with measuring cell filling "inert liquid")	**E08**	✓		
Oxygen application (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	**E10**	✓	✓	✓
Export approval Korea	**E11**	✓	✓	✓
CRN approval Canada (Canadian Registration Number)	**E22**[6]	✓	✓	✓
Dual seal	**E24**	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.B..)	**E25**[7]	✓	✓	✓
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.D..)	**E26**[7]	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.P..)	**E28**[7]	✓	✓	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4...-.....-.B..)	**E45**[7]	✓	✓	✓
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4...-.....-.D..)	**E46**[7]	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4...-.....-.B..)	**E55**[7]	✓	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4...-.....-.D..)	**E56**[7]	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.E..)	**E57**[7]	✓	✓	✓
Ex protection „Ex ia", „Ex d" and „Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.R..)	**E58**[7]	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4...-.....-.[B, D]..-Z + E11)	**E70**[7]	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs Add "**-Z**" to Article No. and specify Order code.				
Ex-protection Ex ia according to EAC Ex (Russia)	**E80**	✓	✓	✓
Ex-protection Ex d according to EAC Ex (Russia)	**E81**	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	**E82**	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	**E83**	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	**G10**	✓	✓	✓
Interchanging of process connection side	**H01**	✓	✓	✓
Vent on side for gas measurements	**H02**	✓	✓	✓
Stainless steel process flanges for vertical differential pressure lines (not together with K01, K02 and K04[8])	**H03**	✓	✓	✓
Transient protector 6 kV (lightning protection)	**J01**	✓	✓	✓
Chambered graphite gasket for process flange	**J02**	✓	✓	✓
Chambered PTFE graphite gasket	**J03**	✓	✓	✓
EPDM O-rings for process flange with approval (WRC/WRAS)	**J05**	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display[9])	**J08**	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display)[9]	**J09**	✓	✓	✓
Process flange				
• Hastelloy	**K01**	✓	✓	✓
• Monel	**K02**	✓	✓	✓
• Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F), for ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible	**K04**	✓	✓	✓
Marine approvals				
• Det Norske Veritas Germanischer Lloyd (DNV-GL)	**S10**	✓	✓	✓
• Lloyds Register (LR)	**S11**	✓	✓	✓
• French marine classification society Bureau Veritas (BV)	**S12**	✓	✓	✓
• American Bureau of Shipping (ABS)	**S14**	✓	✓	✓
• Russian Maritime Register (RMR)	**S16**	✓	✓	✓
• Korean Register of Shipping (KR)	**S17**	✓	✓	✓

Factory mounting of valve manifolds, see accessories.

✓ = available

1) Han device plug IP65

2) 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.

3) 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.

4) Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H

5) Option does not contain gas explosion protection; only dust explosion protection: Use in or at Zone 1D/2D.

6) Cannot be ordered with remote seal.

7) When the additional ex option is selected, the ATEX marking on the device is omitted. Only the Ex option selected via the Z option is marked.

8) Not suitable for connection of remote seal.

9) Blanking plug is standard configuration. Order option A40 if a vent valve is required instead of a blanking plug.

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:				
• in the case of linear characteristic curve (max. 5 characters): Y01: ... up to ... mbar, bar, kPa, MPa, psi	**Y01**	✓	✓[1]	
• in the case of square rooted characteristic (max. 5 characters): Y02: ... up to ... mbar, bar, kPa, MPa, psi	**Y02**	✓		
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 char., specify in plain text: Y16:	**Y16**	✓	✓	✓
Entry of HART address (TAG) Max. 8 char., specify in plain text: Y17:	**Y17**	✓		
Setting of pressure indicator 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 $H_2O^{*)}$, in$H_2O^{*)}$, ft$H_2O^{*)}$, mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C	**Y21**	✓	✓	✓
Setting of pressure indicator in non-pressure units[2] Specify in plain text: Y22: ..... up to ..... l/min, m³/h, m, USgpm, ... (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters)	**Y22[3]** + **Y01** *or* **Y02**	✓		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	**Y25**		✓	✓
Damping adjustment in seconds (0 ... 100 s)	**Y30**	✓	✓	✓

Factory mounting of valve manifolds, see accessories.

Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and D05 can be factory preset

✓ = available

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

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

3) Not in conjunction with over-filling safety device for flammable and non-flammable liquids (Order code "E08")

Selection and Ordering data — Article No.

SITRANS P DS III with HART pressure transmitters for differential pressure and flow, PN 420 (MAWP 6092 psi) ↗ **7MF4533 -**

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

Measuring cell filling	Measuring cell cleaning	
Silicone oil	normal	1
Inert liquid[1]	grease-free to cleanliness level 2	3
Measuring span (min. ... max.)		
2.5 ... 250 mbar	(1.004 ... 100 inH_2O)	D
6 ... 600 mbar	(2.4 ... 240 inH_2O)	E
16 ... 1600 mbar	(6.4 ... 642 inH_2O)	F
50 ... 5000 mbar	(20 ... 2000 inH_2O)	G
0.3 ... 30 bar	(4.35 ... 435 psi)	H
Wetted parts materials (stainless steel process flanges)		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B
Gold[2]	Gold	L
Version for diaphragm seal [3) 4) 5) 6)]		Y
Process connection		
Female thread ¼-18 NPT with flange connection		
• Sealing screw opposite process connection		
- Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		3
- Mounting thread M12 to DIN 19213 (only for replacement requirement)		1
• Venting on side of process flanges, location of vent valve at top of process flanges (see dimensional drawing)		
- Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		7
- Mounting thread M12 to DIN 19213 (only for replacement requirement)		5
Non-wetted parts materials		
process flange screws	Electronics housing	
Stainless steel	Die-cast aluminum	2
Stainless steel	Stainless steel precision casting[7)]	3
Version		
• Standard version, German plate inscription, setting for pressure unit: bar)		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		
Explosion protection		
• None		A
• With ATEX, Type of protection:		
- "Intrinsic safety (Ex ia)"		B
- "Explosion-proof (Ex d)"[8)]		D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"[9)]		P
- "Ex nA/ic (Zone 2)"[10)]		E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia+ Ex d + Zone 1D/2D)"[9)11)]		R
• FM + CSA intrinsic safe (is)[12)]		F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[9)11)12)]		S
• With FM + CSA, Type of protection:		
- "Intrinsic safety and explosion-proof (is + xp)" [8)12)], max PN 360		N C

Selection and Ordering data — Article No.

SITRANS P DS III with HART pressure transmitters for differential pressure and flow, PN 420 (MAWP 6092 psi) **7MF4533 -**

Electrical connection/cable entry	
• Screwed gland M20x1.5	B
• Screwed gland ½-14 NPT	C
• Han 7D device plug (plastic housing) incl. mating connector[13)14)]	D
• M12 device plugs (stainless steel)[15) 16)]	F
Display	
• Without display	0
• Without visible display (display concealed, setting: mA)	1
• With visible display (setting: mA)	6
• with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)	7

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

Scope of delivery: Pressure transmitter as ordered (Instruction Manual is extra ordering item)

1) For oxygen application, add Order code E10.
2) Not in conjunction with max. span 600 mbar (240.9 inH_2O)
3) 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.
4) 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.
5) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF453.-..Y..-.... and 7MF4900-1....-.B
6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
7) Not in conjunction with Electrical connection "Han 7D device plug".
8) Without cable gland, with blanking plug
9) With enclosed cable gland Ex ia and blanking plug
10) Configurations with Han and M12 device plugs are only available in Ex ic.
11) Only in connection with IP66.
12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
13) Only in connection with Ex approval A, B or E.
14) Permissible only for crimp-contact of conductor cross-section 1 mm^2
15) Only in connection with Ex approval A, B, E or F.
16) M12 delivered without cable socket.

Selection and Ordering data		Article No.
Pressure transmitters for differential pressure and flow, PN 420 (MAWP 6092 psi)		
SITRANS P DS III with PROFIBUS PA (PA) ↗		7MF4534-
SITRANS P DS III with FOUNDATION Fieldbus (FF) ↗		7MF4535-
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Inert liquid[1]	grease-free to cleanliness level 2	3
Nominal measuring range		
250 mbar	(100 inH_2O)	D
600 mbar	(240 inH_2O)	E
1600 mbar	(642 inH_2O)	F
5 bar	(2000 inH_2O)	G
30 bar	(435 psi)	H
Wetted parts materials		
(stainless steel process flanges)		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B
Gold [2]	Gold	L
Version for diaphragm seal [3] [4] [5] [6]		Y
Process connection		
Female thread ¼-18 NPT with flange connection		
• Sealing screw opposite process connection		
- Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		3
- Mounting thread M12 to DIN 19213 (only for replacement requirement)		1
• Venting on side of process flanges, location of vent valve at top of process flanges (see dimensional drawing).		
- Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		7
- Mounting thread M12 to DIN 19213 (only for replacement requirement)		5
Non-wetted parts materials		
Process flange screws	Electronics housing	
Stainless steel	Die-cast aluminum	2
Stainless steel	Stainless steel precision casting	3
Version		
• Standard version, German plate inscription, setting for pressure unit: bar		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		

Selection and Ordering data	Article No.
Pressure transmitters for differential pressure and flow, PN 420 (MAWP 6092 psi)	
SITRANS P DS III with PROFIBUS PA (PA)	7MF4534-
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7MF4535-
Explosion protection	
• None	A
• With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)"	B
- "Explosion-proof (Ex d)"[7]	D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"[8]	P
- "Ex nA/ic (Zone 2)" [9]	E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"[8] [10]	R
• FM + CSA intrinsic safe (is)[11]	F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX)+ Zone 1D/2D[9][10][11]	S
• With FM + CSA, Type of protection:	
- "Intrinsic safety and explosion-proof (is + xp)"[7][11], max PN 360	NC
Electrical connection/cable entry	
• Screwed gland M20 x 1.5	B
• Screwed gland ½-14 NPT	C
• M12 device plugs (stainless steel) [12] [13]	F
Display	
• Without (display hidden)	0
• Without visible display (display concealed, setting: bar)	1
• With visible display (setting: bar)	6
• With customer-specific display (setting as specified, Order code "Y21" required)	7

Included in delivery of the device:
- Quick-start guide
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

1) For oxygen application, add Order code E10.
2) Not in conjunction with max. span 600 mbar (240.9 inH_2O)
3) 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.
4) 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.
5) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF453.-..Y..-.... and 7MF4900-1....-.B
6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
7) Without cable gland, with blanking plug.
8) With enclosed cable gland Ex ia and blanking plug.
9) Configurations with Han and M12 device plugs are only available in Ex ic.
10) Only in connection with IP66.
11) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
12) Only in connection with Ex approval A, B, E or F.
13) M12 delivered without cable socket

for differential pressure and flow

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 (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:				
• Steel	**A01**	✓	✓	✓
• Stainless steel 304	**A02**	✓	✓	✓
• Stainless steel 316L	**A03**	✓	✓	✓
O-rings for process flanges (instead of FPM (Viton))				
• PTFE (Teflon)	**A20**	✓	✓	✓
• FEP (with silicone core, approved for food)	**A21**	✓	✓	✓
• FFPM (Kalrez, compound 4079), for measured medium temperatures -15 ... 100 °C (5 ... 212 °F)	**A22**	✓	✓	✓
• NBR (Buna N)	**A23**	✓	✓	✓
Device plugs[1]				
• Han 7D (metal)	**A30**	✓		
• Han 8D (instead of Han 7D)	**A31**	✓		
• Angled	**A32**	✓		
• Han 8D (metal)	**A33**	✓		
Sealing screws (2 units) ¼-18 NPT, with valve in mat. of process flanges	**A40**	✓	✓	✓
Cable sockets for M12 device plugs (metal (CuZn))	**A50**	✓	✓	✓
Rating plate inscription (instead of German)				
• English	**B11**	✓	✓	✓
• French	**B12**	✓	✓	✓
• Spanish	**B13**	✓	✓	✓
• Italian	**B14**	✓	✓	✓
• Cyrillic (russian)	**B16**	✓	✓	✓
English rating plate Pressure units in inH_2O and/or psi	**B21**	✓	✓	✓
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2	**C11**	✓	✓	✓
Inspection certificate Acc. to EN 10204-3.1	**C12**	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	**C14**	✓	✓	✓
Acceptance certificate (EN 10204-3.1) PMI test of parts in contact with medium	**C15**	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C20**	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	**C21**[2]		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C23**	✓		
PED for Russia with initial calibration mark	**C99**	✓	✓	✓

