#### 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.

### Transmitters for general requirements

SITRANS P DS III Technical description

#### Pressure transmitter for gauge pressure

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

Span (infinitely adjustable)

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

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

#### Pressure transmitters for absolute pressure

Measured variable: Absolute pressure of aggressive and 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 q ~ √∆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 liquids in open and closed vessels.

Span (infinitely adjustable)

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

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

#### Nominal diameter of the mounting flange

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

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

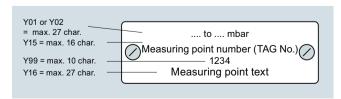
The approval label is located on the opposite side.

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

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

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

#### Example for an attached measuring point label

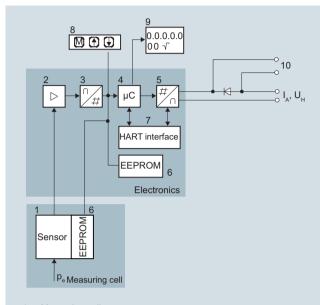


#### Transmitters for general requirements

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
- 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.

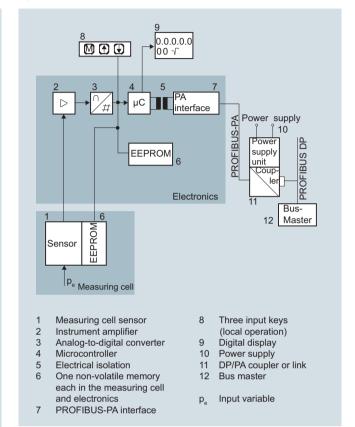
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

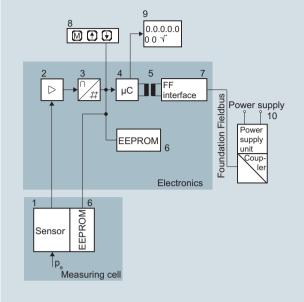
Using the three input buttons (8) you can parameterize the pressure transmitter directly at the measuring point. The input buttons can also be used to control the view of the results, the error messages and the operating modes on the display (9).

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



- 1 Measuring cell sensor
- 2 Instrument amplifier
- 3 Analog-to-digital converter
- 4 Microcontroller
- 5 Electrical isolation
- One non-volatile memory each in the measuring cell and electronics
- 7 FF interface

- 8 Three input keys (local operation)
- 9 Digital display
- 10 Power supply
- p<sub>e</sub> Input variable

#### 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).

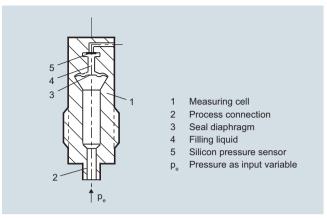
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

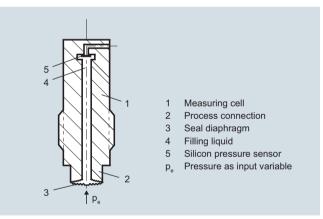
Measuring cell for gauge pressure



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



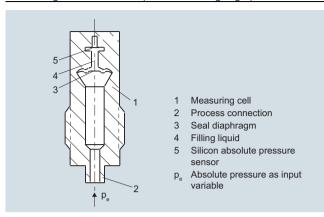
Measuring cell for gauge pressure, with front-flush diaphragm for paper industry, function diagram

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

#### Transmitters for general requirements

#### SITRANS P DS III Technical description

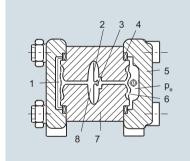
Measuring cell for absolute pressure from gauge pressure series



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

The absolute pressure pe 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

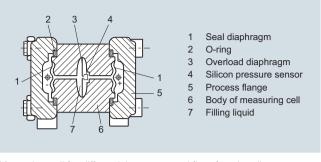
Measuring cell for absolute pressure from differential pressure series, function diagram

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



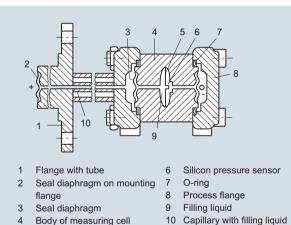
Measuring cell for differential pressure and flow, function diagram

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 (3) is flexed until the seal diaphragm rests on the body of the measuring cell (6), thus protecting the silicon pressure sensor from overloads.

#### Measuring cell for level



Measuring cell for level, function diagram

Overload diaphragm

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.

of mounting flange

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

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

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

#### Transmitters for general requirements

SITRANS P DS III
Technical description

#### Parameterization DS III

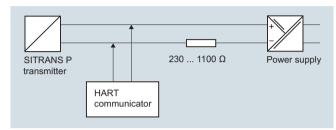
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

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

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

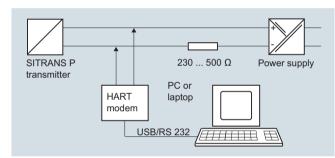
#### Parameterization using HART

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, Do III With HATT					
Parameters	Input keys (DS III HART)	HART communication			
Start of scale	Х	Х			
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")	Х	Х			
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		X			

<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	X
Zero adjustment (correction of position)	X	×
Buttons and/or function disabling	X	X
Source of measured-value display	X	X
Physical dimension of display	X	X
Position of decimal point	X	X
Bus address	X	X
Adjustment of characteristic	X	X
Input of characteristic		х
Freely-programmable LCD		X
Diagnostics functions		X

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

## Transmitters for general requirements

# SITRANS P DS III Technical description

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

Trysical differences available for the diopiay				
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), 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, Imp. gallon, bushel, barrel, barrel liquid			
volume flow	$\rm m^3/s,m^3/min,m^3/h,m^3/d,l/s,l/min,l/h,l/$ d, Ml/d, $\rm ft^3/s,ft^3/min,ft^3/h,ft^3/d,US$ gallon/s, US gallon/min, US gallon/h, US gallon/d, bbl/s, bbl/min, bbl/h, bbl/d			
Mass flow	g/s, g/min, g/h, g/d, kg/s, kg/min, kg/h, kg/d, t/s, t/min, t/h, /t/d, lb/s, lb/min, lb/h, lb/d, STon/s, STon/min, STon/h, STon/d, LTon/s, LTon/min, LTon/h, LTon/d			
Total mass flow	t, kg, g, lb, oz, LTon, STon			
Temperature	K, °C, °F, °R			
Miscellaneous	%			

