## Transmitters for general requirements

SITRANS P DS III Technical description

#### 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.

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#### 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 nonaggressive gases, vapors and liquids.

Span (infinitely adjustable)

for DS III with HART: 8.3 mbar a ... 100 bar a (0.12 ... 1450 psia)

Nominal measuring range

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

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 g ~ √∆p (together with a primary differential pressure device (see Chap.ter "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 liguids 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 lowpressure connection of the measuring cell remains open (measurement "compared to atmospheric").

In the case of measurements in closed containers, the lowerpressure 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 Order No. is located on the side of the housing. The specified number together with the ordering information provide details on the optional design details and on the possible measuring range (physical properties of built-in sensor element).

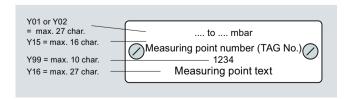
The approval label is located on the opposite side.

The housing is made of die-cast aluminium or stainless steel precision casting. A round cover (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

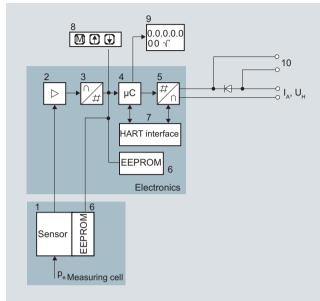


## Transmitters for general requirements

SITRANS P DS III
Technical description

#### 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 Output current
- **Ü**<sub>H</sub> Power supply
- P 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.

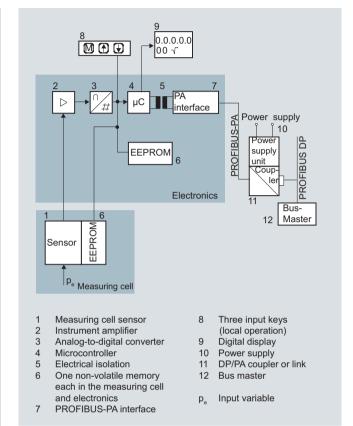
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced 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  $\leq$  63 bar measure the input pressure compared to atmosphere, transmitters with spans  $\geq$  160 bar compared to vacuum.

### Operation of electronics with PROFIBUS PA communication



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.

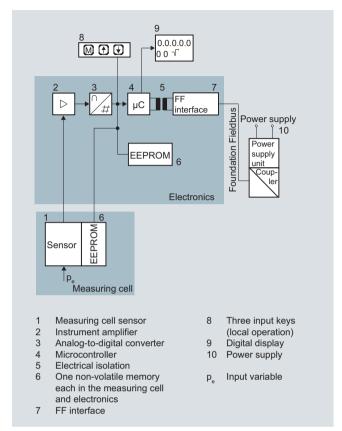
Using the three input buttons (8) you can parameterize the pressure transmitter directly at the measuring point. The input buttons can also be used to control the view of the results, the error messages and the operating modes on the display (9).

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.

## Transmitters for general requirements

SITRANS P DS III Technical description

#### Operation of electronics with FOUNDATION Fieldbus communication



#### Function diagram of electronics

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

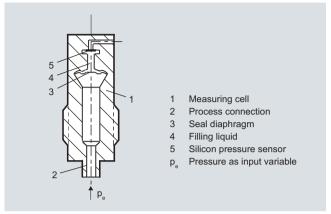
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

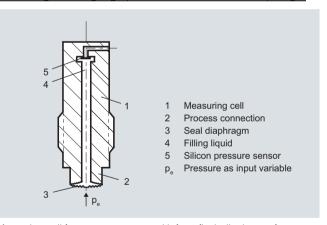
Measuring cell for gauge pressure



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



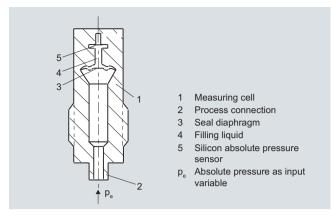
Measuring cell for gauge pressure, with front-flush diaphragm for paper industry, function diagram

The pressure pe 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.

## Transmitters for general requirements

SITRANS P DS III Technical description

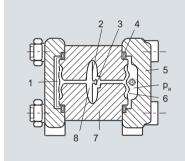
#### Measuring cell for absolute pressure from gauge pressure series



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

The absolute pressure  $_{\rm p}{\rm e}$  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<sub>e</sub> Absolute pressure as input variable

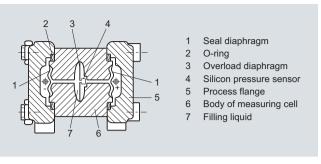
Measuring cell for absolute pressure from differential pressure series, function diagram

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



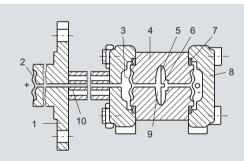
Measuring cell for differential pressure and flow, function diagram

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 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 level



- 1 Flange with tube
- 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 (2) is flexed until the seal diaphragm rests on the body of the measuring cell (7), thus protecting the silicon pressure sensor from overloads.

## Transmitters for general requirements

### SITRANS P DS III Technical description

#### Parameterization DS III

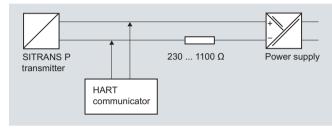
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

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

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

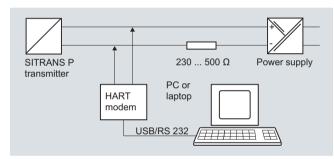
#### Parameterization using HART

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

Adjustable parameters, DS III WI	<u> </u>	
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")	Х	Х
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	Х	x <sup>1)</sup>
Type of dimension and actual dimension	Х	Х
Characteristic (linear / square-rooted)	x <sup>2)</sup>	x <sup>2)</sup>
Input of characteristic		X
Freely-programmable LCD		X
Diagnostic functions		Х

<sup>1)</sup> Cancel apart from write protection

#### 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/cm², kg/cm², inH <sub>2</sub> O, inH <sub>2</sub> O (4 °C), mmH <sub>2</sub> O, ftH <sub>2</sub> O (20 °C), inHg, mmHg
Level (height data)	m, cm, mm, ft, in
Volume	m <sup>3</sup> , dm <sup>3</sup> , hl, yd <sup>3</sup> , ft <sup>3</sup> , in <sup>3</sup> , US gallon, lmp. gallon, bushel, barrel, barrel liquid
Mass	g, kg, t, lb, Ston, Lton, oz
volume flow	$\rm m^3/d,m^3/h,m^3/s,l/min,l/s,ft^3/d,ft^3/min,ft^3/s,US$ 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 Field-bus interface
Electrical damping	Х	Х
Zero adjustment (correction of position)	×	×
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

<sup>2)</sup> Only differential pressure

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# 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/cm², kg/cm², mmH $_2$ O, mmH $_2$ O (4 °C), inH $_2$ O, inH $_2$ O (4 °C), ftH $_2$ O (20 °C), mmHg, inHg
Level (height data)	m, cm, mm, ft, in, yd
Volume	m <sup>3</sup> , dm <sup>3</sup> , hl, yd <sup>3</sup> , ft <sup>3</sup> , in <sup>3</sup> , US gallon, lmp. gallon, bushel, barrel, barrel liquid
volume flow	m³/s, m³/min, m³/h, m³/d, l/s, l/min, l/h, l/d, Ml/d, ft³/s, ft³/min, ft³/h, ft³/d, US gallon/s, US gallon/min, US gallon/h, US gallon/d, bbl/s, bbl/min, bbl/h, bbl/d
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	%

# Pressure Measurement Transmitters for general requirements SITRANS P DS III for gauge pressure

### Technical specifications

Technical specifications					
SITRANS P, DS III series for gauge pressure					
	HART		PROFIBUS PA and F	OUNDATION Fieldbus	
Input					
Measured variable		Gaug	je pressure		
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure	
	0.01 1 bar (0.15 14.5 psi)	6 bar (87 psi)	1 bar (14.5 psi)	6 bar (87 psi)	
	0.04 4 bar (0.58 58 psi)	10 bar (145 psi)	4 bar (58 psi)	10 bar (145 psi)	
	0.16 16 bar (2.32 232 psi)	32 bar (464 psi)	16 bar (232 psi)	32 bar (464 psi)	
	0.6 63 bar (9.14 914 psi)	100 bar (1450 psi)	63 bar (914 psi)	100 bar (1450 psi)	
	1.6 160 bar (23.2 2320 psi)	250 bar (3626 psi)	160 bar (2320 psi)	250 bar (3626 psi)	
	4.0 400 bar (58 5802 psi)	600 bar (8700 psi)	400 bar (5802 psi)	600 bar (8700 psi)	
	7.0 700 bar (102 10153 psi)	800 bar (11603 psi)	700 bar (10153 psi)	800 bar (11603 psi)	
Lower measuring limit					
Measuring cell with silicone oil filling		30 mbar	r a (0.44 psia)		
Measuring cell with inert filling liquid		30 mbar	r a (0.44 psia)		
Upper measuring limit	100 % of max. sp	oan (for oxygen version a	and inert filling liquid; ma	x. 120 bar (1740 psi))	
Output					
Output signal	4 20 mA		Digital PROFIBUS PA bus signal	and FOUNDATION Field-	
<ul> <li>Lower limit (infinitely adjustable)</li> </ul>	3.55 mA, factory prese	et to 3.84 mA	-		
Upper limit (infinitely adjustable)	23 mA, factory preset set to 22.0 mA	to 20.5 mA or optionally	-		
Load					
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.0$ $U_{\rm H}$ : Power supply in V	23 A in Ω,	-		
With HART	$R_{\rm B} = 230 \dots 500 \Omega$ (Si $R_{\rm B} = 230 \dots 1100 \Omega$ (Fi		-		
Physical bus	-		IEC 61158-2		
Protection against polarity reversal	Protected against sho		versal. Each connection and voltage.	against the other with max	
Measuring accuracy		Acc. to	IEC 60770-1		
Reference conditions (All error data refer always refer to the set span)			0 bar, stainless steel sea i)) r: Span ratio (r = max.	I diaphragm, silicone oil fi span / set span)	
Error in measurement at limit setting incl. hysteresis and reproducibility					
Linear characteristic			≤ 0.075 %		
- r ≤ 10	$\leq (0.0029 \cdot r + 0.071)^{-1}$				
- 10 < r ≤ 30	$\leq (0.0045 \cdot r + 0.071)^{-1}$	%			
- 30 < r ≤ 100	$\leq$ (0.005 · r + 0.05) %				
Long-term drift (temperature change ± 30 °C (± 54 °F))					
• 1 4-bar measuring cell	≤ (0.25 · r) % per 5 year		≤ 0.25 % per 5 years		
• 16 400-bar measuring cell	≤ (0.125 · r) % per 5 ye	ears	≤ 0.125 % per 5 year	3	
Influence of ambient temperature					
• at -10 +60 °C (14 140 °F)	$\leq$ (0.08 · r + 0.1) % <sup>1)</sup> (at 700 bar: $\leq$ (0.1 · r +	- 0.2) % <sup>2)</sup>	≤ 0,3 %		
• at -4010 °C and +60 +85 °C	$\leq$ (0.1 · r + 0.15) %/10	K	≤ 0.25 %/10 K		
(-40 +14 °F and 140 185 °F)					

# Pressure Measurement Transmitters for general requirements SITRANS P DS III for gauge pressure

Degree of protection (to EN 60529)  Femperature of medium  Measuring cell with silicone oil filling  Measuring cell with inert filling liquid  Power of the conjunction with dust explosion protection  Ambient conditions  Ambient temperature  Display readable  Storage temperature  Condensation  Relative humidity 0 100 %  Condensation permissible, suitable for use in the tropics	SITRANS P, DS III series for gauge pressure		
Degree of protection (to EN 60529)  Femperature of medium  Measuring cell with silicone oil filling  Measuring cell with inert filling liquid  Power of the conjunction with dust explosion protection  Ambient conditions  Ambient temperature  Display readable  Storage temperature  Condensation  Relative humidity 0 100 %  Condensation permissible, suitable for use in the tropics		HART	PROFIBUS PA and FOUNDATION Fieldbus
Measuring cell with silicone oil filling  Measuring cell with inert filling liquid  -20 +100 °C (-40 +212 °F)  Measuring cell with inert filling liquid  -20 +60 °C (-4 +212 °F)  Ambient conditions  Ambient conditions  Ambient temperature  - Display readable  -30 +85 °C (-22 +185 °F)  Storage temperature  - Condensation  Relative humidity 0 100 %  Condensation permissible, suitable for use in the tropics	Rated conditions		
Measuring cell with silicone oil filling  Measuring cell with inert filling liquid  -20 +100 °C (-4 +212 °F)  In conjunction with dust explosion protection  Ambient conditions  Ambient temperature  - Display readable  -30 +85 °C (-22 +185 °F)  Storage temperature  - Climatic class  - Condensation  Relative humidity 0 100 %  Condensation permissible, suitable for use in the tropics	Degree of protection (to EN 60529)	IP65 (op	itional IP68)
Measuring cell with inert filling liquid  -20 +100 °C (-4 +212 °F)  -10 conjunction with dust explosion protection  -20 +60 °C (-4 +140 °F)  -20 +60 °C (-4 +140 °F)  -20 +60 °C (-24 +185 °F)  -30 +85 °C (-22 +185 °F)  -50 +85 °C (-58 +185 °F)	Temperature of medium		
In conjunction with dust explosion protection  Ambient conditions  Ambient temperature  - Display readable  -30 +85 °C (-22 +185 °F)  Storage temperature  - Condensation  Relative humidity 0 100 %  Condensation permissible, suitable for use in the tropics	Measuring cell with silicone oil filling	-40 +100 °C	C (-40 +212 °F)
Ambient conditions  Ambient temperature  - 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	Measuring cell with inert filling liquid	-20 +100 °	C (-4 +212 °F)
Ambient temperature  - 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	• In conjunction with dust explosion protection	-20 +60 °C	C (-4 +140 °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	Ambient conditions		
Storage temperature  -50 +85 °C (-58 +185 °F)  Climatic class  - Condensation  Relative humidity 0 100 %  Condensation permissible, suitable for use in the tropics	Ambient temperature		
Climatic class     Relative humidity 0 100 %     Condensation	- Display readable	-30 +85 °C	(-22 +185 °F)
- Condensation Relative humidity 0 100 %  Condensation permissible, suitable for use in the tropics	Storage temperature	-50 +85 °C	(-58 +185 °F)
Condensation permissible, suitable for use in the tropics	Climatic class		
Condensation permissible, suitable for use in the tropics	- Condensation	Relative hum	nidity 0 100 %
Electromagnetic Compatibility		Condensation permissible,	, suitable for use in the tropics
	Electromagnetic Compatibility		
- Emitted interference and interference Acc. to EN 61326 and NAMUR NE 21 immunity		Acc. to EN 61326	and NAMUR NE 21
Design	Design		
Weight (without options) $\approx 1.5 \text{ kg} \ (\approx 3.3 \text{ lb})$	Weight (without options)	≈ 1.5 kç	g (≈ 3.3 lb)
Enclosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408	Enclosure material	Low-copper die-cast aluminum, GD-AlSi 12 or	stainless steel precision casting, mat. no. 1.4408
Vetted parts materials	Wetted parts materials		
Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610	Connection shank	Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610	
Oval flange Stainless steel, mat. no. 1.4404/316L	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	Seal diaphragm	Stainless steel, mat. no. 1.4404/31	6L or Hastelloy C276, mat. no. 2.4819
Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 120 bar (1740 psi) at 60 °C (140 °F))	Measuring cell filling		
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 EN 61518	Process connection		
Material of mounting bracket	Material of mounting bracket		
Steel Sheet-steel, Mat. No. 1.0330, chrome-plated	Steel	Sheet-steel, Mat. No.	. 1.0330, chrome-plated
Stainless steel Sheet stainless steel, mat. no. 1.4301 (SS 304)	Stainless steel	Sheet stainless steel,	mat. no. 1.4301 (SS 304)
Power supply U <sub>H</sub> Supplied through bus	Power supply $U_{H}$		Supplied through bus
Ferminal voltage on transmitter 10.5 45 V DC - 10.5 30 V DC in intrinsically-safe mode	Terminal voltage on transmitter		-
Separate 24 V power supply necessary - No	Separate 24 V power supply necessary	-	No
Bus voltage	Bus voltage		
Not Ex - 9 32 V	• Not Ex	-	9 32 V
With intrinsically-safe operation - 9 24 V	• With intrinsically-safe operation	-	9 24 V
Current consumption	Current consumption		
Basic current (max.) - 12.5 mA	• Basic current (max.)	-	12.5 mA
Start-up current ≤ basic current - Yes	• Start-up current ≤ basic current	-	Yes
Max. current in event of fault - 15.5 mA	Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available - Yes	Fault disconnection electronics (FDE) available	-	Yes

# Transmitters for general requirements SITRANS P DS III for gauge pressure

SITRANS P, DS III series for gauge pressure			
	HART	PROFIBUS PA and FOUNDATION Fieldbus	
Certificates and approvals			
Classification according to PED 97/23/EC		group 1; complies with requirements of article 3, engineering practice)	
Explosion protection			
• Intrinsic safety "i"	PTB 99 /	ATEX 2122	
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6	
- Permissible ambient temperature	-40 +70 °C (-40 +15	5°F) temperature class T4; 8°F) temperature class T5; 40°F) temperature class T6	
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW; $P_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $P_0 = 1.2 \text{ W}$	
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7  \mu H,  C_i = 1.1  \text{nF}$	
• Explosion-proof "d"	· ·	ATEX 1160	
- Marking		Ex d IIC T4/T6	
- Permissible ambient temperature	-40 +85 °C (-40 +18 -40 +60 °C (-40 +14	5°F) temperature class T4; 40°F) temperature class T6	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC	
• Dust explosion protection for zone 20	PTB 01 ATEX 2055		
- Marking		P65 T 120 °C IP65 T 120 °C	
- Permissible ambient temperature	-40 +85 °C	(-40 +185 °F)	
- Max. surface temperature	120 °C	C (248 °F)	
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $P_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_{\rm o}=17.5$ V, $I_{\rm o}=380$ mA, $P_{\rm o}=5.32$ W Linear barrier: $U_{\rm o}=24$ V, $I_{\rm o}=250$ mA, $P_{\rm o}=1.2$ W	
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$	
• Dust explosion protection for zone 21/22	PTB 01 /	ATEX 2055	
- Marking	Ex II 2 D IF	P65 T 120 °C	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W	
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned	
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	-	
• Explosion protection acc. to FM	Certificate of Co	mpliance 3008490	
- Identification (XP/DIP) or (IS); (NI)		EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; CL I, CL II, DIV 2, GP FG; CL III	
• Explosion protection to CSA	Certificate of Co	mpliance 1153651	
- Identification (XP/DIP) or (IS)		FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD IV 2, GP FG; CL III	

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

<sup>&</sup>lt;sup>2)</sup> Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C <  $(0.08 \cdot r + 0.16)$  % / 28 °C (50 °F).

## Transmitters for general requirements

SITRANS P DS 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
<ul> <li>Analog input</li> </ul>	
<ul> <li>Adaptation to customer-speci- fic process variables</li> </ul>	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 war- ning 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 respec- tively
<ul> <li>Physical block</li> </ul>	1
Transducer blocks	2
Pressure transducer block	
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes
- Monitoring of sensor limits	Yes
<ul> <li>Specification of a container characteristic with</li> </ul>	Max. 30 nodes
<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes
<ul> <li>Gradual volume suppression and implementation point of square-root extraction</li> </ul>	Parameterizable
<ul> <li>Simulation function for measu- red pressure value and sensor temperature</li> </ul>	Constant value or over parameterizable ramp function

## FOUNDATION Fieldbus communication

Function blocks

- Analog input
  - Adaptation to customer-specific process variables
  - Electrical damping, adjustable
  - Simulation function
  - Failure mode
  - Limit monitoring
  - Square-rooted characteristic for flow measurement
- PID
- Physical block
   Transducer blocks
- Pressure transducer block
- Can be calibrated by applying two pressures
- Monitoring of sensor limits
- Simulation function: Measured pressure value, sensor temperature and electronics temperature

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

Output/input (can be locked within the device with a bridge)

parameterizable (last good value, substitute value, incorrect value)

Yes, one upper and lower warning limit and one alarm limit respectively

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

## Transmitters for general requirements

SITRANS P DS III for gauge pressure

Pressure transmitter for gauge pressure,		O	rde	r l	Vo			
OITDANIO D DO III		7	ΜF	4	0 3	3 3		
SITRANS P DS III with HART			7				ij	П
Measuring cell filling Measuring cell cleaning					Ī	Ī		П
Silicone oil normal	•	1						
Inert liquid <sup>1)</sup> grease-free to cleanliness level 2		3						
Measuring span (min max.)								
0.01 1 bar (0.15 14.5 psi)	•		В					
0.04 4 bar (0.58 58 psi)	•		С					
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 (102.010153 psi)	<b>&gt;</b>		J					
Wetted parts materials								
Seal diaphragm Process connection	_							
Stainless steel Stainless steel	$\triangleright$		Α					
Hastelloy Stainless steel			В					
Hastelloy Hastelloy			С					
Version as diaphragm seal <sup>2)3)</sup>			Y					
Process connection								
<ul> <li>Connection shank G½B to EN 837-1</li> </ul>	$\triangleright$			0				
<ul> <li>Female thread ½-14 NPT</li> </ul>				1				
Stainless steel oval flange								
- Mounting thread <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 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								
<ul> <li>Housing made of die-cast aluminium</li> <li>Housing stainless steel precision casting<sup>4)</sup></li> </ul>					0 3			
Version								
Standard versions						1		
<ul> <li>International version, English label inscriptions</li> </ul>	•					2		
documentation in 5 languages on CD (no order code selectable)	,							
Explosion protection								
• None							Α	
<ul><li>With ATEX, Type of protection:</li><li>- "Intrinsic safety (EEx ia)"</li></ul>							В	
- IIIIIIISIC Salety (EEX 181)							_	
"Fundacion proof (FFund\"5)							D	
- "Explosion-proof (EExd)" <sup>5)</sup>							Р	
- "Explosion-proof (EExd)"  - "Intrinsic safety and flameproof enclosure"							Е	
<ul> <li>"Explosion-proof (EExd)"<sup>5)</sup></li> <li>"Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)"<sup>6)</sup></li> </ul>								
- "Explosion-proof (EExd)" <sup>5)</sup> - "Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)" <sup>6)</sup> - "Ex nA/nL (Zone 2)"  - "Intrinsic safety, explosion-proof enclosure and	d▶						R	
- "Explosion-proof (EExd)" <sup>5)</sup> - "Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)" <sup>6)</sup> - "Ex nA/nL (Zone 2)"  - "Intrinsic safety, explosion-proof enclosure and	d►						R	
<ul> <li>"Explosion-proof (EExd)"<sup>5)</sup></li> <li>"Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)"<sup>6)</sup></li> <li>"Ex nA/nL (Zone 2)"</li> <li>"Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)"<sup>6)</sup></li> </ul>	d▶						R	
- "Explosion-proof (EExd)" <sup>5)</sup> - "Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)" <sup>6)</sup> - "Ex nA/nL (Zone 2)"  - "Intrinsic safety, explosion-proof enclosure and							R N C	,
<ul> <li>"Explosion-proof (EExd)"<sup>5)</sup></li> <li>"Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)"<sup>6)</sup></li> <li>"Ex nA/nL (Zone 2)"</li> <li>"Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)*<sup>6)</sup></li> <li>With FM + CSA, Type of protection:</li> </ul>								;
<ul> <li>"Explosion-proof (EExd)"<sup>5)</sup></li> <li>"Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)"<sup>6)</sup></li> <li>"Ex nA/nL (Zone 2)"</li> <li>"Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)"<sup>6)</sup></li> <li>With FM + CSA, Type of protection:</li> <li>"Intrinsic Safe und Explosion Proof (is + xp)"<sup>5</sup></li> </ul>								
<ul> <li>"Explosion-proof (EExd)"<sup>5)</sup></li> <li>"Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)"<sup>6)</sup></li> <li>"Ex nA/nL (Zone 2)"</li> <li>"Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)"<sup>6)</sup></li> <li>With FM + CSA, Type of protection:         <ul> <li>"Intrinsic Safe und Explosion Proof (is + xp)"<sup>5</sup></li> </ul> </li> <li>Electrical connection / cable entry</li> </ul>							N C	١
- "Explosion-proof (EExd)" <sup>5)</sup> - "Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)" <sup>6)</sup> - "Ex nA/nL (Zone 2)"  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)" <sup>6)</sup> • With FM + CSA, Type of protection:  - "Intrinsic Safe und Explosion Proof (is + xp)" <sup>5</sup> Electrical connection / cable entry  • Screwed gland Pg 13.5 (adapter) <sup>7)</sup> • Screwed gland M20 x1 .5  • Screwed gland ½-14 NPT	i)						N C	۸ 3
- "Explosion-proof (EExd)" <sup>5)</sup> - "Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)" <sup>6)</sup> - "Ex nA/nL (Zone 2)"  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)" <sup>6)</sup> • With FM + CSA, Type of protection:  - "Intrinsic Safe und Explosion Proof (is + xp)" <sup>5</sup> Electrical connection / cable entry  • Screwed gland Pg 13.5 (adapter) <sup>7)</sup> • Screwed gland M20 x1 .5  • Screwed gland ½-14 NPT	i)						N C	3
<ul> <li>"Explosion-proof (EExd)"<sup>5)</sup></li> <li>"Intrinsic safety and flameproof enclosure" (EEx ia + EEx d)"<sup>6)</sup></li> <li>"Ex nA/nL (Zone 2)"</li> <li>"Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)"<sup>6)</sup></li> <li>With FM + CSA, Type of protection:</li> <li>"Intrinsic Safe und Explosion Proof (is + xp)"<sup>5</sup></li> <li>Electrical connection / cable entry</li> <li>Screwed gland Pg 13.5 (adapter)<sup>7)</sup></li> <li>Screwed gland M20 x1.5</li> </ul>	i)						N C	3

Selection and Ordering data	Order No.
Pressure transmitter for gauge pressure,	7MF4033-
SITRANS P DS III with HART	
Display	
Without display	0
<ul> <li>Without visible display (display concealed, setting: mA)</li> </ul>	1
With visible display, setting: mA	6
• with customer-specific display (setting as specified, Order Code "Y21" or "Y22" required)	7

Available ex stock

Power supply units see Chap. 8 "Supplementary Components".