Selection and Ordering data	Order code			
Setting of the upper saturation limit of the output signal to 22.0\ mA	**D05**	✓		
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)	**D07**	✓	✓	✓
Degree of protection IP66/IP68 (only for M20 x 1.5 and ½-14 NPT)	**D12**	✓	✓	✓
Nom. press. rating PN 500 (MAWP 7250 psi) (Only for measuring cell 600 mbar ... 30 bar (240 inH_2O ... 435 psi), SIL- and Ex-options not possible))[3]	**D56**	✓		
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	**D59**	✓	✓	✓
Use in or on zone 1D/2D[4] (only together with type of protection "Intrinsic safety" (transmitter 7MF4...-.....-.B.. Ex ia)"and IP66)	**E01**	✓	✓	✓
Export approval Korea	**E11**	✓	✓	✓
CRN approval Canada (Canadian Registration Number)	**E22**[5]	✓	✓	✓
Dual seal	**E24**	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.B..)	**E25**[6]	✓	✓	✓
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.D..)	**E26**[6]	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.P..)	**E28**[6]	✓	✓	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4...-.....-.B..)	**E45**[6]	✓	✓	✓
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4...-.....-.D..)	**E46**[6]	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4...-.....-.B..)	**E55**[6]	✓	✓	✓
Ex prot. "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4...-.....-.D..)	**E56**[6]	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.E..)	**E57**[6]	✓	✓	✓
Ex protection „Ex ia", „Ex d" and „Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.R..)	**E58**[6]	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4...-.....-.[B, D]..-Z + E11)	**E70**[6]	✓	✓	✓
Ex-protection Ex ia acc. to EAC Ex (Russia)	**E80**	✓	✓	✓
Ex-protection Ex d acc. to EAC Ex (Russia)	**E81**	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	**E82**	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	**E83**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs				
Add "**-Z**" to Article No. and specify Order code.				
Two coats of lacquer on casing and cover (PU on epoxy)	**G10**	✓	✓	✓
Interchanging of process connection side	**H01**	✓	✓	✓
Stainless steel process flanges for vertical differential pressure lines	**H03**	✓	✓	✓
Transient protector 6 kV (lightning protection)	**J01**	✓	✓	✓
Chambered graphite gasket for process flange	**J02**	✓	✓	✓
EPDM O-rings for process flange with approval (WRC/WRAS)	**J05**	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display)[7)]	**J08**	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display)[7)]	**J09**	✓	✓	✓
Marine approvals				
• Det Norske Veritas Germanischer Lloyd (DNV-GL)	**S10**	✓	✓	✓
• Lloyds Register (LR)	**S11**	✓	✓	✓
• French marine classification society Bureau Veritas (BV)	**S12**	✓	✓	✓
• American Bureau of Shipping (ABS)	**S14**	✓	✓	✓
• Russian Maritime Register (RMR)	**S16**	✓	✓	✓
• Korean Register of Shipping (KR)	**S17**	✓	✓	✓

1) Han device plug IP65
2) Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H
3) Tested according to IEC 61010. Only for measuring materials of the group of fluids 2 in accordance with PED permissible. Not for use with dangerous media suitable.
4) Option does not contain gas explosion protection; only dust explosion protection: Use in or at Zone 1D/2D.
5) Cannot be ordered with remote seal.
6) When the additional ex option is selected, the ATEX marking on the device is omitted. Only the Ex option selected via the Z option is marked.
7) Blanking plug is standard configuration. Order option A40 if a vent valve is required instead of a blanking plug.

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:				
• in the case of linear characteristic curve (max. 5 characters): Y01: ... up to ... mbar, bar, kPa, MPa, psi	**Y01**	✓	✓[1)]	
• in the case of square rooted characteristic (max. 5 characters): Y02: ... up to ... mbar, bar, kPa, MPa, psi	**Y02**	✓		
Stainless steel tag plate and entry in device variable (measuring point description)	**Y15**	✓	✓	✓
Max. 16 characters, specify in plain text: Y15:				
Measuring point text (entry in device variable)	**Y16**	✓	✓	✓
Max. 27 char., specify in plain text: Y16:				
Entry of HART address (TAG)	**Y17**	✓		
Max. 8 char., specify in plain text: Y17:				
Setting of pressure indication in pressure units	**Y21**	✓	✓	✓
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/cm^2, kg/cm^2, Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units[2)]	**Y22 + Y01** *or* **Y02**	✓		
Specify in plain text: Y22: ..... up to ..... l/min, m^3/h, m, USgpm, ... (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters)				
Preset bus address	**Y25**		✓	✓
possible between 1 and 126				
Specify in plain text: Y25:				
Damping adjustment in seconds (0 ... 100 s)	**Y30**	✓	✓	✓

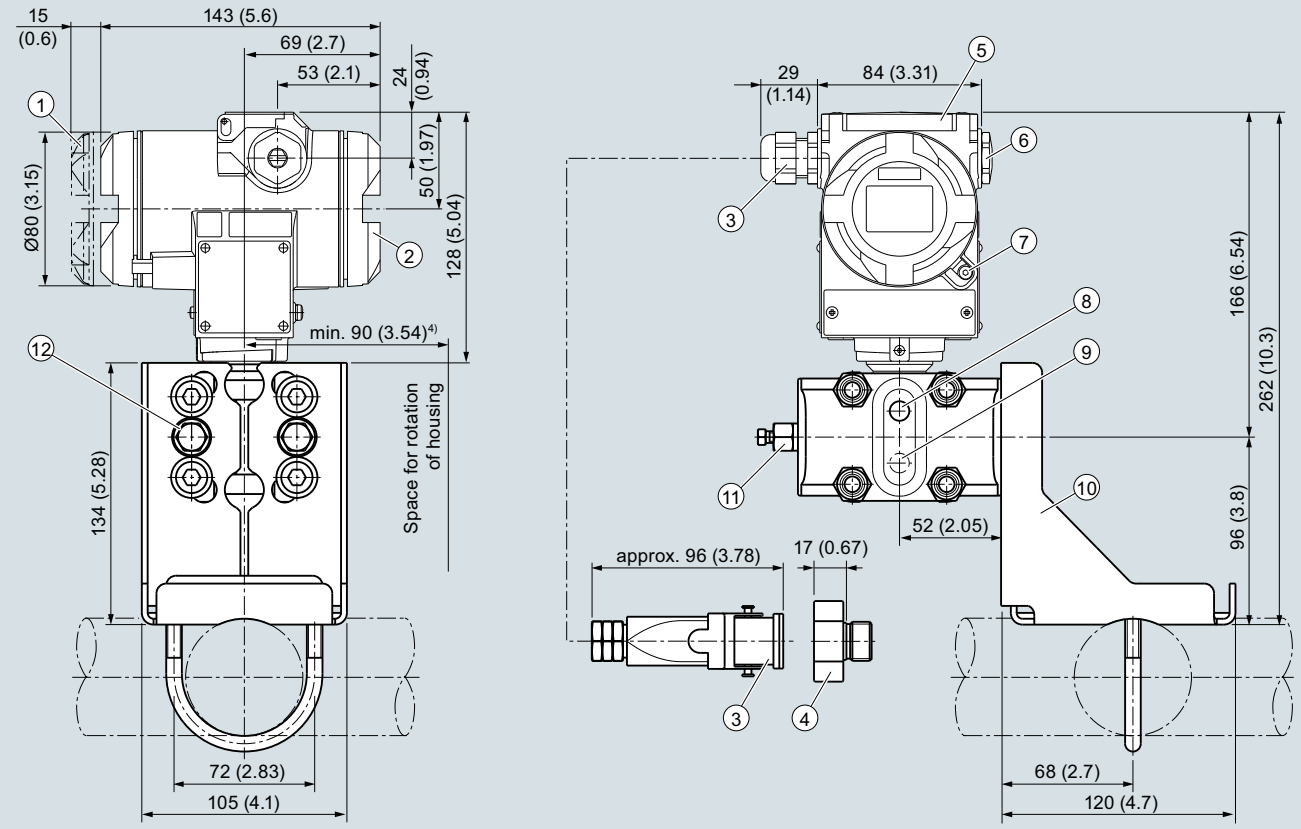
Factory mounting of valve manifolds, see accessories.

Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and D05 can be factory preset.

✓ = available

1) Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.
2) Preset values can only be changed over SIMATIC PDM.

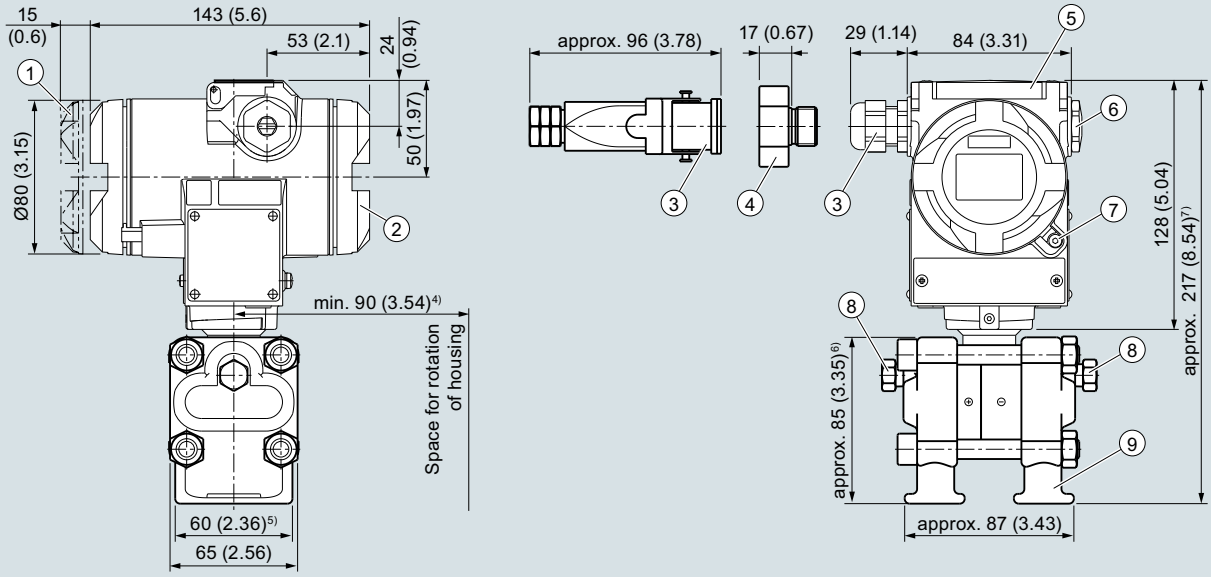
Dimensional drawings



1. Electronic side, digital display (longer overall length for cover with window)[1]
2. Terminal side[1]
3. Electrical connection: Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/8D device plug[2] [3]
4. Harting adapter
5. Protective cover over keys
6. Blanking plug
7. Screw cover - safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
8. Lateral venting for liquid measurement (Standard)
9. Lateral venting for gas measurement (suffix H02)
10. Mounting bracket (option)
11. Sealing screw with valve (option)
12. Process connection: ¼-18 NPT (IEC 61518)

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "Explosion-proof enclosure"
3) Not with type of protection "FM + CSA" [IS + XP]"
4) 92 mm (3.62 inch) for minimum distance to permit rotation with indicator

SITRANS P DS III pressure transmitters for differential pressure and flow, dimensions in mm (inch)



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

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "Explosion-proof enclosure"
3) Not with type of protection "FM + CSA" [IS + XP]"
4) 92 mm (3.6 inch) for minimum distance to permit rotation with indicator
5) 74 mm (2.9 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)
6) 91 mm (3.6 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)
7) 219 mm (8.62 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)

SITRANS P DS III pressure transmitters for differential pressure and flow, with process covers for vertical differential pressure lines, optional "H03" , dimensional drawing, dimensions in mm (inch)

SITRANS P DS III pressure transmitters for differential pressure and flow, with process covers for vertical differential pressure lines