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

#### Technical specifications

SITRANS P, DS III series for gauge pressure						
	HART		PROFIBUS PA and F	OUNDATION Fieldbus		
Input Measured variable	Gauge pressure					
Spans (infinitely adjustable) or nominal measuring range and	Span (min max.) Max. perm. test pressure		Nominal measuring range	Max. perm. test pressure		
max. permissible 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			ar a (0.44 psia)			
Measuring cell with inert filling liquid			ar a (0.44 psia)			
Upper measuring limit	100 % of max. sp	an (for oxygen version	and inert filling liquid; max	x. 120 bar (1740 psi))		
Output	4 00 4		District PROFIDE OF	and FOLIND ATION E		
Output signal	4 20 mA		bus signal	ital PROFIBUS PA and FOUNDATION Field signal		
Lower limit (infinitely adjustable)	3.55 mA, factory preset to 3.84 mA		-			
Upper limit (infinitely adjustable)	23 mA, factory preset set to 22.0 mA	to 20.5 mA or optionally				
Load	D (/// /0.5)(0.0					
• 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	$R_{\rm B}$ = 230 500 $\Omega$ (SIMATIC PDM) or $R_{\rm B}$ = 230 1100 $\Omega$ (HART Communicator)		-			
Physical bus	-		IEC 61158-2			
Protection against polarity reversal	Protected against sho		eversal. Each connection a ply voltage.	gainst the other with ma		
Electrical damping (step width 0.1 s)		Set to 2	2 s (0 100 s)			
Measuring accuracy		Acc. to	DIEC 60770-1			
Reference conditions (All error data refer always refer to the set span)			0 bar, stainless steel seal F)) r: Span ratio (r = max. s			
Error in measurement at limit setting incl. hysteresis and reproducibility			0.075.61			
Linear characteristic	* (0.0000 0.07 t) *	V	≤ 0.075 %			
- r ≤ 10	$\leq (0.0029 \cdot r + 0.071)$ 9					
- 10 < r ≤ 30	$\leq (0.0045 \cdot r + 0.071)$ 9	<b>′</b> o				
- 30 < r ≤ 100	$\leq$ (0.005 · r + 0.05) %					
Long-term stability (temperature change ± 30 °C (± 54 °F))						
• 1 4-bar measuring cell	≤ (0.25 · r) % per 5 yea		≤ 0.25 % per 5 years			
• 16 700-bar measuring cell	≤ (0.125 · r) % per 5 ye	ears	≤ 0.125 % per 5 years			
Influence of ambient temperature	(= ==					
• at -10 +60 °C (14 140 °F)	$\leq$ (0.08 · r + 0.1) % <sup>1)</sup> $\leq$ 0.3 % (at 700 bar: $\leq$ (0.1 · r + 0.2) % <sup>2)</sup>					
• at -4010 °C and +60 +85 °C (-40 +14 °F and 140 185 °F)	≤ (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 gauge pressure

SITRANS P, DS III series for gauge pressure		
	HART	PROFIBUS PA and FOUNDATION Fieldbus
Rated conditions		
Degree of protection (to EN 60529)	IP65 (optional IP65/IP68)	
Temperature of medium		
<ul> <li>Measuring cell with silicone oil filling</li> </ul>	-40 +100 °C	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	C (-4 +140 °F)
Ambient conditions		
Ambient temperature		
- Transmitter (with 4-wire connection, observe temperature values of supplementary 4-wire electronics)	-40 +85 °C (-40 +185 °F)	
- Display readable	-30 +85 °C	(-22 +185 °F)
Storage temperature	-50 +85 °C	(-58 +185 °F)
Climatic class		
- Condensation	Relative hum Condensation permissible,	idity 0 100 % suitable for use in the tropics
Electromagnetic Compatibility		
- Emitted interference and interference immunity	Acc. to IEC 61326	and NAMUR NE 21
Design		
Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AISi 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, mat. no. 1.4404/316L	
Seal diaphragm	Stainless steel, mat. no. 1.4404/310	6L or Hastelloy C276, mat. no. 2.4819
Measuring cell filling		inert filling liquid pressure 100 bar (1450 psi) at 60 °C (140 °F))
Process connection		-1, female thread $\frac{1}{2}$ -14 NPT or oval flange mounting thread M10 or $\frac{7}{16}$ -20 UNF to EN 61518
Material of mounting bracket		
Steel	Sheet-steel, Mat. No.	1.0330, chrome-plated
Stainless steel	Sheet stainless steel,	mat. no. 1.4301 (SS 304)
Power supply $U_{H}$		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
<ul> <li>Start-up current ≤ basic current</li> </ul>	-	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 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	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 13 A	ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/il	b IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +70 °C (-40 +158 °F) temperature class T5; -40 +60 °C (-40 +140 °F) temperature class T6		
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW; $R_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0$ = 17.5 V, $I_0$ = 380 mA, $P_0$ = 5.32 W Linear barrier: $U_0$ = 24 V, $I_0$ = 174 mA, $P_0$ = 1 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 E	x d IIC T4/T6 Gb	
- Permissible ambient temperature		85 °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	Ex II 1 D IP65 T 120 °C Ex II 1/2 D IP65 T 120 °C		
- Permissible ambient temperature	-40 +85 °C	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, $R_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}, \ I_0 = 380 \text{ mA}, \ P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}, \ I_0 = 250 \text{ mA}, \ P_0 = 1 \text{ W}$	
- 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 I	IP65 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: $U_{\rm H} = 9 \dots 32 \text{ V DC}; P_{\rm max} = 1 \text{ W}$	
<ul> <li>Type of protection "n" (zone 2)</li> </ul>	PTB 13 A	ATEX 2007 X	
- Marking		nA II T4/T5/T6 Gc ic IIC T4/T5/T6 Gc	
- Connection (Ex nA)	$U_{\rm m} = 45 \text{ V}$	$U_{\rm m} = 32 \text{ V}$	
- Connections (Ex ic)	To circuits with values: $U_1 = 45 \text{ V}$	FISCO supply unit ic: $U_0 = 17.5 \text{ V}$ , $I_0 = 570 \text{ mA}$ Linear barrier: $U_0 = 32 \text{ V}$ , $I_0 = 132 \text{ mA}$ , $P_0 = 1 \text{ W}$	
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH},  C_{\rm i} = 6  {\rm nF}$	$L_i = 7 \mu H, C_i = 1,1 nF$	
<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, 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 Compliance 1153651		
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABC T4T6; CL II, DIV 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 . 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 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
<ul> <li>Analog input</li> </ul>	
<ul> <li>Adaptation to customer-specific 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 warn- ing 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 mea- sured pressure value and sen- sor 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