- Included in delivery of the device:
   Brief instructions (Leporello)
   CD-ROM with detailed documentation
- 1) For oxygen application, add Order code E10.
- 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.
- <sup>4)</sup> Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 5) Without cable gland, with blanking plug
- 6) With enclosed cable gland EEx ia and blanking plug
- 7) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 8) M12 delivered without cable socket

## Transmitters for general requirements

SITRANS P DS III for gauge pressure

Selection and Orderin	g data	Ord	er N	No.		
Pressure transmitter	or gauge pressure					
SITRANS P DS III with	PROFIBUS PA (PA)	7 M	F 4	0 3	4 -	
SITRANS P DS III with	FOUNDATION Fieldbus	7 M	7MF4035-			
(FF)						
Measuring cell filling	Measuring cell		П			
-	cleaning					
Silicone oil	normal	1				
Inert liquid <sup>1)</sup>	grease-free to	3				
	cleanliness level 2					
Nominal measuring ra						
1 bar	(14.5 psi)	В				
4 bar	(58 psi)	С				
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 material	S					
Seal diaphragm	Process connection					
Stainless steel	Stainless steel		A			
Hastelloy	Stainless steel		В			
Hastelloy	Hastelloy	(	С			
Version as diaphragm :			Υ			
Process connection						
Connection shank G1	6B to FN 837-1		0			
• Female thread ½-14 I			1			
Stainless steel oval flag			ď			
Mounting throad 7/	6-20 UNF to IEC 61518		2			
- Mounting thread M <sup>-</sup>			3			
- Mounting thread M			4			
Male thread M20 x 1.			5			
Male thread ½ -14 NF			6			
		-	Ů			
Non-wetted parts mat				^		
Housing made of die-				0		
Housing stainless ste	er precision casting			3		
Version						
Standard versions					1	
• International version,	English label inscriptions,				2	
documentation in 5 la (no order code select	inguages on CD					
	auto)	-				
Explosion protection					,	
None					ľ	
With ATEX, Type of pro						
"Intrinsic safety (EEx ia					E	
"Explosion-proof (EExd	,					
"Intrinsic safety and flar (EEx ia + EEx d)" <sup>5)</sup>	meproof enclosure"				F	
"Ex nA/nL (Zone 2)"					E	
"Intringia agfaty avalga	ion-proof enclosure and				F	3
dust explosion protection 1D/2D) <sup>(6)</sup> (not for DS III	FF)					
dust explosion protecti 1D/2D) <sup>(6)</sup> (not for DS III						
dust explosion protecti 1D/2D)** <sup>6)</sup> (not for DS III With FM + CSA, Type o	f protection:				N	1 C
dust explosion protecti 1D/2D)" <sup>6)</sup> (not for DS III With FM + CSA, Type c "Intrinsic Safe und Expl	f protection: osion Proof (is + xp)" <sup>5)</sup>				N	1C
dust explosion protecti 1D/2D)* <sup>(6)</sup> (not for DS III With FM + CSA, Type c "Intrinsic Safe und Expl <b>Electrical connection</b> /	of protection: osion Proof (is + xp)*5) cable entry	_			N	
dust explosion protecti 1D/2D) <sup>(6)</sup> (not for DS III With FM + CSA, Type c	osion Proof (is + xp)*5) (cable entry	-			N	IC B C

Selection and Ordering data	Order No.	
Pressure transmitter for gauge pressure		
SITRANS P DS III with PROFIBUS PA (PA)	7MF4034-	
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 0 3 5 -	
Display		
Without display		0
<ul> <li>Without visible display (display concealed, setting: bar)</li> </ul>		1
With visible display		6
<ul> <li>with customer-specific display (setting as specified, Order Code "Y21" required)</li> </ul>		7

Available ex stock

- Included in delivery of the device:
   Brief instructions (Leporello)
   CD-ROM with detailed documentation
- 1) For oxygen application, add Order code E10.
- 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) Without cable gland, with blanking plug.
- $^{5)}\,$  With enclosed cable gland EEx ia and blanking plug.
- 6) M12 delivered without cable socket

## Transmitters for general requirements

SITRANS P DS III for gauge pressure

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Pressure transmitter with mounting bra- cket (2 shackles, 4 nuts, 4 U-plates,				
1 angle) made of:				
• Steel	A01	✓	✓	✓
Stainless steel	A02	✓	✓	✓
Plug				
Han 7D (metal, gray)	A30	✓.		
Han 8U (instead of Han 7D)	A31	<b>√</b>		
Angled     Hap SD (matal, gray)	A32 A33	1		
Han 8D (metal, gray)  Cable and letter for M12 composters (matal)		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	,	,
Cable sockets for M12 connectors (metal)	A50	_		•
Rating plate inscription				
(instead of German)  • English	B11	1	1	1
• French	B12	1	1	1
• Spanish	B13	✓	✓	✓
• Italian	B14	✓	✓	✓
English rating plate	B21	✓	✓	✓
Pressure units in inH <sub>2</sub> 0 and/or psi				
Quality inspection certificate (Five-step	C11	✓	✓	✓
factory calibration) to IEC 60770-2 <sup>1)</sup>				
Inspection certificate <sup>2)</sup>	C12	✓	✓	✓
Acc. to EN 10204-3.1				
Factory certificate	C14	✓	✓	✓
Acc. to EN 10204-2.2				
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓		
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate	C23	1		
to IEC 61508				
Device passport Russia	C99	✓	✓	✓
(For price request please contact the technical				
support www.siemens.com/automation/support-request)				
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Manufacturer's declaration acc. to NACE	D07	1	/	1
	D12	1	1	1
Degree of protection IP68 (only for M20x1.5 and ½-14 NPT)	DIZ	v	•	· ·
Supplied with oval flange	D37	1	1	1
(1 item), PTFE packing and screws in thread	D37	•	•	·
of oval flange				
Use in or on zone 1D/2D	E01	✓	<b>✓</b>	✓
(only together with type of protection				
"Intrinsic safety (EEx ia)")				
Oxygen application	E10	✓	✓	✓
(In the case of oxygen measurement and inert				
liquid max. 120 bar (1740 psi) at 60°C (140 °F))				
Export approval Korea	E11	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to	E25	✓	✓	✓
INMETRO (Brazil)				
(only for transmitter 7MF4B)				
Explosion-proof "Intrinsic safety" (Ex d) to	E26	✓	✓	✓
INMETRO (Brazil) (only for transmitter 7MF4D)				
	Ego	1	./	
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28	•	•	
(only for transmitter 7MF4P)				
Ex Approval IEC Ex (EEx ia)	E45	1	1	1
(only for transmitter 7MF4B)				
Ex Approval IEC Ex (EEx id)	E46	1	1	1
(only for transmitter 7MF4)	_+0		·	
(only for transmitter 7MF4B)				

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	✓	1	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56	✓	✓	✓
<b>Ex protection "Zone 2" to NEPSI (China)</b> (only for transmitter 7MF4E)	E57	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	1	✓

Selection and Ordering data	Order	code		
Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text.		HART	PA	FF
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	✓		
Stainless steel tag plate (measuring point description)  Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG)	Y17	1		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indication in pressure	Y21	✓	✓	✓
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 <sub>2</sub> O <sup>*</sup> ), inH <sub>2</sub> O <sup>*</sup> ), ftH <sub>2</sub> O <sup>*</sup> ), mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units <sup>3</sup> )  Specify in plain text: Y22: up to l/min, m <sup>3</sup> /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		✓	

Factory mounting of valve manifolds, see accessories.

Only "Y01", "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)

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.

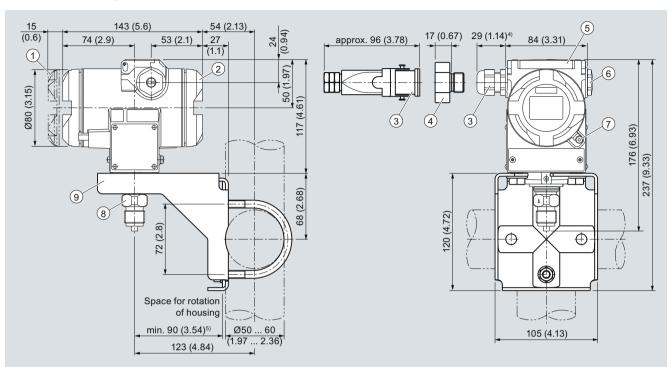
<sup>2)</sup> If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.

<sup>3)</sup> Preset values can only be changed over SIMATIC PDM.

## Transmitters for general requirements

SITRANS P DS III for gauge pressure

### Dimensional drawings



- 1 Electronic side, digital display (longer overall length for cover with window)1)
- 2 Terminal side<sup>1)</sup>
- 3 Electrical connection: Screwed gland Pg 13,5 (adapter)(Adapter)<sup>2) 3)</sup>, Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/Han 8D2)3)plug
- 4 Harting adapter
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "Explosion-proof enclosure"

  Not with type of protection "FM + CSA" [IS + XP]"
- For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
- 5) Minimum distance for rotating

- 5 Protective cover over keys
- 6 Blanking plug
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- Process connection: Connection shank G½A or Oval flange
- Mounting bracket (option)

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

Transmitters for general requirements
SITRANS P DS III for gauge/absolute pressure,
with front-flush diaphragm

### Technical specifications

	HART		PROFIBUS PA and FO	OUNDATION Fieldbus	
Input of gauge pressure, with front-flush					
ulaphragin Measured variable		Gauge press	sure, front-flush		
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pres-	Nominal measuring range	Max. perm. test pressure	
3 × 3 × × × × × × × × × × × × × × × × ×	0.01 1 bar (0.15 14.5 psi)	6 bar (87 psi)	1 bar (14.5 psi)	6 bar (87 psi)	
	0.04 4 bar (0.58 58 psi)	10 bar (145 psi)	4 bar (58 psi)	10 bar (145 psi)	
	0.16 16 bar (2.32 232 psi)	32 bar (464 psi)	16 bar (232 psi)	32 bar (464 psi)	
	0.6 63 bar (9.14 914 psi)	100 bar (1450 psi)	63 bar (914 psi)	100 bar (1450 psi)	
Lower measuring limit		100 mbar	a (1.45 psia)		
Jpper measuring limit	100 % of max. span		100 % of the max. nom	inal measuring range	
Input of absolute pressure, with front-flush diaphragm					
Measured variable		Absolute pres	ssure, front-flush		
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure	
	43 1300 mbar a (0.62 18.85 psia)	10 bar a (145 psia)	1300 mbar a (18.85 psia)	10 bar a (145 psia)	
	0.16 5 bar a (2.32 72.5 psia)	30 bar a (435 psia)	5 bar a (72.5 psia)	30 bar a (435 psia)	
	1 30 bar a (14.5 435 psia)	100 bar a (1450 psia)	30 bar a (435 psia) 100 bar a (1450 psia)		
Lower measuring limit		0 bar a	a (0 psia)		
Jpper measuring limit <b>Dutput</b>	100 % of max. span		100 % of the max. nominal measuring rang		
Output signal	4 20 mA		Digital PROFIBUS PA a bus signal	and FOUNDATION Field	
Lower limit (infinitely adjustable)	3.55 mA, factory preset	t to 3.84 mA	-		
Upper limit (infinitely adjustable)	23 mA, factory preset to set to 22.0 mA	o 20.5 mA or optionally			
Load					
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$ : Power supply in V		-		
With HART	$R_{\rm B} = 230 \dots 500 \Omega \text{ (SIM)}$ $R_{\rm B} = 230 \dots 1100 \Omega \text{ (HA)}$	MATIC PDM) or ART Communicator)	-		
Physical bus	-		IEC 61158-2		
Protection against polarity reversal	Protected against short		ersal. Each connection ac v voltage.	gainst the other with max	
Measuring accuracy		Acc. to II	EC 60770-1		
Reference conditions (All error data refer always refer to the set span)	Increasing characterist	ling, room temperature	bar, stainless steel seal of 25 °C (77 °F)) r: Span rationan / set span)		
Error in measurement at limit setting incl. hysteresis and reproducibility					
	Gauge pressure, front-flush	Absolute pressure, front-flush	Gauge pressure, front-flush	Absolute pressure, front-flush	
Linear characteristic			≤ 0.075 %	≤ 0.2 %	
- r ≤ 10	$\leq$ (0.0029 · r + 0.071) %	≤ 0.2 %			
- 10 < r ≤ 30	$\leq$ (0.0045 · r + 0.071) %	≤ 0.4 %			
- 30 < r ≤ 100	$\leq$ (0.005 · r + 0.05) %				
Long-term stability	≤ (0.25 · r) % per 5		≤ 0.25 % per 5 years		

Transmitters for general requirements
SITRANS P DS III for gauge/absolute pressure,
with front-flush diaphragm

SITRANS P DS III series for gauge and absolu	HART	DROFIRIS DA and	FOUNDATION Fieldbus		
Influence of emploient terron eveture	TAKI	PROFIBUS PA and	FOUNDATION FIEIDDUS		
Influence of ambient temperature • at -10 +60 °C (14 140 °F)	$\leq (0.1 \cdot r + 0.2) \%^{1} \leq (0.2 \cdot r + 0.3) \%$	≤ 0.3 %	≤ 0.5 %		
• at -4010 °C and 60 85 °C			≤ 0.5 % ≤ 0.5 %/10 K		
(-40 +14 °F and 140 185 °F)	$\leq$ (0.1 · r + 0.15) %/10 K $\leq$ (0.2 · r + 0.3) %/10 K				
nfluence of mounting position	0.1 mbar (0.00145 p	si) per 10° inclination			
Measured Value Resolution	-	3 · 10 <sup>-5</sup> of nominal n	neasuring range		
nfluence of the medium temperature (only with ront-flush diaphragm)					
Temperature difference between medium temperature and ambient temperature	3 mbar/10 K (	(0.04 psi/10 K)			
Rated conditions					
nstallation conditions					
Ambient temperature	Observe the temperature class in	areas subject to exp	losion 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 (not with front- flush diaphragm)	-20 +85 °C	C (-4 +185 °F)			
Display readable	-30 +85 °C (	C (-22 +185 °F)			
• Storage temperature		-50 +85 °C (-58 +185 °F) (in the case of Neobee: -20 +85 °C (-4 +185/°F))			
Climatic class					
- Condensation	Relative humi Condensation permissible,	dity 0 100 % suitable for use in the	e tropics		
Degree of protection (to IEC 60529)	IP65, IP68, NEMA 4X, enclosure cleaning, resistant to lyes, steam to 150 °C (302 °F)				
Electromagnetic Compatibility	3,				
- Emitted interference and interference immunity	Acc. to EN 61326	and NAMUR NE 21			
Medium conditions	The max. medium temperature of the front-flush in accordance with the relevant connection				
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	C (14 302 °F)			
<ul> <li>Measuring cell with silicone oil, with tempera- ture decoupler (only with front-flush dia- phragm)</li> </ul>	-40 +200 °C	(-40 +392 °F)			
• Measuring cell with inert filling liquid	-20 +100 °C	(-4 +212 °F)			
• Measuring cell with high-temperature oil	-10 +250 °C	C (14 482 °F)			
Design					
Weight (without options)	≈ 1.5 kg	(≈ 3.3 lb)			
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or s	stainless steel precisi	on casting, mat. no. 1.440		
Vetted parts materials	Stainless steel, ma	at. no. 1.4404/316L			
Measuring cell filling	Silicone oil or i	nert filling liquid			
Process connection		er EN and ASME			
		maceutical flanges			
Surface quality touched-by-media	R <sub>a</sub> -values ≤ 0.8 μm (32 μ-inch) (Process connections according to 3A; R <sub>a</sub> -va	)/welds R <sub>a)</sub> ≤ 1.6 μm (			

Transmitters for general requirements
SITRANS P DS III for gauge/absolute pressure,
with front-flush diaphragm

	HADT	DDOEIDIIC DA and EQUINDATION Fielding		
	HART	PROFIBUS PA and FOUNDATION Fieldbus		
Power supply $U_{H}$	10.5 15.750	Supplied through bus		
Ferminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-		
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		
Certificates and approvals				
Classification according to PED 97/23/EC	For gases of fluid group 1 and liquids of fluid	group 1; complies with requirements of article		
<b>G</b>		engineering practice)		
Explosion protection				
Intrinsic safety "i"	PTB 99 /	ATEX 2122		
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6		
- Permissible ambient temperature	-40 +85 °C (-40 +18	5 °F) temperature class T4;		
		8 °F) temperature class T5; 10 °F) temperature class T6		
- Connection	To certified intrinsically-safe circuits with peak	FISCO supply unit:		
C 61.11.60 C.61.	values:	$U_0 = 17.5 \text{ V}, I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$		
	$U_{\rm i} = 30 \text{ V}, \ I_{\rm i} = 100 \text{ mA}, \ P_{\rm i} = 750 \text{ mW}; \ R_{\rm i} = 300 \ \Omega$	Linear barrier: $U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 \text{ nF}$		
Explosion-proof "d"	'	ΔΤΕΧ 1160		
- Marking		Ex d IIC T4/T6		
- Permissible ambient temperature		5 °F) temperature class T4; 10 °F) temperature class T6		
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC		
Dust explosion protection for zone 20		ATEX 2055		
- Marking	Ex II 1 D IF	P65 T 120 °C		
<b>G</b>	Ex II 1/2 D I	P65 T 120 °C		
- Permissible ambient temperature		(-40 +185 °F)		
- Max. surface temperature	120 °C	(248 °F)		
- Connection	To certified intrinsically-safe circuits with peak	FISCO supply unit:		
	values: $U_i = 30 \text{ V}, I_i = 100 \text{ mA},$	$U_0 = 17.5 \text{ V}, \ \hat{l}_0 = 380 \text{ mA}, \ P_0 = 5.32 \text{ W}$ Linear barrier:		
	$P_{\rm i} = 750  {\rm mW},  R_{\rm i} = 300  \Omega$	$U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$		
Dust explosion protection for zone 21/22	PTB 01 /	ATEX 2055		
- Marking	Ex II 2 D IF	P65 T 120 °C		
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC;	C; To circuits with values: $U_{H} = 9 \dots 32 \text{ V DC}$ ;		
	$P_{\text{max}} = 1.2 \text{ W}$	$P_{\text{max}} = 1.2 \text{ W}$		
Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned		
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	-		
Explosion protection acc. to FM	Certificate of Co	mpliance 3008490		
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, 0 CL I, DIV 2, GP ABCD T4	GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6 T6; CL II, DIV 2, GP FG; CL III		
Explosion protection to CSA	Certificate of Co	mpliance 1153651		
- Identification (XP/DIP) or (IS)	CLI DIV 1 GP ABCD T4 T6: CLII DIV 1 GP F	FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP AB IV 2, GP FG; CL III		

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

### Hygiene version

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

## Transmitters for general requirements

SITRANS P DS III 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
<ul> <li>Analog input</li> </ul>	
<ul> <li>Adaptation to customer-speci- fic process variables</li> </ul>	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 war- ning 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 respec- tively
Physical block	1
Transducer blocks	2
Pressure transducer block	
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes
- Monitoring of sensor limits	Yes
<ul> <li>Specification of a container characteristic with</li> </ul>	Max. 30 nodes
<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes
<ul> <li>Gradual volume suppression and implementation point of square-root extraction</li> </ul>	Parameterizable
<ul> <li>Simulation function for measu- red pressure value and sensor temperature</li> </ul>	Constant value or over parameterizable ramp function

## FOUNDATION Fieldbus communication

Function blocks

- Analog input
  - Adaptation to customer-specific process variables
  - Electrical damping, adjustable
  - Simulation function
  - Failure mode
  - Limit monitoring
  - Square-rooted characteristic for flow measurement
- PID
- Physical block
   Transducer blocks
- Pressure transducer block
- Can be calibrated by applying two pressures
- Monitoring of sensor limits
- Simulation function: Measured pressure value, sensor temperature and electronics temperature

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

Output/input (can be locked within the device with a bridge)

parameterizable (last good value, substitute value, incorrect value)

Yes, one upper and lower warning limit and one alarm limit respectively

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

Transmitters for general requirements
SITRANS P DS III for gauge/absolute pressure,
with front-flush diaphragm

Selection and Ordering	g data	Orde	r No	).		
Pressure transmitter for pressure, front-flush di SITRANS P DS III HAR	liaphragm,	7 M F				
Measuring cell filling	Measuring cell cleaning					
Silicone oil	normal	1				
Inert liquid	grease-free to cleanliness level 2	3				
FDA compliant fill fluid  Neobee oil	normal	4				
Measuring span (min.						
0,01 1 bar	(0.15 14.5 psi)	В				
0.04 4 bar	(0.58 58 psi)	C				
0,16 16 bar	(2.32 232 psi)	D				
0,63 63 bar	(9.14 914 psi)	E				
13 1300 mbar a <sup>1)</sup>	(0.62 18.85 psia) <sup>1)</sup>	s				
0,05 5 bar a <sup>1)</sup>	(0.7 72.5 psia) <sup>1)</sup>	Т				
0,3 30 bar a <sup>1)</sup>	(4.35 435 psia) <sup>1)</sup>	U				
Wetted parts materials	}					
Seal diaphragm	Connection shank					
Stainless steel	Stainless steel	Α				
Hastelloy <sup>2)</sup>	Stainless steel	В				
Process connection						
<ul> <li>Flange version with Ord</li> </ul>	der Code M, N, R or Q		7			
<ul> <li>Housing made of die-</li> <li>Housing stainless stee</li> <li>Version</li> <li>Standard versions</li> <li>International version, I documentation in 5 lai (no order code selectation)</li> </ul>	el precision casting  English label inscriptions, nguages on CD		0 3	1 2		
Explosion protection  • None					A	
<ul> <li>With ATEX, Type of pre</li> </ul>	ntection:				А	
- "Intrinsic safety (EEx					В	
- "Explosion-proof (EE					D	
<ul> <li>"Intrinsic safety, explosion prote dust explosion prote Zone 1D/2D)"<sup>4)</sup></li> </ul>	osion-proof enclosure and ection (EEx ia+ EEx d +				R	
• With FM + CSA, Type						
<ul> <li>"Intrinsic Safe und E (Available soon)</li> </ul>	xplosion Proof (is + xp)"3)				NC	
Electrical connection/	cable entry					
• Inner thread M20 x 1.5	•				В	
• Female thread ½-14 N					C	
• M12 connectors (meta	al) <sup>5)</sup>				F	
Display						
<ul> <li>Without display</li> </ul>						0
<ul> <li>Without visible display (display concealed, see</li> </ul>						1
<ul> <li>with visible display, se</li> </ul>	- ·					6
<ul> <li>with customer-specific (setting as specified, ( required)</li> </ul>	c display Order Code "Y21" or "Y22"					7

Available ex stock

Power supply units see Chap. 8 "Supplementary Components".

Included in delivery of the device:

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

- 1) Not with temperature decoupler P00 and P10, not for process connections R02, R04, R10 and R11, and can only be ordered in conjunction with silicone oil.
- 2) Only possible for flange with M.., N.. and Q.. option.
- 3) Without cable gland, with blanking plug
- 4) With enclosed cable gland EEx ia and blanking plug
- 5) M12 delivered without cable socket
- F) Subject to export regulations AL: 91999, ECCN: N.

## Transmitters for general requirements

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

Colootion and Out 1			- لمينا	NI-	
Selection and Ordering		U	rder	NO	
pressure, front-flush d	for gauge and absolute liaphragm:				
SITRANS P DS III with	PROFIBUS PA (PA)	7	MF	413	34 -
	FOUNDATION Fieldbus F)	7	MF	4 1 3	5 -
(FF)					
Measuring cell filling	Measuring cell cleaning				
Silicone oil	normal	1			
Inert liquid	grease-free to cleanliness level 2	3			
FDA compliant fill fluid	cleanliness level 2				
Neobee oil	normal	4			
Nominal measuring ra		Ė			
1 bar	(14.5 psi)		В		
4 bar	(58 psi)		C		
16 bar	(232 psi)		D		
63 bar	(914 psi)		E		
1300 mbar a <sup>1)</sup>	(18.85 psia) <sup>1)</sup>		N		
e. 1)	(70 5 : \1)		0		
5 bar a <sup>1)</sup> 30 bar a <sup>1)</sup>	(72.5 psia) <sup>1)</sup> (435 psia) <sup>1)</sup>		T U		
			U		
Wetted parts materials					
Seal diaphragm	Connection shank				
Stainless steel	Stainless steel		A		
Hastelloy <sup>2)</sup>	Stainless steel		В		
<ul> <li>Flange version with O Q</li> </ul>	rder Code M, N, R or			7	
Non-wetted parts mate	riale				
Housing made of die-				0	
Housing stainless stee				3	
Version		-			
Standard versions					1
	English label inscriptions,				2
documentation in 5 la					
(no order code selecta	abie)				
<ul><li>Explosion protection</li><li>None</li></ul>					
<ul><li>None</li><li>With ATEX, Type of pro</li></ul>	otection:				A
- "Intrinsic safety (EEx					В
- "Explosion-proof (EE					D
- "Intrinsic safety, expl	osion-proof enclosure and				R
dust explosion prote Zone 1D/2D)" <sup>4)</sup>	ction (EEx ia+ EEx d +				
• With FM + CSA, Type					
<ul> <li>"Intrinsic Safe und E (Available soon)</li> </ul>	xplosion Proof (is + xp)"3)				NC
Electrical connection/	cable entry				
• Screwed gland M20 x					В
• Screwed gland ½-14 I					С
<ul> <li>Han 7D plug (plastic h connector<sup>5)</sup></li> </ul>	nousing) incl. mating				D
M12 connectors (meta)	al) <sup>6)</sup>				F
	• /				

Selection and Ordering data		Order No.	
Pressure transmitter P for gauge and absolute pressure, front-flush diaphragm:			
SITRANS P DS III with PROFIBUS PA (PA)	F)	7 M F 4 1 3 4 -	
SITRANS P DS III with FOUNDATION Fieldbus (FF)	F)	7MF4135-	
Display			
Without display			0
<ul> <li>Without visible display (display concealed, setting: mA)</li> </ul>	•		1
With visible display			6
<ul> <li>With customer-specific display (setting as specified, Order Code "Y21" required)</li> </ul>			7

Available ex stock

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Not with temperature decoupler P00 and P10, not for process connections R01, R02, R04, R10 and R11, and can only be ordered in conjunction with silicone oil.
- $^{2)}\,$  Only possible for flange with M.., N.. and Q.. option.
- 3) Without cable gland, with blanking plug
- 4) With enclosed cable gland EEx ia and blanking plug
- 5) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 6) M12 delivered without cable socket
- F) Subject to export regulations AL: 91999, ECCN: N.

Transmitters for general requirements
SITRANS P DS III for gauge/absolute pressure,
with front-flush diaphragm