Technical specifications

SITRANS P DS III for level			
Input			
Measured variable	Level		
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**	
	Span	Nominal measuring range	Max. operating pressure MAWP (PS)
	25 ... 250 mbar 2.5 ... 25 kPa 10 ... 100 inH_2O	250 mbar 25 kPa 100 inH_2O	See "Mounting flange"
	25 ... 600 mbar 2.5 ...60 kPa 10 ... 240 inH_2O	600 mbar 60 kPa 240 inH_2O	
	53 ... 1600 mbar 5.3 ...160 kPa 21 ... 640 inH_2O	1600 mbar 160 kPa 642 inH_2O	
	160 ... 5000 mbar 16 ...500 kPa 2.32 ... 72.5 psi	5000 mbar 500 kPa 72.5 psi	
Lower measuring limit			
• Measuring cell with silicone oil filling	-100 % of max. span or 30 mbar a/3 kPa a/0.44 psi a depending on mounting flange		
• Measuring cell with inert filling liquid	-100 % of max. span or 30 mbar a/3 kPa a/0.44 psi a depending on mounting flange		
Upper measuring limit	100 % of max. span		
Start of scale value	Between the measuring limits (fully adjustable)		
Output	**HART**	**PROFIBUS PA/FOUNDATION Fieldbus**	
Output signal	4 ... 20 mA	Digital PROFIBUS PA and FOUNDATION Fieldbus signal	
• Lower limit (infinitely adjustable)	3.55 mA, factory preset to 3.84 mA	-	
• Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA	-	
Load			
• Without HART	$R_B \leq (U_H - 10.5\ V)/0.023\ A$ in Ω, U_H: Power supply in V	-	
• With HART	R_B = 230 ... 500 Ω (SIMATIC PDM) or R_B = 230 ... 1100 Ω (HART Communicator)	-	
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 P DS III for level	
Measuring accuracy	Acc. to IEC 60770-1
Reference conditions	• Increasing characteristic • Start-of-scale value 0 bar/kPa/psi • Stainless steel seal diaphragm • Silicone oil filling • Room temperature 25 °C (77 °F)
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span or nom. pressure range
Error in measurement at limit setting incl. hysteresis and reproducibility	
• Linear characteristic	
- 250 mbar/25 kPa/3.6 psi	r ≤ 5 : ≤ 0.125 % 5 < r ≤ 10 : ≤ (0.007 · r + 0.09) %
- 600 mbar/60 kPa/8.7 psi	r ≤ 5 : ≤ 0.125 % 5 < r ≤ 25 : ≤ (0.007 · r + 0.09) %
- 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi	r ≤ 5 : ≤ 0.125 % 5 < r ≤ 30 : ≤ (0.007 · r + 0.09) %
Influence of ambient temperature (in percent per 28 °C (50 °F))	
• 250 mbar/25 kPa/3.6 psi	≤ (0.4 · r + 0.16) %
• 600 mbar/60 kPa/8.7 psi	≤ (0.24 · r + 0.16) %
• 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi	≤ (0.2 · r + 0.16) %
Influence of static pressure	
• on the zero point	
- 250 mbar/25 kPa/3.6 psi	≤ (0.3 · r) % per nominal pressure
- 600 mbar/60 kPa/8.7 psi	≤ (0.15 · r) % per nominal pressure
- 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi	≤ (0.1 · r) % per nominal pressure
• on the span	≤ (0.1 · r) % per nominal pressure
Long-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.25 · r)% in 5 years static pressure max. 70 bar/7 MPa/1015 psi
Effect of mounting position	Depending on filling liquid of mounting flange
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 nominal measuring range
Rated conditions	
Degree of protection	
• according to EN 60529	IP66 (optional IP66/IP68)
• according to NEMA 250	Type 4X
Temperature of medium	**Note:** Always take into account assignment of max. permissible operating temperature to max. permissible operating pressure of the respective flange connection!
• Measuring cell with silicone oil filling	-40 ... +100[1)] °C (-40 ... +212[1)] °F)
- High-pressure side	p_{abs} ≥ 1 bar: -40 ... +175 °C (-40 ... +347 °F) p_{abs} < 1 bar: -40 ... +80 °C (-40 ... +176 °F)
- Low-pressure side	-40 ... +100 °C (-40 ... +212 °F) -20 ... +60 °C (-4 ... +140 °F) in conjunction with dust explosion protection
Ambient conditions	
• Ambient temperature	
- Transmitter	-40 ... +85 °C (-40 ... +185 °F)
- -Display readable	-30 ... +85 °C (-22 ... +185 °F)
• Storage temperature	-50 ... +85 °C (-58 ... +185 °F)
• Climatic class	
- Condensation	Relative humidity 0 ... 100 %, condensation permissible, suitable for use in the tropics
• Electromagnetic Compatibility	
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21

for level

SITRANS P DS III for level		
Design		
Weight (without options)		
• To EN (pressure transmitter with mounting flange, without tube)	≈ 11 ... 13 kg (≈ 24.2 ... 28.7 (lb)	
• To ASME (pressure transmitter with mounting flange, without tube)	≈ 11 ... 18 kg (≈ 24.2 ... 39.7 lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408	
Wetted parts materials		
High-pressure side		
• Seal diaphragm of mounting flange	• Stainless steel, W.-Nr. 1.4404/316L - coated with PFA - coated with PTFE - coated with ECTFE - gold plated • Monel 400, mat. no. 2.4360 • Hastelloy C276, mat. no 2.4619 • Hastelloy C4, mat. no. 2.4602 • Hastelloy C22, mat. no. 2.4602 • Tantalum • Titanium, mat. no. 3.7035 • Nickel 201 • Duplex 2205, mat. no. 1.4462	
Measuring cell filling	Silicone oil	
Process connection		
• High-pressure side	Flange to EN and ASME	
• Low-pressure side	Female thread ¼-18 NPT and flange connection with mounting thread M10 to DIN 19213 or $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518	
Power supply U_H	**HART**	**PROFIBUS PA/FOUNDATION Fieldbus**
Terminal voltage on transmitter	10.5 ... 45 V DC 10.5 ... 30 V DC in intrinsically-safe mode	-
Power supply		Supplied through bus
Separate 24 V power supply necessary	-	No
Bus voltage		
• Not Ex	-	9 ... 32 V
• With intrinsically-safe operation	-	9 ... 24 V
Current consumption		
• Basic current (max.)	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
• Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	-	Yes

SITRANS P DS III for level		
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)	
Explosion protection		
• Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +70 °C (-40 ... +158 °F) temperature class T5; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To certified intrinsically-safe circuits with peak values: U_i = 30 V, I_i = 100 mA, P_i = 750 mW; R_i = 300 Ω	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1.2 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC	To circuits with values: U_H = 9 ... 32 V DC
• Dust explosion protection for zone 20	PTB 01 ATEX 2055	
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 ... +85 °C (-40 ... +185 °F)	
- Max. surface temperature	120 °C (248 °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	FISCO supply unit: U_o = 17.5 V, I_o = 380 mA, P_o = 5.32 W Linear barrier: U_o = 24 V, I_o = 250 mA, P_o = 1.2 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Dust explosion protection for zone 21/22	PTB 01 ATEX 2055	
- Marking	Ex II 2 D Ex tb IIIC T120°C Db	
- Connection	To circuits with values: U_H = 10.5 ... 45 V DC; P_{max} = 1.2 W	To circuits with values: U_H = 9 ... 32 V DC; P_{max} = 1 W
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X	
- Marking	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc	
- Connection (Ex nA)	U_m = 45 V	U_m = 32 V
- Connection (Ex ic)	To circuits with values: U_i = 45 V	FISCO supply unit ic: U_o = 17.5 V, I_o = 570 mA Linear barrier: U_o = 32 V, I_o = 132 mA, P_o = 1 W
- Effective internal inductance/capacitance	L_i = 0.4 mH, C_i = 6 nF	L_i = 7 µH, C_i = 1.1 nF
• Explosion protection acc. to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	
• Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III	

1) This value may be increased if the process connection is sufficiently insulated.

for level

HART communication	
HART	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 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, class B
Function blocks	2
• Analog input	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 ... 100 s
- Simulation function	Input/Output
- Failure mode	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
- Square-rooted characteristic for flow measurement	Yes
- Gradual volume suppression and implementation point of square-root extraction	Parameterizable
- Simulation function for measured pressure value and sensor temperature	Constant value or over parameterizable ramp function

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
Mounting flange	
Nominal diameter	Nominal pressure
• Acc. to EN 1092-1	
- DN 80	PN 40
- DN100	PN16, PN40
• To ASME B16.5	
- 3 inch	class 150, class 300
- 4 inch	class 150, class 300

Selection and Ordering data		Article No.
Pressure transmitter for level, SITRANS P DS III with HART ↗		7MF4633-
		▪▪Y▪▪-▪▪▪▪
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	normal	1
Measuring span (min. ... max.)		
25 ... 250 mbar	(10 ... 100 inH_2O)	D
25 ... 600 mbar	(10 ... 240 inH_2O)	E
53 ... 1600 mbar	(21 ... 642 inH_2O)	F
0.16 ... 5 bar	(64.3 ... 2000 inH_2O)	G
Process connection of low-pressure side		
Female thread ¼-18 NPT with flange connection		
• Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		2
• Mounting thread M10 to DIN 19213 (only for replacement requirement)		0
Non-wetted parts materials		
process flange screws	Electronics housing	
Stainless steel	Die-cast aluminum	2
Stainless steel	Stainless steel precision casting[1]	3
Version		
• Standard version, German plate inscription, setting for pressure unit: bar)		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		
Explosion protection		
• None		A
• With ATEX, Type of protection:		
- "Intrinsic safety (Ex ia)"		B
- "Explosion-proof (Ex d)"[2]		D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"[3]		P
- "Ex nA/ic (Zone 2)" [4]		E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia+ Ex d + Zone 1D/2D)"[3][5]		R
• FM + CSA intrinsic safe (is)[6]		F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[3][5][6]		S
• With FM + CSA, Type of protection:		
- "Intrinsic Safe and Explosion Proof (is + xp)"[1][6]		N C
Electrical connection/cable entry		
• Screwed gland M20x1.5		B
• Screwed gland ½-14 NPT		C
• Han 7D device plug (plastic housing) incl. mating connector[7]		D
• M12 device plugs (stainless steel) [8] [9]		F
Display		
• Without display		0
• Without visible display (display concealed, setting: mA)		1
• With visible display (setting mA)		6
• With customer-specific display (setting as specified, Order code "Y21" or "Y22" required)		7

Ordering information

1st order item: Pressure transmitter 7MF4633-...
2nd order item: Mounting flange 7MF4912-3...

ordering example

Item line 1:	7MF4633-1EY20-1AA1-Z
B line:	Y01
C line:	Y01: 80 to 143 mbar (1.16 to 2.1 psi)
Item line 2:	7MF4912-3GE01

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

Included in delivery of the device:
- Quick-start guide
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

1) Not in conjunction with Electrical connection "Han 7D device plug".
2) Without cable gland, with blanking plug.
3) With enclosed cable gland Ex ia and blanking plug.
4) Configurations with Han and M12 device plugs are only available in Ex ic.
5) Only in connection with IP66.
6) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
7) Only in connection with Ex approval A, B or E.
8) M12 delivered without cable socket
9) Only in connection with Ex approval A, B, E or F.

for level

Selection and Ordering data		Article No.
Pressure transmitters for level		
SITRANS P DS III with PROFIBUS PA (PA) ↗		7MF4634-
SITRANS P DS III with FOUNDATION Fieldbus (FF) ↗		7MF4635-
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		1 ■ Y ■■ - ■■■■
Nominal measuring range		
250 mbar	(100 inH_2O)	D
600 mbar	(240 inH_2O)	E
1600 mbar	(642 inH_2O)	F
5 bar	(2000 inH_2O)	G
Process connection of low-pressure side		
Female thread ¼-18 NPT with flange connection		
• Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		2
• Mounting thread M10 to DIN 19213 (only for replacement requirement)		0
Non-wetted parts materials		
process flange screws	Electronics housing	
Stainless steel	Die-cast aluminum	2
Stainless steel	Stainless steel precision casting	3
Version		
• Standard version, German plate inscription, setting for pressure unit: bar)		1
• International version, English plate inscription, setting for pressure unit: bar		2
• Chinese version, English plate inscription, setting for pressure unit: Pascal		3
All versions include DVD with compact operating instructions in various EU languages.		
Explosion protection		
• None		A
• With ATEX, Type of protection:		
- "Intrinsic safety (Ex ia)"		B
- "Explosion-proof (Ex d)"[1]		D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"[2]		P
- "Ex nA/ic (Zone 2)" [3]		E
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"[2][4]		R
• FM + CSA intrinsic safe (is)[5]		F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D[2][4][5]		S
• With FM + CSA, Type of protection:		
- "Intrinsic Safe and Explosion Proof (is + xp)"[1][5]		N C
Electrical connection/cable entry		
• Screwed gland M20 x 1.5		B
• Screwed gland ½-14 NPT		C
• M12 device plugs (stainless steel)[6] [7]		F
Display		
• Without display		0
• Without visible display (display concealed, setting: bar)		1
• With visible display (setting: bar)		6
• With customer-specific display (setting as specified, Order code "Y21" required)		7

Ordering information

1st order item: Pressure transmitter 7MF4634-...
2nd order item: Mounting flange 7MF4912-...

ordering example

Item line 1: 7MF4634-1EY20-1AA1
Item line 2: 7MF4912-3GE01

Included in delivery of the device:
- Quick-start guide
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

1) Without cable gland, with blanking plug.
2) With enclosed cable gland Ex ia and blanking plug.
3) Configurations with Han and M12 device plugs are only available in Ex ic.
4) Only in connection with IP66.
5) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
6) M12 delivered without cable socket
7) Only in connection with Ex approval A, B, E or F.