Selection and Ordering			Art	icle	No	٥.	
Pressure transmitter fo SITRANS P DS III with I	r gauge pressure, HART					3 3	-
Measuring cell filling	Measuring cell cleaning	-					
Silicone oil	normal	▶₩	1				
Inert liquid <sup>1)</sup>	grease-free to		3				
	cleanliness level 2						
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 0.63 63 bar	(2.32 232 psi)		D				
1.6 160 bar	(9.14 914 psi) (23.2 2320 psi)		F				
4.0 400 bar	(58.0 5802 psi)	-	G				
7.0 700 bar	(102.010153 psi)	<b></b>	J				
Wetted parts materials	(10210 11110 100 100)						
Seal diaphragm	Process connection	_					
Stainless steel	Stainless steel	<b>&gt;</b>		Α			
Hastelloy	Stainless steel			В			
Hastelloy	Hastelloy			C			
Version as diaphragm se	eal =1 =1 =1 =1			Y			
Process connection							
Connection shank G½				9			
Female thread ½-14 N				1			
<ul> <li>Stainless steel oval flar nection (Oval flange has</li> </ul>	nge with process con-						
- Mounting thread <sup>7</sup> / <sub>16</sub>				2	,		
- Mounting thread M10				3			
- Mounting thread M12				4			
<ul> <li>Male thread M20 x 1.5</li> </ul>				5	5		
<ul> <li>Male thread ½ -14 NPT</li> </ul>	-			6	6		
Non-wetted parts mate	rials						
<ul> <li>Housing made of die-c</li> </ul>		▶₩			0		
<ul> <li>Housing stainless stee</li> </ul>	I precision casting <sup>6)</sup>				3		
Version							
<ul> <li>Standard versions</li> </ul>						1	
<ul> <li>International version, E</li> </ul>						2	
tions, documentation in (no Order code selecta							
•	,						
Explosion protection  None							A
<ul><li>None</li><li>With ATEX, Type of pro</li></ul>	tection:	_				ľ	^
- "Intrinsic safety (Ex ia		•					В
- "Explosion-proof (Ex	d)" <sup>7)</sup>						D
- "Intrinsic safety and f		•					Р
/E · E · \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \							
(Ex ia + Ex d)"8)							
<ul> <li>"Ex nA/ic (Zone 2)"<sup>9)</sup></li> </ul>		•					E
<ul> <li>"Ex nA/ic (Zone 2)"<sup>9)</sup></li> <li>"Intrinsic safety, exploand dust explosion properties."</li> </ul>	osion-proof enclosure rotection (Ex ia + Ex d +	<b>*</b>					E R
<ul> <li>"Ex nA/ic (Zone 2)"<sup>9)</sup></li> <li>"Intrinsic safety, exploand dust explosion properties of the safety of the saf</li></ul>	rotection (Ex ia + Ex d +					ı	R
<ul> <li>"Ex nA/ic (Zone 2)"<sup>9)</sup></li> <li>"Intrinsic safety, exploand dust explosion properties of the control of the</li></ul>	rotection (Ex ia + Ex d + e (is)						R F
<ul> <li>"Ex nA/ic (Zone 2)"<sup>9)</sup></li> <li>"Intrinsic safety, exploand dust explosion program 20 to 1D/2D)"<sup>8)</sup></li> <li>FM + CSA intrinsic safe</li> <li>FM + CSA (is + ep) + E</li> </ul>	rotection (Ex ia + Ex d + e (is) Ex ia + Ex d (ATEX)						R
<ul> <li>"Ex nA/ic (Zone 2)"<sup>9)</sup></li> <li>"Intrinsic safety, exploand dust explosion properties of the propertie</li></ul>	rotection (Ex ia + Ex d + e (is) Ex ia + Ex d (ATEX)	-					R F
- "Ex nA/ic (Zone 2)"  - "Intrinsic safety, exploand dust explosion property of the control of	rotection (Ex ia + Ex d + e (is) Ex ia + Ex d (ATEX) of protection: plosion Proof (is + xp)"	-					R F S
- "Ex nA/ic (Zone 2)"9)  - "Intrinsic safety, exploand dust explosion properties of the properties of	rotection (Ex ia + Ex d + e (is) Ex ia + Ex d (ATEX) of protection: plosion Proof (is + xp)"/ cable entry	-					R F S
- "Ex nA/ic (Zone 2)"9)  - "Intrinsic safety, exploand dust explosion properties of the properties of	rotection (Ex ia + Ex d + e (is) Ex ia + Ex d (ATEX) of protection: plosion Proof (is + xp)** cable entry 5 (adapter)** 10	-					R F S N C
- "Ex nA/ic (Zone 2)"9)  - "Intrinsic safety, exploand dust explosion properties of the control	rotection (Ex ia + Ex d + e (is) Ex ia + Ex d (ATEX) of protection: plosion Proof (is + xp)"/ cable entry 5 (adapter) <sup>10)</sup> 1.5 IPT	7)					F S N C
<ul> <li>"Ex nA/ic (Zone 2)"<sup>9)</sup></li> <li>"Intrinsic safety, exploand dust explosion property in the series of the serie</li></ul>	rotection (Ex ia + Ex d + e (is) Ex ia + Ex d (ATEX) of protection: plosion Proof (is + xp)"/ cable entry 5 (adapter) <sup>10)</sup> 1.5 IPT	7)					F S NC

Selection and Ordering data		Article No.	
Pressure transmitter for gauge pressure,		7 M F 4 0 3 3 -	
SITRANS P DS III with HART			1
Display			
Without display			0
<ul> <li>Without visible display (display concealed, setting: mA)</li> </ul>	<b>&gt;</b>		1
• With visible display, setting: mA			6
• with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)	•		7

- Available ex stock
- We can offer shorter delivery times for configurations designated with the Quick Ship Symbol . For details see page 9/5 in the appendix.

Power supply units see Chap. 7 "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.
- 4) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF403.-.Y..-... and 7MF4900-1...-.B
- 5) The standard measuring cell filling of configurations with remote seals (Y) is silicone oil.
- 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 Ex ia and blanking plug
- $^{\rm 9)}$  Configurations with HAN and M12 connectors are only available in Ex ic.
- <sup>10)</sup>Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- <sup>11)</sup>M12 delivered without cable socket