Selection and Ordering data					
Add '-Z' to Order No. and specify Order Code.    Plug	Selection and Ordering data	Order	code		
• Angled • Han 8D (metal, gray)  Cable sockets for M12 connectors (metal) • French • English • French • Spanish • Italian  B11			HART	PA	FF
Han 8D (metal, gray)         A33         ✓           Cable sockets for M12 connectors (metal)         A50         ✓         ✓           Rating plate inscription (instead of German)         English         B11         ✓         ✓           French         B12         ✓         ✓         ✓           Spanish         B13         ✓         ✓         ✓           Italian         B14         ✓         ✓         ✓           Pressure units in inH₂0 and/or psi         B21         ✓         ✓         ✓           Quality inspection certificate (Five-step factory calibration) to IEC 60770-2         C11         ✓         ✓         ✓           Inspection certificate         C12         ✓         ✓         ✓         ✓           Acc. to EN 10204-3.1         Factory certificate         C12         ✓         ✓         ✓           Functional safety (SIL2)" certificate to IEC 61508         C20         ✓         ✓         ✓           PROFIsafe certificate and protocol         C21         ✓         ✓         ✓         ✓           Functional safety (SIL2/3)" certificate to IEC 61508         C23         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓         ✓	Plug				
Cable sockets for M12 connectors (metal) A50	Angled	A32	✓		
Rating plate inscription (instead of German)	<ul> <li>Han 8D (metal, gray)</li> </ul>	A33	✓		
• English	Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
French	Rating plate inscription (instead of German)				
• Spanish • Italian B14	• English	B11	✓	✓	
• Italian				<b>1</b>	
English rating plate Pressure units in inH₂0 and/or psi  Quality inspection certificate (Five-step factory calibration) to IEC 60770-2  Inspection certificate Acc. to EN 10204-3.1  Factory certificate Acc. to EN 10204-2.2  "Functional safety (SIL2)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol  "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol  "Functional safety (SIL2/3)" certificate to IEC 61508  PROFIsafe certificate and protocol  "Functional safety (SIL2/3)" certificate to IEC 623  ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	•				1
Pressure units in inH <sub>2</sub> 0 and/or psi					•
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2         C11         ✓         ✓           Inspection certificate Acc. to EN 10204-3.1         C12         ✓         ✓         ✓           Factory certificate Acc. to EN 10204-2.2         "Functional safety (SIL2)" certificate to IEC 61508         C20         ✓ <td>· .</td> <td>B21</td> <td><b>V</b></td> <td>•</td> <td>•</td>	· .	B21	<b>V</b>	•	•
Inspection certificate		011	,	,	,
Inspection certificate		C11	•	•	•
Acc. to EN 10204-3.1  Factory certificate	•	C12	1	1	1
Acc. to EN 10204-2.2 "Functional safety (SIL2)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  Device passport Russia (For price request please contact the technical support www.siemens.com/automation/support-request.)  Export approval Korea  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4	•	V			
Acc. to EN 10204-2.2 "Functional safety (SIL2)" certificate to IEC 61508  PROFIsafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  Device passport Russia (For price request please contact the technical support www.siemens.com/automation/support-request.)  Export approval Korea  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4	Factory certificate	C14	1	1	1
"Functional safety (SIL2)" certificate to IEC 61508  PROFisafe certificate and protocol "Functional safety (SIL2/3)" certificate to IEC 61508  Device passport Russia (For price request please contact the technical support www.siemens.com/automation/support-request.)  Export approval Korea  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4		•			
PROFIsafe certificate and protocol  "Functional safety (SIL2/3)" certificate to IEC 61508  Device passport Russia (For price request please contact the technical support www.siemens.com/automation/support-request.)  Export approval Korea  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4	"Functional safety (SIL2)" certificate	C20	1		
#Functional safety (SIL2/3)" certificate to IEC 61508  Device passport Russia (For price request please contact the technical support www.siemens.com/automation/support-request.)  Export approval Korea  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil) (only for transmitter 7MF4B)  Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4B)  Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)  Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (EEx id) (only for transmitter 7MF4B)  Ex Approval IEC by (Ex id + E28   Y   Y  Y  Y  Y  Y  Y  Y  Y  Y  Y  Y		004		,	
Device passport Russia (For price request please contact the technical support www.siemens.com/automation/support-request.)	•			•	
(For price request please contact the technical support www.siemens.com/automation/support-request.)  Export approval Korea  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil) (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia + E28 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	"Functional safety (SIL2/3)" certificate to IEC 61508	C23	•		
(For price request please contact the technical support www.siemens.com/automation/support-request.)  Export approval Korea  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil) (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia + E28 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	Device passport Russia	C99	1	/	1
Export approval Korea	(For price request please contact the technical	000		·	
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)  (only for transmitter 7MF4B)  Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil)  (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil)  (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia + E28	• •				
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)  (only for transmitter 7MF4B)  Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil)  (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)  (only for transmitter 7MF4P)  Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)  (only for transmitter 7MF4P)  Ex Approval IEC Ex (EEx ia)  (only for transmitter 7MF4B)  Ex Approval IEC Ex (EEx id)  (only for transmitter 7MF4D)  Two coats of lacquer on casing and cover (PU on epoxy)  Flanges to EN 1092-1, Form b1  • DN 25, PN 40 <sup>1)</sup> • DN 40, PN 40  • DN 40, PN 100  • DN 50, PN 16  • DN 50, PN 16  • DN 50, PN 40  • DN 50, PN 40  • DN 80, PN 16  • DN 80, PN 40  Flanges to ASME B16.5  • Stainless steel flange 1" class 150  • Stainless steel flange 2" class 150  • Stainless steel flange 3" class 150  • Stainless steel flange 4" class 150  • Stainless steel flange 4" class 150  • Stainless steel flange 4" class 300  • Stainless steel flange 1½" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 3" class 300  • Stainless steel flange 3" class 300  • Stainless steel flange 3" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 3" class 300		E11	./	./	./
INMETRO (Brazil)			<b>,</b>	*	<b>,</b>
Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil)  (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)  (only for transmitter 7MF4P)  Ex Approval IEC Ex (EEx ia)  (only for transmitter 7MF4B)  Ex Approval IEC Ex (EEx id)  (only for transmitter 7MF4D)  Two coats of lacquer on casing and cover (PU on epoxy)  Flanges to EN 1092-1, Form b1  • DN 25, PN 40 <sup>1)</sup> • DN 25, PN 100 <sup>1)</sup> • DN 40, PN 40  • DN 40, PN 100  • DN 50, PN 16  • DN 50, PN 16  • DN 80, PN 16  • DN 80, PN 40  Flanges to ASME B16.5  • Stainless steel flange 1" class 150  • Stainless steel flange 2" class 150  • Stainless steel flange 4" class 150  • Stainless steel flange 1" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 1" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 3" class 300  • M48  • ✓ ✓ ✓	INMETRO (Brazil)	E25	•	•	•
INMETRO (Brazil)   (only for transmitter 7MF4D)     Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)   (only for transmitter 7MF4P)     Ex Approval IEC Ex (EEx ia)   (only for transmitter 7MF4B)     E45	, ,				
(only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)  Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)  Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D)  Two coats of lacquer on casing and cover (PU on epoxy)  Flanges to EN 1092-1, Form b1  • DN 25, PN 40 <sup>1)</sup> • DN 25, PN 100 <sup>1)</sup> • DN 40, PN 40 • DN 40, PN 100 • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 40 • DN 80, PN 16 • DN 80, PN 16 • DN 80, PN 16 • DN 80, PN 40  Flanges to ASME B16.5 • Stainless steel flange 1" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 1" class 300 • Stainless steel flange 1" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • M48 • ✓ ✓	Explosion-proof "Intrinsic safety" (Ex d) to	E26	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + E28	` ,				
Ex d) to INMETRO (Brazil)  (only for transmitter 7MF4P)  Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)  Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4B)  Two coats of lacquer on casing and cover (PU on epoxy)  Flanges to EN 1092-1, Form b1  • DN 25, PN 40¹) • DN 25, PN 100¹) • DN 40, PN 40 • DN 40, PN 100 • DN 40, PN 100 • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 40 • DN 80, PN 16 • DN 80, PN 40  • Stainless steel flange 1" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 1" class 300 • Stainless steel flange 1" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • M48 • ✓ ✓		F28	1	1	
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)  Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D)  Two coats of lacquer on casing and cover (PU on epoxy)  Flanges to EN 1092-1, Form b1 • DN 25, PN 40 <sup>1)</sup> • DN 25, PN 100 <sup>1)</sup> • DN 40, PN 40 • DN 40, PN 100 • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 40 • DN 80, PN 16 • DN 80, PN 16 • DN 80, PN 16 • Stainless steel flange 1" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 1" class 300 • Stainless steel flange 1" class 300 • Stainless steel flange 1" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • M47 • ✓ ✓				·	
(only for transmitter 7MF4B)  Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D)  Two coats of lacquer on casing and cover (PU on epoxy)  Flanges to EN 1092-1, Form b1  • DN 25, PN 40 <sup>1)</sup> • DN 25, PN 100 <sup>1)</sup> • DN 40, PN 40 • DN 40, PN 100 • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 40 • DN 80, PN 40 • DN 80, PN 40 • Stainless steel flange 1" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 1" class 300 • Stainless steel flange 1" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • M47 • ✓ ✓	(only for transmitter 7MF4P)				
Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D)  Two coats of lacquer on casing and cover (PU on epoxy)  Flanges to EN 1092-1, Form b1  • DN 25, PN 40 <sup>1)</sup> • DN 25, PN 100 <sup>1)</sup> • DN 40, PN 40 • DN 40, PN 100 • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 40 • DN 80, PN 40 • DN 80, PN 40 • Stainless steel flange 1" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 1" class 300 • Stainless steel flange 1" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • M48 • ✓ ✓	Ex Approval IEC Ex (EEx ia)	E45	✓	✓	✓
(only for transmitter 7MF4D)  Two coats of lacquer on casing and cover (PU on epoxy)  Flanges to EN 1092-1, Form b1  • DN 25, PN 40 <sup>1)</sup> • DN 25, PN 100 <sup>1)</sup> • DN 40, PN 40  • DN 40, PN 100  • DN 50, PN 16  • DN 50, PN 40  • DN 80, PN 16  • DN 80, PN 40  • DN 80, PN 40  • Stainless steel flange 1" class 150  • Stainless steel flange 2" class 150  • Stainless steel flange 1" class 150  • Stainless steel flange 1" class 150  • Stainless steel flange 4" class 150  • Stainless steel flange 1" class 300  • Stainless steel flange 1" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 3" class 300  • M48	(only for transmitter 7MF4B)				
Two coats of lacquer on casing and cover (PU on epoxy)  Flanges to EN 1092-1, Form b1  • DN 25, PN 40 <sup>1)</sup> • DN 25, PN 100 <sup>1)</sup> • DN 40, PN 40  • DN 40, PN 100  • DN 50, PN 16  • DN 50, PN 40  • DN 80, PN 16  • DN 80, PN 40  • Tlanges to ASME B16.5  • Stainless steel flange 1" class 150  • Stainless steel flange 2" class 150  • Stainless steel flange 3" class 150  • Stainless steel flange 1" class 150  • Stainless steel flange 4" class 150  • Stainless steel flange 1" class 150  • Stainless steel flange 1" class 150  • Stainless steel flange 2" class 150  • Stainless steel flange 4" class 150  • Stainless steel flange 1" class 300  • Stainless steel flange 1" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 3" class 300  • M48		E46	✓	✓	✓
Planges to EN 1092-1, Form b1	(only for transmitter 7MF4)				
Flanges to EN 1092-1, Form b1  • DN 25, PN 40 <sup>1)</sup> • DN 25, PN 100 <sup>1)</sup> • DN 40, PN 40  • DN 40, PN 100  • DN 50, PN 16  • DN 50, PN 40  • DN 80, PN 16  • DN 80, PN 40  • Tlanges to ASME B16.5  • Stainless steel flange 1" class 150  • Stainless steel flange 2" class 150  • Stainless steel flange 3" class 150  • Stainless steel flange 4" class 150  • Stainless steel flange 4" class 150  • Stainless steel flange 1" class 150  • Stainless steel flange 4" class 300  • Stainless steel flange 1"/2" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 3" class 300  • M48  • ✓ ✓		G10	✓	✓	✓
• DN 25, PN 40¹) • DN 25, PN 100¹) • DN 40, PN 40 • DN 40, PN 40 • DN 50, PN 160 • DN 50, PN 16 • DN 80, PN 40 • DN 80, PN 40 • Stainless steel flange 1" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 4" class 300 • Stainless steel flange 1" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • M48 • ✓ ✓					
• DN 25, PN 100 <sup>1)</sup> • DN 40, PN 40 • DN 40, PN 100 • DN 50, PN 16 • DN 50, PN 16 • DN 80, PN 16 • DN 80, PN 40 • Stainless steel flange 1" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 1" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 1" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 1" class 300 • Stainless steel flange 1" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • Stainless steel flange 3" class 300 • Stainless steel flange 3" class 300 • M48 • ✓ ✓		N444	,	,	,
• DN 40, PN 40 • DN 40, PN 100 • DN 50, PN 16 • DN 50, PN 16 • DN 50, PN 40 • DN 80, PN 16 • DN 80, PN 40 • DN 80, PN 40 • Stainless steel flange 1" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 3" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 3" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 1" class 300 • Stainless steel flange 1½" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • M48 • ✓ ✓					
• DN 40, PN 100 • DN 50, PN 16 • DN 50, PN 40 • DN 50, PN 40 • DN 80, PN 16 • DN 80, PN 40 • DN 80, PN 40 • Stainless steel flange 1" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 3" class 150 • Stainless steel flange 4" class 300 • Stainless steel flange 1½" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • M48 • ✓ ✓					
• DN 50, PN 16 • DN 50, PN 40 • DN 50, PN 40 • DN 80, PN 16 • DN 80, PN 16 • DN 80, PN 40  **Flanges to ASME B16.5 • Stainless steel flange 1" class 150					
• DN 80, PN 16 • DN 80, PN 40  Flanges to ASME B16.5 • Stainless steel flange 1" class 150 1) • Stainless steel flange 1½" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 2" class 150 • Stainless steel flange 3" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 1" class 300 1) • Stainless steel flange 1½" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • M48 • ✓ ✓					✓
• DN 80, PN 40  Flanges to ASME B16.5  • Stainless steel flange 1" class 150 1)  • Stainless steel flange 1½" class 150  • Stainless steel flange 2" class 150  • Stainless steel flange 2" class 150  • Stainless steel flange 3" class 150  • Stainless steel flange 4" class 150  • Stainless steel flange 1" class 300 1)  • Stainless steel flange 1½" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 3" class 300	• DN 50, PN 40	M14			✓
Flanges to ASME B16.5  • Stainless steel flange 1" class 150 1)  • Stainless steel flange 1½" class 150  • Stainless steel flange 2" class 150  • Stainless steel flange 2" class 150  • Stainless steel flange 3" class 150  • Stainless steel flange 4" class 150  • Stainless steel flange 1" class 300 1)  • Stainless steel flange 1½" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 2" class 300  • Stainless steel flange 3" class 300					
<ul> <li>Stainless steel flange 1" class 150<sup>1)</sup></li> <li>Stainless steel flange 1½" class 150</li> <li>Stainless steel flange 2" class 150</li> <li>Stainless steel flange 3" class 150</li> <li>Stainless steel flange 4" class 150</li> <li>Stainless steel flange 4" class 150</li> <li>Stainless steel flange 1" class 300<sup>1)</sup></li> <li>Stainless steel flange 1½" class 300</li> <li>Stainless steel flange 2" class 300</li> <li>Stainless steel flange 2" class 300</li> <li>Stainless steel flange 3" class 300</li> <li>M47</li> <li>✓</li> <li>✓</li></ul>		W16	<b>√</b>	<b>V</b>	<b>V</b>
<ul> <li>Stainless steel flange 1½" class 150</li> <li>Stainless steel flange 2" class 150</li> <li>Stainless steel flange 3" class 150</li> <li>Stainless steel flange 4" class 150</li> <li>Stainless steel flange 4" class 150</li> <li>Stainless steel flange 1" class 300<sup>1)</sup></li> <li>Stainless steel flange 1½" class 300</li> <li>Stainless steel flange 2" class 300</li> <li>Stainless steel flange 3" class 300</li> <li>Stainless steel flange 3" class 300</li> <li>M48</li> <li>✓</li> </ul>	-	1440	,	,	,
• Stainless steel flange 2" class 150 • Stainless steel flange 3" class 150 • Stainless steel flange 4" class 150 • Stainless steel flange 1" class 300 • Stainless steel flange 1½" class 300 • Stainless steel flange 2" class 300 • Stainless steel flange 3" class 300 • Stainless steel flange 3" class 300 • Stainless steel flange 3" class 300 • M48 • ✓ ✓				1	
<ul> <li>Stainless steel flange 3" class 150</li> <li>Stainless steel flange 4" class 150</li> <li>Stainless steel flange 1" class 300<sup>1)</sup></li> <li>Stainless steel flange 1"½" class 300</li> <li>Stainless steel flange 2" class 300</li> <li>Stainless steel flange 2" class 300</li> <li>Stainless steel flange 3" class 300</li> <li>M47</li> <li>✓</li> <l< td=""><td><u> </u></td><td></td><td></td><td>1</td><td></td></l<></ul>	<u> </u>			1	
<ul> <li>Stainless steel flange 4" class 150</li> <li>Stainless steel flange 1" class 300<sup>1)</sup></li> <li>Stainless steel flange 1½" class 300</li> <li>Stainless steel flange 2" class 300</li> <li>Stainless steel flange 2" class 300</li> <li>Stainless steel flange 3" class 300</li> <li>M47</li> <li>✓</li> </ul>	<del>-</del>				1
<ul> <li>Stainless steel flange 1" class 300<sup>1)</sup></li> <li>Stainless steel flange 1½" class 300</li> <li>Stainless steel flange 2" class 300</li> <li>Stainless steel flange 3" class 300</li> <li>M47</li> <li>✓</li> <li>✓&lt;</li></ul>	• Stainless steel flange 4" class 150	M44		✓	✓
<ul> <li>Stainless steel flange 2" class 300</li> <li>Stainless steel flange 3" class 300</li> <li>M47</li> <li>✓</li> <l>✓ <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <l< td=""><td></td><td></td><td></td><td></td><td>1</td></l<></l></ul>					1
• Stainless steel flange 3" class 300 M48 ✓ ✓ ✓	<del>-</del>				1
g and a second s					

Add "-7" to Order No. and specify Order Code.  Threaded connector to DIN 3852-2, form A, thread to ISO 228  • G 3/4"-A, front-flush <sup>2</sup> )  R01	ART	PA	
Add "-7" to Order No. and specify Order Code.  Threaded connector to DIN 3852-2, form A, thread to ISO 228  • G ¾"-A, front-flush <sup>2)</sup> R01	NH I	PA	
form A, thread to ISO 228  • G ¾"-A, front-flush <sup>2)</sup> R01			FF
• G ¾"-A, front-flush <sup>2)</sup>			
	/	1	1
= I = I () Tront tillen=/	/	<b>*</b>	1
• G 2"-A, front-flush <sup>2</sup> )	/	/	1
,		•	
Tank connection <sup>3)</sup> Sealing is included in delivery			
,	/	1	1
• TG 52/150, PN 40	/	/	1
	,		•
Sanitary process connection according DIN 11851 (Dairy connection)			
	/	✓	1
• DN 80, PN 25 <b>N06</b>	/	✓	✓
Tri-Clamp connection according			
DIN 32676/ISO 2852			
• DN 50/2", PN 16	/	✓	✓
• DN 65/3", PN 10	/	✓	✓
Varivent connection			
Certified to EHEDG			
• Type N = 68 for Varivent housing N28 DN 40 125 und 1½" 6", PN 40	/	✓	✓
Temperature decoupler up to 200 °C <sup>4)</sup>	/	✓	✓
for version with front-flush diaphragm			
Temperature decoupler up to 250 °C P10	/	1	✓
Measuring cell filling: High-temperature oil,			
only in conjunction with measuring cell filling silicone oil			
Bio-Control sanitary process connection Certified to EHEDG			
• DN 50, PN 16 Q53	/	1	1
	/	✓	1
Sanitary process connection to DRD			
• •	/	1	1
SMS socket with union nut			
	/	1	1
_	/	1	1
• 3" M69	/	1	1
SMS threaded socket			
• 2" M73	/	1	1
_	/	/	1
272	/	1	1
IDF socket with union nut ISO 2853			
	/	1	1
_	/	<b>√</b>	1
	/	1	1
IDF threaded socket ISO 2853			
	/	/	1
	/	/	1
	/	1	1
Sanitary process connection to			
NEUMO Bio-Connect screw connection			
Certified to EHEDG			
	/	✓	<b>1</b>
	/	<b>1</b>	<b>V</b>
	/	1	4 4 4 4 4
• DN 100, PN 16 Q08	1	1	1
	/	<b>√</b>	1
	/	<b>√</b>	1
- UII U IU U U U U U U U U U U U U U U U	/	1	1

## Transmitters for general requirements

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

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Sanitary process connection to NEUMO				
Bio-Connect flange connection Certified to EHEDG				
• DN 50, PN 16	Q23	1	✓	✓
• DN 65, PN 16	Q24	✓	✓	✓
• DN 80, PN 16	Q25	✓	✓	✓
• DN 100, PN 16	Q26	✓	✓	✓
• DN 2", PN 16	Q31	<b>✓</b>	1	<b>V</b>
• DN 2½", PN 16	Q32	<b>✓</b>	1	1
<ul><li>DN 3", PN 16</li><li>DN 4", PN 16</li></ul>	Q33 Q34	<b>V</b>	<b>v</b>	<b>v</b>
,	Q34	ľ	•	•
Sanitary process connection to NEUMO Bio-Connect clamp connection				
Certified to EHEDG				
• DN 50, PN 16	Q39	✓	✓	✓
• DN 65, PN 10	Q40	1	✓	✓
• DN 80, PN 10	Q41	<b>√</b>	<b>1</b>	1
• DN 100, PN 10	Q42	1	1	1
• DN 2½", PN 16	Q48 Q49	1	<b>✓</b>	1
<ul><li>DN 3", PN 10</li><li>DN 4", PN 10</li></ul>	Q50	<b>V</b>	<b>*</b>	<b>*</b>
	QJU	ľ	•	·
Sanitary process connection to NEUMO Bio-Connect S flange connection				
Certified to EHEDG				
• DN 50, PN 16	Q63	✓	✓	✓
• DN 65, PN 10	Q64	✓.	✓.	✓.
• DN 80, PN 10	Q65	<b>1</b>	<b>1</b>	1
• DN 100, PN 10	Q66	<b>√</b>	1	1
<ul><li>DN 2", PN 16</li><li>DN 2½", PN 10</li></ul>	Q72 Q73	1	<b>*</b>	<b>V</b>
• DN 3", PN 10	Q74	1	1	1
• DN 4", PN 10	Q75	1	1	1
Aseptic threaded socket to DIN 11864-1				
Form A				
approved according to EHEDG				
• DN 50, PN 25	N33	<b>√</b>	<b>1</b>	<b>V</b>
<ul><li>DN 65, PN 25</li><li>DN 80, PN 25</li></ul>	N34 N35	1	1	<b>√</b>
• DN 100, PN 25	N36	1	· /	1
,	1400		Ť	, The state of the
Aseptic flange with notch to DIN 11864-2 Form A				
approved according to EHEDG				
• DN 50, PN 16	N43	✓	✓	✓
• DN 65, PN 16	N44	✓	✓	✓
• DN 80, PN 16	N45	✓.	<b>V</b>	✓.
• DN 100, PN 16	N46	✓	✓	✓
Aseptic flange with groove to DIN 11864-2				
Form A approved according to EHEDG				
DN 50, PN 16	N43 +	1	1	1
51, 50, 11, 10	P11			
• DN 65, PN 16	N44 +	✓	✓	✓
D. 100 D. 100	P11			
• DN 80, PN 16	N45 + P11	✓	✓	<b>V</b>
• DN 100, PN 16	N46 +	1	1	1
	P11			

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Aseptic clamp with groove to DIN 11864-3 FormA				
approved according to EHEDG				
• DN 50, PN 25	N53	✓	✓	✓
• DN 65, PN 25	N54	✓	✓	✓
• DN 80, PN 16	N55	✓	✓	✓
• DN 100, PN 16	N56	✓	1	1
1) Consider and in Many in the state of the Alexander of the	d a Division is			

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

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Order 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	<b>√</b>		
Stainless steel tag plate (measuring point description)  Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG)	Y17	✓		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indicator 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 <sub>2</sub> O*), inH <sub>2</sub> O*), ftH <sub>2</sub> O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % *) ref. temperature 20 °C				
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	

Only "Y01" and "Y21" can be factory preset

✓ = available

### ordering example

Item line: 7MF4133-1DB20-1AB7-Z

B line: A22 + Y01 + Y21

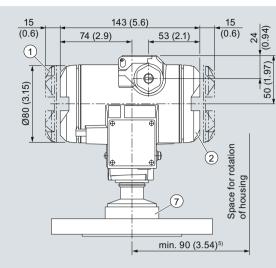
C line: Y01: 1 ... 10 bar (14.5 ... 145 psi)

C line: Y21: bar (psi)

## Transmitters for general requirements

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

#### Dimensional drawings



2 = approx. 130 (5.12) 55 (2.17)

- Electronic side, digital display
   (longer overall length for cover with window)¹)
- 2 Terminal side<sup>1)</sup>
- 3 Electrical connection: Screwed gland M20 x 1,5 or screwed gland ½-14 NPT or M12 conector
- 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) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- 2) 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<sub>1</sub> and H<sub>2</sub>.

H<sub>1</sub> = 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<sub>2</sub> is indicated in the dimensions of the flanges.

#### Flanges as per EN and ASME

#### Flange to EN

# EN 1092-1

DN	PN	ØD	H <sub>2</sub>
25	40	115 mm (4.5")	Approx.
25	100	140 mm (5.5")	52 mm (2")
40	40	150 mm (5.9")	
40	100	170 mm (6.7")	
50	16	165 mm (6.5")	
50	40	165 mm (6.5")	
80	16	200 mm (7.9")	
80	40	200 mm (7.9")	

#### Flanges to ASME

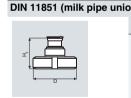
#### **ASME B16.5**



DN	Class	ØD	H <sub>2</sub>
1"	150	110 mm (4.3")	Approx.
1"	300	125 mm (4.9")	52 mm (2")
11/2"	150	130 mm (5.1")	
11/2"	300	155 mm (6.1")	
2"	150	150 mm (5.9")	
2"	300	165 mm (6.5")	
3"	150	190 mm (7.5")	
3"	300	210 mm (8.1")	
4"	150	230 mm (9.1")	
4"	300	255 mm (10.0")	

### F&B and pharmaceutical flanges

#### Connections to DIN



110	ion)					
	DN	PN	∅D	H <sub>2</sub>		
	50	25	92 mm (3.6")	Approx.		
	80	25	127 mm (5.0")	52 mm (2")		

### TriClamp to DIN 32676



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

# Transmitters for general requirements

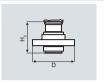
SITRANS P DS III for gauge/absolute pressure, with front-flush diaphragm

#### Other connections

# Varivent connection

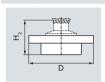
DN	PN	ØD	H <sub>2</sub>
40 125	40	84 mm (3.3")	Approx. 52 mm (2")

#### **Biocontrol connection**



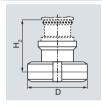
DN	PN	ØD	H <sub>2</sub>
50	16	90 mm (3.5")	Approx.
65	16	120 mm (4.7")	52 mm (2")

#### Sanitary process connection to DRD



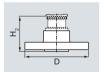
DN	PN	∅D	H <sub>2</sub>
50	40	105 mm (4.1")	Approx. 52 mm (2")

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



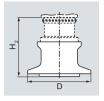
DN	PN	ØD	H <sub>2</sub>
50	16	82 mm (3.2")	Approx.
65	16	105 mm (4.1")	52 mm (2")
80	16	115 mm (4.5")	
100	16	145 mm (5.7")	
2"	16	82 mm (3.2")	
21/2"	16	105 mm (4.1")	
3"	16	105 mm (4.1")	
4"	16	145 mm (5.7")	

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



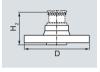
DN	PN	ØD	H <sub>2</sub>
50	16	110 mm (4.3")	Approx.
65	16	140 mm (5.5")	52 mm (2")
80	16	150 mm (5.9")	
100	16	175 mm (6.9")	
2"	16	100 mm (3.9")	
21/2"	16	110 mm (4.3")	
3"	16	140 mm (5.5")	
4"	16	175 mm (6.9")	

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



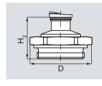
DN	PN	∅D	H <sub>2</sub>
50	16	77.4 mm (3.0")	Approx.
65	10	90.9 mm (3.6")	52 mm (2")
80	10	106 mm (4.2")	
100	10	119 mm (4.7")	
2"	16	64 mm (2.5")	
2½"	16	77.4 mm (3.0")	
3"	10	90.9 mm (3.6")	
4"	10	779 mm (4.7")	

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



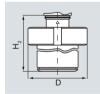
DN	PN	ØD	H <sub>2</sub>
50	16	125 mm (4.9")	Approx.
65	10	145 mm (5.7")	52 mm (2")
80	10	155 mm (6.1")	
100	10	180 mm (7.1")	
2"	16	125 mm (4.9")	
21/2"	10	135 mm (5.3")	
3"	10	145 mm (5.7")	
4"	10	180 mm (7.1")	

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



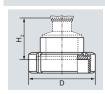
DN	PN	∅D	H <sub>2</sub>
3/4"	63	37 mm (1.5")	Approx. 45 mm (1.8")
1"	63	48 mm (1.9")	approx. 47 mm (1.9")
2"	63	78 mm (3.1")	Approx. 52 mm (2")

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



DN	PN	ØD	H <sub>2</sub>
25	40	63 mm (2.5")	Approx. 63 mm (2.5")
25	40	63 mm (2.5")	approx. 170 mm (6.7")

#### SMS socket with union nut



DN	PN	ØD	H <sub>2</sub>
2"	25	84 mm (3.3")	Approx.
2½"	25	100 mm (3.9")	52 mm (2.1")
3"	25	114 mm (4.5")	

Transmitters for general requirements
SITRANS P DS III for gauge/absolute pressure,
with front-flush diaphragm

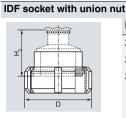
# SMS threaded socket

DN	PN	ØD	H <sub>2</sub>
2"	25	70 x 1/6 mm	Approx.
21/2"	25	85 x 1/6 mm	52 mm (2.1")
3"	25	98 x 1/6 mm	,

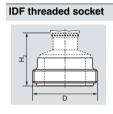
Aseptic clamp with groove to DIN 11864-3 Form A					
	DN	PN	ØD		
	50	25	77,5		
±	65	25	91		
	80	16	106		
<u> </u>	100	16	130		
D					

 $H_2$ 

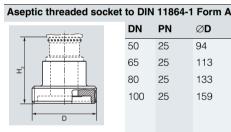
Approx. 52 mm (2.1")



<b>.</b>	•			
	DN	PN	ØD	H <sub>2</sub>
	2"	25	77 mm (3")	Approx.
	2½"	25	91 mm (3.6")	52 mm (2.1")
	3"	25	106 mm (4.2")	,



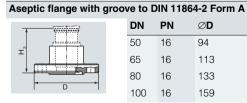
DN	PN	ØD	H <sub>2</sub>
2"	25	64 mm (2.5")	Approx.
2½"	25	77.5 mm (3.1")	52 mm (2.1")
3"	25	91 mm (3.6")	,



t	to DIN 11864-1 Form A						
	DN	PN	∅D	H <sub>2</sub>			
	50	25	94	Approx.			
	65	25	113	52 mm (2.1")			
	80	25	133	` '			
	100	25	159				

Ase	ptic flange with n
Ξ Ξ	

r	notch to DIN 11864-2 Form A						
		DN	PN	∅D	H <sub>2</sub>		
		50	16	78 x 1/6"	Approx.		
		65	16	95 x 1/6"	52 mm (2.1")		
		80	16	110 x 1/4"	,		
		100	16	130 x 1/4"			



DN	PN	ØD	H <sub>2</sub>
50	16	94	Approx.
65	16	113	52 mm (2.1")
80	16	133	,
100	16	159	

# Pressure Measurement Transmitters for general requirements SITRANS P DS III for absolute pressure (from gauge pressure series)

## Technical specifications

	HART	sure series)	DROFIRIUS DA and E	OUNDATION Fieldbus		
lamit	HARI		FAULIDOS PA and F	OUNDATION FIEIDDUS		
Input		A In It				
Measured variable		1	e pressure	1		
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.)	Max. perm. test pressure	Nominal measuring range	Max. perm. test pres- sure		
	8.3 250 mbar a (0.12 3.62 psia)	6 bar a (87 psia)	250 mbar a (3.6 psia)	6 bar a (87 psia)		
	43 1300 mbar a (0.62 18.85 psi a)	10 bar a (145 psia)	1300 mbar a (18.9 psi a)	10 bar a (145 psia)		
	160 5000 mbar a (2.32 72.5 psia)	30 bar a (435 psia)	5 bar a (72.5 psia)	30 bar a (435 psia)		
	1 30 bar a (14.5 435 psia)	100 bar a (1450 psia)	30 bar a (435 psia)	100 bar a (1450 psia)		
Lower measuring limit		•		"		
<ul> <li>Measuring cell with silicone oil filling</li> </ul>		0 mbar	a (0 psia)			
Upper measuring limit		100 % of	max. span			
Output						
Output signal	4 20 mA		Digital PROFIBUS PA and FOUNDATION Fieldbus signal			
<ul> <li>Lower limit (infinitely adjustable)</li> </ul>	3.55 mA, factory prese	t 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	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.023 \text{ A in } \Omega,$ $U_{\rm H}$ : Power supply in V		-			
• With HART	$R_{\rm B} = 230 \dots 500 \Omega$ (SII) $R_{\rm B} = 230 \dots 1100 \Omega$ (H		-			
Physical bus	-		IEC 61158-2			
Protection against polarity reversal	Protected against short	t-circuit and polarity reve supply	ersal. Each connection a voltage.	gainst the other with ma		
Measuring accuracy		Acc. to II	EC 60770-1			
Reference conditions (All error data refer always refer to the set span)	Increasing characteris	tic, start-of-scale value 0 ling, room temperature : (r = max. sp				
Error in measurement at limit setting incl. hysteresis and reproducibility						
Linear characteristic			≤ 0.1 %			
- r ≤ 10	≤ 0.1 %					
- 10 < r ≤ 30	≤ 0.2 %					
Long-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.1 · r) %/year		≤ 0.1 %/year			
Influence of ambient temperature						
• at -10 +60 °C (14 140 °F)	$\leq (0.1 \cdot r + 0.2) \%^{1)}$		≤ 0.3 %			
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	$\leq$ (0.1 · r + 0.15) %/10	K	≤ 0.25 %/10 K			
Measured Value Resolution			3 · 10 <sup>-5</sup> of nominal me	acuring range		

Transmitters for general requirements
SITRANS P DS III for absolute pressure
(from gauge pressure series)

SITRANS P DS III series for absolute pressure (from the gauge pressure series)				
	HART	PROFIBUS PA and FOUNDATION Fieldbus		
Rated conditions				
Degree of protection (to IEC 60529)	IP65, optional IP68			
Temperature of medium				
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)			
<ul> <li>Measuring cell with inert filling liquid</li> </ul>	-20 +100 °C (-4 +212 °F)			
• In conjunction with dust explosion protection	-20 +60 °C (-4 +140 °F)			
Ambient conditions				
Ambient temperature				
- Display readable	-30 +85 °C	(-22 +185 °F)		
Storage temperature	-50 +85 °C	(-58 +185 °F)		
Climatic class				
- Condensation		idity 0 100 % suitable for use in the tropics		
Electromagnetic Compatibility				
- Emitted interference and interference immunity	Acc. to EN 61326 and NAMUR NE 21			
Design				
Weight (without options)	≈ 1.5 kg	g (≈ 3.3 lb)		
Enclosure material	Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.440			
Wetted parts materials				
Connection shank	Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610			
Oval flange	Stainless steel, m	nat. no. 1.4404/316L		
• Seal diaphragm	Stainless steel, mat. no. 1.4404/316	6L or Hastelloy C276, mat. no. 2.4819		
Measuring cell filling		e with oxygen measurement pressure 120 bar a) t 60 °C (140 °F))		
Process connection		female thread $\frac{1}{2}$ -14 NPT or oval flange mounting thread M10 or $\frac{7}{16}$ -20 UNF to IEC 61518		
Material of mounting bracket				
• Steel	Sheet-steel, Mat. No.	1.0330, chrome-plated		
• Stainless steel	Sheet stainless steel,	mat. no. 1.4301 (SS 304)		
Power supply <i>U</i> <sub>H</sub>		Supplied through bus		
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-		
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		

Pressure Measurement
Transmitters for general requirements
SITRANS P DS III for absolute pressure
(from gauge pressure series)

SITRANS P DS III series for absolute pressur	e (from the gauge pressure series)			
	HART	PROFIBUS PA and FOUNDATION Fieldbus		
Certificates and approvals				
Classification according to PED 97/23/EC	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)			
Explosion protection				
• Intrinsic safety "i"	PTB 99 ATEX 2122			
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6		
- Permissible ambient temperature	-40 +70 °C (-40 +15	85 °F) temperature class T4; 68 °F) temperature class T5; 40 °F) temperature class T6		
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i} = 30 \text{ V}, I_{\rm i} = 100 \text{ mA}, P_{\rm i} = 750 \text{ mW}; P_{\rm i} = 300 \Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier:		
	1 7 1	$U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH},  C_{\rm i} = 6  {\rm nF}$	$L_{\rm i} = 7  \mu \text{H},  C_{\rm i} = 1.1  \text{nF}$		
Explosion-proof "d"		ATEX 1160		
- Marking	Ex II 1/2 G E	EEx d IIC T4/T6		
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +60 °C (-40 +140 °F) temperature class T6			
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC To circuits with values: $U_{\rm H}$ = 9 32			
Dust explosion protection for zone 20	PTB 01 ATEX 2055			
- Marking	Ex II 1 D IP65 T 120 °C Ex II 1/2 D IP65 T 120 °C			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)			
- Max. surface temperature	120 °C	C (248 °F)		
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $P_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$		
• Dust explosion protection for zone 21/22	PTB 01 .	ATEX 2055		
- Marking	Ex II 2 D II	P65 T 120 °C		
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W		
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned		
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6			
Explosion protection acc. to FM	Certificate of Co	empliance 3008490		
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; CL I, DIV 2, GP ABCD T4T6; CL II, DIV 2, GP FG; CL III			
Explosion protection to CSA	Certificate of Co	mpliance 1153651		
- Identification (XP/DIP) or (IS)		FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD IV 2, GP FG; CL III		

<sup>1)</sup> Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.08. r + 0.16) % / 28 °C (50 °F).