Selection and Ordering data	Order code	HART	PA	FF
Further designs				
Add "**-Z**" to Article No. and specify Order code.				
O-rings for process flanges on low-pressure side (instead of FPM (Viton))				
• PTFE (Teflon)	**A20**	✓	✓	✓
• FEP (with silicone core, approved for food)	**A21**	✓	✓	✓
• FFPM (Kalrez, compound 4079), for measured medium temperatures -15 ... 100 °C (5 ... 212 °F)	**A22**	✓	✓	✓
• NBR (Buna N)	**A23**	✓	✓	✓
Device plugs[1]				
• Han 7D (metal)	**A30**	✓		
• Han 8D (instead of Han 7D)	**A31**	✓		
• Angled	**A32**	✓		
• Han 8D (metal)	**A33**	✓		
Sealing screw ¼-18 NPT, with valve in mat. of process flanges	**A40**	✓	✓	✓
Cable sockets for M12 device plugs (metal (CuZn))	**A50**	✓	✓	✓
Rating plate inscription (instead of German)				
• English	**B11**	✓	✓	✓
• French	**B12**	✓	✓	✓
• Spanish	**B13**	✓	✓	✓
• Italian	**B14**	✓	✓	✓
• Cyrillic (russian)	**B16**	✓	✓	✓
English rating plate Pressure units in in$H_2$0 and/or psi	**B21**	✓	✓	✓
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2	**C11**	✓	✓	✓
Inspection certificate Acc. to EN 10204-3.1	**C12**	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	**C14**	✓	✓	✓
Acceptance certificate (EN 10204-3.1) PMI test of parts in contact with medium	**C15**	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C20**	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	**C21**[2]		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	**C23**	✓		
PED for Russia with initial calibration mark	**C99**	✓	✓	✓
Setting of the upper saturation limit of the output signal to 22.0 mA	**D05**	✓		
Degree of protection IP66/IP68 (only for M20x1.5 and ½-14 NPT)	**D12**	✓	✓	✓
Supplied with oval flange (1 item), PTFE packing and screws in thread of process flange	**D37**	✓	✓	✓
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	**D59**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs				
Add "**-Z**" to Article No. and specify Order code.				
Use on zone 1D / 2D[3] (only together with type of protection "Intrinsic safety" (transmitter 7MF4...-.....-.B.. Ex ia)"and IP66)	**E01**	✓	✓	✓
Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MAWP 464 psi), basic device with type of protection "Intrinsic safety (Ex ia)", to WHG and VbF, not together with measuring cell filling "inert liquid")	**E08**	✓		
Export approval Korea	**E11**	✓	✓	✓
Dual seal	**E24**	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.B..)	**E25**[4]	✓	✓	✓
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.D..)	**E26**[4]	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4...-.....-.P..)	**E28**[4]	✓	✓	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4...-.....-.B..)	**E45**[4]	✓	✓	✓
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4...-.....-.D..)	**E46**[4]	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4...-.....-.B..)	**E55**[4]	✓	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4...-.....-.D..)	**E56**[4]	✓	✓	✓
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.E..)	**E57**[4]	✓	✓	✓
Ex protection „Ex ia", „Ex d" and „Zone 2" to NEPSI (China) (only for transmitter 7MF4...-.....-.R..)	**E58**[4]	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4...-.....-.[B, D]..-Z + E11)	**E70**[4]	✓	✓	✓
Ex-protection Ex ia according to EAC Ex (Russia)	**E80**	✓	✓	✓
Ex-protection Ex d according to EAC Ex (Russia)	**E81**	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	**E82**	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	**E83**	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	**G10**	✓	✓	✓
Replacement of process connection side	**H01**	✓	✓	✓

for level

Selection and Ordering data	Order code	HART	PA	FF
Further designs				
Add "**-Z**" to Article No. and specify Order code.				
Transient protector 6 kV (lightning protection)	**J01**	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display)[5]	**J08**	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display)[5]	**J09**	✓	✓	✓

1) Han device plug IP65
2) Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H
3) Option does not contain gas explosion protection; only dust explosion protection: Use in or at Zone 1D/2D.
4) When the additional ex option is selected, the ATEX marking on the device is omitted. Only the Ex option selected via the Z option is marked.
5) Blanking plug is standard configuration. Order option A40 if a vent valve is required instead of a blanking plug.

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**	✓	✓[1]	
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 address (TAG) Max. 8 characters, specify in plain text: Y17:	**Y17**	✓		
Setting of pressure indicator 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/cm^2, kg/cm^2, Torr, ATM or % [*] ref. temperature 20 °C	**Y21**	✓	✓	✓
Setting of pressure indicator in non-pressure units[2] Specify in plain text: Y22: ..... up to ..... l/min, m^3/h, m, USgpm, ... (specification of measuring range in pressure units "**Y01**" is essential, unit with max. 5 characters)	**Y22[3] + Y01**	✓		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	**Y25**		✓	✓
Damping adjustment in seconds (0 ... 100 s)	**Y30**	✓	✓	✓

Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and D05 can be factory preset

✓ = available

1) Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.
2) Preset values can only be changed over SIMATIC PDM.
3) Not in conjunction with over-filling safety device for flammable and non-flammable liquids (Order code "E08")

Selection and Ordering data		Article No.	Order code
Mounting flange ↗		7MF4912	
Directly mounted on the SITRANS P pressure transmitter (converter part) for level, for DS III series		3	
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.			
Connection to EN 1092-1			
Nominal diameter	**Nominal pressure**		
DN 25	PN 10/16/25/40	Z	J0A
	PN 63/100/160	Z	J0B
DN 40	PN 10/16/25/40	Z	J0C
	PN 63/100	Z	J0D
	PN 160	Z	J0E
DN 50	PN 10/16/25/40	A	
	PN 100	B	
DN 80	PN 10/16/25/40	D	
DN 100	PN 10/16	G	
	PN 25/40	H	
Connection to ASME B16.5			
Nominal diameter	**Nominal pressure**		
1 inch	class 150	Z	J6A
	class 300	Z	J6B
	class 400/600	Z	J6C
	class 900/1500	Z	J6D
1½ inch	class 150	Z	J6E
	class 300	Z	J6F
	class 400/600	Z	J6G
	class 900/1500	Z	J6H
2 inch	class 150	L	
	class 300	M	
	class 400/600	N	
	class 900/1500	P	
3 inch	class 150	Q	
	class 300	R	
4 inch	class 150	T	
	class 300	U	
Flange acc. to JIS			
Nominal diameter	**Nominal pressure**		
JIS DN 50	10 K 316L	Z	J7A
	20 K 316L	Z	J7B
JIS DN 80	10 K 316L	Z	J7C
	20 K 316L	Z	J7D
Other version, add Order code and plain text: Nominal diameter: ...; Nominal press.: ...		Z	J1Y
Wetted parts materials			
• Stainless steel 316L		A	
- Coated with PFA		D	
- Coated with PTFE		E0	
- Coated with ECTFE[1]		F	
• Monel 400, mat. no. 2.4360		G	
• Hastelloy C276, mat. no. 2.4819		J	
• Hastelloy C4, mat. no. 2.4602		U	
• Hastelloy C22, mat. no. 2.4602		V0	
• Tantalum		K	
• Titanium, mat. no. 3.7035 (max. 150 °C (302 °F))		L0	
• Nickel 201 (max. 260 °C (500 °F))		M0	
• Duplex 2205, mat. no. 1.4462		Q	
• Duplex 2205, mat. no. 1.4462, incl. main body		R	
• Stainless steel 316L, gold plated, thickness approx. 25 µm		S0	
Tube length			
• without tube		0	
Other version: add Order code and plain text: material of parts in contact with medium: ....., tubus length:		Z8	K1Y

Selection and Ordering data		Article No.	Order code
Mounting flange		7MF4912	
Directly mounted on the SITRANS P pressure transmitter (converter part) for level, for DS III series		3	
Customer-specific tubus length			
Specify customer-specific length with Y44, see Order Code			
• Wetted parts materials: Stainless steel without foil			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97")	50 mm (1.97")	A1	
51 ... 100 mm (2.01 ... 3.94")	100 mm (3.94")	A2	
101 ... 150 mm (3.98 ... 5.91")	150 mm (5.91")	A3	
151 ... 200 mm (5.94 ... 7.87")	200 mm (7.87")	A4	
201 ... 250 mm (7.91 ... 9.84")	250 mm (9.84")	A5	
• Wetted parts materials: Stainless steel coated with ECTFE			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97")	50 mm (1.97")	F1	
51 ... 100 mm (2.01 ... 3.94")	100 mm (3.94")	F2	
101 ... 150 mm (3.98 ... 5.91")	150 mm (5.91")	F3	
151 ... 200 mm (5.94 ... 7.87")	200 mm (7.87")	F4	
201 ... 250 mm (7.91 ... 9.84")	250 mm (9.84")	F5	
• Wetted parts materials: Stainless steel coated with PFA			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97")	50 mm (1.97")	D1	
51 ... 100 mm (2.01 ... 3.94")	100 mm (3.94")	D2	
101 ... 150 mm (3.98 ... 5.91")	150 mm (5.91")	D3	
151 ... 200 mm (5.94 ... 7.87")	200 mm (7.87")	D4	
201 ... 250 mm (7.91 ... 9.84")	250 mm (9.84")	D5	
• Wetted parts materials: Monel 400			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97")	50 mm (1.97")	G1	
51 ... 100 mm (2.01 ... 3.94")	100 mm (3.94")	G2	
101 ... 150 mm (3.98 ... 5.91")	150 mm (5.91")	G3	
151 ... 200 mm (5.94 ... 7.87")	200 mm (7.87")	G4	
• Wetted parts materials: Hastelloy C276			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97")	50 mm (1.97")	J1	
51 ... 100 mm (2.01 ... 3.94")	100 mm (3.94")	J2	
101 ... 150 mm (3.98 ... 5.91")	150 mm (5.91")	J3	
151 ... 200 mm (5.94 ... 7.87")	200 mm (7.87")	J4	
• Wetted parts materials: Tantalum			
Range	Standard length		
20 ... 50 mm (0.79 ... 1.97")	50 mm (1.97")	K1	
51 ... 100 mm (2.01 ... 3.94")	100 mm (3.94")	K2	
101 ... 150 mm (3.98 ... 5.91")	150 mm (5.91")	K3	
151 ... 200 mm (5.94 ... 7.87")	200 mm (7.87")	K4	
Filling liquid			
• Silicone oil M5		1	
• Silicone oil M50		2	
• High-temperature oil		3	
• Halocarbon oil (for O_2-measurement)[2]		4	
• Food oil (FDA-listed)		7	
Other version, add Order code and plain text: filling liquid: ...		9	M1Y

[1] For vacuum on request

[2] Oil and grease-free cleaning according to DIN 25410, level 2, and packaging included in scope of delivery. Refer to "Further designs" C10 and E10.