#### Transmitters for general requirements

SITRANS P DS III for gauge pressure

ioi gauge pressu				
Selection and Ordering	g data	Article N	lo.	
Pressure transmitter for				
		7ME 4 0	3.4 -	
SITRANS P DS III with PROFIBUS PA (PA)		7 M F 4 0 3 4 -		
SITRANS P DS III with FOUNDATION Fieldbus (FF)		7 M F 4 0 3 5 -		
(,				
Measuring cell filling	Measuring cell clean- ing			
Silicone oil	normal	1		
Inert liquid <sup>1)</sup>	grease-free to	3		
'	cleanliness level 2			
Nominal measuring ra	nge			
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 700 bar	(5802 psi) (10153 psi)	G		
	. ,			
Wetted parts materials Seal diaphragm	Process connection			
	<del></del>			
Stainless steel	Stainless steel	A B		
Hastelloy Hastelloy	Stainless steel Hastelloy	C		
Version as diaphragm s	eal 2) 3) 4) 5)	Y		
Process connection				
• Connection shank G1/2	B to FN 837-1	0		
• Female thread ½-14 N		1		
	nge with process connec-	•		
tion (Oval flange has no female thread) <sup>b)</sup>				
- Mounting thread <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518		2		
- Mounting thread M10 to DIN 19213		3		
- Mounting thread M1		4		
<ul> <li>Male thread M20 x 1.5</li> <li>Male thread ½ -14 NP</li> </ul>		5 6		
Non-wetted parts mate		0		
<ul> <li>Housing made of die-cast aluminium</li> <li>Housing stainless steel precision casting</li> </ul>		3		
Version	or prodiction desting			
Standard versions			1	
	English label inscriptions,		2	
documentation in 5 la				
(no Order code select				
Explosion protection				
• None			Α	
• With ATEX, Type of pro	otection:			
- "Intrinsic safety (Ex i			В	
- "Explosion-proof (Ex	d)" <sup>7)</sup>		D	
- "Intrinsic safety and	flameproof enclosure"		P	
(Ex ia + Ex d) <sup>(8)</sup>			E	
- "Ex nA/ic (Zone 2)" <sup>9)</sup> - "Intrinsic safety, explosion-proof enclosure and			E R	
dust explosion prote	ction (Ex ia + Ex d +		"	
	ction (Ex ia + Ex d + for DS III FF)			
• FM + CSA intrinsic sat	fe (is)		F	
• FM + CSA (is + ep) +	Ex ia + Ex d (ATEX)		S	
• With FM + CSA, Type	of protection:			
	xplosion Proof (is + xp)"7)		NC	
Electrical connection/e				
• Screwed gland M20 x			В	
• Screwed gland ½-14 I			C	
• M12 connectors (stair	iless steel) (U) (1) (2)		F	

Selection and Ordering data	Article No.
Pressure transmitter for gauge pressure	
SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 0 3 4 -
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

Included in delivery of the device:
• Brief instructions (Leporello)

- CD-ROM with detailed documentation
- 1) For oxygen application, add Order code E10.
- 2) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified
- <sup>3)</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.
- 4) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF403.-..Y..-... and 7MF4900-1...-.B
- 5) The standard measuring cell filling of configurations with remote seals (Y) is silicone oil
- 6) M10 fastening thread: Max. span 160 bar (2320 psi) 7/16-20 UNF and M12 fastening thread: Max. span 400 bar (5802 psi)
- 7) Without cable gland, with blanking plug.
- 8) With enclosed cable gland Ex ia and blanking plug.
- 9) Configurations with HAN and M12 connectors are only available in Ex ic.
- <sup>10)</sup>M12 delivered without cable socket
- <sup>11)</sup>Not available with protection type "Ex d" bestellbar (Options D, P, N and R)
- $^{12)}\mbox{Not}$  with protection types "Explosion-proof" and protection type "Ex nA", "Intrinsic safe" and "Explosion proof".

## Transmitters for general requirements

SITRANS P DS III for gauge pressure

Selection and Ordering data		Order			
Further designs Add "-Z" to Article No. and specify Order code.			HART	PA	FF
Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U- washer or 1 x bracket, 2 x nut, 2 x U-					
washer) made of: • Steel		A01	1	✓	1
Stainless steel	•	A02	<b>✓</b>	1	1
Plug					
Han 7D (metal, gray)		A30	<b>V</b>		
<ul><li>Han 8U (instead of Han 7D)</li><li>Angled</li></ul>		A31 A32	<b>✓</b>		
Han 8D (metal, gray)		A33	<b>√</b>		
Cable sockets for M12 connectors		A50	✓	1	1
(stainless steel)					
<b>Rating plate inscription</b> (instead of German)					
• English	•	B11	✓	1	1
• French		B12	✓	✓	✓
• Spanish		B13	1	<b>✓</b>	1
• Italian		B14	<b>V</b>	<b>*</b>	<b>V</b>
English rating plate Pressure units in inH <sub>2</sub> 0 and/or psi		B21	•	•	•
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	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	•	C14	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	•	C20	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol		C21 <sup>3)</sup>		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	•	C23	✓		
<b>Device passport Russia</b> (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 (MR 0103-2012 and MR 0175-2009)		D07	✓	✓	✓
<b>Degree of protection IP65/IP68</b> (only for M20x1.5 and ½-14 NPT)		D12	✓	✓	1
Supplied with oval flange (1 item), PTFE packing and screws in thread of oval flange		D37	✓	✓	✓
Use in or on zone 1D/2D		E01	✓	✓	✓
(only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia)")					
Oxygen application		E10	1	1	1
(In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))					
Export approval Korea		E11	✓	✓	✓
CRN approval Canada (Canadian Registration Number)		E22	✓	✓	✓
Dual seal		E24	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)		E25 <sup>4)</sup>	<b>√</b>	✓	1

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4D)	E26 <sup>4)</sup>	✓	✓	1
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28 <sup>4)</sup>	✓	✓	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4B)	E45 <sup>4)</sup>	✓	✓	✓
Ex Approval IEC Ex (Ex id) (only for transmitter 7MF4)	E46 <sup>4)</sup>	1	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55 <sup>4)</sup>	✓	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56 <sup>4)</sup>	✓	✓	✓
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4	E57 <sup>4)</sup>	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4[B, D]Z + E11)	E70 <sup>4)</sup>	✓	1	1
Two coats of lacquer on casing and cover (PU on epoxy)	G10	1	✓	<b>√</b>
Transient protector 6 kV (lightning protection)	J01	✓	✓	1

- We can offer shorter delivery times for configurations designated with the Quick Ship Symbol . For details see page 9/5 in the appendix.
- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the <u>total</u> combination is certified here.
- 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) Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H
- 4) Option does not include ATEX approval, but instead includes only the country-specific approval.