## Transmitters for general requirements

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

(Irom gauge pressure ser	le3)
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	
<ul> <li>Adaptation to customer-speci- fic process variables</li> </ul>	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 war- ning 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 respec- tively
Physical block	1
Transducer blocks	2
Pressure transducer block	
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes
- Monitoring of sensor limits	Yes
<ul> <li>Specification of a container characteristic with</li> </ul>	Max. 30 nodes
<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes
- Gradual volume suppression and implementation point of square-root extraction	Parameterizable
<ul> <li>Simulation function for measu- red pressure value and sensor temperature</li> </ul>	Constant value or over parameterizable ramp function

## FOUNDATION Fieldbus communication

Function blocks

- Analog input
  - Adaptation to customer-specific process variables
  - Electrical damping, adjustable
  - Simulation function
  - Failure mode
  - Limit monitoring
  - Square-rooted characteristic for flow measurement
- PID
- Physical block
   Transducer blocks
- Pressure transducer block
- Can be calibrated by applying two pressures
- Monitoring of sensor limits
- Simulation function: Measured pressure value, sensor temperature and electronics temperature

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

Output/input (can be locked within the device with a bridge)

parameterizable (last good value, substitute value, incorrect value)

Yes, one upper and lower warning limit and one alarm limit respectively

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

## Transmitters for general requirements

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

Selection and Orderin	<del>-</del>	Orde				
Pressure transmitters for absolute pressure aus F)			7 M F 4 2 3 3 -			
series pressure, SITRA	NS P DS III with HART			-		
Measuring cell filling	Measuring cell cleaning					
Silicone oil	normal	1				
nert liquid <sup>1)</sup>	grease-free to	3				
	cleanliness level 2					
Measuring span (min. 3.3 250 mbar a		_				
1.3 250 mbar a 13 1300 mbar a	(0.12 3.62 psia) (0.62 18.85 psia)	D F				
).16 5 bar a	(2.32 72.5 psia)	Ġ				
1 30 bar a	(14.5 435 psia)	Н				
Wetted parts materials	. ,					
Seal diaphragm	Process connection					
Stainless steel	Stainless steel	А				
Hastelloy	Stainless steel	В				
Hastelloy	Hastelloy	С				
Version for diaphragm s		Y				
Process connection						
Connection shank G1/2			0			
Female thread ½-14 N			1			
<ul> <li>Stainless steel oval flagger</li> </ul>						
	<sub>3</sub> -20 UNF to EN 61518		2			
<ul><li>Mounting thread M1</li><li>Mounting thread M1</li></ul>			3			
Male thread M20 x 1.5			5			
• Male thread M20 x 1.3 • Male thread ½ -14 NP			6			
			•			
Non-wetted parts mate <ul> <li>Housing made of die-</li> </ul>			0			
<ul> <li>Housing stainless stee</li> </ul>			3			
Version	or production eaching					
<ul> <li>Standard versions</li> </ul>				1		
	English label inscriptions,			2		
documentation in 5 la	nguages on CD					
(no order code select	able)					
Explosion protection						
<ul><li>None</li><li>With ATEX, Type of pre</li></ul>	otection:			,	A	
- "Intrinsic safety (EEx					3	
- "Explosion-proof (EE					5	
- "Intrinsic safety and					P	
(EEx ia + EEx d)" <sup>/)</sup>	·					
- "Ex nA/nL (Zone 2)"					E	
	osion-proof enclosure and				3	
dust explosion prote	ection (EEx ia+ EEx d +					
• With FM + CSA, Type						
- will Five + CSA, Type - "Intrinsic Safe and F	xplosion Proof (is + xp)" <sup>6)</sup>				٧С	
Electrical connection/						
<ul> <li>Screwed gland Pg 13</li> </ul>					Α	
<ul> <li>Screwed gland M20x<sup>3</sup></li> </ul>					В	
Screwed gland ½-14					C	
Han 7D plug (plastic l					D	
'. 8L	<i>5.</i>					
connector <sup>8)</sup> • M12 connectors (meta-	0)					

Selection and Ordering data	Order No.			
Pressure transmitters for absolute pressure aus F)	F) 7MF4233-			
series pressure, SITRANS P DS III with HART				
Display				
Without display		0		
<ul> <li>Without visible display (display concealed, setting: mA)</li> </ul>		1		
<ul> <li>With visible display</li> </ul>		6		
<ul> <li>with customer-specific display (setting as specified, Order Code "Y21" or "Y22" required)</li> </ul>		7		
Available ex stock				

Power supply units see Chap. 8 "Supplementary Components".

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- 1) For oxygen application, add Order code E10.
- 2) Version 7MF4233-1DY... only up to max. span 200 mbar a (2.9 psia).
- 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. 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) 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) Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 6) Without cable gland, with blanking plug.
- 7) With enclosed cable gland EEx ia and blanking plug.
- 8) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 9) M12 delivered without cable socket
- F) Subject to export regulations AL: 91999, ECCN: N.

## Transmitters for general requirements

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

Selection and Orderin	g data	Orde	er No		
	(from the gauge pres-				
SITRANS P DS III with	PROFIBUS PA (PA) F)	7 M F	4 2 3	3 4 -	
	FOUNDATION Fieldbus F)	7 M F	423	35-	
(FF)	,		`		
Measuring cell filling	Measuring cell				
	cleaning				
Silicone oil Inert liquid <sup>1)</sup>	normal	1			
ment liquid 7	grease-free to cleanliness level 2	3			
Nominal measuring ra	nge				
250 mbar a	(3.62 psia)	D			
1300 mbar a	(18.85 psia)	F			
5 bar a	(72.5 psia)	G			
30 bar a	(435 psia)	Н			
Wetted parts materials					
Seal diaphragm	Process connection	-			
Stainless steel	Stainless steel Stainless steel	4			
Hastelloy Hastelloy	Hastelloy	E			
Version as diaphragm s	eal <sup>2) 3) 4)</sup>	Y			
Process connection					
Connection shank G½	⊵B to EN 837-1		0		
• Female thread ½-14 N			1		
• Stainless steel oval fla					
	- Mounting thread <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518				
- Mounting thread M10 to DIN 19213 - Mounting thread M12 to DIN 19213			3 4		
Male thread M20 x 1.5			5		
• Male thread ½ -14 NP			6		
Non-wetted parts mate	erials	-			
Housing made of die-			0		
<ul> <li>Housing stainless stee</li> </ul>	el precision casting		3		
Version					
<ul> <li>Standard versions</li> </ul>				1	
<ul> <li>International version, I documentation in 5 la</li> </ul>	English label inscriptions,			2	
(no order code select					
Explosion protection		-			
• None				Α	
With ATEX, Type of pro					
- "Intrinsic safety (EEx				В	
<ul><li>- "Explosion-proof (EE</li><li>- "Intrinsic safety and</li></ul>				D P	
(EEx ia + EEx d) <sup>6)</sup>	nameproor enclosure				
- "Ex nA/nL"				E R	
- "Intrinsic safety, expl	- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d +				
Zone 1D/2D) <sup>"6)</sup> (not	for DS III FF)				
• With FM + CSA, Type	of protection:				
- "Intrinsic Safe und E	xplosion Proof (is + xp)"5)			NC	
Electrical connection/	cable entry				
Screwed gland M20 x				В	
<ul> <li>Screwed gland ½-14</li> <li>M12 connectors (metricle)</li> </ul>				C	
M12 connectors (meta-	مار <u>'</u>			F	

Selection and Ordering data	Order No.
For absolute pressure (from the gauge pressure series)	
SITRANS P DS III with PROFIBUS PA (PA)	7MF4234-
SITRANS P DS III with FOUNDATION Fieldbus F (FF)	7MF4235-
Display	
Without display	0
<ul> <li>Without visible display (display concealed, setting: mA)</li> </ul>	1
<ul> <li>With visible display</li> </ul>	6
<ul> <li>with customer-specific display (setting as specified, Order Code "Y21" or "Y22" required)</li> </ul>	7

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- 1) For oxygen application, add Order code E10.
- $^{2)}\,$  Version 7MF4233-1DY... only up to max. span 200 mbar a (2.9 psia).
- 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) Without cable gland, with blanking plug.
- 6) With enclosed cable gland EEx ia and blanking plug.
- 7) M12 delivered without cable socket
- F) Subject to export regulations AL: 91999, ECCN: N.

# Transmitters for general requirements

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

Selection and Ordering data	Order code				
Further designs	HART PA F				
Add "-Z" to Order No. and specify Order Code.					
Pressure transmitter with mounting bra-					
cket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:					
• Steel	A01	✓	✓	✓	
Stainless steel	A02	✓	✓	✓	
Plug	400				
<ul><li>Han 7D (metal, gray)</li><li>Han 8U (instead of Han 7D)</li></ul>	A30 A31	1			
• Angled	A32	1			
Han 8D (metal, gray)	A33	✓			
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓	
Rating plate inscription (instead of German)	<b>D</b> 44			,	
English     French	B11 B12	1	<b>✓</b>	<b>✓</b>	
• Spanish	B13	1	1	1	
• Italian	B14	✓	✓	✓	
English rating plate	B21	✓	✓	✓	
Pressure units in inH <sub>2</sub> 0 and/or psi	011				
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2 <sup>1)</sup>	C11	<b>~</b>	✓	✓	
Inspection certificate <sup>2)</sup>	C12	✓	✓	✓	
Acc. to EN 10204-3.1	014		./	./	
<b>Factory certificate</b> Acc. to EN 10204-2.2	C14	•	•	•	
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓			
PROFIsafe certificate and protocol	C21		✓		
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	✓			
Device passport Russia (For price request please contact the technical support	C99	✓	✓	✓	
www.siemens.com/automation/support-request)					
Setting of upper limit of output signal to 22.0 mA	D05	✓			
Manufacturer's declaration acc. to NACE	D07	1	✓	✓	
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓	
Supplied with oval flange	D37	✓	✓	✓	
(1 item), PTFE packing and screws in thread of oval flange					
Use in or on zone 1D/2D	E01	✓	✓	✓	
(only together with type of protection "Intrinsic safety (EEx ia)")					
Oxygen application	E10	1	1	1	
(In the case of oxygen measurement and inert liquid max. 120 bar a (1740 psia) at 60°C					
(140 °F))					
Export approval Korea	E11	1	✓	✓	
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25	✓	✓	✓	
(only for transmitter 7MF4B)	<b>F</b> 00		,	,	
Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil) (only for transmitter 7MF4D)	<b>⊏</b> ∠6	•	•	•	
(0, .0. (101101111001 / IVII TD)	E28	1	1		
•					
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)					
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E45	1	✓	1	
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E45	✓	✓	✓	

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B)	E55	<b>√</b>	1	1
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	1
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Additional data				
Please add "-Z" to Order 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	✓		
Stainless steel tag plate (measuring point description)  Max. 16 characters, specify in plain text: Y15:	Y15	<b>✓</b>	✓	✓
Measuring point text  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	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 $H_2O^*$ ), $inH_2O^*$ ), $ftH_2O^*$ ), $mmHG$ , $inHG$ , $psi$ , $Pa$ , $kPa$ , $MPa$ , $g/cm^2$ , $kg/cm^2$ , $Tor$ , $ATM$ or $\%$				
Setting of pressure indication in non-pressure units <sup>3</sup> ) Specify in plain text: Y22: up to I/min, m <sup>3</sup> /h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01	1		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	

Factory mounting of valve manifolds, see accessories.

Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset

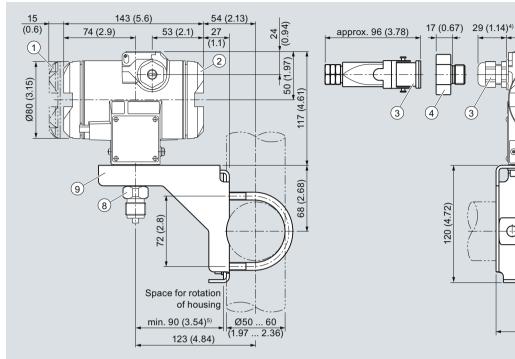
✓ = available

- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 2) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 3) Preset values can only be changed over SIMATIC PDM.

## Transmitters for general requirements

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

#### Dimensional drawings



- 1 Electronic side, digital display (longer overall length for cover with window)1)
- 2 Terminal side<sup>1)</sup>
- 3 Electrical connection: Screwed gland Pg 13,5 (adapter)(Adapter)<sup>2)3)</sup>, Screwed gland M20 x 1,5 or Screwed gland  $\frac{1}{2}$ -14 NPT or Han 7D/Han 8D2)3)plug
- 4 Harting adapter
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "Explosion-proof enclosure" Not with type of protection "FM + CSA" [IS + XP]"
- For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
- 5) Minimum distance for rotating

- 5 Protective cover over keys
- 6 Blanking plug
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- Process connection: Connection shank G½A or Oval flange

 $\oplus$ 

105 (4.13)

84 (3.31)

(6)

 $\oplus$ 

176 (6.93)

237 (9.33)

Mounting bracket (option)

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

Pressure Measurement
Transmitters for general requirements
SITRANS P DS III for absolute pressure
(from differential pressure series)

## Technical specifications

	the differential pressu	ile selles)			
	HART		PROFIBUS PA and F	OUNDATION Fieldbus	
Input					
Measured variable		Absolute	pressure		
Spans (infinitely adjustable) or nominal measuring range and max. permissible operating pressure	Span (min max.)	Maximum operating pressure	Nominal measuring range	Maximum operating pressure	
	8.3 250 mbar a (0.12 3.62 psia)	32 bar a (464 psia)	250 mbar a (3.62 psia)	32 bar a (464 psia)	
	43 1300 mbar a (0.62 18.85 psia)	32 bar a (464 psia)	1300 bar a (18.85 psia)	32 bar a (464 psia)	
	160 5000 mbar a (2.32 72.52 psia)	32 bar a (464 psia)	5 bar a (72.5 psia)	32 bar a (464 psia)	
	1 30 bar a (14.5 435 psia)	160 bar a (2320 psia)	30 bar a (435 psia)	160 bar a (2320 psia)	
	5.3 100 bar a (76.9 1450 psia)	160 bar a (2320 psia) (for connection thread M10 and 7/16-20 UNF in the process flanges)	100 bar a (1450 psia)	160 bar a (2320 psia) (for connection thread M10 and 7/16-20 UNF in the process flanges	
Lower measuring limit		1			
Measuring cell with silicone oil filling		0 mbar a	a (0 psia)		
Upper measuring limit		100 % of	max. span		
Output			·		
Output signal	4 20 mA  Digital PROFIBUS PA and FOUNDATION Fieldbus signal				
Lower limit (infinitely adjustable)	3.55 mA, factory prese	t 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	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$ : Power supply in V	23 A in Ω,			
• With HART	$R_{\rm B} = 230 \dots 500 \Omega$ (SII $R_{\rm B} = 230 \dots 1100 \Omega$ (H				
Physical bus	-		IEC 61158-2		
Protection against polarity reversal	Protected against shor	t-circuit and polarity rever supply	rsal. Each connection a voltage.	gainst the other with max	
Measuring accuracy		Acc. to IE	C 60770-1		
Reference conditions (All error data refer always refer to the set span)		tic, start-of-scale value 0 l emperature 25 °C (77 °F))			
Error in measurement at limit setting incl. hysteresis and reproducibility					
Linear characteristic			≤ 0.1 %		
- r ≤ 10	≤ 0.1 %				
- 10 < r ≤ 30	≤ 0.2 %				
Long-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.1 · r) %/year		≤ 0.1 %/year		
Influence of ambient temperature					
• at -10 +60 °C (14 140 °F)	$\leq (0.1 \cdot r + 0.2) \%^{1)}$		≤ 0.3 %		
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	$\leq$ (0.1 · r + 0.15) %/10	K	≤ 0.25 %/10 K		
Measured Value Resolution	-		3 · 10 <sup>-5</sup> of nominal me	asuring range	

Pressure Measurement
Transmitters for general requirements
SITRANS P DS III for absolute pressure
(from differential pressure series)

SITRANS P, DS III for absolute pressure (from the differential pressure series)		
	HART	PROFIBUS PA and FOUNDATION Fieldbus
Rated conditions		
Degree of protection (to IEC 60529)	IP65, optional IP68	
Temperature of medium		
Measuring cell with silicone oil filling	-40 +100 °C	(-40 +212 °F)
<ul> <li>Measuring cell with inert filling liquid</li> </ul>	-20 +100 °C	C (-4 +212 °F)
• In conjunction with dust explosion protection	-20 +60 °C (-4 +140 °F)	
Ambient conditions		
Ambient temperature		
- 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 EN 61326 and NAMUR NE 21	
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	
<ul> <li>Process flanges and sealing screw</li> </ul>	Stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4610 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 120 bar a) (1740 psia) at 60 °C (140 °F))	
Process connection	$^{1}\!\!4$ -18 NPT and flange connection with mounting thread M10 to DIN 19213 or $^{7}\!/_{16}$ -20 UNF to IEC 61518	
Material of mounting bracket		
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plated	
Stainless steel	Sheet stainless steel, mat. no. 1.4301 (SS 304)	
Power supply $U_{H}$		Supplied through bus
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-
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

Pressure Measurement
Transmitters for general requirements
SITRANS P DS III for absolute pressure
(from differential pressure series)

HART	PROFIBUS PA and FOUNDATION Fieldbus		
	group 1; complies with requirements of article 3, d engineering practice)		
PTB 99	ATEX 2122		
Ex II 1/2 G E	Ex ia/ib IIB/IIC T6		
-40 +70 °C (-40 +15	35 °F) temperature class T4; 58 °F) temperature class T5; 40 °F) temperature class T6		
To certified intrinsically-safe circuits with peak	FISCO supply unit:		
values: $U_i$ = 30 V, $I_i$ = 100 mA, $P_i$ = 750 mW; $P_i$ = 300 Ω	$U_0 = 17.5 \text{ V, } I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V, } I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$		
$L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$		
• •	ATEX 1160		
	EEx d IIC T4/T6		
	185 °F) temperature class T4; 140 °F) temperature class T6		
To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H} = 9 \dots 32  \rm V  DC$		
PTB 01	ATEX 2055		
Ex II 1 D IP65 T 120 °C Ex II 1/2 D IP65 T 120 °C			
-40 +85 °C	(-40 +185 °F)		
120 °C	C (248 °F)		
To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $P_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $P_0 = 1.2 \text{ W}$		
$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$		
PTB 01	ATEX 2055		
Ex II 2 D I	P65 T 120 °C		
To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W		
TÜV 01 ATEX 1696 X	Planned		
Ex II 3 G EEx nA L IIC T4/T5/T6	-		
Certificate of Co	ompliance 3008490		
	GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; T6; CL II, DIV 2, GP FG; CL III		
Certificate of Co	ompliance 1153651		
	EFG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD IIV 2, GP FG; CL III		
	For gases of fluid group 1 and liquids of fluid paragraph 3 (sound PTB 99)  Ex II 1/2 G EB  -40 +85 °C (-40 +18 -40 +70 °C (-40 +18 -40 +60 °C (-40 +18 -40 +60 °C (-40 +19 -40 +60 °C (-40 +19 -40 +85 °C -40 +18 -40 +60 °C (-40 +18 -		

 $<sup>^{1)}</sup>$  Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.08. r + 0.16) % / 28 °C (50 °F).

## Transmitters for general requirements

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

(iioiii diliciciitidi piessait	301103)
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	
<ul> <li>Adaptation to customer-speci- fic process variables</li> </ul>	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 war- ning 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 respec- tively
Physical block	1
Transducer blocks	2
Pressure transducer block	
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes
- Monitoring of sensor limits	Yes
- Specification of a container characteristic with	Max. 30 nodes
<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes
- Gradual volume suppression and implementation point of square-root extraction	Parameterizable
<ul> <li>Simulation function for measu- red pressure value and sensor temperature</li> </ul>	Constant value or over parameterizable ramp function

## FOUNDATION Fieldbus communication

Function blocks

- Analog input
  - Adaptation to customer-specific process variables
  - Electrical damping, adjustable
  - Simulation function
  - Failure mode
- Limit monitoring
- Square-rooted characteristic for flow measurement
- PID
- Physical block
   Transducer blocks
- Pressure transducer block
  - Can be calibrated by applying two pressures
  - Monitoring of sensor limits
- Simulation function: Measured pressure value, sensor temperature and electronics temperature

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 to 100 s

Output/input (can be locked within the device with a bridge)

parameterizable (last good value, substitute value, incorrect value)

Yes, one upper and lower warning limit and one alarm limit respectively

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block I CD

Yes

Yes

Constant value or over parameterizable ramp function

## Transmitters for general requirements

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

Selection and Ordering	g data		Ord	de	r١	VΩ		
Pressure transmitters	-	F)	7 N					
from differential press SITRANS P DS III with		.,						
Measuring cell filling	Measuring cell cleaning					Ī		
Silicone oil	normal		1					
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2		3					
Measuring span (min.	max.)							
8.3 250 mbar a	(0.12 3.62 psia)	E)	D					
43 1300 mbar a	(0.62 18.85 psia)	E)	F					
0.16 5 bar a	(2.32 72.5 psia)	E)	G					
1 30 bar a	(14.5 435 psia)		Н					
5.3 100 bar a	(76.9 1450 psia)		K	Ε				
<b>Wetted parts materials</b> Seal diaphragm	Parts of measuring cell							
Stainless steel	Stainless steel	-		Α				
Hastellov	Stainless steel			В				
Hastelloy	Hastelloy			C				
Tantalum	Tantalum			Ē				
Monel	Monel	E)		Н				
Gold	Gold			L				
Version for diaphragm s	seal <sup>2)3)4)</sup>	_		Y				
Process connection								
	T with flange connection	ı						
<ul> <li>Sealing screw opposit</li> </ul>								
- Mounting thread <sup>7</sup> / <sub>16</sub>	3				2			
- Mounting thread M1					0			
<ul><li>(only for replacement</li><li>Vent on side of process</li></ul>								
<ul> <li>Mounting thread <sup>7</sup>/<sub>16</sub></li> </ul>	-20 LINE to FN 61518				6			
<ul> <li>Mounting thread 716</li> <li>Mounting thread M1</li> </ul>					4			
(only for replacemen	nt requirement)							
Non-wetted parts mate process flange screws								
		_				_		
Stainless steel Stainless steel	Die-cast aluminum Stainless steel precision casting <sup>6)</sup>	n				3		
	casting*							
<b>Version</b> • Standard versions							1	
	English label inscriptions						2	
documentation in 5 la (no order code selecti	nguages on CD	',					_	
Explosion protection								
None	ata ati an						-	A
<ul> <li>With ATEX, Type of pre-</li> </ul>							II.	
<ul><li>- "Intrinsic safety (EEx</li><li>- "Explosion-proof (EE</li></ul>								3
- "Intrinsic safety and								,
(EEx ia + EEx d)" 8)	namoproor enclosure							
- "Ex nA/nL (Zone 2)"							E	≣
- "Intrinsic safety, expl	osion-proof enclosure an	d					F	₹
dust explosion prote Zone 1D/2D) <sup>(8)</sup>	ection (EEx ia+ EEx d +							
• With FM + CSA, Type	of protection:							
- "Intrinsic Safe und E	$x$ plosion Proof (is + $x$ p)" $\frac{1}{2}$	7)					١	١C
Electrical connection/								
<ul> <li>Screwed gland Pg 13</li> </ul>								Α
								В
<ul> <li>Screwed gland M20 x</li> </ul>								_
<ul> <li>Screwed gland M20 x</li> <li>Screwed gland ½-14</li> </ul>	NPT							С
<ul> <li>Screwed gland ½-14</li> <li>Han 7D plug (plastic l</li> </ul>	NPT							D
• Screwed gland 1/2-14	NPT nousing) incl. mating							

Selection and Ordering data	Order No.	
Pressure transmitters for absolute pressure from differential pressure series, SITRANS P DS III with HART	7 M F 4 3 3 3 -	
Display  • Without display  • Without visible display (display concealed, setting: mA)  • With visible display  • with customer-specific display (setting as specified, Order Code "Y21" or "Y22" required)		0 1 6 7

Power supply units see Chap. 8 "Supplementary Components".

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen applications, add Order code E10.
- <sup>2)</sup> Version 7MF4333-1DY... only up to max. span 200 mbar a (2.9 psia).
- 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.
- $^{
  m 4)}$  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.
- $^{5)}$  Not for span "5.3 ... 100 bar a (76.9 ... 1450 psia)". Position of the top vent valve in the process flange (see dimensional drawing).
- <sup>6)</sup> Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 7) Without cable gland, with blanking plug
- 8) With enclosed cable gland EEx ia and blanking plug
- $^{9)}\,$  Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 10)M12 delivered without cable socket
- E) Combinations of the versions marked with E) are subject to the export regulations AL: 2B230, ECCN: N.
- F) Subject to export regulations AL: 91999, ECCN: N.