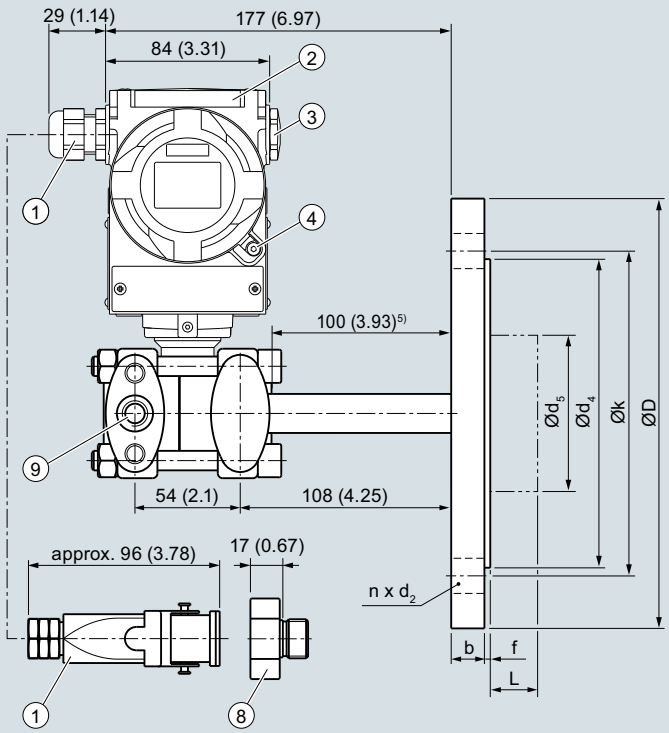
for level

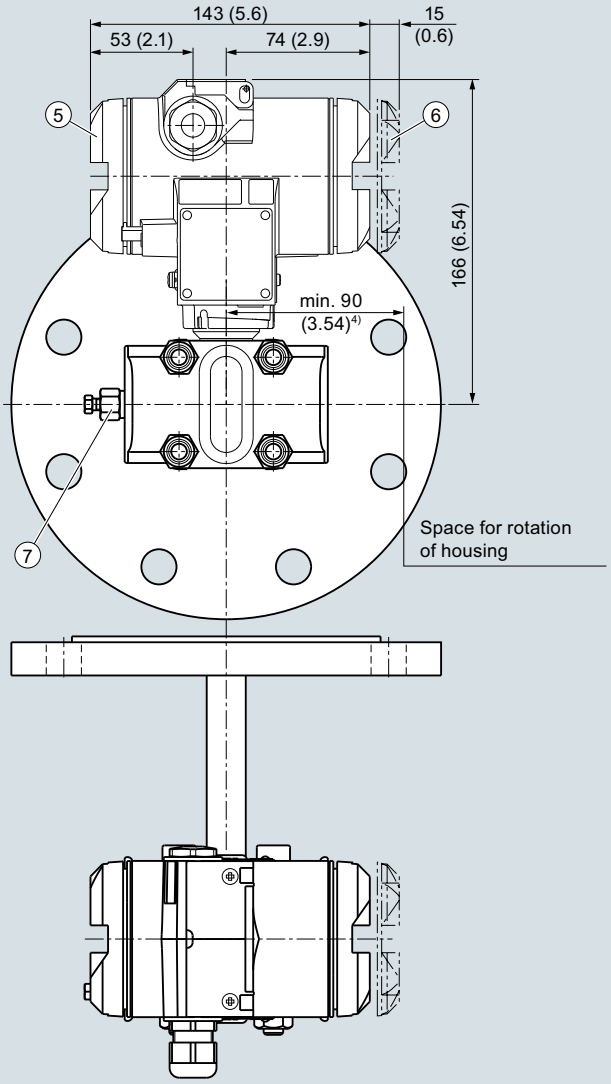
Selection and Ordering data	Order code	HART	PA	FF
Further designs				
Add "**-Z**" to Article No. and specify Order code.				
Customer-specific tubus length Select range, enter desired length in plain text (No entry = standard length)	**Y44**	✓	✓	✓
Spark arrester For mounting on zone 0 (incl. documentation)	**A01**	✓	✓	✓
Remote seal nameplate attached out of stainless steel, contains Article No. and order number of the remote seal supplier	**B20**	✓	✓	✓
Oil- and grease-free cleaned version Oil- and grease-free cleaned and packed version, not for oxygen application, only in conjunction with halocarbon oil fill fluid, certified by certificate acc. to EN 10204-2.2	**C10**	✓	✓	✓
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2	**C11**	✓	✓	✓
Inspection certificate Acc. to EN 10204-3.1	**C12**	✓	✓	✓
2.2 Certificate of FDA approval of fill oil Only in conjunction with filling liquid "Food oil" (FDA listed)"	**C17**	✓	✓	✓
"Functional safety (SIL2)" certificate to IEC 61508 (only for conjunction with the Order code "C20" in the case of SITRANS P DS III transmitter)	**C20**	✓	✓	
"Functional safety (SIL2/3)" certificate to IEC 61508 (only for conjunction with the Order code "C23" in the case of SITRANS P DS III transmitter)	**C23**	✓	✓	
Certification acc. to NACE MR-0175 Includes acceptance test certificate 3.1 acc. to EN 10204 (only for wetted parts made of stainless steel 1.4404/316L and Hastelloy C276)	**D07**	✓	✓	✓
Certification acc. to NACE MR-0103 Includes acceptance test certificate 3.1 acc. to EN 10204 (only for wetted parts made of stainless steel 1.4404/316L and Hastelloy C276)	**D08**	✓	✓	✓
Oil- and grease-free cleaned version Oil- and grease-free cleaned and packed version, only for oxygen application, only inert fill fluid may be used. Max. temperature: 60 °C (140 °F), max. pressure 50 bar (725 psi), only in connection with halocarbon oil, certified by certificate acc. to EN 10204-2.2	**E10**	✓	✓	✓
Epoxy painting Not possible with negative pressure service Color: transparent, coverage: front and rear of the remote seal, capillary(ies) or connecting tube, process connection of the transmitter. With transmitters 7MF40.. and 7MF42.., only possible with process connection G½B according to EN 837-1.	**E15**	✓	✓	✓

Selection and Ordering data	Order code	HART	PA	FF
Further designs				
Add "**-Z**" to Article No. and specify Order code.				
One sided-mounting, sealing surface below	**H20**			
Sealing surface smooth, form B2 or RFSF (Stainless steel diaphragm) previously DIN 2501, form E	**J11**	✓	✓	✓
Sealing surface groove, EN 1092-1, form D instead of sealing surface B1 (only for wetted parts made of stainless steel 316L)	**J14**	✓	✓	✓
Sealing surface with spring according to EN 1092-1, form F, (previously DIN 2512, form F) in stainless steel 316L				
DN 25	**J30**	✓	✓	✓
DN 40	**J31**	✓	✓	✓
DN 50	**J32**	✓	✓	✓
DN 80	**J33**	✓	✓	✓
DN 100	**J34**	✓	✓	✓
DN 125	**J35**	✓	✓	✓
Sealing surface with male face according to EN 1092-1, form E (previously DIN 2512, form V13) in stainless steel 316L				
DN 25	**J40**	✓	✓	✓
DN 40	**J41**	✓	✓	✓
DN 50	**J42**	✓	✓	✓
DN 80	**J43**	✓	✓	✓
DN 100	**J44**	✓	✓	✓
DN 125	**J45**	✓	✓	✓
Sealing surface with female face according to EN 1092-1, form F (previously DIN 2512, form R13) in stainless steel 316L				
DN 25	**J50**	✓	✓	✓
DN 40	**J51**	✓	✓	✓
DN 50	**J52**	✓	✓	✓
DN 80	**J53**	✓	✓	✓
DN 100	**J54**	✓	✓	✓
DN 125	**J55**	✓	✓	✓
Sealing surface B1 or ASME B16.5 RF 125 ... 250 AA instead of sealing surface B2 or RFSF (only for wetted parts made of Hastelloy C276 (2.4819), tantalum and Duplex 2205 (1.4462) and for nominal sizes 2", 3", DN 50 and DN 80)	**J12**	✓	✓	✓
Sealing surface RJF (groove, previously RTJ) ASME B16.5 instead of sealing surface ASME B16.5 RF 125 ... 250 AA (only for wetted parts made of stainless steel 316L)	**J24**	✓	✓	✓
Elongated pipe, 150 mm instead of 100 mm, max. medium temperature 250 °C, observe the maximum permissible media temperature of the filling liquid.	**R15**	✓	✓	✓
Elongated pipe, 200 mm instead of 100 mm, max. medium temperature 300 °C, observe the maximum permissible media temperature of the filling liquid.	**R20**	✓	✓	✓
Negative pressure service for use in the low-pressure measuring range for transmitter for level Note: suffix "Y01" required with pressure transmitter	**V04**	✓	✓	✓
Extended negative pressure service for use in the low-pressure measuring range for transmitter for level Note: suffix "Y01" required with pressure transmitter	**V54**	✓	✓	✓

✓ = available

Dimensional drawings

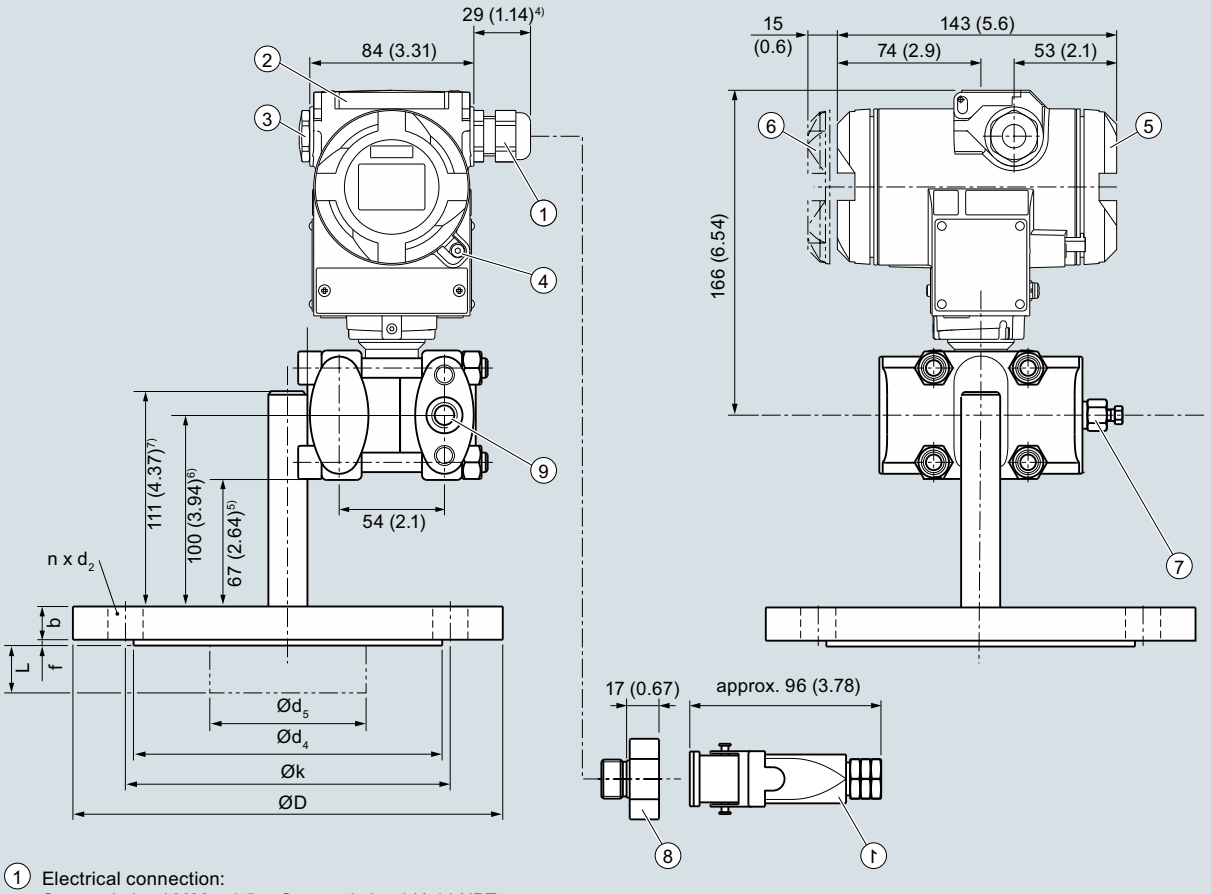




1. Electrical connection:
   Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or
   Han 7D/8D device plug[2) 3)]
2. Protective cover over keys
3. Blanking plug
4. Screw cover - safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
5. Terminal side[1)]
6.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

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "Explosion-proof enclosure"
3) Not with type of protection "FM + CSA" [IS + XP]"
4) 92 mm (3.62 inch) for minimum distance to permit rotation with indicator
5) 150 (5.9) with Order Code R15, 200 (7.87) with Order Code R20

SITRANS P DS III with HART pressure transmitters for level, including mounting flange, dimensions in mm (inch)



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

1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
2) Not with type of protection "Explosion-proof enclosure"
3) Not with type of protection "FM + CSA" [IS + XP]"
4) For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
5) 117 (4.61) with Order Code R15, 167 (6.57) with Order Code R20
6) 150 (5.19) with Order Code R15, 200 (7.87) with Order Code R20
7) 161 (6.34) with Order Code R15, 211 (8.31) with Order Code R20