### Transmitters for general requirements

SITRANS P DS III for gauge pressure

Selection and Ordering data	Order	code		
Additional data Please add "-Z" to Article 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	1	<b>√</b> 1)	
Stainless steel tag plate and entry in device variable (measuring point description)  Max. 16 characters, specify in plain text:	Y15	✓	✓	✓
Y15:  Measuring point text (entry in device variable)	Y16	✓	✓	✓
Max. 27 characters, specify in plain text: Y16:				
,	Y17	1		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indication in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected:				
bar, mbar, mm $H_2O^*$ ), $inH_2O^*$ ), $ftH_2O^*$ ), mmHG, $inHG$ , psi, Pa, kPa, MPa, $g/cm^2$ , kg/cm $^2$ , Torr, ATM or $^{\circ}$ *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units <sup>2)</sup>	Y22 + 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 possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	✓
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	✓

 We can offer shorter delivery times for configurations designated with the Quick Ship Symbol
 For details see page 9/5 in the appendix.

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

✓ = available

#### Ordering example

Item line: 7MF4033-1EA00-1AA7-Z

B line: A01 + Y01 + Y21

C line: Y01: 10 ... 20 bar (145 ... 290 psi)

C line: Y21: bar (psi)

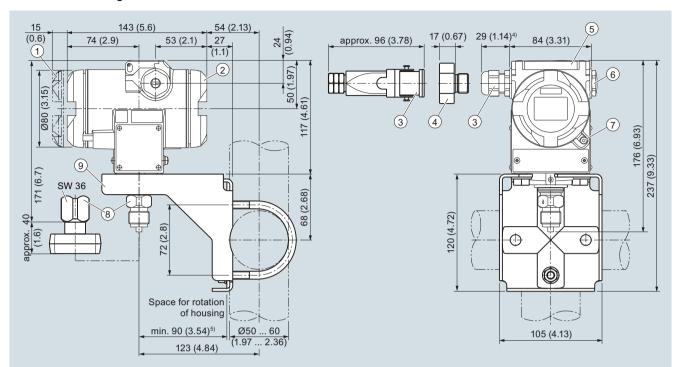
<sup>1)</sup> Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.

<sup>2)</sup> Preset values can only be changed over SIMATIC PDM.

#### Transmitters for general requirements

SITRANS P DS III for gauge pressure

#### Dimensional drawings



- Electronic side, digital display
   (longer overall length for cover with window)¹¹)
- 2 Terminal side<sup>1)</sup>
- 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
- 2) Not with type of protection "Explosion-proof enclosure"
- 3) Not with type of protection "FM + CSA" [IS + XP]"
- 4) For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
- 5) 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)
- 8 Process connection: Connection shank G½B or Oval flange
  - 9 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

rechnical specifications				
SITRANS P DS III series for gauge and absolu	te pressure, with front-	flush diaphragm		
	HART		PROFIBUS PA and FO	OUNDATION Fieldbus
Input of gauge pressure, with front-flush				
diaphragm Measured variable		Gaugo proces	ure, front-flush	
Spans (infinitely adjustable) or nominal measur-	Span (min max.)	Max. perm. test pres-	Nominal measuring	Max. perm. test pres-
ing range and max. permissible test pressure	,	sure	range	sure
	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	a (1.45 psia)	·
Upper 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	sure, 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		I .	(0 psia)	
Upper measuring limit	100 % of max. span		100 % of the max. nom	ninal measuring range
Output				
Output signal	4 20 mA		Digital PROFIBUS PA a bus signal	and FOUNDATION Field-
• 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	-	
Load				
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$ : Power supply in V	3 A in $\Omega$ ,	-	
• With HART	$R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (HA		-	
Physical bus	-		IEC 61158-2	
Protection against polarity reversal	Protected against short	-circuit and polarity rever supply	rsal. Each connection aç voltage.	gainst the other with max
Electrical damping (step width 0.1 s)		Set to 2 s	(0 100 s)	
Measuring accuracy		Acc. to IE	C 60770-1	
Reference conditions (All error data refer always refer to the set span)	Increasing characteristi	c, start-of-scale value 0 k ing, room temperature 2 (r = max. sp		
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 (temperature change $\pm$ 30 °C ( $\pm$ 54 °F))	$\leq$ (0.25 · r) % per 5 years		≤ 0.25 % per 5 years	

Pressure Measurement
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		PROFIBUS PA and	FOUNDATION Fieldbus
	Gauge pressure,	Absolute pressure,	Gauge pressure,	Absolute pressure,
	front-flush	front-flush	front-flush	front-flush
nfluence of ambient temperature	45			
at -10 +60 °C (14 140 °F)	$\leq (0.1 \cdot r + 0.2) \%^{1)}$	$\leq$ (0.2 · r + 0.3) %	≤ 0.3 %	≤ 0.5 %
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	≤ (0.1 · r + 0.15) %/10 K	≤ (0.2 · r + 0.3) %/10 K	≤ 0.25 %/10 K	≤ 0.5 %/10 K
nfluence of mounting position		0.1 mbar (0.04 inH <sub>2</sub>	O) per 10° inclination	
Measured Value Resolution	-		3 · 10 <sup>-5</sup> of nominal m	easuring range
nfluence of the medium temperature				
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 explo	osion 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	(-4 +185 °F)	
Transmitter (with 4-wire connection, observe temperature values of supplementary 4-wire electronics)		-40 +85 °C	(-40 +185 °F)	
Display readable		-30 +85 °C	(-22 +185 °F)	
Storage temperature		-50 +85 °C on the case of Neobee: -2 or high temperature oil: -		
Climatic class	(10	or riigit terriperature oii	10 + 65 C (14 16	55 1 ))
- Condensation	Co	Relative humi ndensation permissible,	dity 0 100 %	tropics
Degree of protection (to IEC 60529)		A 4X, enclosure cleaning		·
Electromagnetic Compatibility	11 00, 11 00, 1421	t 47t, cholosare oleaning	, resistant to tyes, stee	11110 100 0 (002 1)
- Emitted interference and interference immunity		Acc. to IEC 61326	and NAMUR NE 21	
Medium conditions	The may medium temper			s to be taken into account
	accordance with t	he relevant connection s	tandards (e. g. DIN 32	2676, DIN 11851 etc.).
Femperature of medium				
• Measuring cell with silicone oil			(-40 +212 °F)	
Measuring cell with silicone oil (with front-flush diaphragm)			(-40 +302 °F)	
Measuring cell with Neobee oil (with front-flush diaphragm)		-10 +150 °(	C (14 302 °F)	
• Measuring cell with silicone oil, with tempera- ture decoupler (only for gauge pressure ver- sion with front-flush diaphragm)		-40 +200 °C	(-40 +392 °F)	
Measuring cell with inert filling liquid		-20 +100 °C	C (-4 +212 °F)	
<ul> <li>Measuring cell with high-temperature oil (only for gauge pressure version with front-flush dia- phragm)</li> </ul>		-10 +250 °(	C (14 482 °F)	
Design				
Veight (without options)		≈ 1.5 kg	(≈ 3.3 lb)	
Enclosure material	Low-copper die-cast a	aluminum, GD-AlSi12 or s	stainless steel precisio	on casting, mat. no. 1.440
Vetted parts materials	Stainless s	teel, mat. no. 1.4404/316	SL or Hastelloy C276, r	mat. no. 2.4819
Measuring cell filling		Silicone oil or i	nert filling liquid	
Process connection		<del>-</del> ,	per EN and ASME	
		•	armaceutical flanges	
Surface quality touched-by-media	R <sub>a</sub> -va (Process connections	lues $\leq$ 0.8 $\mu$ m (32 $\mu$ -inch acc. to 3A; R <sub>a</sub> -values $\leq$ 0	)/welds $R_{a)} \le 1.6 \mu m$ (0).8 $\mu m$ (32 $\mu$ -inch)/weld	64 μ-inch) ds R <sub>a</sub> ) ≤ 0.8 μm (32 μ-incl