## Transmitters for general requirements

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

`	<u>'</u>								
Selection and Orderin	g data		Or	de	r l	No	).		
Pressure transmitter f from differential press									
•	SITRANS P DS III with PROFIBUS PA (PA)			, =	1	2	2 /	١.	
SITRANS P DS III with (FF)	FOUNDATION Fieldbus	⊢)	7 N	ΛF	4	3	3 5	5 -	
(11)									
Measuring cell filling	Measuring cell					+	+	H	
	cleaning								
Silicone oil	normal		1						
Inert liquid <sup>1)</sup>	grease-free to		3						
	cleanliness level 2								
Nominal measuring ra	nge								
250 mbar a	(3.62 psia)	E)							
1300 mbar a	(18.85 psia)	E)	ı						
5 bar a	(72.5 psia)	E)	(						
30 bar a	(435 psia)		ŀ						
100 bar a	(1450 psia)		ľ	(E					
Wetted parts materials									
Seal diaphragm	Parts of measuring cell	_							
Stainless steel	Stainless steel			Α					
Hastelloy	Stainless steel			В					
Hastelloy	Hastelloy			С					
Tantalum	Tantalum			Ε					
Monel	Monel	E)		Н					
Gold	Gold			L					
Version as diaphragm s	eal 2)3)4)			Υ					
Process connection									
	T with flange connection								
<ul> <li>Sealing screw opposi</li> </ul>									
<ul> <li>Mounting thread <sup>1</sup>/<sub>10</sub></li> </ul>	<sub>3</sub> -20 UNF to IEC 61518				2				
- Mounting thread M1					0				
(only for replacement									
Vent on side of proces									
- Mounting thread '/10	<sub>3</sub> -20 UNF to IEC 61518				6				
<ul> <li>Mounting thread M1 (only for replacement</li> </ul>					4				
Non-wetted parts mate	erials								
process flange screws	Electronics housing	_							
Stainless steel	Die-cast aluminum					2			
Stainless steel	Stainless steel precision casting					3			
Version									
Standard versions							1		
	English label inscriptions,						2	2	
documentation in 5 la	nguages on CD								
(no order code select	able)								
Explosion protection									
• None								Α	
With ATEX, Type of pr									
- "Intrinsic safety (EEx	(ia)"							В	
"Lyplogion proof /EE	.va!"U)							D	
- "Explosion-proof (EE	flamman far i "							P	
- "Intrinsic safety and	flameproof enclosure"								
<ul> <li>"Intrinsic safety and (EEx ia + EEx d)" <sup>7)</sup></li> </ul>	flameproof enclosure"							E	
<ul> <li>"Intrinsic safety and (EEx ia + EEx d)" <sup>7)</sup></li> <li>"Ex nA/nL (Zone 2)"</li> </ul>	flameproof enclosure"	1						E	
<ul> <li>"Intrinsic safety and (EEx ia + EEx d)" <sup>7)</sup></li> <li>"Ex nA/nL (Zone 2)"</li> <li>"Intrinsic safety, expl</li> </ul>	flameproof enclosure" osion-proof enclosure and	i						E R	
<ul> <li>"Intrinsic safety and (EEx ia + EEx d)" <sup>7)</sup></li> <li>"Ex nA/nL (Zone 2)"</li> <li>"Intrinsic safety, expl</li> </ul>	flameproof enclosure"	i						_	
- "Intrinsic safety and (EEx ia + EEx d)" 7)  - "Ex nA/nL (Zone 2)"  - "Intrinsic safety, explosion prote Zone 1D/2D)" 7) (not  • With FM + CSA, Type	flameproof enclosure"  osion-proof enclosure and ection (EEx ia + EEx d + for DS III FF) of protection:							_	
- "Intrinsic safety and (EEx ia + EEx d)" 7)  - "Ex nA/nL (Zone 2)"  - "Intrinsic safety, explosion prote Zone 1D/2D)" 7) (not  • With FM + CSA, Type	flameproof enclosure" osion-proof enclosure and ection (EEx ia + EEx d + for DS III FF)							_	С
- "Intrinsic safety and (EEx ia + EEx d)" 7) - "Ex nA/nL (Zone 2)" - "Intrinsic safety, expl dust explosion protozone 1D/2D)" 7) (not • With FM + CSA, Type - "Intrinsic Safe und E	flameproof enclosure"  osion-proof enclosure and ection (EEx ia + EEx d + for DS III FF) of protection:  xplosion Proof (is + xp)" 6							R	С
- "Intrinsic safety and (EEx ia + EEx d)" 7) - "Ex nA/nL (Zone 2)" - "Intrinsic safety, expl dust explosion protozone 1D/2D)" 7) (not • With FM + CSA, Type - "Intrinsic Safe und E	flameproof enclosure"  osion-proof enclosure and ection (EEx ia + EEx d + for DS III FF) of protection: xplosion Proof (is + xp)" 6							R	С
- "Intrinsic safety and (EEx ia + EEx d)" 7) - "Ex nA/nL (Zone 2)" - "Intrinsic safety, expl dust explosion protozone 1D/2D)" 7) (not 2 one 1D/2D)" 7) (not - "Intrinsic Safe und E	flameproof enclosure"  osion-proof enclosure and ection (EEx ia + EEx d + for DS III FF) of protection: xplosion Proof (is + xp)" 6  cable entry 1.5  NPT							R	

Selection and Ordering data		Order No.	
Pressure transmitter for absolute pressure from differential pressure series			
SITRANS P DS III with PROFIBUS PA (PA)	F)	7 M F 4 3 3 4 -	
SITRANS P DS III with FOUNDATION Fieldbus (FF)	F)	7 M F 4 3 3 5 -	
Display			
Without display		0	
Without visible display	$\blacktriangleright$	1	
(display concealed, setting: mA)			
<ul> <li>With visible display</li> </ul>		6	
<ul> <li>With customer-specific display (setting as specified, Order Code "Y21" required)</li> </ul>		7	

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- $^{2)}\,$  Version 7MF4334-1DY... only up to max. span 200 mbar a (2.9 psia).
- 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) Not for nominal measuring range 100 bar a (1450 psia). Position of the top vent valve in the process flange (see dimensional drawing).
- 6) Without cable gland, with blanking plug
- 7) With enclosed cable gland EEx ia and blanking plug
- 8) M12 delivered without cable socket
- E) Combinations of the versions marked with E) are subject to the export regulations AL: 2B230, ECCN: N.
- F) Subject to export regulations AL: 91999, ECCN: N.

## Transmitters for general requirements SITRANS P DS III for absolute pressure (from differential pressure series)

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Pressure transmitter with mounting bra-				
cket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:				
• Steel	A01	✓	✓	✓
Stainless steel	A02	✓	✓	✓
O-rings for process flanges				
(instead of FPM (Viton))	A 20	./	./	./
<ul><li>PTFE (Teflon)</li><li>FEP (with silicone core, approved for food)</li></ul>	A20 A21	<b>V</b>	<b>V</b>	<b>*</b>
• FFPM (Kalrez, compound 4079)	A22	1	1	1
• NBR (Buna N)	A23	✓	✓	✓
plug				
Han 7D (metal, gray)     Han 7D (instead of Han 7D)	A30 A31	1		
<ul><li>Han 8U (instead of Han 7D)</li><li>Angled</li></ul>	A32	1		
Han 8D (metal, gray)	A33	1		
Sealing screw	A40	1	1	1
1/4-18 NPT, with valve in mat. of process flanges				
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription				
(instead of German)	B11	1	1	,
English     French	B12	1	<b>*</b>	<b>V</b>
• Spanish	B13	✓	✓	✓
Italian	B14	✓	✓	✓
English rating plate	B21	✓	✓	✓
Pressure units in inH <sub>2</sub> 0 and/or psi				
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2 <sup>1)</sup>	C11	✓	✓	✓
Inspection certificate <sup>2)</sup> Acc. to EN 10204-3.1	C12	✓	✓	1
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓		
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	✓		
Device passport Russia (For price request please contact the technical	C99	✓	✓	1
support www.siemens.com/automation/support-request)				
Setting of upper limit of	D05	1		
output signal to 22.0 mA				
Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)	D07	~	✓	✓
Degree of protection 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	✓	✓	✓
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	✓	✓	✓
Oxygen application (In the case of oxygen measurement and inert liquid max. 120 bar a (1740 psia) at 60°C (140 °F))	E10	1	✓	✓
Export approval Korea	E11	1	✓	1
Explosion-proof "Intrinsic safety" (Ex ia) to	E25	1	✓	1
INMETRO (Brazil)				

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil) (only for transmitter 7MF4D)	E26	1	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28	✓	✓	
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)	E45	✓	✓	✓
<b>Ex Approval IEC Ex (EEx id)</b> (only for transmitter 7MF4D)	E46	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B)	E55	✓	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4	E57	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Interchanging of process connection side	H01	✓	1	✓
Vent on side for gas measurements	H02	✓	✓	✓
Process flange  Hastelloy  Monel  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	K01 <sup>F)</sup> K02 <sup>F)</sup> K04 <sup>F)</sup>	* * *	<b>✓ ✓</b>	√ √ √

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.

pective remote seals.

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

Transmitters for general requirements
SITRANS P DS III for absolute pressure
(from differential pressure series)

Selection and Ordering data Order of				
Additional data		HART	PA	FF
Please add "-Z" to Order 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 (measuring point description) Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text 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	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 <sub>2</sub> O <sup>*</sup> ), inH <sub>2</sub> O <sup>*</sup> ), ftH <sub>2</sub> O <sup>*</sup> ), mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units <sup>3)</sup> Specify in plain text: Y22: up to I/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01	<b>√</b>		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	

Factory mounting of valve manifolds, see accessories.

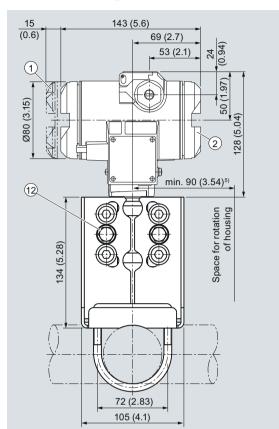
Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset

✓ = available

## Transmitters for general requirements

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

#### Dimensional drawings



- 1 Electronic side, digital display (longer overall length for cover with window)<sup>1)</sup>
- (2) Terminal side<sup>1)</sup>
- 3 Electrical connection: Screwed gland Pg 13,5 (adapter)(Adapter)<sup>2) 3)</sup>, Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/ Han 8D<sup>2) 3)</sup> plug
- 4 Harting adapter
- 5 Protective cover over keys
- 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) For Pg 13,5 with adapter approx. 45 mm (1.77 inch)

29 84 (3.31) (3) (6.54)166 ( (8) 262 (10.3) (9) (10) (3.8)52 (2.05) 96 17 (0.67) approx. 96 (3.78) **(4**) 68 (2.7) 120 (4.7)

- 6 Blanking plug
- 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: 1/4-18 NPT (IEC 61518)

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

# Pressure Measurement Transmitters for general requirements SITRANS P DS III for differential pressure and flow

### Technical specifications

Technical specifications				
SITRANS P, DS III for differential pressure and				
	HART		PROFIBUS PA and	FOUNDATION Fieldbus
Input Management and in the second of the se		D:#ti-l		
Measured variable	0 ( :		ressure and flow	laa ·
Spans (infinitely adjustable) or nominal measuring range and max. permissible operating pressure	Span (min max.)	Maximum operating pressure	Nominal measuring range	Maximum operating pressure
	1 20 mbar (0.4 8 inH <sub>2</sub> O)	32 bar (464 psi)	20 mbar (8 inH <sub>2</sub> O)	32 bar (464 psi)
	1 60 mbar (0.4 24 inH <sub>2</sub> O)	160 bar (2320 psi)	60 mbar (24 inH <sub>2</sub> O)	160 bar (2320 psi)
	2.5 250 mbar (1 100 inH <sub>2</sub> O)		250 mbar (100 inH <sub>2</sub> O)	
	6 600 mbar (2.4 240 inH <sub>2</sub> O)		600 mbar (240 inH <sub>2</sub> O)	
	16 1600 mbar (6.4 642 inH <sub>2</sub> O)		1600 mbar (642 inH <sub>2</sub> O)	
	50 5000 mbar (20 2000 inH <sub>2</sub> O)		5 bar (2000 inH <sub>2</sub> O)	
	0.3 30 bar (4.35 435 psi)		30 bar (435 psi)	
	2.5 250 mbar (1 100 inH <sub>2</sub> O)	420 bar (6091 psi)	250 mbar (100 inH <sub>2</sub> O)	420 bar (6091 psi)
	6 600 mbar (2.4 240 inH <sub>2</sub> O)		600 mbar (240 inH <sub>2</sub> O)	
	16 1600 mbar (6.4 642 inH <sub>2</sub> O)		1600 mbar (642 inH <sub>2</sub> O)	
	50 5000 mbar (20 2000 inH <sub>2</sub> O)		5 bar (2000 inH <sub>2</sub> O)	
	0.3 30 bar (4.35 435 psi)		30 bar (435 psi)	
Lower measuring limit				
Measuring cell with silicone oil filling	-100 % of max. spa	n (-33 % with 30 bar (43	5 psi) measuring cell o	r 30 mbar a (0.44 psia))
Upper measuring limit	100 % of max. spa	an (for oxygen version ar	nd inert filling liquid; ma	ax. 120 bar (1740 psi))
Output				
Output signal	4 20 mA		Digital PROFIBUS PA FOUNDATION Fields	
Lower limit (infinitely adjustable)	3.55 mA, factory prese		-	
Upper limit (infinitely adjustable)	23 mA, factory preset t set to 22.0 mA	o 20.5 mA or optionally	-	
Load  Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5  \rm V)/0.02$	23 A in $\Omega$ ,	-	
• With HART	$U_{H}$ : Power supply in V $R_{B} = 230 \dots 500 \Omega$ (SII)		-	
Physical bus	$R_{\rm B} = 230 \dots 1100 \Omega  ({\rm Hz})$	Ant Communicator)	IEC 61158-2	
Protection against polarity reversal	Protected against shor			against the other with max.
Measuring accuracy			EC 60770-1	
Reference conditions (All error data refer always refer to the set span)			bar, stainless steel sea	al diaphragm, silicone oil fil span / set span)
Error in measurement at limit setting incl. hysteresis and reproducibility		. "		
Linear characteristic			≤ 0.075 %	
- r ≤ 10	$\leq (0.0029 \cdot r + 0.071) \%$			
- 10 < r ≤ 30 - 30 < r ≤ 100	$\leq$ (0.0045 · r + 0.071) % $\leq$ (0.005 · r + 0.05) %	6		
	= (0.000 · I + 0.00) /			
			< 0.1 %	
• Square-rooted characteristic (flow > 50 %) - r ≤ 10	≤ 0.1 %		≤ 0,1 %	

# Pressure Measurement Transmitters for general requirements SITRANS P DS III for differential pressure and flow

SITRANS P, DS III for differential pressure and	HART	PROFIBUS PA and FOUNDATION Fieldbus		
Square-rooted characteristic	HARI	≤ 0.2		
(flow > 25 50 %)		≤ 0.2		
- r ≤ 10	≤ 0.2 %			
- 10 < r ≤ 30	≤ 0.4 %			
Long-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.25 · r)% every 5 years static pressure max. 70 bar (1015 psi)	≤ 0.25 % every 5 years static pressure max. 70 bar (1015 psi)		
20 mbar (0.29 psi)-measuring cell	≤ (0.2 · r) per year	≤ 0.2 per year		
• 250, 600, 1600 and 5000 mbar (0.29, 0.87, 2.32 and 7.25 psi) -measuring cell	≤ (0.125 · r) per 5 years	≤ 0.125 per 5 years		
nfluence of ambient temperature				
• at -10 +60 °C (14 140 °F)	$\leq$ (0.08 · r + 0.1) % <sup>1)</sup>	≤ 0.3 %		
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	$\leq$ (0.1 · r + 0.15) %/10 K (Twice the value with 20-mbar (0.29 psi) measuring cell)	≤ 0.25 %/10 K		
nfluence of static pressure				
on the zero point (PKN)	≤ (0.15 · r)% per 70 bar (1015 psi)	≤ 0.15 % per 70 bar (1015 psi)		
- 20 mbar (0.29 psi)-measuring cell	≤ (0.15 · r)% per 32 bar (464 psi)	≤ 0.15 % per 32 bar (464 psi)		
on the span (PKS)	≤ 0.14 % per 70 bar (1015 psi)			
- 20 mbar (0.29 psi)-measuring cell	≤ 0.2 % per 32 bar (464 psi)	-		
Measured Value Resolution	-	3 · 10 <sup>-5</sup> of nominal measuring range		
Rated conditions				
Degree of protection (to EN 60529)	IP65, op	otional IP68		
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	· · · · · · · · · · · · · · · · · · ·			
Ambient conditions	20 100 0 (1 1110 1)			
Ambient temperature				
- Display readable	-30 +85 °C	(-22 +185 °F)		
Storage temperature	-50 +85 °C	(-58 +185 °F)		
Climatic class		,		
- Condensation		idity 0 100 % suitable for use in the tropics		
Electromagnetic Compatibility				
- Emitted interference and interference immunity	Acc. to EN 61326	and NAMUR NE 21		
Design				
Weight (without options)	≈ 4.5 kg	ı (≈ 9.9 (lb)		
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or	stainless steel precision casting, mat. no. 1.440		
Wetted parts materials				
• Seal diaphragm		oy C276, mat. no. 2.4819, Monel, mat. no. 2.436 m or gold		
Measuring cell filling		re with oxygen measurement pressure 120 bar a tt 60 °C (140 °F))		
Process connection	Female thread $1/4$ -18 NPT and flange connector $^{7/}\mathrm{16}$ -20 UNF	tion with mounting thread M10 to DIN 19213 or to IEC 61518		
Material of mounting bracket				
• Steel	Sheet-steel, Mat. No.	1.0330, chrome-plated		
Stainless steel	Sheet stainless steel,	mat. no. 1.4301 (SS 304)		
Power supply <i>U</i> <sub>H</sub>		Supplied through bus		
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode			
Separate 24 V power supply necessary	-	No		
Bus voltage				
• Not Ex	-	9 32 V		
With intrinsically-safe operation	_	9 24 V		

Pressure Measurement
Transmitters for general requirements
SITRANS P DS III
for differential pressure and flow

SITRANS P, DS III for differential pressure and	i flow		
	HART	PROFIBUS PA and FOUNDATION Fieldbus	
Power supply U <sub>H</sub> (Continuation)			
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	
Certificates and approvals			
Classification according to PED 97/23/EC			
PN 32/160 (MAWP 464/2320 psi)		group 1; complies with requirements of article 3, engineering practice)	
PN 420 (MAWP 6092 psi)	For gases of fluid group 1 and liquids of fluid group 1; complies with basic safety requirements Article 3, paragraph 1 (appendix 1); assigned to category III, conformity evaluation module H the TÜV Nord.		
Explosion protection			
Intrinsic safety "i"	PTB 99 A	ATEX 2122	
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +70 °C (-40 +158 °F) temperature class T5; -40 +60 °C (-40 +140 °F) temperature class T6		
- Connection	To certified intrinsically-safe circuits with peak values:	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$	
	$U_{\rm i} = 30 \text{ V}, I_{\rm i} = 100 \text{ mA},  P_{\rm i} = 750 \text{ mW}; R_{\rm i} = 300 \Omega$	Linear barrier: $U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$	
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH}, \; C_{\rm i} = 6  {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$	
• Explosion-proof "d"	PTB 99 A	ATEX 1160	
- Marking	Ex II 1/2 G El	Ex d IIC T4/T6	
- Permissible ambient temperature	-40 +85 °C (-40 +185 -40 +60 °C (-40 +14	5 °F) temperature class T4; 0 °F) temperature class T6	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC	
Dust explosion protection for zone 20	PTB 01 A	ATEX 2055	
- Marking		<sup>2</sup> 65 T 120 °C P65 T 120 °C	
- Permissible ambient temperature	-40 +85 °C (	(-40 +185 °F)	
- Max. surface temperature	120 °C	(248 °F)	
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i} = 30 \ {\rm V}, \ I_{\rm i} = 100 \ {\rm mA},$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$	
	$P_{\rm i} = 750 \text{ mW}, R_{\rm i} = 300 \Omega$	Linear barrier: $U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$	
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH},  C_{\rm i} = 6  {\rm nF}$	$L_{\rm i} = 7  \mu \text{H},  C_{\rm i} = 1.1  \text{nF}$	
Dust explosion protection for zone 21/22		ATEX 2055	
- Marking		265 T 120 °C	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W	
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned	
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	-	
• Explosion protection acc. to FM		mpliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 2, GP ABCD T4T	GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; T6; CL II, DIV 2, GP FG; CL III	
Explosion protection to CSA	Certificate of Cor	mpliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP EF T4T6; CL II, DIV	FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCI V 2, GP FG; CL III	

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

## Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

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 opera- tion (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	
<ul> <li>Adaptation to customer-speci- fic process variables</li> </ul>	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 war- ning 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 respec- tively
Physical block	1
Transducer blocks	2
Pressure transducer block	
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes
- Monitoring of sensor limits	Yes
<ul> <li>Specification of a container characteristic with</li> </ul>	Max. 30 nodes
- Square-rooted characteristic for flow measurement	Yes
<ul> <li>Gradual volume suppression and implementation point of square-root extraction</li> </ul>	Parameterizable
<ul> <li>Simulation function for measu- red pressure value and sensor temperature</li> </ul>	Constant value or over parameterizable ramp function

## FOUNDATION Fieldbus communication

Function blocks

- Analog input
  - Adaptation to customerspecific process variables
  - Electrical damping, adjustable
  - Simulation function
  - Failure mode
- Limit monitoring
- Square-rooted characteristic for flow measurement
- PID
- Physical block
   Transducer blocks
- Pressure transducer block
- Can be calibrated by applying two pressures
- Monitoring of sensor limits
- Simulation function: Measured pressure value, sensor temperature and electronics temperature

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

Output/input (can be locked within the device with a bridge)

parameterizable (last good value, substitute value, incorrect value)

Yes, one upper and lower warning limit and one alarm limit respectively

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

## Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Ordering data					No	).		
SITRANS P DS III with HART pressure trans-			7 M	F	14	3 3	-	
mitters for differential PN 32/160 (MAWP 464/	pressure and flow, '2320 psi)		r		۱	-	Ŧ	
Measuring cell filling	Measuring cell							
Silicone oil	cleaning normal		1					
Inert liquid <sup>1)</sup>	grease-free to		3					
men nquiu	cleanliness level 2		3					
Measuring span (min.	max.)							
PN 32 (MAWP 464 psi) 1 20 mbar <sup>2)</sup>	(0.4015 8.03 inH <sub>2</sub> O)	<b></b>	В					
PN 160 (MAWP 2320 ps	si)							
1 60 mbar	(0.4015 24.09 inH <sub>2</sub> O)	<b>&gt;</b>	С					
2,5 250 mbar	(1.004 100.4 inH <sub>2</sub> O)	$\blacktriangleright$	D					
6 600 mbar	(2.409 240.9 inH <sub>2</sub> O)	<b>&gt;</b>	E					
16 1600 mbar	(6.424 642.4 inH <sub>2</sub> O)	<b>&gt;</b>	F					
50 5000 mbar	(20.08 2008 inH <sub>2</sub> O)	$\blacktriangleright$	G					
0,3 30 bar	(4.35 435 psi)	▶	Н					
Wetted parts materials	}							
(stainless steel process								
Seal diaphragm	Parts of measuring cell							
Stainless steel	Stainless steel	•		Α				
Hastelloy	Stainless steel			В				
Hastelloy	Hastellov			c				
Tantalum <sup>3)</sup>	Tantalum			E				
Monel <sup>3)</sup>	Monel			Н				
Gold <sup>3)</sup>	Gold			L				
Version for diaphragm s				Υ				
Process connection								
	T with flange connection							
Sealing screw opposit	•							
	<sub>3</sub> -20 UNF to IEC 61518	•			2			
- Mounting thread M1					5			
(only for replacemen				ľ				
<ul> <li>Vent on side of proces</li> </ul>	ss flange <sup>2)</sup>							
<ul> <li>Mounting thread <sup>7</sup>/<sub>16</sub></li> </ul>	<sub>3</sub> -20 UNF to IEC 61518			(	3			
<ul> <li>Mounting thread M1</li> </ul>				4	1			
(only for replacemen	it requirement)							
Non-wetted parts mate								
process flange screws	Electronics housing	_						
Stainless steel	Die-cast aluminum	▶			2			
Stainless steel	Stainless steel precision				3			
	casting <sup>6)</sup>							
Version								
Standard versions						1		
	English label inscriptions,	•				2		
documentation in 5 lar (no order code selecta								
Explosion protection								
None							Α	
With ATEX, Type of pro	otection:						^	
- "Intrinsic safety (EEx							В	
- "Explosion-proof (EE							D	
- "Intrinsic safety and							P	
(EEx ia + EEx d)"8)	namoproor onologare							
- "Ex nA/nL (Zone 2)"							E	
- "Intrinsic safety, expl	osion-proof enclosure and	<b></b>					R	
dust explosion prote	ction (EEx ia+ EEx d +							
Zone 1D/2D)" <sup>6)</sup>								
• With FM + CSA, Type	of protection:							
- "Intrinsic Safe und E	xplosion Proof (is + xp)" <sup>7)</sup>						NC	

Selection and Ordering data	Order No.
SITRANS P DS III with HART pressure transmitters for differential pressure and flow, PN 32/160 (MAWP 464/2320 psi)	7 M F 4 4 3 3 -
Electrical connection/cable entry  • Screwed gland Pg 13.5 <sup>9)</sup> • Screwed gland M20 x 1.5  • Screwed gland ½-14 NPT  • Han 7D plug (plastic housing) incl. mating connector <sup>9)10)</sup> • M12 connectors (metal) <sup>11)</sup>	A B C D
Display  • Without display  • Without visible display (display concealed, setting: mA)  • With visible display  • with customer-specific display (setting as specified, Order Code "Y21" or "Y22" required)	0 1 6 7

Available ex stock

Power supply units see Chap. 8 "Supplementary Components".

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- 2) Not suitable for connection of remote seal. Position of the top vent valve in the process flange (see dimensional drawing).
- $^{3)}$  Not in conjunction with max. span 20 and 60 mbar (8.03 und 24.09 inH $_2$ O))
- 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) Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 7) Without cable gland, with blanking plug
- 8) With enclosed cable gland EEx ia and blanking plug
- 9) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- $^{10)}\mbox{Permissible}$  only for crimp-contact of conductor cross-section 1  $\mbox{mm}^2$
- <sup>11)</sup>M12 delivered without cable socket. Not for Ex version "Explosion-Proof".

## Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Ordering data			er No.		
	Pressure transmitters for differential pressure and flow PN 32/160 (MAWP 464/2320 psi)				
SITRANS P DS III with PROFIBUS PA (PA)		7MF4434-			
SITRANS P DS III with FOUNDATION Fieldbus		7 M F 4 4 3 5 -			
(FF)					
Measuring cell filling	Measuring cell cleaning				
Silicone oil	normal	1			
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3			
Nominal measuring ra	nge				
PN 32 (MAWP 464 psi) 20 mbar <sup>2)</sup>	(8.03 inH <sub>2</sub> O)	В			
PN 160 (MAWP 2320 ps	si)				
60 mbar	(24.09 inH <sub>2</sub> O)	С			
250 mbar 600 mbar	(100.4 inH <sub>2</sub> O) (240.9 inH <sub>2</sub> O)	D E			
1600 mbar	(642.4 inH <sub>2</sub> O)	F			
5 bar	(2008 inH <sub>2</sub> O)	G			
30 bar	(435 psi)	Н			
Wetted parts materials					
(stainless steel process Seal diaphragm	flanges) Parts of measuring cell				
Stainless steel	Stainless steel	Δ			
Hastelloy	Stainless steel	Е	3		
Hastelloy	Hastelloy	C			
Tantalum 3)	Tantalum	E			
Monel <sup>3)</sup> Gold <sup>3)</sup>	Monel Gold	H			
Version as diaphragm s		Y			
Sealing screw opposition     Mounting thread 7/16     Mounting thread M1 (only for replacement)     Venting on side of products.	s-20 UNF to IEC 61518 0 to DIN 19213 1t requirement) cess flanges <sup>2)</sup> s-20 UNF to IEC 61518 0 to DIN 19213		2 0 6 4		
Non-wetted parts mate process flange screws					
Stainless steel	Die-cast aluminum		2		
Stainless steel	Stainless steel precision casting		3		
Version					
<ul> <li>Standard versions</li> <li>International version, documentation in 5 la (no order code select</li> </ul>			1 2		
Explosion protection					
• None			A		
With ATEX, Type of pro					
<ul><li>"Intrinsic safety (EEx</li><li>"Explosion-proof (EE</li></ul>			В		
	,		D		
(EEx ia + EEx d)" <sup>7)</sup>	flameproof enclosure"		P		
- "Ex nA/nL (Zone 2)"	anian munof an -l		E		
dust explosion prote Zone 1D/2D)" <sup>7)</sup> (not	osion-proof enclosure and ection (EEx ia + EEx d + for DS III FF)		R		
<ul> <li>With FM + CSA, Type</li> <li>"Intrinsic Safe und E</li> </ul>	of protection: xplosion Proof (is + xp)" <sup>6)</sup>		N C		

Selection and Ordering data	Order No.		
Pressure transmitters for differential pressure and flow PN 32/160 (MAWP 464/2320 psi)			
SITRANS P DS III with PROFIBUS PA (PA)	7MF4434-		
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 4 3 5 -		
			i
Electrical connection/cable entry  • Screwed gland M20 x 1.5  • Screwed gland ½-14 NPT  • M12 connectors (metal) <sup>8)</sup>	B C F		
Display  Without display  Without visible display (display concealed, setting: mA)  With visible display  With visible display  With customer-specific display (setting as specified, Order Code "Y21" required)		0 1 6 7	
Available ex stock			i

- Included in delivery of the device:

   Brief instructions (Leporello)

   CD-ROM with detailed documentation

   Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- 2) Not suitable for connection of remote seal. Position of the top vent valve in the process flange (see dimensional drawing).
- $^{3)}$  Not in conjunction with max. span 20 and 60 mbar (8.03 und 24.09 inH<sub>2</sub>O))
- 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) Without cable gland, with blanking plug.
- 7) With enclosed cable gland EEx ia and blanking plug.
- 8) M12 delivered without cable socket

## Transmitters for general requirements

SITRANS P DS III
for differential pressure and flow

Further designs Add "-Z" to Order No. and specify Order Code.  Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of: • Steel • Stainless steel  O-rings for process flanges (instead of FPM (Viton)) • PTFE (Teflon) • FEP (with silicone core, approved for food) • FFPM (Kalrez, compound 4079) • NBR (Buna N)  plug • Han 7D (metal, gray) • Han 8U (instead of Han 7D)	A01 A02 A20 A21 A22 A23 A30 A31	HART	PA	FF
Add "-Z" to Order No. and specify Order Code.  Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:  • Steel • Stainless steel  O-rings for process flanges (instead of FPM (Viton)) • PTFE (Teflon) • FEP (with silicone core, approved for food) • FFPM (Kalrez, compound 4079) • NBR (Buna N)  plug • Han 7D (metal, gray) • Han 8U (instead of Han 7D)	A20 A21 A22 A23 A30	* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * * * * * * *
Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:  • Steel • Stainless steel  O-rings for process flanges (instead of FPM (Viton)) • PTFE (Teflon) • FEP (with silicone core, approved for food) • FFPM (Kalrez, compound 4079) • NBR (Buna N)  plug • Han 7D (metal, gray) • Han 8U (instead of Han 7D)	A20 A21 A22 A23 A30			* * * * * * * * * * * * * * * * * * * *
Steel Stainless steel O-rings for process flanges (instead of FPM (Viton)) PTFE (Teflon) FEP (with silicone core, approved for food) FFPM (Kalrez, compound 4079) NBR (Buna N) Plug Han 7D (metal, gray) Han 8U (instead of Han 7D)	A20 A21 A22 A23 A30			* * * * * * * * * * * * * * * * * * *
O-rings for process flanges (instead of FPM (Viton))  PTFE (Teflon)  FEP (with silicone core, approved for food)  FFPM (Kalrez, compound 4079)  NBR (Buna N)  Plug  Han 7D (metal, gray)  Han 8U (instead of Han 7D)	A20 A21 A22 A23			\( \frac{1}{2} \)     \( \frac{1}{2} \)    \( \frac{1}{2} \)     \( \frac{1}{2} \)     \( \frac{1}{2} \)     \( \frac{1}{2} \)     \( \frac{1}{2} \)     \( \frac{1}{2} \)     \( \frac{1}{2} \)     \( \frac{1}{2} \)     \( \frac{1}{2} \)     \( \frac{1}{2} \)     \( \frac{1}{2} \)     \( \frac{1}{2}
(instead of FPM (Viton))  • PTFE (Teflon)  • FEP (with silicone core, approved for food)  • FFPM (Kalrez, compound 4079)  • NBR (Buna N)  plug  • Han 7D (metal, gray)  • Han 8U (instead of Han 7D)	A21 A22 A23 A30			<b>* * *</b>
FEP (with silicone core, approved for food) FFPM (Kalrez, compound 4079)  NBR (Buna N)  Plug  Han 7D (metal, gray)  Han 8U (instead of Han 7D)	A21 A22 A23 A30			<b>√</b>
NBR (Buna N)  plug Han 7D (metal, gray) Han 8U (instead of Han 7D)	A23 A30	<b>*</b>	<b>*</b>	
<ul><li>Han 7D (metal, gray)</li><li>Han 8U (instead of Han 7D)</li></ul>				✓
	A31	✓		
- Angleu	A32	<b>√</b>		
	A33 A40	1	./	1
Sealing screws (2 unit(s) 1/4-18 NPT, with valve in mat. of process flan- ges	A40	•	•	•
	A50	✓	✓	✓
Rating plate inscription (instead of German)				
g	B11	✓.	✓.	✓
	B12	1	1	1
	B13 B14	1	<b>√</b>	<b>*</b>
1	B21	1	,	1
English rating plate Pressure units in inH <sub>2</sub> O and/or psi	B21	•	•	•
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2 <sup>1)</sup>	C11	✓	✓	✓
Inspection certificate <sup>2)</sup> to EN 10204-3.1	C12	✓	✓	✓
Factory certificate to EN 10204-2.2	C14	✓	✓	✓
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓		
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	✓		
Device passport Russia (For price request please contact the technical support	C99	✓	✓	✓
www.siemens.com/automation/support-request)	DOE	1		
output signal to 22.0 mA	D05	<b>,</b>		
Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)	D07	•	•	✓
<b>Degree of protection IP68</b> (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
Process flange screws made of Monel (max. nominal pressure PN20)	D34	1	✓	✓
Supplied with oval flange set (2 items), PTFE packings and screws in thread of process flanges	D37	✓	✓	✓
Use in or on zone 1D/2D  (only together with type of protection "Intrinsic safety (EEx ia)")	E01	1	✓	✓
	E06	✓		

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MAWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)", to WHG and VbF, not together with measuring cell filling "inert liquid")	E08	<b>✓</b>		
Oxygen application (In the case of oxygen measurement and inert liquid max. 120 bar a (1740 psia) at 60°C (140 °F))	E10	✓	✓	✓
Export approval Korea	E11	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25	✓	✓	✓
(only for transmitter 7MF4B)  Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil)  (only for transmitter 7MF4D)	E26	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28	✓	✓	
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4	E45	✓	✓	✓
Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4	E46	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	✓	✓	✓
(only for transmitter 7MF4B)				
NEPSI (China)	E56	✓	✓	✓
(only for transmitter 7MF4			_	_
<b>Explosion-proof "Zone 2" to NEPSI (China)</b> (only for transmitter 7MF4E)	E57	✓	✓	<b>✓</b>
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Interchanging of process connection side	H01	✓	1	✓
Vent on side for gas measurements	H02	✓	✓	✓
Stainless steel process flanges for vertical differential pressure lines	H03	✓	✓	✓
(not together with K01, K02 and K04) <sup>3)</sup>				
Process flange				
Hastelloy     Monel	K01 K02	1	1	1
<ul> <li>Monel</li> <li>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</li> </ul>	K02 K04	*	<b>*</b>	*

Factory mounting of valve manifolds, see accessories.

Supplementary electronics for 4-wire connection, see accessories.

✓ = available

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.

<sup>2)</sup> 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.

<sup>3)</sup> Not suitable for connection of remote seal

## Pressure Measurement Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Ordering data	Order	code		
Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text.		HART	PA	FF
Measuring range to be set				
Specify in plain text:  • in the case of linear characteristic curve  (1999 5 the part text)	Y01	✓		
(max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi				
• in the case of square rooted characteristic (max. 5 characters):	Y02	✓		
Y02: up to mbar, bar, kPa, MPa, psi				
Stainless steel tag plate (measuring point description)	Y15	✓	✓	✓
Max. 16 char., specify in plain text: Y15:				
Measuring point text	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 indicator 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 $\rm H_2O^*$ ), in $\rm H_2O^*$ ), ft $\rm H_2O^*$ ), mmHG, inHG, psi, Pa, kPa, MPa, g/cm²,				
mmHG, InHG, psi, Pa, KPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or %				
*) ref. temperature 20 °C				
Setting of pressure indicator in non-pres-	Y22 <sup>2)</sup>	✓		
sure units <sup>1)</sup>	+ Y01 or			
Specify in plain text: Y22: up to I/min, m <sup>3</sup> /h, m, USgpm,	Y02			
(specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with				
max. 5 characters)				
Preset bus address	Y25		1	
possible between 1 and 126				
Specify in plain text: Y25:				

Factory mounting of valve manifolds, see accessories.

Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset

✓ = available

<sup>1)</sup> Preset values can only be changed over SIMATIC PDM.

<sup>2)</sup> Not in conjunction with over-filling safety device for flammable and non-flammable liquids (Order Code "E08")

## Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

	coourc and now		
Selection and Ordering		Order	
SITRANS P DS III with mitters for differential		7 M F 4	5 3 3 -
PN 420 (MAWP 6092 p			
Measuring cell filling	Measuring cell		
0	cleaning		
Silicone oil	normal	1	
Measuring span (min.			
2.5 250 mbar	(1.004 100.4 inH <sub>2</sub> O)	D	
6 600 mbar 16 1600 mbar	(2.409 240.9 inH <sub>2</sub> O) (6.424 642.4 inH <sub>2</sub> O)	E F	
50 5000 mbar	(20.08 2008 inH <sub>2</sub> O)	G	
0.3 30 bar	(4.35 435 psi)	H	
Wetted parts materials	<u> </u>		
(stainless steel process			
Seal diaphragm	Parts of measuring cell		
Stainless steel	Stainless steel	A	
Hastelloy	Stainless steel	В	
Gold <sup>1)</sup>	Gold	L	
Connection of remote se	eai possible on request		
Process connection	Turkle flamma (		
<ul> <li>Female thread ¼-18 NP</li> <li>Sealing screw opposit</li> </ul>	T with flange connection		
Sealing screw opposit     Mounting thread <sup>7</sup> / <sub>4</sub> / <sub>4</sub>	<sub>5</sub> -20 UNF to IEC 61518	3	
<ul> <li>Mounting thread 716</li> <li>Mounting thread M1</li> </ul>		1	
(only for replacemen	nt requirement)		
Venting on side of pro	cess flanges, location of		
vent valve at top of pro	ocess flanges (see dimen-		
	<sub>3</sub> -20 UNF to IEC 61518	7	
- Mounting thread M1	2 to DIN 19213	5	
(only for replacemen			
Non-wetted parts mate process flange screws			
Stainless steel	Die-cast aluminum		2
Stainless steel			3
	Stainless steel precision casting <sup>2)</sup>		
Version			
<ul> <li>Standard versions</li> </ul>			1
<ul> <li>International version, I documentation in 5 la</li> </ul>	English label inscriptions,		2
(no order code selecta			
Explosion protection	,		
• None			Α
<ul> <li>With ATEX, Type of pre</li> </ul>	otection:		
- "Intrinsic safety (EEx			В
- "Explosion-proof (EE	x d)" <sup>3)</sup>		D
- "Intrinsic safety and	flameproof enclosure"		P
(EEx ia + EEx d)" <sup>4)</sup> - "Ex nA/nL (Zone 2)"			E
	osion-proof enclosure and		R
dust explosion prote	ection (EEx ia+ EEx d +		,,
Zone 1D/2D)" <sup>4)</sup>			
<ul> <li>With FM + CSA, Type</li> <li>"Intrinsic safety and</li> </ul>			
<ul> <li>"Intrinsic safety and (is + xp)" <sup>3)</sup>, max PN</li> </ul>	360 explosion-prooi		NC
Electrical connection/e			
<ul> <li>Screwed gland Pg 13</li> </ul>			A
<ul> <li>Screwed gland M20x<sup>-</sup></li> </ul>			В
• Screwed gland 1/2-14 I	NPT		С
<ul> <li>Han 7D plug (plastic h connector<sup>5)6)</sup></li> </ul>	nousing) incl. mating		D
<ul> <li>M12 connectors (meta)</li> </ul>			F
- WITE CONTIDUCTORS (INER	A1)		r

Selection and Ordering data	Order No.
SITRANS P DS III with HART pressure transmitters for differential pressure and flow, PN 420 (MAWP 6092 psi)	7 M F 4 5 3 3 -
Display  ■ Without display  ■ Without visible display (display concealed, setting: mA)  ■ With visible display  ■ with customer-specific display (setting as specified, Order Code "Y21" or "Y22" required)	0 1 6 7

Available ex stock

Power supply units see Chap. 8 "Supplementary Components".

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

- 1) Not in conjunction with max. span 600 mbar (240.9 inH<sub>2</sub>O)
- 2) Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 3) Without cable gland, with blanking plug
- 4) With enclosed cable gland EEx ia and blanking plug
- 5) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- $^{6)}$  Permissible only for crimp-contact of conductor cross-section 1  $\mathrm{mm}^2$
- 7) M12 delivered without cable socket

## Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

	lering data	0	rde	r N	0.		
Pressure transmit and flow, PN 420 (	tters for differential pressure (MAWP 6092 psi)						
	with PROFIBUS PA (PA)	7	MF	4 5	3	4 -	
SITRANS P DS III with FOUNDATION Fieldbus		7	7MF4534-				
(FF)			7 W1 4303 -				
		1			-1	П	П
Nominal measurir	ng range				П		П
250 mbar	(100.4 inH <sub>2</sub> O)		D				
600 mbar	(240.9 inH <sub>2</sub> O)		E				
1600 mbar	(642.4 inH <sub>2</sub> O)		F				
5 bar	(2008 inH <sub>2</sub> O)		G				
30 bar	(435 psi)	_	Н				
Wetted parts mate							
(stainless steel pro	<b>o</b> ,						
Seal diaphragm	Parts of measuring cell						
Stainless steel	Stainless steel		A				
Hastelloy	Stainless steel		В				
Gold <sup>1)</sup>	Gold		L				
	ote seal possible on request	-					
Process connecti							
	8 NPT with flange connection						
	posite process connection d <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518			3			
	d M12 to DIN 19213			ა 1			
	ement requirement)			'			
	of process flanges, location of						
vent valve at top	of process flanges (see dimen-						
sional drawing).	17/ 00 1 NE 1 150 04540						
	d <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518			7			
- Mounting throa	d M12 to DIN 19213						
				5			
(only for replace	ement requirement)	_		5			
(only for replace Non-wetted parts	ement requirement)	_		5			
(only for replace Non-wetted parts Process flange scr	ement requirement) materials	_		5			
(only for replace  Non-wetted parts  Process flange scr  Stainless steel	ement requirement)  materials  ews Electronics housing	_					
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version	materials ews Electronics housing Die-cast aluminum Stainless steel precision casting	_		2			
(only for replace  Non-wetted parts  Process flange scr  Stainless steel  Stainless steel  Version  Standard version	ement requirement)  materials  ews Electronics housing  Die-cast aluminum  Stainless steel precision casting  s	_		2		1	
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version • Standard version • International vers	ement requirement)  materials  ews Electronics housing  Die-cast aluminum  Stainless steel precision casting  s  sion, English label inscriptions,	-		2		1 2	
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version • Standard version • International vers	ement requirement)  materials  ews Electronics housing  Die-cast aluminum  Stainless steel precision casting  s  sion, English label inscriptions,  15 languages on CD	_		2			
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version International version documentation in (no order code scr	ement requirement)  materials  ews Electronics housing  Die-cast aluminum  Stainless steel precision casting  s  sion, English label inscriptions, 15 languages on CD electable)	-		2			
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version • Standard version • International vers documentation ir (no order code sc	ement requirement)  materials  ews Electronics housing  Die-cast aluminum  Stainless steel precision casting  s  sion, English label inscriptions, 15 languages on CD electable)	-		2			
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version Standard version International version ir (no order code se Explosion protect None With ATEX, Type	ement requirement)  materials  ews Electronics housing  Die-cast aluminum  Stainless steel precision casting  s sion, English label inscriptions,  1 5 languages on CD electable)  cition  of protection:	-		2		2 A	
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version Standard version International version documentation ir (no order code sc Explosion protect None With ATEX, Type "Intrinsic safety	ement requirement)  materials  ews Electronics housing  Die-cast aluminum  Stainless steel precision casting  s  sion, English label inscriptions, Is languages on CD electable)  cition  of protection: (EEx ia)"	-		2		2 A B	
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version Standard version International version ir (no order code scenario) None With ATEX, Type "Intrinsic safety "Explosion-proces	materials  ews Electronics housing  Die-cast aluminum  Stainless steel precision casting  s  sion, English label inscriptions,  a 5 languages on CD electable)  sion  of protection:  (EEx ia)"  of (EEx d)" <sup>2</sup> )			2		A B D	
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version Standard version International vers documentation ir (no order code si Explosion protect None With ATEX, Type - "Intrinsic safety - "Explosion-proc - "Intrinsic safety	materials ews Electronics housing Die-cast aluminum Stainless steel precision casting  s sion, English label inscriptions, s 1 5 languages on CD electable)  cion of protection: (EEx ia)" of (EEx d)" <sup>2)</sup> and flameproof enclosure"	-		2		2 A B	
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version Standard version International vers documentation ir (no order code si Explosion protect None With ATEX, Type - "Intrinsic safety (EEx ia + EEx co	materials ews Electronics housing Die-cast aluminum Stainless steel precision casting  s sion, English label inscriptions, s 1 5 languages on CD electable)  sion of protection: (EEx ia)" of (EEx d)" <sup>2)</sup> and flameproof enclosure"	-		2		A B D P	
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Version Standard version International vers documentation ir (no order code si Explosion protect None With ATEX, Type - "Intrinsic safety - "Explosion-proc - "Intrinsic safety (EEx ia + EEx c - "Ex nA/nL (Zone	materials ews Electronics housing Die-cast aluminum Stainless steel precision casting  s sion, English label inscriptions, 1 5 languages on CD electable)  cion of protection: (EEx ia)" of (EEx d)" <sup>2)</sup> and flameproof enclosure" (E)" <sup>3)</sup> (E) 2)"	-		2		A B D P	
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Stainless steel Version • Standard version • International vers documentation ir (no order code scenario) • None • With ATEX, Type - "Intrinsic safety (EEx ia + EEx color - "Ex nA/nL (Zone) - "Intrinsic safety ("Intrinsic safety ("Ex nA/nL (Zone) - "Intrinsic safety - "Intrinsic safety - "Intrinsic safety	ement requirement)  materials  ews Electronics housing  Die-cast aluminum  Stainless steel precision casting  sion, English label inscriptions, la			2		A B D P	
(only for replace  Non-wetted parts  Process flange scr  Stainless steel  Stainless steel  Stainless steel  Version  Standard version  International version ir (no order code si  Explosion protect  None  With ATEX, Type  "Intrinsic safety  "Explosion-proce"  "Intrinsic safety  (EEx ia + EEx c  "Intrinsic safety, dust explosion  Zone 1D/2D)"  None	materials ews Electronics housing Die-cast aluminum Stainless steel precision casting  s sion, English label inscriptions, 1 5 languages on CD electable)  cition  of protection: (EEx ia)" of (EEx d)"2) and flameproof enclosure" (1)"3) explosion-proof enclosure and protection (EEx ia + EEx d + (not for DS III FF)			2		A B D P	
(only for replace  Non-wetted parts  Process flange scr  Stainless steel  Stainless steel  Stainless steel  Stainless steel  Version  Standard version  International version documentation in (no order code si  Explosion protect  None  With ATEX, Type  - "Intrinsic safety (EEx ia + EEx color a safety dust explosion zone 1D/2D)"  With FM + CSA,  With FM + CSA,	materials ews Electronics housing Die-cast aluminum Stainless steel precision casting  s sion, English label inscriptions, 1 5 languages on CD electable)  sion of protection: (EEx ia)" of (EEx d)"2) and flameproof enclosure" (1)"3) explosion-proof enclosure and protection (EEx ia + EEx d + (not for DS III FF) Type of protection:			2		A B D P E R	
(only for replace  Non-wetted parts  Process flange scr  Stainless steel  Stainless steel  Version  Standard version International vers documentation ir (no order code scenarios)  With ATEX, Type  "Intrinsic safety  "Explosion-proce"  "Intrinsic safety (EEx ia + EEx complete in the com	materials ews Electronics housing Die-cast aluminum Stainless steel precision casting  sion, English label inscriptions, 15 languages on CD electable)  ition  of protection: (EEx ia)" of (EEx d)" <sup>2)</sup> and flameproof enclosure" ("")" <sup>3)</sup> e 2)" explosion-proof enclosure and protection (EEx ia + EEx d + (not for DS III FF) Type of protection: and explosion-proof			2		A B D P	c
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Stainless steel Stainless steel Version • Standard version • International version documentation ir (no order code si Explosion protect • None • With ATEX, Type - "Intrinsic safety (EEx ia + EEx circle - "Ex nA/nL (Zone - "Intrinsic safety, dust explosion Zone 1D/2D)" • With FM + CSA, - "Intrinsic safety (is + xp)" <sup>2</sup> , max	materials ews Electronics housing Die-cast aluminum Stainless steel precision casting  s sion, English label inscriptions, 1 5 languages on CD electable)  cition  of protection: (EEx ia)" of (EEx d)"2) and flameproof enclosure" (Pi)"3) and flameproof enclosure and protection (EEx ia + EEx d + (not for DS III FF) Type of protection: and explosion-proof x PN 360			2		A B D P E R	c
(only for replace Non-wetted parts Process flange scr Stainless steel Stainless steel Stainless steel Stainless steel Version Standard version International version documentation ir (no order code steep) None With ATEX, Type - "Intrinsic safety (EEx ia + EEx c - "Ex nA/nL (Zone - "Intrinsic safety, dust explosion Zone 1D/2D)" With FM + CSA, - "Intrinsic safety (is + xp)" <sup>2</sup> , max Electrical connec	materials ews Electronics housing Die-cast aluminum Stainless steel precision casting  s sion, English label inscriptions, 1 5 languages on CD electable)  sion of protection: (EEx ia)" of (EEx d)" 2) and flameproof enclosure" (Pi)" 2)" explosion-proof enclosure and protection (EEx ia + EEx d + (not for DS III FF) Type of protection: and explosion-proof x PN 360  tion/cable entry	-		2		A B D P E R	C 8
(only for replace  Non-wetted parts  Process flange scr  Stainless steel  Stainless steel  Version  Standard version International vers documentation ir (no order code scenarios)  With ATEX, Type  "Intrinsic safety  "Explosion-proce"  "Intrinsic safety (EEx ia + EEx complete in the com	materials ews Electronics housing Die-cast aluminum Stainless steel precision casting  s sion, English label inscriptions, 1 5 languages on CD electable)  sion of protection: (EEx ia)" of (EEx d)" and flameproof enclosure" (1)" explosion-proof enclosure and protection (EEx ia + EEx d + (not for DS III FF) Type of protection: and explosion-proof x PN 360  tion/cable entry 120 x 1.5			2		A B D P E R	

Selection and Ordering data	Order No.
Pressure transmitters for differential pressure and flow, PN 420 (MAWP 6092 psi)	
SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 5 3 4 -
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 5 3 5 -
	1====-
Display	
Without (display hidden)	0
<ul> <li>Without visible display (display concealed, setting: mA)</li> </ul>	1
With visible display	6
<ul> <li>With customer-specific display (setting as specified, Order Code "Y21" required)</li> </ul>	7
A 21.1.1	

Available ex stock

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- $^{1)}$  Not in conjunction with max. span 600 mbar (240.9 inH $_2$ O)
- 2) Without cable gland, with blanking plug.
- 3) With enclosed cable gland EEx ia and blanking plug.
- <sup>4)</sup> M12 delivered without cable socket

## Transmitters for general requirements

SITRANS P DS III
for differential pressure and flow

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Pressure transmitter with mounting bra- cket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:				
Steel     Stainless steel	A01 A02	1	1	1
O-rings for process flanges	702		·	·
(instead of FPM (Viton))				
• PTFE (Teflon)	A20	1	1	1
<ul> <li>FEP (with silicone core, approved for food)</li> <li>FFPM (Kalrez, compound 4079)</li> </ul>	A21 A22	1	<b>✓</b>	<b>∀</b>
• NBR (Buna N)	A23	✓	1	✓
Plug				
Han 7D (metal, gray)	A30	<b>1</b>		
<ul><li>Han 8U (instead of Han 7D)</li><li>Angled</li></ul>	A31 A32	<b>✓</b>		
Han 8D (metal, gray)	A33	1		
Sealing screws (2 unit(s) 1/4-18 NPT, with valve in mat. of process flanges	A40	✓	✓	✓
Cable sockets for M12 connectors (metal)	A50	1	✓	✓
Rating plate inscription (instead of German)				
English	B11	1	1	1
• French	B12	✓	✓	✓
• Spanish	B13 B14	1	1	1
• Italian	B14	1	<b>v</b>	<b>*</b>
English rating plate Pressure units in inH <sub>2</sub> O and/or psi	DZI			
Quality inspection certificate (Five-step factory calibration) 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)" certificate to IEC 61508	C20	✓		
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	✓		
<b>Device passport Russia</b> (For price request please contact the technical support www.siemens.com/automation/support-request)	C99	✓	✓	✓
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)	D07	✓	✓	✓
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
Nominal pressure rating PN 500 (MAWP 7250 psi)	D56	✓		
(Only for measuring cell 600 mbar 30 bar (240 inH <sub>2</sub> O 435 psi), SIL- und Ex-options not possible)) <sup>2)</sup>				
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	✓	✓	✓
Export approval Korea	E11	1	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25	✓	✓	✓
(only for transmitter 7MF4B)	<b>F</b> 00	1	1	./
Explosion-proof "Intrinsic safety" (Ex d) to INMETRO (Brazil)	E26		•	•

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28	<b>√</b>	✓	
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4	E45	✓	✓	✓
Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4)	E46	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	✓	✓	✓
(only for transmitter 7MF4B) <b>Ex prot. "Explosion-proof" to NEPSI (China)</b> (only for transmitter 7MF4D)	E56	✓	✓	1
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	<b>√</b>	✓	1
Interchanging of process connection side	H01	✓	✓	✓
Stainless steel process flanges for vertical differential pressure lines	H03	✓	✓	✓
Additional data				
Please add "-Z" to Order 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	✓		
Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi	Y02	✓		
Stainless steel tag plate	Y15	1	1	1
(measuring point description)				
Max. 16 char., specify in plain text: Y15:  Measuring point text	Y16	1	✓	✓
Max. 27 char., specify in plain text: Y16:  Entry of HART address (TAG)  Max. 8 char., specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure	Y21	1	1	1
units Specify in plain text (standard setting: bar):	121	·	·	Ť
Y21: mbar, bar, kPa, MPa, psi, Note:				
The following pressure units can be selected: bar, mbar, mm $H_2O^3$ , $inH_2O^3$ , $ftH_2O^3$ , $mmHG$ , $inHG$ , psi, Pa, kPa, MPa, $g/cm^2$ , kg/cm <sup>2</sup> , Torr, ATM or %_				
*) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units1) 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	Y22 + Y01 or Y02	•		
max. 5 characters)				
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		<b>√</b>	
Factory mounting of valve manifolds, see acco	occorios	,		

Factory mounting of valve manifolds, see accessories.

Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset.

<sup>✓ =</sup> available

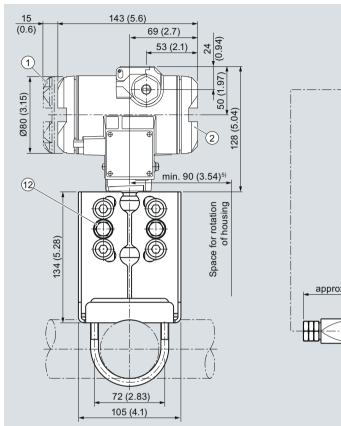
<sup>1)</sup> Preset values can only be changed over SIMATIC PDM.

<sup>2)</sup> Tested according to IEC 61010. Only for measuring materials of the group of fluids 2 in accordance with DGRL permissible. Not for use with dangerous media suitable.

## Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

### Dimensional drawings



- 1 Electronic side, digital display (longer overall length for cover with window)1)
- (2) Terminal side<sup>1)</sup>
- 3 Electrical connection: Screwed gland Pg 13,5 (adapter)(Adapter)<sup>2) 3)</sup>, Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/ Han 8D2)3)plug
- 4 Harting adapter
- Protective cover over keys
- Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "Explosion-proof enclosure" Not with type of protection "FM + CSA" [IS + XP]"
- 92 mm (3.62 inch) for minimum distance to permit rotation with indicator
- 5) For Pg 13,5 with adapter approx. 45 mm (1.77 inch)

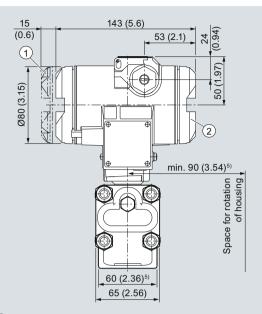
(3) 166 (6.54) (8) 262 (10.3) (10) 96 (3.8) 52 (2.05) 17 (0.67) approx. 96 (3.78) (4) 68 (2.7) 120 (4.7)

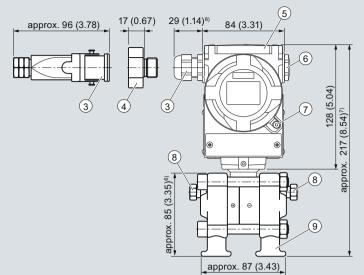
- (6) Blanking plug
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- 8 Lateral venting for liquid measurement (Standard)
- 9 Lateral venting for gas measurement (suffix H02)
- (10) Mounting bracket (option)
- (11) Sealing screw with valve (option)
- 12 Process connection: 1/4-18 NPT (IEC 61518)

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

## Transmitters for general requirements

SITRANS P DS III for differential pressure and flow





- 1 Electronic side, digital display (longer overall length for cover with window)1)
- 2 Terminal side<sup>1)</sup>
- 3 Electrical connection: Screwed gland Pg 13,5 (adapter)(Adapter)<sup>2) 3)</sup>, Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/ Han 8D<sup>2) 3)</sup> plug
- 4 Harting adapter
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "Explosion-proof enclosure" Not with type of protection "FM + CSA" [IS + XP]"
- 92 mm (3.6 inch) for minimum distance to permit rotation with indicator
- 74 mm (2.9 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)
- 6) 91 mm (3.6 inch) for PN  $\geq$  420 (MAWP  $\geq$  6092 psi)
- 219 mm (8.62 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)
- For Pg 13,5 with adapter approx. 45 mm (1.77 inch)

- 5 Protective cover over keys
- (6) Blanking plug
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- Sealing screw with valve (option)
- Process connection: 1/4-18 NPT (IEC 61518)

SITRANS P DS Illpressure 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

# Pressure Measurement Transmitters for general requirements SITRANS P DS III for level

### Technical specifications

SITRANS P DS III for level					
	HART		PROFIBUS PA or FO	UNDATION Fieldbus	
Input					
Measured variable	Level				
Spans (infinitely adjustable) or nominal measuring range and max. permissible operating pressure	Span (min max.)	Maximum operating pressure	Nominal measuring range	Maximum operating pressure	
	25 250 mbar (10 100 inH <sub>2</sub> O)	See "Mounting flange"	250 mbar (100 inH <sub>2</sub> O)	See "Mounting flange	
	25 600 mbar (10 240 inH <sub>2</sub> O)	See "Mounting flange"	600 mbar (240 inH <sub>2</sub> O)	See "Mounting flange	
	53 1600 mbar (21 642 inH <sub>2</sub> O)	See "Mounting flange"	1600 mbar (642 inH <sub>2</sub> O)	See "Mounting flang	
	160 5000 mbar (64 2000 inH <sub>2</sub> O)	See "Mounting flange"	5 bar (2000 inH <sub>2</sub> O)	See "Mounting flang	
_ower measuring limit		"			
Measuring cell with silicone oil filling	-100 % of ma	x. span or 30 mbar a (0.4	44 psia), depending on	mounting flange	
Jpper measuring limit	100 % of max. span		100 % of the max. nor	ninal measuring range	
Output					
Output signal	4 20 mA		Digital PROFIBUS PA		
Lower limit (infinitely adjustable)	3.55 mA, factory preset	to 3.84 mA	-		
Upper limit (infinitely adjustable)	23 mA, factory preset to set to 22.0 mA	20.5 mA or optionally	у -		
_oad					
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$ : Power supply in V	$23 \text{ A in } \Omega$ ,	-		
With HART	$R_{\rm B} = 230 \dots 500 \Omega$ (SIN $R_{\rm B} = 230 \dots 1100 \Omega$ (HA		-		
Physical bus	- IEC 61158-2				
Protection against polarity reversal	Protected against short	t-circuit and polarity reve supply	rsal. Each connection a voltage.	gainst the other with m	
Measuring accuracy		Acc. to IE	EC 60770-1		
Reference conditions All error data refer always refer to the set span)	Increasing characterist ling, room ter	ic, start-of-scale value 0 mperature 25 °C (77 °F))	bar, stainless steel seal r: Span ratio (r = max. s	diaphragm, silicone oi span / set span)	
Error in measurement at limit setting incl. hysteresis and reproducibility					
Linear characteristic			≤ 0.15 %		
- r ≤ 10	≤ 0.15 %				
- 10 < r ≤ 30	≤ 0.3 %				
- 30 < r ≤ 100	≤ (0.0075 · r + 0.075) %				
ong-term stability temperature change ± 30 °C (± 54 °F))	$\leq$ (0.25 · r)% every 5 ye static pressure max. 70		≤ 0.25 % every 5 years static pressure max. 7		
nfluence of ambient temperature					
at -10 +60 °C (14 140 °F)					
- 250 mbar- (100 inH <sub>2</sub> O)-measuring cell	$\leq (0.5 \cdot r + 0.2) \%^{1)4}$		≤ 0.7 %		
- 600 mbar- (240 inH <sub>2</sub> O)-measuring cell	$\leq (0.3 \cdot r + 0.2) \%^{2) 4}$		≤ 0.5 %		
- 1600 and 5000 mbar- (642 and 2000 inH <sub>2</sub> O)-measuring cell	$\leq (0.25 \cdot r + 0.2) \%^{3) 4}$		≤ 0.45 %		
at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)					
- 250 mbar- (100 inH <sub>2</sub> O)-measuring cell	≤ (0.25 · r + 0.15) %/10 doubled values at 10 <		≤ 0.4 %/10 K		
- 600 mbar- (240 inH <sub>2</sub> O)-measuring cell	≤ (0.15 · r + 0.15) %/10 doubled values at 10 <	K	≤ 0.3 %/10 K		
- 1600 and 5000 mbar- (642 and 2000 inH <sub>2</sub> O)-		K	≤ 0.27 %/10 K		

# Pressure Measurement Transmitters for general requirements SITRANS P DS III for level

SITRANS P DS III for level	<u> </u>		
	HART	PROFIBUS PA or FOUNDATION Fieldbus	
Influence of static pressure			
• on the zero point			
- 250 mbar- (100 inH <sub>2</sub> O)-measuring cell	$\leq$ (0.3 · r) % per nominal pressure	≤ 0.3 % per nominal pressure	
- 600 mbar- (240 inH <sub>2</sub> O)-measuring cell	$\leq$ (0.15 · r) % per nominal pressure	≤ 0.15 % per nominal pressure	
<ul> <li>1600 and 5000 mbar- (642 and 2000 inH<sub>2</sub>O)- measuring cell</li> </ul>	$\leq$ (0.1 · r) % per nominal pressure	≤ 0.1 % per nominal pressure	
• on the span	$\leq$ (0.1 · r) % per nominal pressure	≤ 0.1 % per nominal pressure	
Measured Value Resolution	-	$3 \cdot 10^{-5}$ of nominal measuring range	
Rated conditions			
Degree of protection to IEC 60529	IP65, opt	tional IP68	
Temperature of medium		max. permissible operating temperature to max. f the respective flange connection!	
Measuring cell with silicone oil filling	-40 +100 °C	(-40 +212 °F)	
- High-pressure side	p <sub>abs</sub> ≥ 1 bar: -40 +	175 °C (-40 +347 °F)	
	p <sub>abs</sub> < 1 bar: -40 +	-80 °C (-40 +176 °F)	
- Low-pressure side		(-40 +212 °F)	
	-20 +60 °C (-4 +140 °F) in conj	unction with dust explosion protection	
Ambient conditions			
Ambient temperature			
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 EN 61326 and NAMUR NE 21		
Design			
Weight (without options)			
To EN (pressure transmitter with mounting flange, without tube)	≈ 11 13 kg (≈	≈ 24.2 28.7 (lb)	
To ASME (pressure transmitter with mounting flange, without tube)	≈ 11 18 kg (a	≈ 24.2 39.7 lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or s	stainless steel precision casting, mat. no. 1.4408	
Wetted parts materials			
High-pressure side			
Seal diaphragm of mounting flange	Stainless steel, mat. no. 1.4404/316L, Monel, matelloy C276, mat. no. 2.4819, Hastelloy C	at. no. 2.4360, Hastelloy B2, mat. no. 2.4617, Has 4, mat. no. 2.4610, tantalum, PTFE, ETCFE	
Measuring cell filling	Silico	one oil	
Process connection			
High-pressure side	Flange to E	N and ASME	
• Low-pressure side		tion with mounting thread M10 to DIN 19213 or to EN 61518	
Power supply $\emph{\textbf{U}}_{H}$		Supplied through bus	
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-	
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	

## Pressure Measurement Transmitters for general requirements

SITRANS P DS III for level

SITRANS P DS III for level				
	HART	PROFIBUS PA or FOUNDATION Fieldbus		
Certificates and approvals				
Classification according to PED 97/23/EC		group 1; complies with requirements of article 3, I engineering practice)		
Explosion protection				
• Intrinsic safety "i"	PTB 99	ATEX 2122		
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6		
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +70 °C (-40 +158 °F) temperature class T5; -40 +60 °C (-40 +140 °F) temperature class T6			
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW; $P_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_{\rm o}=17.5$ V, $I_{\rm o}=380$ mA, $P_{\rm o}=5.32$ W Linear barrier: $U_{\rm o}=24$ V, $I_{\rm o}=250$ mA, $P_{\rm o}=1.2$ W		
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$		
• Explosion-proof "d"	PTB 99 ATEX 1160			
- Marking	Ex II 1/2 G EEx d IIC T4/T6			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +60 °C (-40 +140 °F) temperature class T6			
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC		
Dust explosion protection for zone 20	PTB 01 ATEX 2055			
- Marking		P65 T 120 °C IP65 T 120 °C		
- Permissible ambient temperature	-40 +85 °C	(-40 +185 °F)		
- Max. surface temperature	120 °C	C (248 °F)		
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $P_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0$ = 17.5 V, $I_0$ = 380 mA, $P_0$ = 5.32 W Linear barrier: $U_0$ = 24 V, $I_0$ = 250 mA, $P_0$ = 1.2 W		
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$		
Dust explosion protection for zone 21/22	PTB 01	ATEX 2055		
- Marking	Ex II 2 D II	P65 T 120 °C		
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W		
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	TÜV 01 ATEX 1696 X		
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	Ex II 3 G EEx nA L IIC T4/T5/T6		
<ul> <li>Explosion protection acc. to FM</li> </ul>	Certificate of Co	ompliance 3008490		
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, CL I, DIV 2, GP ABCD T4	GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; T6; CL II, DIV 2, GP FG; CL III		
• Explosion protection to CSA	Certificate of Co	ompliance 1153651		
- Identification (XP/DIP) or (IS)		EFG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD IIV 2, GP FG; CL III		

<sup>1)</sup> Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.4 · r + 0.16) % / 28 °C (50 °F).

<sup>&</sup>lt;sup>2)</sup> Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.24  $\cdot$  r + 0.16) % / 28 °C (50 °F).

<sup>&</sup>lt;sup>3)</sup> Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.2 · r + 0.16) % / 28 °C (50 °F).

 $<sup>^{4)}</sup>$  0.32 instead of 0.16 at 10 < r < 30

# Pressure Measurement Transmitters for general requirements SITRANS P DS III for level

101 10101			
HART communication		FOUNDATION Fieldbus	
HART	230 1100 Ω	communication	
Protocol	HART Version 5.x	Function blocks	3 function blocks analog input, 1 function block PID
Software for computer	SIMATIC PDM	Analog input	
PROFIBUS PA communication		- Adaptation to customer-speci-	Yes, linearly rising or falling cha-
Simultaneous communication with master class 2 (max.)	4	fic process variables - Electrical damping, adjustable	racteristic 0 100 s
The address can be set using	Configuration tool or local operation (standard setting address 126)	- Simulation function	Output/input (can be locked within the device with a bridge)
Cyclic data usage	addless 120)	- Failure mode	parameterizable (last good value, substitute value, incorrect
Output byte	5 (one measured value) or 10 (two measured values)	- Limit monitoring	value)  Yes, one upper and lower war-
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)	Ç	ning limit and one alarm limit respectively
Internal preprocessing	metering)	<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes
Device profile	PROFIBUS PA Profile for Process Control Devices Version	• PID	Standard FOUNDATION Field- bus function block
	3.0, Class B	<ul> <li>Physical block</li> </ul>	1 resource block
Function blocks  • Analog input	2	Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block
- Adaptation to customer-speci- fic process variables	Yes, linearly rising or falling characteristic	Pressure transducer block	LCD
- Electrical damping, adjustable	0 100 s	- Can be calibrated by applying	Yes
- Simulation function	Input/Output	two pressures	V
- Failure mode	parameterizable (last good value, substitute value, incorrect value)	<ul> <li>Monitoring of sensor limits</li> <li>Simulation function: Measured pressure value, sensor temperature and electronics tempera-</li> </ul>	Yes  Constant value or over parameterizable ramp function
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit	ture  Mounting flange	
• Degister (totalizar)	respectively	Nominal diameter	Nominal pressure
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output	• Acc. to EN 1092-1	Norminal pressure
- Failure mode	parameterizable (summation	- DN 80	PN 40
	with last good value, continuous summation, summation with	- DN100 • To ASME B16.5	PN16, PN40
	incorrect value)	• 10 ASME B16.5 - 3 inch	Class 1EO class 200
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively	- 4 inch	Class 150, class 300 Class 150, class 300
Physical block	1		
Transducer blocks	2		
Pressure transducer block			
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes		
- Monitoring of sensor limits	Yes		
<ul> <li>Specification of a container characteristic with</li> </ul>	Max. 30 nodes		
<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes		

- Gradual volume suppression

and implementation point of square-root extraction

- Simulation function for measured pressure value and sensor temperature

Parameterizable

Constant value or over parameterizable ramp function

## Transmitters for general requirements

SITRANS P DS III for level

Selection and Orderin	g data	Orde	er No	ο.		
Pressure transmitter f	~	7 M F			-	
SITRANS P DS III with		- Y				
Measuring cell filling	Measuring cell				Т	l
Silicone oil	cleaning normal	1				
Measuring span (min.	max.)	-				
25 250 mbar	(10 100 inH <sub>2</sub> O)	D				
25 600 mbar	(10 240 inH <sub>2</sub> O)	E				
53 1600 mbar	(21 642 inH <sub>2</sub> O)	F				
0.16 5 bar	(64.3 2000 inH <sub>2</sub> O)	G				
	T with flange connection					
<ul> <li>Mounting thread <sup>7</sup>/<sub>16</sub>-</li> <li>Mounting thread M10 (only for replacement</li> </ul>	to DIN 19213		0			
Non-wetted parts mate						
process flange screws	Electronics housing					
Stainless steel	Die-cast aluminum		2			
Stainless steel	Stainless steel precision casting <sup>1)</sup>		3			
Version						
<ul> <li>Standard versions</li> </ul>				1		
<ul> <li>International version, documentation in 5 la (no order code select</li> </ul>				2	1	
Explosion protection		_				
<ul> <li>None</li> <li>With ATEX Type of pr</li> </ul>	otootion				Α	
<ul> <li>With ATEX, Type of pr</li> <li>"Intrinsic safety (EEx</li> </ul>					В	
- "Explosion-proof (EE					D	
- "Intrinsic safety and	flamenroof enclosure"				P	
(EEx ia + EEx d)" <sup>3)</sup>	flameproof enclosure"					
- "Ex nA/nL (Zone 2)"					Е	
<ul> <li>"Intrinsic safety, expl dust explosion prote Zone 1D/2D)"<sup>3)</sup></li> </ul>	osion-proof enclosure and ection (EEx ia+ EEx d +				R	
<ul> <li>With FM + CSA, Type</li> </ul>					NC	
Electrical connection/	cable entry	_				
<ul> <li>Screwed gland Pg 13</li> </ul>					Α	
<ul> <li>Screwed gland M20x</li> </ul>					В	
• Screwed gland ½-14					С	
<ul> <li>Han 7D plug (plastic lonnector<sup>4)</sup></li> </ul>					D	
M12 connectors (met	al) <sup>o</sup> /				F	
Display						Ĺ
Without display     Without visible display						0
<ul> <li>Without visible display (display concealed, s</li> </ul>						1
<ul> <li>With visible display</li> </ul>						6

Available ex stock

#### Ordering information

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

 With customer-specific display (setting as specified, Order Code "Y21" or "Y22" required)

#### 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. 8 "Supplementary Components".

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)

- Not in conjunction with electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 2) Without cable gland, with blanking plug.
- 3) With enclosed cable gland EEx ia and blanking plug.
- 4) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 5) M12 delivered without cable socket

## Transmitters for general requirements SITRANS P DS III for level

Selection and Orderin	g data	Ord	de	r N	lo			_
Pressure transmitters	•	0.10		`		_		_
SITRANS P DS III with		7 14		1 0	3 3	4		
	` ,							
SITRANS P DS III with (FF)	FOUNDATION Fieldbus	7 M	IF	4 6	3 !	5 -		
(11)		4	v					
		1	Y	7	i	ш		
Nominal measuring ra	•	_						
250 mbar 600 mbar	(100 inH <sub>2</sub> O)	D						
1600 mbar	(240 inH <sub>2</sub> O) (642 inH <sub>2</sub> O)	F						
5 bar	(2000 inH <sub>2</sub> O)	G						
-	. 2,							
Process connection of	T with flange connection							
<ul> <li>Mounting thread <sup>7</sup>/<sub>16</sub></li> </ul>	20 LINE to IEC 61518			2				
Mounting thread M10				0				
(only for replacement								
Non-wetted parts mate	erials							
process flange screws	Electronics housing							
Stainless steel	Die-cast aluminum			2	2			
Stainless steel	Stainless steel precision			3	3			
	casting							
Version								
<ul> <li>Standard versions</li> </ul>						1		
	English label inscriptions,				:	2		
documentation in 5 la (no order code select								
Explosion protection								
None						Α		
With ATEX, Type of principle.	otection:					T)		
- "Intrinsic safety (EEx						В		
- "Explosion-proof (EE						D		
- "Intrinsic safety and						Р		
(EEx ia + EEx d)"2)								
- "Ex nA/nL (Zone 2)"	opion proof analysis as a					E R		
- "Intrinsic safety, explosion-proof enclosure and dust explosion protection (EEx ia + EEx d + Zone 1D/2D)*(2) (not for DS III FF)		ĸ						
Zone 1D/2D)" <sup>2)</sup> (not	for DS III FF)							
• With FM + CSA, Type								
- "Intrinsic Safe und E	xplosion Proof (is + xp)"1)					N C	;	
Electrical connection/	cable entry							
• Screwed gland M20 x	1.5					В	3	
• Screwed gland ½-14						C		
• M12 connectors (meta-	al) <sup>3)</sup>					F		
Display								
<ul> <li>Without display</li> </ul>							0	
Without visible display     (display aspected aspect							1	
<ul><li>(display concealed, s</li><li>With visible display</li></ul>	euing: mA)						6	
With visible display     With customer-specifi	c display (setting as						7	
specified, Order Code	e "Y21" required)						ľ	
	• •							

Available ex stock

#### Ordering information

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

#### ordering example

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

- Included in delivery of the device:

   Brief instructions (Leporello)

   CD-ROM with detailed documentation

   Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) Without cable gland, with blanking plug.
- 2) With enclosed cable gland EEx ia and blanking plug.
- 3) M12 delivered without cable socket

# Pressure Measurement Transmitters for general requirements SITRANS P DS III for level

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
O-rings for process flanges on				
low-pressure side				
(instead of FPM (Viton))  • PTFE (Teflon)	A20	1	1	1
• FEP (with silicone core, approved for food)	A21	1	1	1
• FFPM (Kalrez, compound 4079)	A22	✓.	✓	1
NBR (Buna N)	A23	✓	✓	✓
Plug	A30	.,		
<ul><li>Han 7D (metal, gray)</li><li>Han 8U (instead of Han 7D)</li></ul>	A31	<b>✓</b>		
• Angled	A32	✓		
• Han 8D (metal, gray)	A33	✓		
Sealing screw			,	
1/4-18 NPT, with valve in mat. of process flanges		<b>✓</b>	✓.	<b>√</b>
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription				
<ul><li>(instead of German)</li><li>English</li></ul>	B11	1	1	1
• French	B12	✓	✓	✓
• Spanish	B13	<b>1</b>	1	1
• Italian	B14	<b>√</b>	<b>v</b>	<b>v</b>
English rating plate Pressure units in inH <sub>2</sub> 0 and/or psi	B21	✓	✓	✓
Quality inspection certificate (Five-step	C11	1	<b>✓</b>	<b>✓</b>
factory calibration) to IEC 60770-2				
Inspection certificate	C12	✓	✓	✓
Acc. to EN 10204-3.1			,	,
Factory certificate Acc. to EN 10204-2.2	C14	✓	<b>✓</b>	<b>✓</b>
	C20	1		
"Functional safety (SIL2)" certificate to IEC 61508	C20	ľ		
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate	C23	✓		
to IEC 61508  Device passport Russia	000	,	,	,
(For price request please contact the technical	C99	•	•	•
<pre>support www.siemens.com/automation/support-request)</pre>				
Setting of upper limit of	D05	<b>1</b>		
output signal to 22.0 mA	200			
<b>Degree of protection IP68</b> (only for M20x1.5 and ½-14 NPT)	D12	✓	✓	✓
Supplied with oval flange	D37	1	1	1
(1 item), PTFE packing and screws in thread	50.			
of process flange				
Use on zone 1D / 2D	E01	✓	✓	1
(only together with type of protection "Intrinsic safety (EEx ia)")				
Overfilling safety device for flammable and	E08	1		
non-flammable liquids				
(max. PN 32 (MAWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)")				
Export approval Korea	E11	1	1	1
Explosion-proof "Intrinsic safety" (Ex ia) to		1	1	1
INMETRO (Brazil)			·	
(only for transmitter 7MF4B)				
Explosion-proof "Intrinsic safety" (Ex d) to	E26	✓	✓	✓
INMETRO (Brazil) (only for transmitter 7MF4D)				
Explosion-proof "Intrinsic safety" (Ex ia +	E28	1	1	
Ex d) to INMETRO (Brazil)				
(only for transmitter 7MF4P)				

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)	E45	✓	✓	1
Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D)	E46	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	✓	✓	✓
(only for transmitter 7MF4B)				
Explosion protection "Explosion-proof" to NEPSI (China)	E56	✓	✓	✓
(only for transmitter 7MF4)				
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4	E57	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Replacement of process connection side	H01	1	1	1
Additional data				
Please add "-Z" to Order No. and specify Order code(s) and plain text.				
Measuring range to be set	Y01	1		
Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi				
Stainless steel tag plate (measuring point	Y15	✓	✓	✓
description) Max. 16 characters, specify in plain text: Y15:				
Measuring point text Max. 27 characters, specify in plain text:	Y16	✓	✓	✓
Y16:	V47			
Entry of HART address (TAG)  Max. 8 characters, specify in plain text: Y17:	Y17	•		
Setting of pressure indicator in pressure units	Y21	✓	✓	1
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected:				
bar, mbar, mm H <sub>2</sub> O*), inH <sub>2</sub> O*), ftH <sub>2</sub> O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indicator in non-pressure units <sup>2)</sup>	Y22 <sup>1)</sup> + Y01	✓		
Specify in plain text: Y22: up to I/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)				
Preset bus address	Y25		1	
possible between 1 and 126 Specify in plain text Y25:				
Only "Y01", "Y21", "Y22", "Y25" and "D05" can b	oe facto	ry prese	et	

- ✓ = available
- 1) Not in conjunction with over-filling safety device for flammable and non-flammable liquids (Order Code "E08")
- <sup>2)</sup> Preset values can only be changed over SIMATIC PDM.

# Pressure Measurement Transmitters for general requirements SITRANS P DS III for level

Selection and Order	ing data		Orde	er No.	
Mounting flange		D)	7 M F	4 9 1	2
	he SITRANS P pressure part) for level, for DS III		3		
Connection to EN 10	)92-1				
Nominal diameter	Nominal pressure				
DN 80	PN 40		D		
DN 100	PN 16 PN 40		G H		
Connection to ASME Nominal diameter					
3 inch	Nominal pressure Class 150		Q		
3 IIICII	Class 300		R		
4 inch	Class 300 Class 150		T		
4 111011	Class 300		Ü		
Other version, add			z		J 1 Y
Order Code and plair Nominal diameter:;					3 1 1
Wetted parts materia					
Stainless steel 316L			,	١	
- Coated with PFA					
- Coated with PTFE			E	0	
<ul> <li>Coated with ECTFE</li> </ul>	1)		F		
Monel 400, mat. no.	2.4360		0	<b>a</b>	
Hastelloy B2, mat. r			ŀ	1	
<ul> <li>Hastelloy C276, ma</li> </ul>				1	
Hastelloy C4, mat. r			ι	J	
Tantalum			ŀ	(	
Other version, add			7	,	K 1 Y
Order Code and plair	n text:				
	ntact with the medium:				
	chnical specifications"				
Tube length					
• None				0	
• 50 mm	(1.97 inch)			1	
• 100 mm	(3,94 inch)			2	
• 150 mm	(5.90 inch)			3	
• 200 mm	(7.87 inch)			4 9	1 4 V
Other version: add Order Code and plair	n text:			9	L 1 Y
tube length:	i toxt.				
Filling liquid					
• Silicone oil M5				1	
Silicone oil M50				2	
High-temperature of	il			3	
Halocarbon oil (for (				4	
<ul> <li>Glycerin/water<sup>2)</sup></li> </ul>	·			6	
• Food oil (FDA-listed	)			7	
Other version, add				9	M 1 Y
Order Code and plair	n text:				
filling liquid:					

1)	For	vacuum	on	request
----	-----	--------	----	---------

<sup>&</sup>lt;sup>2)</sup> Not suitable for use in low-pressure range

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Spark arrester For mounting on zone 0 (including documentation)	A01	✓	✓	
Certificate to EN 10204-2.2  For certification of oil - and grease-free cleaned and packed version for oxygen and summer applications in which only inert filling liquid may be used. (Only in conjunction with halocarbon oil fill fluid)	C10			
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11	✓	✓	
Inspection certificate Acc. to EN 10204-3.1	C12	✓	✓	
"Functional safety (SIL2)" certificate to IEC 61508	C20	✓		
(only for conjunction with the order code "C20" in the case of SITRANS P DS III transmitter)				
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	✓		
(only for conjunction with the order code "C23" in the case of SITRANS P DS III transmitter)				
Vacuum-proof design (for use in low-pressure range) Note: suffix "Y01" required with pressure transmitter!	V04	<b>√</b>	<b>√</b>	

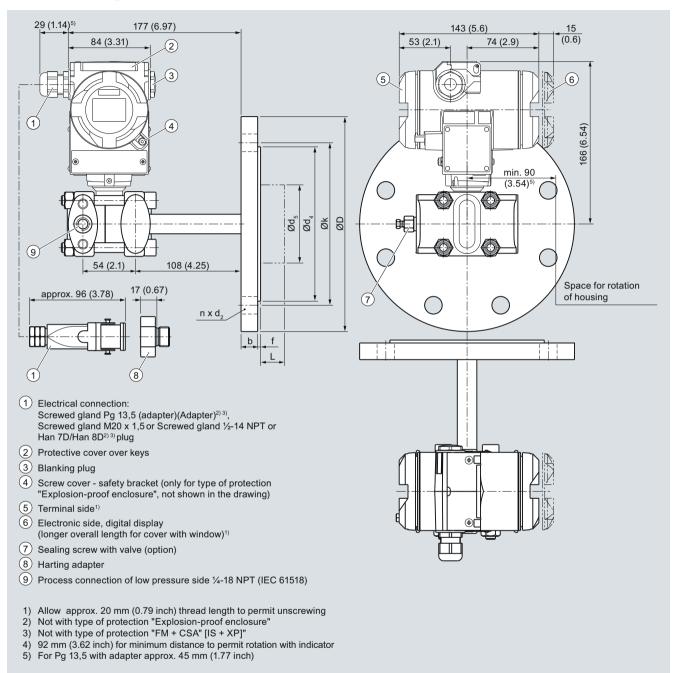
<sup>✓ =</sup> available

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

## Transmitters for general requirements

SITRANS P DS III for level

#### Dimensional drawings



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

## Transmitters for general requirements SITRANS P DS III for level

Connection to EN 1092-1

Nominal diameter	Nominal pressure	L	D	h	d <sub>2</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>M</sub>	j	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
DN 80	PN 40	24	200	90	18	138	76	72 <sup>1)</sup>	2	160	8	0, 50, 100,
DN 100	PN 16	20	220	115	18	158	94	89	2	180	8	150 or 200
	PN 40	24	235	115	22	162	94	89	2	190	8	

#### Connection to ASME B16.5

Nominal diameter	Nominal pressure	L	D	d <sub>2</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>M</sub>	j	k	n	L
		mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)	mm (inch)		mm (inch)
3 inch	150	0.94 (24.3)	7.5 (190)	0.75 (19.0)	5 (127)	3 (76)	2.81 <sup>1)</sup> (72)	0.06 (2)	6 (152,4)	4	0, 2, 3.94,
	300	1.12 (29)	8.25 (210)	0.87 (22.2)	5 (127)	3 (76)	2.81 <sup>1)</sup> (72)	0.06 (2)	6.69 (168,3)	8	5.94 or 7.87
4 inch	150	0.94 (24.3)	9 (230)	0.75 (19.0)	6.19 (157.2)	3.69 (94)	3.5 (89)	0.06 (2)	7.5 (190,5)	8	(0, 50, 100,
	300	1.25 (32.2)	10 (255)	0.87 (22.2)	6.19 (157.2)	3.69 (94)	3.5 (89)	0.06 (2)	7.88 (200)	8	150 or 200)

d: Internal diameter of gasket to DIN 2690

 $d_M$ : Effective diaphragm diameter

 $<sup>^{1)}</sup>$  89 mm =  $3\frac{1}{2}$  inch with tube length L=0.

## Transmitters for general requirements

SITRANS P DS III

Supplementary electronics for 4-wire connection

#### Overview



Direct connection of the supplementary electronics to a SITRANS P DS III pressure transmitter with HART produces a transmitter for 4-wire connection.

The supplementary electronics cannot be attached to explosion-protected pressure transmitters. The supplementary electronics is fitted in a light metal housing which is mounted on the left side of the pressure transmitter.

#### Note on ordering:

The supplementary electronics can only be ordered as an **optional accessory** for the corresponding pressure transmitter.