SITRANS P DS III with HART pressure transmitters for level, including mounting flange, one sided-mounting, sealing surface below (order code H20), dimensions in mm (inch)

Connection to EN 1092-1

Nominal diameter	Nominal pressure	b	D	d	d_2	d_4	d_5	d_M	f	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
DN 50	PN 10/16/ 25/40	20	165	90	18	102	48.3	45[1)]	2	125	4	0, 50, 100, 150 or 200
	PN 100	28	195	90	26	102	48.3	45[1)]	2	145	8	
DN 80	PN 10/16/ 25/40	24	200	90	18	138	76	72[2)]	2	160	8	
	PN 100	32	230	90	26	138	76	72[2)]	2	180	8	
DN 100	PN 10/16	20	220	115	18	158	94	89	2	180	8	
	PN 25/40	24	235	115	22	162	94	89	2	190	8	

Connection to ASME B16.5

Nominal diameter	Nominal pressure	b	D	d_2	d_4	d_5	d_M	f	k	n	L
	lb./sq.in	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)		inch (mm)
2 inch	150	0.77 (19.5)	5.91 (150)	0.79 (20)	3.62 (92)	1.9 (48.3)	1.77[1)] (45)	0.08 (2)	4.74 (120.5)	4	0, 2, 3.94, 5.94 or 7.87 (0, 50, 100, 150 or 200)
	300	0.89 (22.7)	6.5 (165)	0.79 (20)	3.62 (92)	1.9 (48.3)	1.77[1)] (45)	0.08 (2)	5 (127)	8	
	400/600	1.28 (32.4)	6.5 (165)	0.79 (20)	3.62 (92)	1.9 (48.3)	1.77[1)] (45)	0.28 (7)	5 (127)	8	
	900/1500	1.78 (45.1)	8.46 (215)	1.02 (26)	5 (127)	1.9 (48.3)	1.77[1)] (45)	0.28 (7)	6.5 (165)	8	
3 inch	150	0.96 (24.3)	7.48 (190)	0.79 (20)	5 (127)	3 (76)	2.83[2)] (72)	0.08 (2)	6 (152.5)	4	
	300	1.14 (29)	8.27 (210)	0.87 (22)	5 (127)	3 (76)	2.83[2)] (72)	0.08 (2)	6.63 (168.5)	8	
	600	1.53 (38.8)	8.27 (210)	0.87 (22)	5 (127)	3 (76)	2.83[2)] (72)	0.28 (7)	6.63 (168.5)	8	
4 inch	150	0.96 (24.3)	9.06 (230)	0.79 (20)	6.22 (158)	3.69 (94)	3.5 (89)	0.08 (2)	7.5 (190.5)	8	
	300	1.27 (32.2)	10.04 (255)	0.87 (22)	6.22 (158)	3.69 (94)	3.5 (89)	0.08 (2)	7.87 (200)	8	
	400	1.65 (42)	10.04 (255)	1.02 (26)	6.22 (158)	3.69 (94)	3.5 (89)	0.28 (7)	7.87 (200)	8	

d: Internal diameter of gasket to DIN 2690
d_M: Effective diaphragm diameter

1) 59 mm = 2.32 inch with tube length L=0.

2) 89 mm = 3½ inch with tube length L=0.

Accessories/Spare Parts

Selection and Ordering data		Article No.
Replacement measuring cell for pressure for SITRANS P DS III ↗		**7MF4990-** **■■■■0-0DB0**
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	Normal	**1**
Inert liquid	grease-free to cleanliness level 2	**3**
Measured span (min. ... max.)		
8.3 ... 250 mbar	(0.12 ... 3.6 psi)	**A**
0.01 ... 1 bar	(0.15 ... 14.5 psi)	**B**
0.04 ... 4 bar	(0.6 ... 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 ... 2 320 psi)	**F**
4.0 ... 400 bar	(58.0 ... 5 802 psi)	**G**
7.0 ... 700 bar	(102.0 ... 10 153 psi)	**J**
Wetted parts materials		
Seal diaphragm	Process connection	
Stainless steel	Stainless steel	**A**
Hastelloy	Stainless steel	**B**
Hastelloy	Hastelloy	**C**
Process connection		
• Connection shank G½B to EN 837-1		**0**
• Female thread ½-14 NPT		**1**
• Oval flange made of stainless steel, max. span 160 bar (2320 psi)		
- Mounting thread $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518		**2**
- Mounting thread M10 to DIN 19213		**3**
Further designs		Order code
Please add "**-Z**" to Article No. and specify Order code.		
Inspection certificate to EN 10204-3.1		**C12**

Selection and Ordering data		Article No.
Replacement measuring cell for absolute pressure for SITRANS P DS III (from the pressure series) ↗		**7MF4992-** **■■■■0-0DB0**
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	Normal	**1**
Inert liquid	grease-free to cleanliness level 2	**3**
Measured span (min. ... max.)		
8.3 ... 250 mbar a	(0.12 ... 3.63 psi a)	**D**
43 ... 1300 mbar a	(0.62 ... 18.86 psi a)	**F**
0.16 ... 5 bar a	(2.32 ... 72.5 psi a)	**G**
1 ... 30 bar a	(14.5 ... 435 psi a)	**H**
Wetted parts materials		
Seal diaphragm	Process connection	
Stainless steel	Stainless steel	**A**
Hastelloy	Stainless steel	**B**
Hastelloy	Hastelloy	**C**
Process connection		
• Connection shank G½B to EN 837-1		**0**
• Female thread ½-14 NPT		**1**
• Oval flange made of stainless steel, max. span 160 bar (2320 psi)		
- Mounting thread $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518		**2**
- Mounting thread M10 to DIN 19213		**3**
Further designs		Order code
Please add "**-Z**" to Article No. and specify Order code.		
Inspection certificate to EN 10204-3.1		**C12**

Selection and Ordering data		Article No.
Replacement measuring cell for absolute pressure (from the differential pressure series) for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus series		7MF4993 - ■■■■■ - 0DC0
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	Normal	1
Inert liquid	grease-free to cleanliness level 2	3
Measured span (min. ... max.)		
8.3 ... 250 mbar a	(0.12 ... 3.63 psi a)	D
43 ... 1300 mbar a	(0.62 ... 18.86 psi a)	F
0.16 ... 5 bar a	(2.32 ... 72.5 psi a)	G
1 ... 30 bar a	(14.5 ... 435 psi a)	H
5.3 ... 100 bar a	(76.9 ... 1450 psi a)	K E
Wetted parts materials		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B
Hastelloy	Hastelloy	C
Tantalum	Tantalum	E
Monel	Monel	H
Gold	Gold	L
Process connection		
Female thread ¼-18 NPT with flange connection		
• Sealing screw opposite process connection		
- Mounting thread M10 to DIN 19213		0
- Mounting thread $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518		2
• Vent on side of process flange[1]		
- Mounting thread M10 to DIN 19213		4
- Mounting thread $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518		6
Non-wetted parts materials		
• Stainless steel process flange screws		2
Further designs Please add "**-Z**" to Article No. and specify Order code.		Order code
O-rings for process flanges (instead of FPM (Viton))		
• PTFE (Teflon)		**A20**
• FEP (with silicone core, approved for food)		**A21**
• FFPM (Kalrez, compound 4079), for measured medium temperatures -15 ... 100 °C (5 ... 212 °F)		**A22**
• NBR (Buna N)		**A23**
Inspection certificate to EN 10204-3.1		**C12**
Process connection G½B		**D16**
Remote seal flanges (not together with K01, K02 and K04)		**D20**
Vent on side for gas measurements		**H02**
Process flanges		
• without		**K00**
• with process flange made of		
- Hastelloy		**K01**
- Monel		**K02**
- Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi) max.temperature of medium 90 °C (194 °F) For ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible		**K04**

[1] Not for span 5.3 ... 100 bar (76.9 ... 1450 psi)

Selection and Ordering data		Article No.
Replacement measuring cell for differential pressure and PN 32/160 (MAWP 464/2320 psi) for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus series		7MF4994 - ■■■■■ - 0DC0
↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	Normal	1
Inert liquid	grease-free to cleanliness level 2	3
Measured span (min. ... max.)		
PN 32 (MAWP 464 psi)		
1 ... 20 mbar[1]	(0.4 ... 8 inH_2O)	B
PN 160 (MAWP 2320 psi)		
1 ... 60 mbar	(0.4 ... 24 inH_2O)	C
2.5 ... 250 mbar	(1 ... 100 inH_2O)	D
6 ... 600 mbar	(2.4 ... 240 inH_2O)	E
16 ... 1600 mbar	(6.4 ... 642 inH_2O)	F
50 ... 5000 mbar	(20 ... 2000 inH_2O)	G
0.3 ... 30 bar	(4.35 ... 435 psi)	H
Wetted parts materials (stainless steel process flanges)		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	B
Hastelloy	Hastelloy	C
Tantalum[2]	Tantalum	E
Monel[2]	Monel	H
Gold[2]	Gold	L
Process connection		
Female thread ¼-18 NPT with flange connection		
• Sealing screw opposite process connection		
- Mounting thread M10 to DIN 19213		0
- Mounting thread $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518		2
• Vent on side of process flange		
- Mounting thread M10 to DIN 19213		4
- Mounting thread $^{7}/_{16}$-20 UNF to IEC 61518/DIN EN 61518		6
Non-wetted parts materials		
Stainless steel process flange screws		2
Further designs Please add "**-Z**" to Article No. and specify Order code.		Order code
O-rings for process flanges (instead of FPM (Viton))		
• PTFE (Teflon)		**A20**
• FEP (with silicone core, approved for food)		**A21**
• FFPM (Kalrez, compound 4079), for measured medium temperatures -15 ... 100 °C (5 ... 212 °F)		**A22**
• NBR (Buna N)		**A23**
Inspection certificate to EN 10204-3.1		**C12**
Remote seal flanges (not together with K01, K02 and K04)		**D20**
Vent on side for gas measurements		**H02**
Stainless steel process flanges for vertical differential pressure lines (not together with K01, K02 and K04)		**H03**
Process flanges		
• without		**K00**
• with process flange made of		
- Hastelloy		**K01**
- Monel		**K02**
- Stainless steel with PVDF insert, max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F). For ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible		**K04**

[1] Not suitable for connection of remote seal
[2] Only together with max. spans 250, 1600, 5000 and 30000 mbar (100 inH_2O, 642 inH_2O, 2000 inH_2O and 435 psi).

Accessories/Spare Parts

Selection and Ordering data		Article No.
Replacement measuring cell for differential pressure and PN 420 (MAWP 6092 psi) for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus series ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		**7MF4995-** ■■■■■ **-0DC0**
Measuring cell filling	**Measuring cell cleaning**	
Silicone oil	Normal	**1**
Measured span (min. ... max.)		
2.5 ... 250 mbar	(1 ... 100 inH_2O)	**D**
6 ... 600 mbar	(2.4 ... 240 inH_2O)	**E**
16 ... 1600 mbar	(6.4 ... 642 inH_2O)	**F**
50 ... 5000 mbar	(20 ... 2000 inH_2O)	**G**
0.3 ... 30 bar	(4.35 ... 435 psi)	**H**
Wetted parts materials (stainless steel process flanges)		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	**A**
Hastelloy	Stainless steel	**B**
Gold[1)]	Gold	**L**
Process connection		
Female thread ¼-18 NPT with flange connection		
• Sealing screw opposite process connection		
- Mounting thread M12 to DIN 19213		**1**
- Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		**3**
• Vent on side of process flange		
- Mounting thread M12 to DIN 19213		**5**
- Mounting thread $^7/_{16}$-20 UNF to IEC 61518/DIN EN 61518		**7**
Non-wetted parts materials		
• Stainless steel process flange screws		**2**
Further designs		Order code
Please add "**-Z**" to Article No. and specify Order code.		
O-rings for process flanges (instead of FPM (Viton))		
• PTFE (Teflon)		**A20**
• FEP (with silicone core, approved for food)		**A21**
• FFPM (Kalrez, compound 4079), for measured medium temperatures -15 ... 100 °C (5 ... 212 °F)		**A22**
• NBR (Buna N)		**A23**
Inspection certificate to EN 10204-3.1		**C12**
Stainless steel process flanges for vertical differential pressure lines		**H03**
without process flanges		**K00**

[1)] Not together with max. span 600 mbar (240 inH_2O)