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	ute pressure, with front-flush diaphragm	
0 0	HART	PROFIBUS PA and FOUNDATION Fieldbus
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
<ul> <li>With intrinsically-safe operation</li> </ul>	-	9 24 V
Current consumption		
Basic current (max.)	-	12.5 mA
<ul> <li>Start-up current ≤ basic current</li> </ul>	-	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		group 1; complies with requirements of article 3, engineering practice)
Explosion protection		
Intrinsic safety "i"	PTB 13 A	TEX 2007 X
- Marking	Ex II 1/2 G Ex ia/ib	IIC T4/T5/T6 Ga/Gb
- Permissible ambient temperature	-40 +70 °C (-40 +15	5 °F) temperature class T4; 8 °F) temperature class T5; .0 °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 Ex	d IIC T4/T6 Gb
- Permissible ambient temperature		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
<ul> <li>Dust explosion protection for zone 20</li> </ul>	PTB 01 A	ATEX 2055
- Marking		<sup>9</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: $U_i = 30 \text{ V}$ , $I_i = 100 \text{ mA}$ ,	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$
	$P_{\rm i} = 750$ mW, $R_{\rm i} = 300 \Omega$	Linear barrier: $U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1 \text{ W}$
- 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		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 W
<ul><li>Type of protection "n" (zone 2)</li></ul>		TEX 2007 X
- Marking		nA II T4/T5/T6 Gc c IIC T4/T5/T6 Gc
- Connection (Ex nA)	$U_{\rm m} = 45  {\rm V}$	<i>U</i> <sub>m</sub> = 32 ∨
- Connections (Ex ic)	To circuits with values:	FISCO supply unit ic:
	<i>U</i> <sub>i</sub> = 45 V	$U_0 = 17.5 \text{ V}, I_0 = 570 \text{ mA}$ Linear barrier:
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$U_0 = 32 \text{ V}, I_0 = 132 \text{ mA}, P_0 = 1 \text{ W}$ $L_i = 7 \mu\text{H}, C_i = 1,1 \text{ nF}$
Encourse internal inductance/capacitance	L <sub>1</sub> = 0.4 mm, O <sub>1</sub> = 0 m	$\mathcal{L}_{\parallel} = \mathcal{L}_{\parallel}$ $\mu$ $\mu$ $\mu$ $\mu$ $\mu$ $\mu$

# Pressure Measurement Transmitters for general requirements

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

SITRANS P DS III series for gauge and absorber	olute pressure, with front-flush diaphragm	
	HART	PROFIBUS PA and FOUNDATION Fieldbus
Certificates and approvals (continued)		
• 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 <sup>-</sup>	GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; T6; CL II, DIV 2, GP FG; CL III
<ul> <li>Explosion protection to CSA</li> </ul>	Certificate of Co	mpliance 1153651
- Identification (XP/DIP) or (IS)		FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD 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).

#### 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
Analog input	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 100 s
- Simulation function	Input /Output
- Failure mode	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warn- ing 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 mea- sured pressure value and sen- sor 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

#### **Pressure Measurement** Transmitters for general requirements

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

Selection and Orderin	•	Artic	le N	0.		
Pressure transmitter t	or gauge and absolute	7 M F	4 1	3 3	} -	
pressure, front-flush ( SITRANS P DS III HAF	diaphragm,			-		
Measuring cell filling	Measuring cell cleaning				Н	
Silicone oil	normal	1				
Inert liquid	grease-free to	3				
·	cleanliness level 2					
FDA compliant fill fluid  Neobee oil	normal	4				
		- 4				
Measuring span (min.		В				
0.01 1 bar 0.04 4 bar	(0.15 14.5 psi)	C				
	(0.58 58 psi)	D				
0.16 16 bar 0.63 63 bar	(2.32 232 psi) (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>	T				
0.3 30 bar a <sup>1)</sup>	(4.35 435 psia) <sup>1)</sup>	U				
Wetted parts materials Seal diaphragm	S Connection shank					
1 9						
Stainless steel	Stainless steel	A				
Hastelloy <sup>2)</sup>	Stainless steel	В				
Process connection			_			
• Flange version with Or	der code M, N, R or Q		7			
Non-wetted parts mat						
Housing made of die-			0			
Housing stainless ste	ei precision casting	_	3			
Version				١,		
Standard versions	English label inscriptions,			1 2		
<ul> <li>International version, documentation in 5 la</li> </ul>	nguages on CD					
(no Order code selec						
Explosion protection		_			П	
• None					Α	
<ul> <li>With ATEX, Type of pr</li> </ul>						
- "Intrinsic safety (Ex					В	
- "Explosion-proof (Ex	(d)" <sup>3)</sup>				D	
- "Ex nA/ic (Zone 2)"					Е	
• FM + CSA intrinsic sa	\ <i>'</i>				F	
<ul> <li>FM + CSA (is + ep) +</li> </ul>	, ,				S	
<ul> <li>With FM + CSA, Type</li> </ul>						
- "Intrinsic Safe und E	explosion Proof (is + xp)"3)				N	0
Electrical connection/	cable entry					
<ul> <li>Inner thread M20 x 1.</li> </ul>	5					3
<ul> <li>Female thread ½-14 l</li> </ul>						0
M12 connectors (stair	nless steel) <sup>5) 6) 7)</sup>					F
Display						
<ul> <li>Without display</li> </ul>						(
Without visible displa						ľ
(display concealed, s						6
<ul> <li>with visible display, se</li> </ul>	etting: mA					
• with customer-specific						7
(setting as specified, required)	Order code "Y21" or "Y22"					