#### Technical specifications

SITRANS P, supplementary electron	onics for 4-wire connection
Output	
Output signal	0 20 mA or 4 20 mA
Load	Max. 750 Ω
Voltage measurement	Linear (square-rooting in transmitter if necessary)
Electrical isolation	Between power supply and input/ output
Measuring accuracy	acc. to IEC 60770-1
Measurement deviation (in addition to transmitter)	≤ 0.15 % of set span
Influence of ambient temperature	≤ 0.1 % per 10 K
Power supply effect	≤ 0.1 % per 10 % change in voltage or frequency
Load effect	≤ 0.1 % per 100 % change
Rated conditions	
Ambient temperature	-20 +80 °C (-4 +176 °F)
Storage temperature	-50 +85 °C (-58 +185 °F)
Degree of protection	IP54 to IEC 60529
Electromagnetic compatibility (EMC)	EN 50081, EN 50082

#### Structural design

Dimensions (W x H x D) in mm

(inch

Electrical connection

80 x 120 x 60 (3.15 x 4.72 x 2.36)

Screw terminals (Pg 13.5 cable inlet) or Han 7D / Han 8U plug

#### Power supply

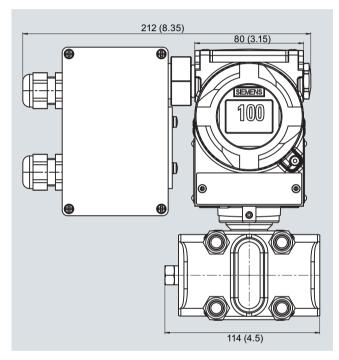
Supply voltage

230 V AC (-10 ... +6 %, 47 ... 63 Hz, approx. 6 VA) or 24 V AC/DC (24 V AC ± 10 %, 47 ... 63 Hz, approx. 3 VA)

Permissible ripple (within the specified limits)

Approx. 2.5 V pp

#### Dimensional drawings

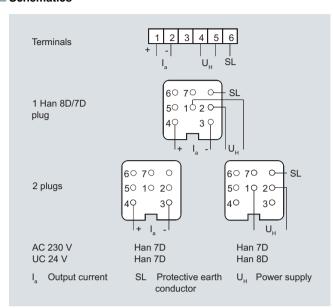


SITRANS P pressure transmitters with supplementary electronics for four-wire connection, dimension drawing, dimensions in mm

## Transmitters for general requirements

SITRANS P DS III
Supplementary electronics for 4-wire connection

### Schematics



Supplementary electronics for 4-wire connection, connection diagram

Selection and	Ordering data	Ord	de	r code
Supplementary connection Order No. of the 7MF4.331	V			
Power supply	Electrical connection			
24 V AC/DC	Terminals; 2 Pg screwed	1		
	glands, to left			
	2 Han 7D/Han 8U plugs	3		
	incl. mating connector, to left  1 Han 7D plug incl. mating	5		
	connector, angled	, and		
	Terminals; 1 Pg screwed	6		
	gland, downwards			
	1 Han 8U plug incl. mating connector, downwards (observe arrangement of plug and differential pressure line)	9		
230 V AC	Terminals; 2 Pg screwed glands, to left	7		
	2 Han 7D plugs incl. mating connector, to left	8		
Output current				
0 20 mA			0	
4 20 mA			1	
Accessories				
Instruction Ma German/English		<b>A</b> 5	E0	0322799

# Pressure Measurement Transmitters for general requirements SITRANS P DS III Accessories/Spare Parts

Selection and Ord	dering data	Ord	er l	No.					
Replacement measuring cell for pressure for SITRANS P DS III				7MF4990-					
				0 - 0	C (				
Measuring cell fill	ling Measuring cell cleaning								
Silicone oil	Normal	1							
Inert liquid	grease-free to cleanliness level 2	3							
Measured span (r	nin max.)								
0.01 1 bar	(0.15 14.5 psi)	В							
0.04 4 bar	(0.6 58 psi)	С							
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 mat	erials								
Seal diaphragm	Process connection								
Stainless steel	Stainless steel		۸						
Hastelloy	Stainless steel	ı	3						
Hastelloy	Hastelloy	(	)						
Process connecti	on								
<ul> <li>Connection shan</li> </ul>	ık G1⁄2B to EN 837-1		0						
• Female thread 1/2	-14 NPT		1						
	e of stainless steel,								
max. span 160 b									
	d <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518		2						
- Mounting threa	d M10 to DIN 19213		3						
Ex protection Ex	ia and Ex d				D				
Further designs		Ord	er (	code					
Please add " <b>-Z</b> " to Order code.	Order No. and specify								
Inspection certific	cate	C12							
to EN 10204-3.1									

Selection and Order	Selection and Ordering data				
pressure for SITRANS P DS III (from the					992- 0-0DC0
Silicone oil Inert liquid	Measuring cell cleaning Normal grease-free to cleanliness level 2		1 3		
<b>Measured span (min</b> 8.3 250 mbar a 43 1300 mbar a 0.16 5 bar a 1 30 bar a	(0.12 3.62 psia) (0.62 18.85 psia) (2.32 72.5 psia) (14.5 435 psia)		D F G H		
Wetted parts materi Seal diaphragm Stainless steel Hastelloy Hastelloy	Process connection Stainless steel Stainless steel Hastelloy	_	A E	1	
Process connection  Connection shank ( Female thread ½-1 Oval flange made of max. span 160 bar Mounting thread Mounting thread	1 G1/2B to EN 837-1 4 NPT of stainless steel, (2320 psi) 7/ <sub>16</sub> -20 UNF to IEC 61518			0 1 2 3	
Further designs Please add "-Z" to Or Order code.	der No. and specify		Orde	er o	code
Inspection certificate to EN 10204-3.1	te		C12		

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

## Transmitters for general requirements

**Accessories/Spare Parts** 

Selection and Order	ring data		Or	de	r No	0.	
Replacement measu	uring cell for absolute pres	• F)	7 N	۱F	4 9	93-	
SURE (from the differ	r <b>ential pressure series)</b> for h HART, DS III with PROFIBU	S				- 0 D C	0 (
	DUNDATION Fieldbus series	J					
Measuring cell fillin	g Measuring cell cleaning						
Silicone oil	Normal		1				
nert liquid	grease-free to		3				
	cleanliness level 2						
Measured span (mir	-						
3.3 250 mbar a 43 1300 mbar a	(0.12 3.62 psia)	E)					
13 1300 mbar a 0.16 5 bar a	(0.62 18.85 psia) (2.32 72.5 psia)	E) E)	ď				
1 30 bar a	(14.5 435 psia)	<u>_</u> )	H				
5.3 100 bar a	(76.9 1450 psia)			' (E			
Netted parts materi			Ľ	ì			
Seal diaphragm	Parts of measuring cell						
		_					
Stainless steel	Stainless steel			A B			
Hastelloy Hastelloy	Stainless steel Hastellov			C			
Tantalum	Tantalum			E			
Monel	Monel	E)		Н			
Gold	Gold	-)		L			
Process connection							
	NPT with flange connection						
	osite process connection						
- Mounting thread I					0		
	7/ <sub>16</sub> -20 UNF to IEC 61518				2		
<ul> <li>Vent on side of prod</li> </ul>	cess flange <sup>1)</sup>						
- Mounting thread I	M10 to DIN 19213				4		
- Mounting thread	<sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518				6		
Non-wetted parts m							
<ul> <li>Stainless steel prod</li> </ul>	ess flange screws				2		
Further designs			Or	de	r cc	ode	
Please add " <b>-Z</b> " to Or	der No. and specify						
Order code.							
O-rings for process	_						
(instead of FPM (Vito	n))						
PTFE (Teflon)			A2				
	core, approved for food)		A2				
FFPM (Kalrez, com	pouna 4079)		A2				
NBR (Buna N)			A2				
Inspection certificat	te		C1	2			
o EN 10204-3.1							
Process connection	n G½B		D1	6			
Remote seal flanges	S		D2	0			
(not together with K0							
/ent on side for gas	*		но	2			
	measurements			_			
Process flanges  without			ΚO	0			
<ul> <li>with process flange</li> </ul>	made of		KU	U			
Hastelloy	made UI		ΚO	1			
- Monel			K0				
- Stainless steel wit	th PVDF insert		K0				
max. PN 10 (MAV				-			
max.temperature	of medium 90 °C (194 °F)						
	er process connection on the	9					
side in the middle valve not possible	e of the process flange, vent						
·	•						
1) Not for span "5.3	100 bar (76.9 1450 psi)"						

1)	Not for	span	"5.3	100 bar	(76.9	1450 r	nsi)"

E) Subject to the export regulations AL: 2B230, ECCN: N.

	ering data	Order No.
pressure and PN 3 SITRANS P DS III w	suring cell for differential 2/160 (MAWP 464/2320 psi) for ith HART, DS III with PROFIBUS FOUNDATION Fieldbus series	7 M F 4 9 9 4 -
Measuring cell filli	ng Measuring cell cleaning	
Silicone oil	Normal	1
Inert liquid	grease-free to	3
Measured span (m PN 32 (MAWP 464 p		
1 20 mbar <sup>1)</sup>	(0.4 8 inH <sub>2</sub> O)	В
PN 160 (MAWP 232		
1 60 mbar	(0.4 24 inH <sub>2</sub> O)	C
2.5 250 mbar	(1 100 inH <sub>2</sub> O)	D
6 600 mbar	(2.4 240 inH <sub>2</sub> O)	E F
16 1600 mbar	(6.4 642 inH <sub>2</sub> O)	-
50 5000 mbar 0.3 30 bar	(20 2000 inH <sub>2</sub> O) (4.35 435 psi)	G H
	1 /	- "
Wetted parts mate (stainless steel proc		
Seal diaphragm	Parts of measuring cell	
Stainless steel Hastelloy	Stainless steel Stainless steel	A B
Hastellov	Hastelloy	B C
Tantalum <sup>2)</sup>	Tantalum	E
Monel <sup>2)</sup> Gold <sup>2)</sup>	Monel Gold	H
<ul> <li>Vent on side of pre</li> </ul>	1 <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518 ocess flange	2
- Mounting thread Non-wetted parts r		6
- Mounting thread Non-wetted parts r Stainless steel proc	1 / <sub>16</sub> -20 UNF to IEC 61518 materials	6
<ul> <li>Mon-wetted parts I Stainless steel proc Further designs</li> </ul>	1 / <sub>16</sub> -20 UNF to IEC 61518 materials	2 Order code
- Mounting thread Non-wetted parts r Stainless steel proc Further designs Please add "-Z" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor	materials less flange screws  Order No. and specify Order code s flanges con))  core, approved for food)	2 Order code
- Mounting thread Non-wetted parts r Stainless steel proc Further designs Please add "-Z" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon)	materials less flange screws  Order No. and specify Order code s flanges lon))  core, approved for food) mpound 4079)	6 2 Order code 3. A20 A21 A22
- Mounting thread Non-wetted parts in Stainless steel proc Further designs Please add "-2" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor • NBR (Buna N) Inspection certification to EN 10204-3.1 Remote seal flange	materials less flange screws  Order No. and specify Order code s flanges on))  core, approved for food) mpound 4079)  ate	2 Order code 3. A20 A21 A22 A23
- Mounting thread Non-wetted parts in Stainless steel proc Further designs Please add "-2" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor • NBR (Buna N) Inspection certification to EN 10204-3.1 Remote seal flange	materials less flange screws  Order No. and specify Order code s flanges on))  core, approved for food) mpound 4079)  ate	2 Order code 2. A20 A21 A22 A23 C12
- Mounting thread Non-wetted parts r Stainless steel proc Further designs Please add "-Z" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor • NBR (Buna N) Inspection certifica	materials pess flange screws  Order No. and specify Order code s flanges con))  core, approved for food) mpound 4079)  ate  es co1, K02 and K04)	2 Order code 2. A20 A21 A22 A23 C12
- Mounting thread Non-wetted parts in Stainless steel proc Further designs Please add "-Z" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor • NBR (Buna N) Inspection certification to EN 10204-3.1 Remote seal flange (not together with K Vent on side for gar	materials ress flange screws  Order No. and specify Order code s flanges ron))  core, approved for food) mpound 4079)  ate  es ron, K02 and K04) as measurements recess flanges for vertical re lines	A20 A21 A22 A23 C12
- Mounting thread Non-wetted parts in Stainless steel proce Further designs Please add "-Z" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor • NBR (Buna N) Inspection certificate to EN 10204-3.1 Remote seal flange (not together with K Vent on side for ga Stainless steel prodifferential pressu (not together with K Process flanges	materials ress flange screws  Order No. and specify Order code s flanges ron))  core, approved for food) mpound 4079)  ate  es ron, K02 and K04) as measurements recess flanges for vertical re lines	A20 A21 A22 A23 C12 D20 H02 H03
- Mounting thread Non-wetted parts in Stainless steel proce Further designs Please add "-Z" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor • NBR (Buna N) Inspection certificate to EN 10204-3.1 Remote seal flange (not together with K Vent on side for ga Stainless steel prodifferential pressu (not together with K Process flanges • without	materials pess flange screws  Order No. and specify Order code s flanges con))  core, approved for food) mpound 4079)  ate  es poly, K02 and K04) as measurements press flanges for vertical re lines poly, K02 and K04)	A20 A21 A22 A23 C12 D20 H02
- Mounting thread Non-wetted parts in Stainless steel proce Further designs Please add "-Z" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor • NBR (Buna N) Inspection certificate to EN 10204-3.1 Remote seal flange (not together with K Vent on side for ga Stainless steel prodifferential pressu (not together with K Process flanges • without • with process flange	materials pess flange screws  Order No. and specify Order code s flanges con))  core, approved for food) mpound 4079)  ate  es poly, K02 and K04) as measurements press flanges for vertical re lines poly, K02 and K04)	A20 A21 A22 A23 C12 D20 H02 H03
- Mounting thread Non-wetted parts in Stainless steel proc Further designs Please add "-Z" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor • NBR (Buna N) Inspection certification EN 10204-3.1 Remote seal flange (not together with K Vent on side for ga Stainless steel prodifferential pressu (not together with K Process flanges • without • with process flange - Hastelloy	materials pess flange screws  Order No. and specify Order code s flanges con))  core, approved for food) mpound 4079)  ate  es poly, K02 and K04) as measurements press flanges for vertical re lines poly, K02 and K04)	A20 A21 A22 A23 C12 D20 H02 H03
- Mounting thread Non-wetted parts in Stainless steel proc Further designs Please add "-Z" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor • NBR (Buna N) Inspection certification EN 10204-3.1 Remote seal flange (not together with K Vent on side for ga Stainless steel prodifferential pressu (not together with K Process flanges • without • with process flange - Hastelloy - Monel	materials mess flange screws  Order No. and specify Order code s flanges on))  core, approved for food) mpound 4079)  ate  es 01, K02 and K04) as measurements ocess flanges for vertical re lines 01, K02 and K04)	A20 A21 A22 A23 C12 D20 H02 H03 K00 K01 K02
- Mounting thread Non-wetted parts in Stainless steel proc Further designs Please add "-Z" to C O-rings for proces (instead of FPM (Vit • PTFE (Teflon) • FEP (with silicone • FFPM (Kalrez, cor • NBR (Buna N) Inspection certification EN 10204-3.1 Remote seal flange (not together with K Vent on side for ga Stainless steel prodifferential pressu (not together with K Process flanges • without • with process flange - Hastelloy	materials mess flange screws  Order No. and specify Order code s flanges on))  core, approved for food) mpound 4079)  ate  es 01, K02 and K04) as measurements ocess flanges for vertical re lines 01, K02 and K04)  ge made of	A20 A21 A22 A23 C12 D20 H02 H03

<sup>1)</sup> Not suitable for connection of remote seal

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

<sup>2)</sup> Only together with max. spans 250, 1600, 5000 and 30000 mbar (100 inH<sub>2</sub>O, 642 inH<sub>2</sub>O, 2000 inH<sub>2</sub>O und 435 psi).

# Pressure Measurement Transmitters for general requirements SITRANS P DS III Accessories/Spare Parts

Selection and Ordering	Order No.			
	ng cell for differential MAWP 6092 psi) for ART, DS III with PROFIBUS NDATION Fieldbus series	7 M F 4 9		
Measuring cell filling	Measuring cell cleaning			
Silicone oil	Normal	1		
Measured span (min 2.5 250 mbar 6 600 mbar 16 1600 mbar 50 5000 mbar 0.3 30 bar	<b>max.)</b> (1 100 inH <sub>2</sub> O) (2.4 240 inH <sub>2</sub> O) (6.4 642 inH <sub>2</sub> O) (20 2000 inH <sub>2</sub> O) (4.35 435 psi)	D E F G		
Wetted parts materials				
(stainless steel process	flanges)			
Seal diaphragm	Parts of measuring cell			
Stainless steel Hastelloy Gold <sup>1)</sup>	Stainless steel Stainless steel Gold	A B L		
Female thread 1/4-18 NP connection  • Sealing screw opposit  - Mounting thread M1:  - Mounting thread <sup>7</sup> / <sub>16</sub> • Vent on side of proces  - Mounting thread M1:  - Mounting thread <sup>7</sup> / <sub>16</sub> Non-wetted parts mate  • Stainless steel process	e process connection 2 to DIN 19213 -20 UNF to IEC 61518 s flange 2 to DIN 19213 -20 UNF to IEC 61518	1 3 5 7		
Further designs		Order co	de	
Please add "-Z" to Order code.	No. and specify Order			
O-rings for process flat (instead of FPM (Viton))  PTFE (Teflon)  FEP (with silicone core FFPM (Kalrez, compout NBR (Buna N) Inspection certificate to EN 10204-3.1  Stainless steel process differential pressure line	e, approved for food) und 4079) s flanges for vertical	A20 A21 A22 A23 C12		
without process flange	K00			

 $<sup>^{1)}</sup>$  Not together with max. span 600 mbar (240.9 inH $_2$ O)

# Pressure Measurement Transmitters for general requirements SITRANS P DS III Accessories/Spare Parts

Selection and Odering data	Order No.	Selection and Odering data	Order No.
Spare parts/Accessories		Digital indicator	7MF4997-1BR
Mounting bracket and fastening parts for pressure transmitters SITRANS P DS III with HART, DS III with		Including mounting material for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus	
PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF403C.) For absolute pressure transmitters SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION		Measuring point label • without inscription (5 units) • Printed (1 unit) Data according to Y01 or Y02, Y15 and Y16 (see "Pressure transmitters")	7MF4997-1CA 7MF4997-1CB-Z Y:
Fieldbus (7MF423C.)		Mounting screws	
made of steel     made of stainless steel	7MF4997-1AB 7MF4997-1AH	For measuring point label, grounding and con- nection terminals or for display (50 units)	7MF4997-1CD
Mounting bracket and fastening parts for pressure transmitters SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldous		Sealing screws (1 set = 2 units) for process flange • made of stainless steel • made of Hastelloy	7MF4997-1CG 7MF4997-1CH
(7MF403A.,B.,D. andF.) For absolute pressure transmitters STRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus 7MF423A.,B.,D. andF.)		Sealing screws with vent valve Complete (1 set = 2 units)  • made of stainless steel  • made of Hastelloy	7MF4997-1CP 7MF4997-1CQ
<ul> <li>made of steel</li> <li>made of stainless steel</li> <li>Mounting and fastening brackets</li> </ul>	7MF4997-1AC 7MF4997-1AJ	Electronics • for SITRANS P DS III with HART • for SITRANS P DS III with PROFIBUS PA • for SITRANS P DS III with FOUNDATION Fieldbus	7MF4997-1DK 7MF4997-1DL 7MF4997-1DM
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)		Connection board  • for SITRANS P DS III  • for SITRANS P DS III PROFIBUS PA and FOUNDATION Fieldbus	7MF4997-1DN 7MF4997-1DP
made of steel     made of stainless steel  Mounting and fastening brackets For differential pressure transmitters with flange thread M12 SITRANS P DS III with HART, DS III with	7MF4997-1AD 7MF4997-1AK	O-rings for process flanges made of:  FPM (Viton)  PTFE (Teflon)  FEP (with silicone core, approved for food)  FFPM (Kalrez, compound 4079)  NBR (Buna N)  Fy	7MF4997-2DC 7MF4997-2DD
PROFIBUS PA and DS III with FOUNDATION Fieldbus		Sealing ring for process connection	see "Fittings"
(7MF453) • made of steel • made of stainless steel	7MF4997-1AE 7MF4997-1AL	Weldable sockets for PMC connection • PMC Style Standard: Thread 1½" • PMC Style Minibolt: front-flush 1"	7MF4997-2HA 7MF4997-2HB
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			7MF4997-2HC
PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF433, 7MF443 and 7MF453)		Thread 1½"  • Gasket made of Viton for PMC Style Minibolt: F) front-flush 1"	7MF4997-2HD
<ul><li>made of steel</li><li>made of stainless steel</li></ul>	7MF4997-1AF 7MF4997-1AM	Weldable socket for TG52/50 and TG52/150 connection	
Cover		<ul><li>TG52/50 connection</li><li>TG52/150 connection</li></ul>	7MF4997-2HE 7MF4997-2HF
made of die-cast aluminum, including gasket, for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION		Seals for TG 52/50 and TG 52/150 made of silicone	7MF4997-2HG
Fieldbus  • without window  • with window  F  Cover  made of stainless steel, including gasket, for SITRANS P DS III with HART, DS III with	7MF4997-1BE	• DN 25, PN 100 (M21)	7MF4997-2HK
	) 7MF4997-1BC ) 7MF4997-1BF	<ul><li>available ex stock</li><li>F) Subject to export regulations AL: 91999, ECCN: N</li></ul>	

## Pressure Measurement Transmitters for general requirements

### SITRANS P DS III Accessories/Spare Parts

Selection and Odering data	Order No.
Operating Instructions <sup>1)</sup>	
<ul> <li>for SITRANS DS III with HART</li> <li>German</li> <li>English</li> <li>French</li> <li>Spanish</li> <li>Italian</li> </ul>	A5E00047090 A5E00047092 A5E00053218 A5E00053219 A5E00053220
for SITRANS DS III with PROFIBUS PA     German     English     French     Spanish     Italian     for SITRANS DS III with FOUNDATION Fieldbus	A5E00053275 A5E00053276 A5E00053277 A5E00053278 A5E00053279
- German - English	A5E00279629 A5E00279627
Brief instruction (Leporello) German, English  • for SITRANS DS III with HART  - German, English  • for SITRANS DS III with PROFIBUS PA  - German, English  • for SITRANS DS III with FOUNDATION Fieldbus  - German, English  CD with documentation	A5E00047093 A5E00053274 A5E00282355 A5E00090345
for SITRANS P, P300 series, SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus series German, English, French, Spanish, Italian  Certificates (order only via SAP) instead of Internet download	AFE022F2406
<ul><li>hard copy (to order)</li><li>on CD (to order)</li></ul>	A5E03252406 A5E03252407
Operating Instructions for replacement of electronics, measuring cell and connection board (only available from the Internet) <sup>1)</sup> HART modem	A5E00078060
• with RS232 interface	7MF4997-1DA
• with USB interface	7MF4997-1DB
Supplementary electronics for 4-wire connection	See page 2/151
a cycloblo cy ctool	

▶ available ex stock

Power supply units see Chap. 8 "Supplementary Components".

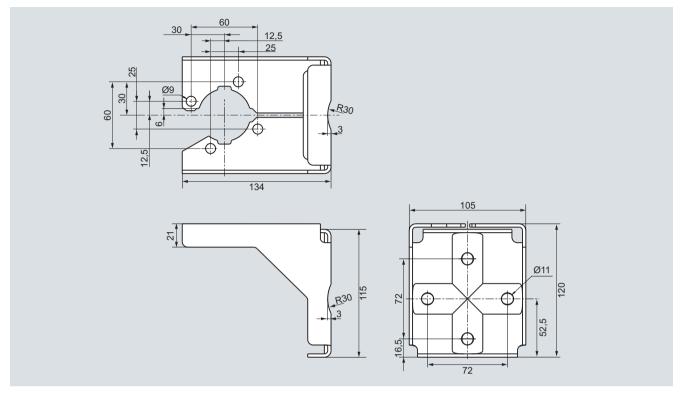
You can download these operating instructions free-of-charge from our Internet site at www.siemens.com/sitransp.

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

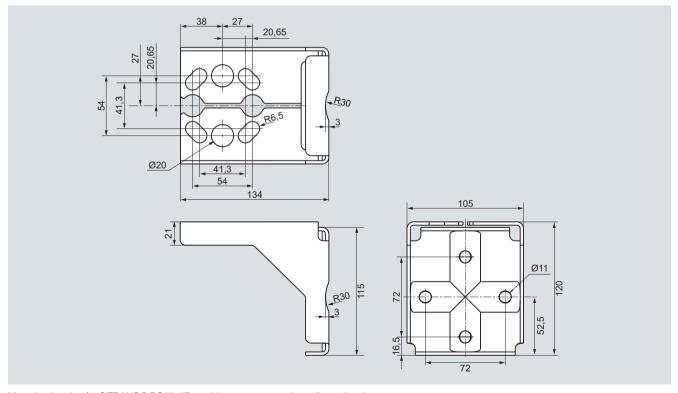
## Transmitters for general requirements

SITRANS P DS III Accessories/Spare Parts

### Dimensional drawings



Mounting bracket for SITRANS P DS III 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 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)

## Transmitters for general requirements

SITRANS P DS III 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 EN10204 when choosing the option "Factory mounting of valve manifolds", a separate certificate is provided for the transmitters and the valve manifolds respectively.

#### Selection and Ordering data

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



Add <b>-Z</b> to the Order No. of the transmitter and add order codes	Order code
SITRANS P DSIII 7MF4031, 7MF4231	T03
With process connection female thread ½-14 NPT in-sealed with PTFE sealing tape	
Delivery incl. high-pressure test certified by test report to EN10204-2.2	
Further designs:	
Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	A02
Supplied acceptance test certificate to EN 10204- 3.1 for transmitters and mounted valve manifold	C12

Add -Z to the Order No. of the transmitter Order

#### 7MF9011-4EA

#### valve manifold on relative and absolute pressure transmitters



and add order codes	code
SITRANS P DSIII 7MF4030, 7MF4230 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	A70 A71 A72
Delivery incl. high-pressure test certified by test report to EN 10204-2.2	
Further designs:	
Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	A02
Supplied acceptance test certificate to EN 10204- 3.1 for transmitters and mounted valve manifold	C12

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



	Add <b>-Z</b> to the Order No. of the transmitter and add order codes	Order code
1	SITRANS P DSIII 7MF433, 7MF443 and 7MF453 1)	
	mounted with gaskets made of PTFE and screws made of	
	chromized steel     made of stainless steel	U01 U02
	Delivery incl. high-pressure test certified by test report to EN 10204-2.2	002
	Further designs:	
	Delivery includes mounting bracket and mounting clips made of  • Steel	A01
	• Stainless steel	A02
	(instead of the mounting bracket supplied with the transmitter)	
	Supplied acceptance test certificate to EN 10204-3.1 for transmitters and mounted valve manifold	C12

## 7MF9411-5CA valve manifold on differential pressure transmitters



on differential pressure transmitters			
	Add <b>-Z</b> to the Order No. of the transmitter and add order codes	Order code	
	SITRANS P DSIII 7MF443 and 7MF4531 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	

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

## Transmitters for general requirements SITRANS P DS III Factory-mounting

of valve manifolds on transmitters

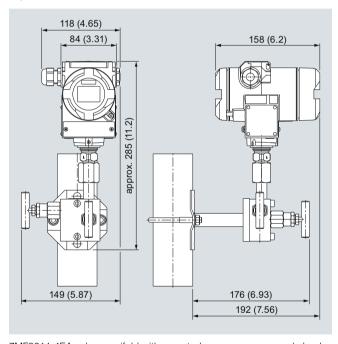
### Dimensional drawings

#### Valve manifolds mounted on SITRANS P DS III

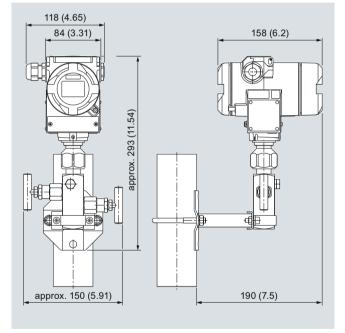


7MF9011-4EA valve manifold with mounted gauge pressure and absolute pressure transmitters





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



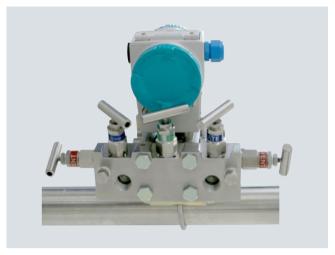
 $7MF9011\mbox{-}4FA$  valve manifold with mounted gauge pressure and absolute pressure transmitters, dimensions in mm (inch)

## Transmitters for general requirements SITRANS P DS III Factory-mounting

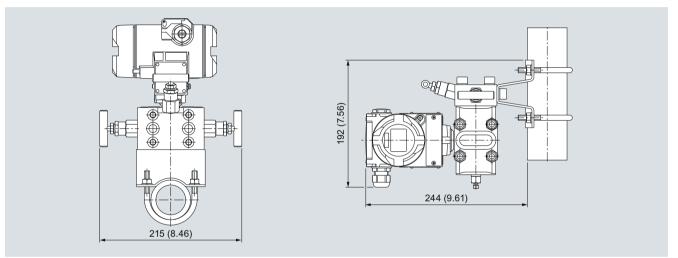
of valve manifolds on transmitters



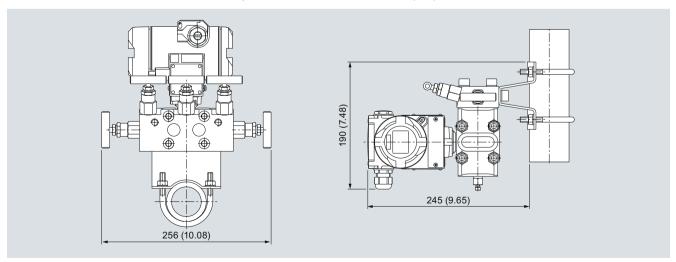
7MF9411-5BA valve manifold with mounted differential pressure trans-



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



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)