Selection and Ordering data	Article No.
Spare parts/Accessories	
Mounting bracket and fastening parts for pressure transmitters SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF403.-.....-..C.) For absolute pressure transmitters SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF423.-.....-..C.)	
• made of steel	**7MF4997-1AB**
• made of stainless steel 304/1.4301	**7MF4997-1AH**
• made of stainless steel 316L/1.4404	**7MF4997-1AP**
Mounting bracket and fastening parts for pressure transmitters SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF403-.....-..A., -..B., ..D. and ..F.) For absolute pressure transmitters SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus 7MF423-.....-..A., -..B., ..D. and ..F.)	
• made of steel	**7MF4997-1AC**
• made of stainless steel 304/1.4301	**7MF4997-1AJ**
• made of stainless steel 316L/1.4404	**7MF4997-1AQ**
Mounting and fastening brackets For differential pressure transmitters with flange thread M10 SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF433.-... and 7MF443.-...)	
• made of steel	**7MF4997-1AD**
• made of stainless steel 304/1.4301	**7MF4997-1AK**
• made of stainless steel 316L/1.4404	**7MF4997-1AR**
Mounting and fastening brackets For differential pressure transmitters with flange thread M12 SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF453.-...)	
• made of steel	**7MF4997-1AE**
• made of stainless steel 304/1.4301	**7MF4997-1AL**
• made of stainless steel 316L/1.4404	**7MF4997-1AS**
Mounting and fastening brackets For differential and absolute pressure transmitters with flange thread 7/16 -20 UNF SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF433.-..., 7MF443.-... and 7MF453.-...)	
• made of steel	**7MF4997-1AF**
• made of stainless steel 304/1.4301	**7MF4997-1AM**
• made of stainless steel 316L/1.4404	**7MF4997-1AT**
Cover Made of die-cast aluminum, including gasket, for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus. Compatible for Ex and non-Ex transmitters	
• without window	**7MF4997-1BB**
• with window	**7MF4997-1BE**
Cover Made of stainless steel, including gasket, for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus. Compatible for Ex and non-Ex transmitters	
• without window	**7MF4997-1BC**
• with window	**7MF4997-1BF**

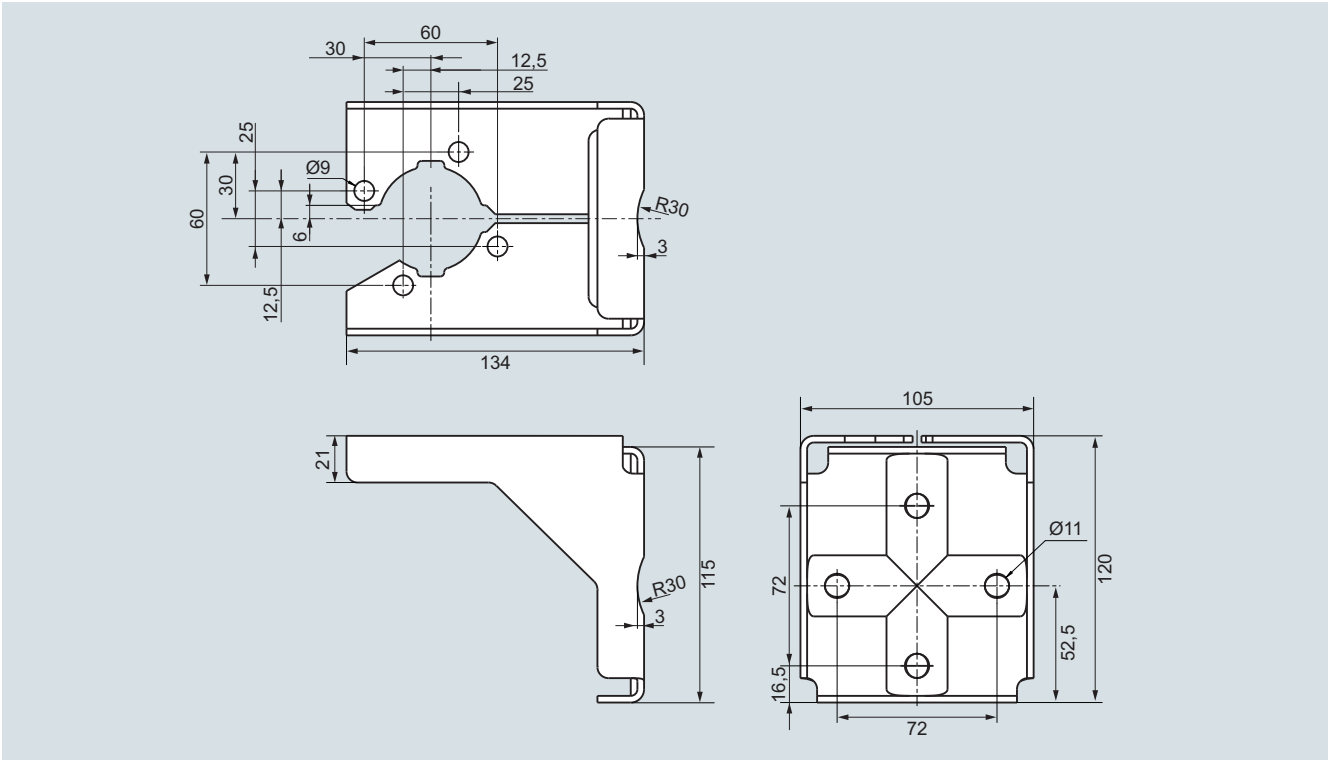
Selection and Ordering data	Article No.
Digital indicator Including mounting material for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus	**7MF4997-1BR**
Measuring point label	
• without inscription (5 units)	**7MF4997-1CA**
• Printed (1 unit) Data according to Y01 or Y02, Y15, Y16 and Y99 (see "Pressure transmitters")	**7MF4997-1CB-Z** **Y..: .....**
Mounting screws For measuring point label, grounding and connection terminals or for display (50 units)	**7MF4997-1CD**
Sealing screws (1 set = 2 units) for process flange	
• made of stainless steel	**7MF4997-1CG**
• made of Hastelloy	**7MF4997-1CH**
Sealing screws with vent valve Complete (1 set = 2 units)	
• made of stainless steel	**7MF4997-1CP**
• made of Hastelloy	**7MF4997-1CQ**
Application electronics	
• for SITRANS P DS III with HART	**7MF4997-1DK**
• for SITRANS P DS III with PROFIBUS PA	**7MF4997-1DL**
• for SITRANS P DS III with FOUNDATION Fieldbus	**7MF4997-1DM**
Connection board	
• for SITRANS P DS III	**7MF4997-1DN**
• for SITRANS P DS III PROFIBUS PA and FOUNDATION Fieldbus	**7MF4997-1DP**
O-rings for process flanges made of:	
• FPM (Viton)	**7MF4997-2DA**
• PTFE (Teflon)	**7MF4997-2DB**
• FEP (with silicone core, approved for food)	**7MF4997-2DC**
• FFPM (Kalrez, compound 4079)	**7MF4997-2DD**
• NBR (Buna N)	**7MF4997-2DE**
Sealing ring for process connection	**see "Fittings"**
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 connection	**7MF4997-2HF**
Seals for TG 52/50 and TG 52/150 made of silicone (FDA compliant)	**7MF4997-2HG**
Seals for flange connection with front-flush diaphragm M;aterial FKM (Viton); temperature range: -20 ... +200 °C (-4 ... +392 °F), 10 units	
• DN 25, PN 40 (M11)	**7MF4997-2HH**
• 1", class 150 (M40)	**7MF4997-2HK**

Accessories/Spare Parts

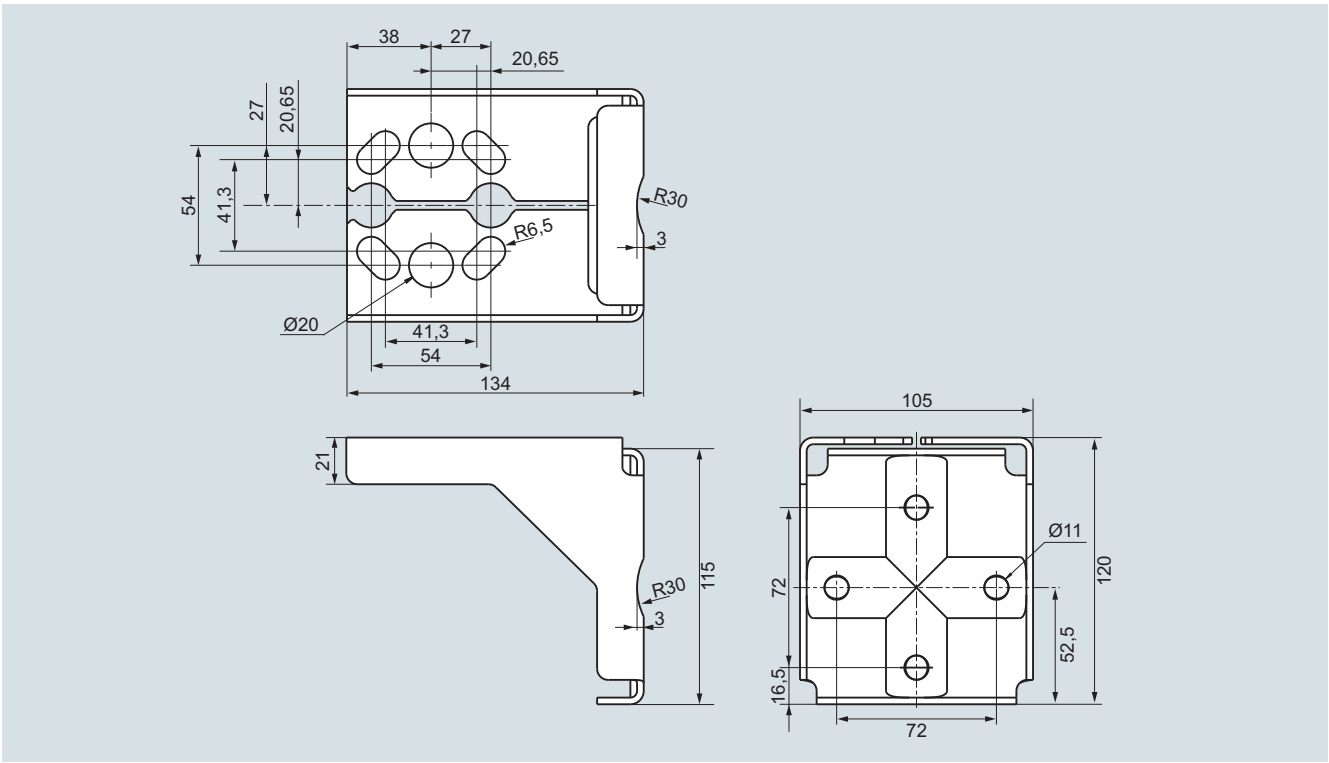
Selection and Ordering data	Article No.
Documentation	
The entire documentation is available for download free-of-charge in various languages at: http://www.siemens.com/processinstrumentation/documentation	
Compact operating instructions SITRANS P DS III/P410	
• English, German, Spanish, French, Italian, Dutch	**A5E03434626**
Certificates (order only via SAP) instead of Internet download	
• hard copy (to order)	**A5E03252406**
• on DVD (to order)	**A5E03252407**
HART modem	
with USB interface	**7MF4997-1DB**

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

Dimensional drawings



Mounting bracket for SITRANS P DS III, SITRANS P410 and SITRANS P280 gauge and absolute pressure-transmitters, dimensions in mm
mounting bracket material: Sheet-steel Mat. No. 1.0330, chrome-plated, or stainless steel Mat. No. 1.4301 (304)



Mounting bracket for SITRANS P DS III and SITRANS P410 differential pressure transmitter, dimensions in mm
mounting bracket material: Sheet-steel Mat. No. 1.0330, chrome-plated, or stainless steel Mat. No. 1.4301 (304)

Factory-mounting of valve manifolds on transmitters

Overview

SITRANS P transmitters

- DS III for relative and absolute pressure (both designs) and
- DS III for differential pressure

can be delivered factory-fitted with the following valve manifolds:

- 7MF9011-4EA and 7MF9011-4FA valve manifolds for gauge pressure and absolute pressure transmitters
- 7MF9411-5BA and 7MF9411-5CA valve manifolds for absolute pressure and differential pressure transmitters

Design

The 7MF9011-4EA valve manifolds are sealed with gaskets made of PTFE between transmitter and the valve manifold as standard. Soft iron, stainless steel and copper gaskets are also available for sealing purposes if preferred.