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

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 R02, R04, R10 and R11, and can only be ordered in conjunction with silicone oil.
- <sup>2)</sup> Only available for flanges with options M.., N.. and Q..
- 3) Without cable gland, with blanking plug
- <sup>4)</sup> Bei Konfiguration mit Stecker HAN und M12 ist nur Zündschutzart Ex ic
- 5) M12 delivered without cable socket
- $^{6)}\,$  Not available with protection type "Ex d" (options D and N)
- $^{7)}\,$  Not with protection types "Explosion-proof" and "Ex nA", "Intrinsic safe" and

#### Transmitters for general requirements

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

Selection and Ordering	g data	Article	e No	١.		
Pressure transmitter F pressure, front-flush of	for gauge and absolute liaphragm:					
SITRANS P DS III with	PROFIBUS PA (PA)	7 M F	4 1 3	4 -		
SITRANS P DS III with	FOUNDATION Fieldbus	7 M F	4 1 3	5 -		
(FF)						
			-		4	
Measuring cell filling	Measuring cell clean- ing					
Silicone oil	normal	1				
Inert liquid	grease-free to	3				
ED 4	cleanliness level 2					
FDA compliant fill fluid  Neobee oil	normal	4				
-		4				
Nominal measuring ra	-					
1 bar	(14.5 psi)	В				
4 bar	(58 psi)	C				
16 bar 63 bar	(232 psi) (914 psi)	E				
1300 mbar a <sup>1)</sup>	(18.85 psia) <sup>1)</sup>	S				
5 bar a <sup>1)</sup>	(72.5 psia) <sup>1)</sup>	T				
30 bar a <sup>1)</sup>	(435 psia) <sup>1)</sup>	Ü				
-	,					
Wetted parts materials Seal diaphragm	Connection shank					
Stainless steel	Stainless steel					
Hastelloy <sup>2)</sup>	Stainless steel	A B				
·	Stall liess steel					
<ul><li>Process connection</li><li>Flange version with O Q</li></ul>	rder code M, N, R or		7			
Non-wetted parts mate	ariale					
Housing made of die-			0			
Housing stainless stee			3			
Version		_				
<ul> <li>Standard versions</li> </ul>				1		
• International version, I	English label inscriptions,			2		
documentation in 5 la						
(no Order code select	able)	_				
Explosion protection				٠.		
<ul><li>None</li><li>With ATEX, Type of pre</li></ul>	ataction:			4	,	
- "Intrinsic safety (Ex i				E	2	
- "Explosion-proof (Ex						
• FM + CSA intrinsic sa				Ē		
• FM + CSA (is + ep) +				S	3	
• With FM + CSA, Type						
	xplosion Proof (is + xp)"3)			N	ıc	
(Available soon)		_				
Electrical connection/	•					
Screwed gland M20 x					В	
Screwed gland ½-14       Han 7D plus (plastic)					C	
<ul> <li>Han 7D plug (plastic l connector<sup>4)</sup></li> </ul>	iousing) inci. mating				D	
M12 connectors (stair	nless steel) <sup>5) 6) 7)</sup>				F	
- (	,					

Article No.	
7 M F 4 1 3 4 -	
7 M F 4 1 3 5 -	
0	)
1	
6	
7	
	7 M F 4 1 3 4 - 7 M F 4 1 3 5 -

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 R01, R02, R04, R10 and R11, and can only be ordered in conjunction with
- $^{2)}\,$  Only available for flanges with options M.., N.. and Q..
- 3) Without cable gland, with blanking plug
- 4) Not in conjunction with types of protection "Explosion-proof" and "Ex ic", "Intrinsic safety" and "Explosion-proof".
- 5) M12 delivered without cable socket
- $^{6)}\,$  Not available with protection type "Ex d" (optionen D and N)
- 7) Not with protection types "Explosion-proof" and "Ex nA", "Intrinsic safe" and "Explosion proof".

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

Selection and Ordering data	Order			
<b>Further designs</b> Add "- <b>Z</b> " to Article No. and specify Order code.		HART	PA	F
Plug				
Angled     Here SD (reseted array)	A32	<b>1</b>		
Han 8D (metal, gray)	A33	<b>✓</b>		
Cable sockets for M12 connectors (stainless steel)	A50	✓	✓	_
Rating plate inscription (instead of German) • English	B11	1	1	v
• French	B12	1	1	·
• Spanish	B13	1	1	
• Italian	B14	✓	✓	٧
English rating plate	B21	1	✓	<b>~</b>
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	✓	✓	•
	014	.1	./	
Factory certificate Acc. to EN 10204-2.2	C14	•	<b>~</b>	٧
Functional safety (SIL2)	C20	✓		
Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL confor-				
mity declaration				
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 <sup>1)</sup>		✓	
Functional safety (SIL2/3)	C23	1		
Devices suitable for use according to IEC				
61508 and IEC 61511. Includes SĪL conformity declaration				
Device passport Russia	C99	1	1	v
(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	✓		
Degree of protection IP65/IP68 (only for M20x1.5 and ½-14 NPT)	D12	1	✓	٧
Oxygen application	E10	1	1	٧
(In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140°F))				
Export approval Korea	E11	1	1	v
CRN approval Canada	E22	1	1	v
(Canadian Registration Number)				
Dual seal	E24	✓	✓	٧
Explosion-proof "Intrinsic safety" (Ex ia) to	E25 <sup>2)</sup>	✓	✓	٧
INMETRO (Brazil)				
(only for transmitter 7MF4	•			
"Flameproof" explosion protection according to INMETRO (Brazil)	E26 <sup>2)</sup>	✓	✓	٧
ing to INMETRO (Brazil) (only for transmitter 7MF4D)				
Explosion-proof "Intrinsic safety" (Ex ia +	E28 <sup>2)</sup>	1	1	
Explosion-proof "intrinsic safety" (Ex la + Ex d) to INMETRO (Brazil)	E20 '	•	•	
(only for transmitter 7MF4P)				
Ex Approval IEC Ex (Ex ia)	E45 <sup>2)</sup>	1	1	v
(only for transmitter 7MF4B)	E46 <sup>2)</sup>	1	1	v
,				
(only for transmitter 7MF4B) <b>Ex Approval IEC Ex (Ex id)</b> (only for transmitter 7MF4D)				
Ex Approval IEC Ex (Ex id) (only for transmitter 7MF4D) "Intrinsic safety" and "Explosion-proof"	E70 <sup>2)</sup>	✓	✓	٧
Ex Approval IEC Ex (Ex id) (only for transmitter 7MF4		<b>✓</b>	✓	v