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

The 7MF9411-5BA and 7MF9411-5CA valve manifolds are sealed with PTFE sealing rings 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

7MF9411-5AA
valve manifold for relative and absolute pressure transmitters

Add „**-Z**" to the Article No. of the transmitter and add order codes.	Order code
SITRANS P DSIII 7MF403.-...2.-..., 7MF423.-...2.-... , 7MF403.-...3.-..., 7MF423.-...3.-... , 7MF403.-...4.-..., 7MF423.-...4.-... With process connection oval flange with PTFE gasket and **steel** mounting screws. Delivery including high-presure test certified by factory certificate according to EN 10204-2.2	**T05**
Additional versions:	
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**
With manufacturer declaration according to NACE, MR-0175	**D07**

7MF9411-5AA
valve manifold for relative and absolute pressure transmitters

Add „**-Z**" to the Article No. of the transmitter and add order codes.	Order code
SITRANS P DSIII 7MF403.-...2.-..., 7MF423.-...2.-... , 7MF403.-...3.-..., 7MF423.-...3.-... , 7MF403.-...4.-..., 7MF423.-...4.-... With process connection oval flange with PTFE gasket and **stainless steel** mounting screws. Delivery including high-presure test certified by factory certificate according to EN 10204-2.2	**T06**
Additional versions:	
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**
With manufacturer declaration according to NACE, MR-0175	**D07**

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

Add **-Z** to the Article No. of the transmitter and add Order codes	Order code
SITRANS P DSIII 7MF403.-...1.-..., 7MF423.-...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**
With manufacturer declaration according to NACE, MR-0175	**D07**

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

Add **-Z** to the Article No. of the transmitter and add Order codes	Order code
SITRANS P DSIII 7MF403.-...0.-..., 7MF423.-...0.-... with process connection collar G1/2 A to EN 837-1 with gasket made of PTFE between valve manifold and transmitter	**T02**
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	**A70** **A71** **A72**
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**
With manufacturer declaration according to NACE, MR-0175	**D07**

7MF9411-5BA
valve manifold on absolute and differential pressure transmitters

Add **-Z** to the Article No. of the transmitter and add Order codes	Order code
SITRANS P DSIII 7MF433.-…, 7MF443.-… and 7MF453.-… [1] mounted with gaskets made of PTFE and screws made of • chromized steel • made of stainless steel Delivery incl. high-pressure test certified by test report to EN 10204-2.2	 **U01** **U02**
Further designs: Delivery includes mounting bracket and mounting clips made of • Steel • Stainless steel (instead of the mounting bracket supplied with the transmitter)	 **A01** **A02**
Supplied acceptance test certificate to EN 10204-3.1 for transmitters and mounted valve manifold	**C12**
With manufacturer declaration according to NACE, MR-0175	**D07**

7MF9411-5CA
valve manifold on differential pressure transmitters

Add **-Z** to the Article No. of the transmitter and add Order codes	Order code
SITRANS P DSIII 7MF443.-... and 7MF453.-…1 [1] mounted with gaskets made of PTFE and screws made of • chromized steel • Stainless steel Delivery incl. high-pressure test certified by test report to EN 10204-2.2	 **U03** **U04**
Further designs: Delivery includes mounting bracket and mounting clips made of • Steel • Stainless steel (instead of the mounting bracket supplied with the transmitter)	 **A01** **A02**
Supplied acceptance test certificate to EN 10204-3.1 for transmitters and mounted valve manifold	**C12**
With manufacturer declaration according to NACE, MR-0175	**D07**

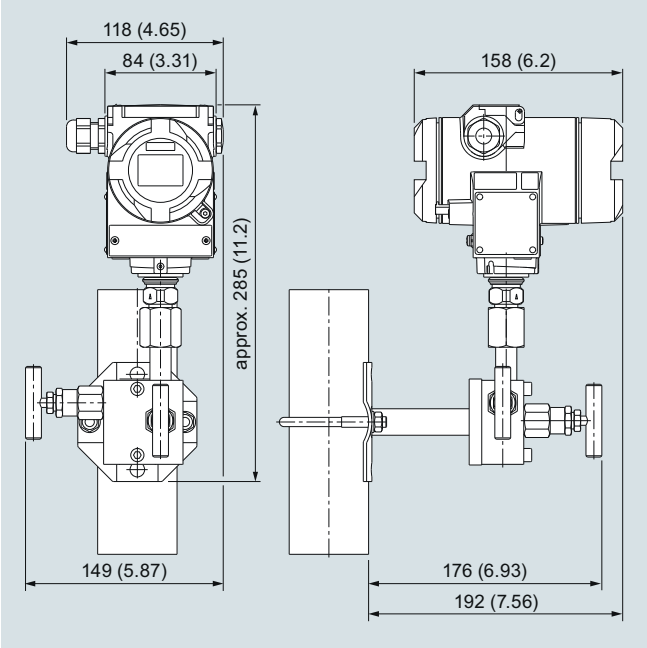
[1] For 7MF453.-... transmitters, you require a 7/10-20 UNF connection thread in the process flange

Dimensional drawings

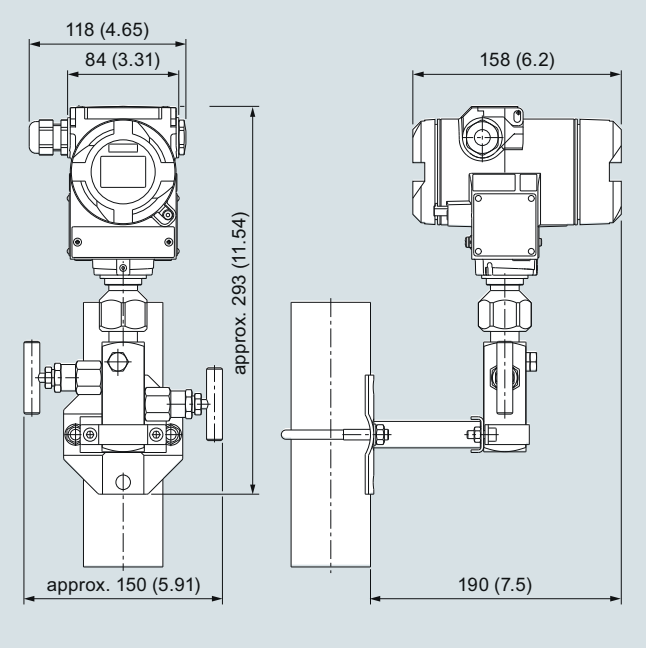
Valve manifolds mounted on SITRANS P DS III

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

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

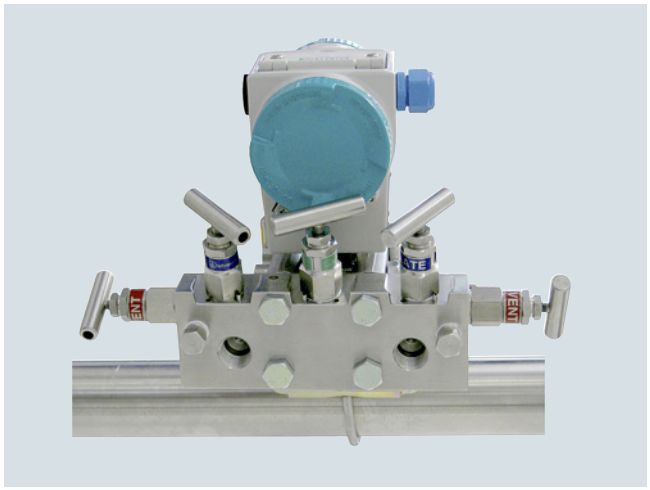


7MF9011-4EA valve manifold with mounted gauge pressure and absolute pressure transmitters, dimensions in mm (inch)

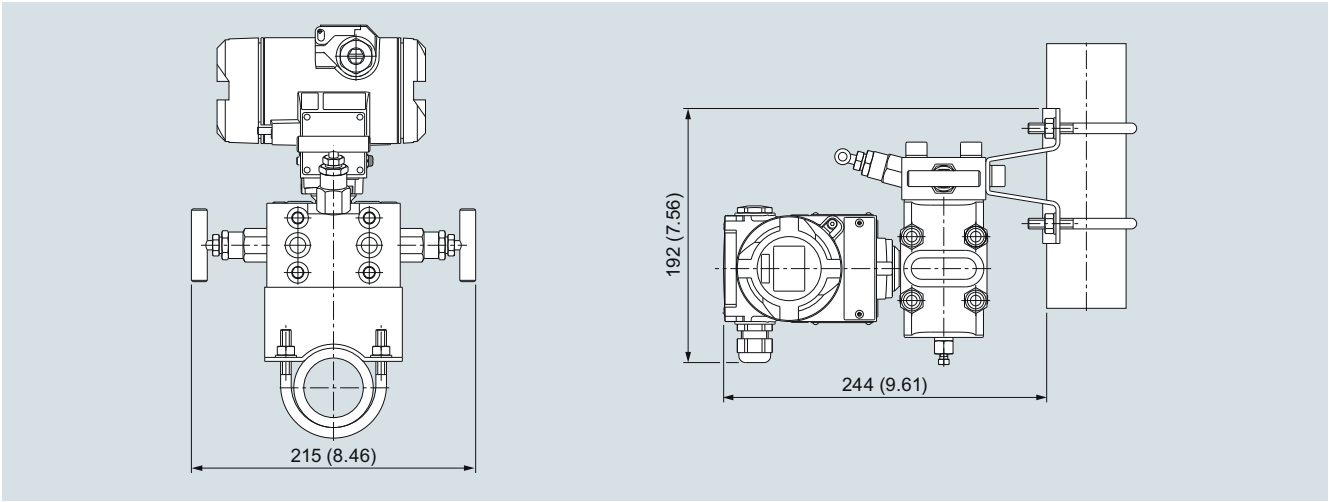


7MF9011-4FA valve manifold with mounted gauge pressure and absolute pressure transmitters, dimensions in mm (inch)

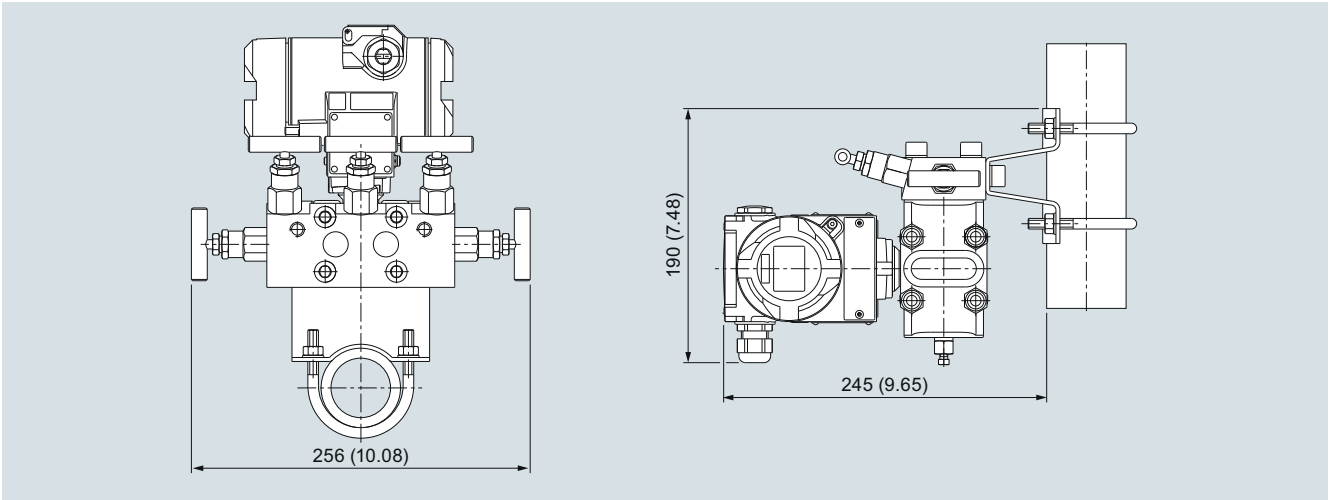
7MF9411-5BA valve manifold with mounted differential pressure transmitter



7MF9411-5CA valve manifold with mounted differential pressure transmitter



7MF9411-5BA valve manifold with mounted differential pressure transmitter, dimensions in mm (inch)



7MF9411-5CA valve manifold with mounted differential pressure transmitter, dimensions in mm (inch)