	0 1			
Selection and Ordering data  Further designs	Order	CODE	PA	FF
Add "-Z" to Article No. and specify Order code.		HANI	FA	FF
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Transient protector 6 kV (lightning protection)	J01	✓	✓	1
Flanges to EN 1092-1, Form b1		,		,
• DN 25, PN 40 <sup>3)</sup> • DN 25, PN 100 <sup>3)</sup>	M11 M21	1	<b>√</b>	1
• DN 40, PN 40	M13	1	1	1
• DN 40, PN 100	M23	✓	✓	✓
• DN 50, PN 16	M04	<b>1</b>	1	1
<ul><li>DN 50, PN 40</li><li>DN 80, PN 16</li></ul>	M14 M06	<b>√</b>	<b>√</b>	1
• DN 80, PN 40	M16	1	1	1
Flanges to ASME B16.5				
• Stainless steel flange 1" class 150 <sup>3)</sup>	M40	✓	✓	✓
• Stainless steel flange 1½" class 150	M41	✓	✓	✓
Stainless steel flange 2" class 150	M42	1	1	1
<ul> <li>Stainless steel flange 3" class 150</li> <li>Stainless steel flange 4" class 150</li> </ul>	M43 M44	<b>√</b>	1	<b>√</b>
• Stainless steel flange 1" class 300 <sup>3)</sup>	M45	1	1	1
• Stainless steel flange 1½" class 300	M46	✓	✓	✓
• Stainless steel flange 2" class 300	M47	✓	✓	1
Stainless steel flange 3" class 300     Stainless steel flange 4" class 300	M48	1	1	1
• Stainless steel flange 4" class 300	M49	<b>V</b>		•
Threaded connector to DIN 3852-2, form A, thread to ISO 228 <sup>4)</sup>				
• G ¾"-A, front-flush	R01	✓	✓	✓
• G 1"-A, front-flush	R02	✓	✓	✓
• G 2"-A, front-flush	R04	✓	✓	✓
Tank connection <sup>5)</sup>				
Sealing is included in delivery  • TG 52/50, PN 40	R10	1	1	1
• TG 52/30, FN 40 • TG 52/150, PN 40	R11	1	1	1
Sanitary process connection according				
DIN 11851 (Dairy connection with slotted				
union nut) • DN 50, PN 25	N04	1	1	1
• DN 80, PN 25	N06	1	1	1
Tri-Clamp connection according				
DIN 32676/ISO 2852				
• DN 50/2", PN 16	N14	1	1	1
• DN 65/3", PN 10	N15	•	•	•
Varivent connection Certified to EHEDG				
• Type N = 68 for Varivent housing	N28	✓	✓	✓
DN 40 125 und 1½" 6", PN 40				
<b>Temperature decoupler up to 200 °C<sup>6)</sup></b> for version with front-flush diaphragm	P00	✓	✓	✓
Temperature decoupler up to 250 °C	P10	✓	✓	✓
Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil				
Bio-Control sanitary process connection				
Certified to EHEDG	050	,		.,
<ul><li>DN 50, PN 16</li><li>DN 65, PN 16</li></ul>	Q53 Q54	<b>✓</b>	<b>√</b>	<b>V</b>
Sanitary process connection to DRD	QU-T			
• DN 50, PN 40	M32	1	1	1
SMS socket with union nut				
• 2"	M67	✓	✓	✓
• 2½"	M68	✓	1	1
• 3"	M69	✓	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 Article No. and specify Order code.  SMS threaded socket				
• 2"	M73	1	1	1
- • 2½"	M74	✓	✓	✓
• 3"	M75	✓	✓	✓
IDF socket with union nut ISO 2853				
• 2" • 2½"	M82 M83	1	1	1
• 3"	M84	<b>✓</b>	<b>*</b>	1
IDF threaded socket ISO 2853				
• 2"	M92	✓	✓	✓
• 21/2"	M93	✓	1	1
• 3"	M94	✓	✓	✓
Sanitary process connection to NEUMO Bio-Connect screw connection				
Certified to EHEDG				
• DN 50, PN 16	Q05	✓.	<b>1</b>	<b>V</b>
• DN 65, PN 16	Q06	<b>√</b>	1	<b>√</b>
<ul><li>DN 80, PN 16</li><li>DN 100, PN 16</li></ul>	Q07 Q08	<b>✓</b>	<b>∨</b>	<b>√</b>
• DN 2", PN 16	Q13	1	✓	✓
• DN 21/2", PN 16	Q14	✓	✓	✓
• DN 3", PN 16	Q15	<b>√</b>	1	1
• DN 4", PN 16	Q16	•	•	<b>~</b>
Sanitary process connection to NEUMO Bio-Connect flange connection				
Certified to EHEDG				
• DN 50, PN 16	Q23	<b>1</b>	1	1
<ul><li>DN 65, PN 16</li><li>DN 80, PN 16</li></ul>	Q24 Q25	1	1	1
• DN 100, PN 16	Q26	1	1	1
• DN 2", PN 16	Q31	✓	✓	✓
• DN 2½", PN 16	Q32	1	1	1
<ul><li>DN 3", PN 16</li><li>DN 4", PN 16</li></ul>	Q33 Q34	<b>√</b>	1	1
Sanitary process connection to	Q04		Ţ	·
NEUMO Bio-Connect clamp connection				
Certified to EHEDG	020	./	1	./
<ul><li>DN 50, PN 16</li><li>DN 65, PN 10</li></ul>	Q39 Q40	<b>✓</b>	<b>*</b>	1
• DN 80, PN 10	Q41	✓	✓	1
• DN 100, PN 10	Q42	✓	✓.	✓.
• DN 2½", PN 16	Q48	1	1	1
<ul><li>DN 3", PN 10</li><li>DN 4", PN 10</li></ul>	Q49 Q50	1	1	1
Sanitary process connection to	400	·	•	
NEUMÓ Bio-Connect S flange connection				
Certified to EHEDG	060	./	1	1
<ul><li>DN 50, PN 16</li><li>DN 65, PN 10</li></ul>	Q63 Q64	1	1	1
• DN 80, PN 10	Q65	1	1	1
• DN 100, PN 10	Q66	✓	✓	✓
• DN 2", PN 16	Q72	1	1	<b>√</b>
<ul> <li>DN 2½", PN 10</li> <li>DN 3", PN 10</li> </ul>	Q73 Q74	<b>√</b>	1	<b>✓</b>
• DN 4", PN 10	Q74 Q75	1	<b>*</b>	1
,				

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Aseptic threaded socket to DIN 11864-1				
Form A				
approved according to EHEDG				
• DN 50, PN 25	N33	1	1	<b>*</b>
<ul><li>DN 65, PN 25</li><li>DN 80, PN 25</li></ul>	N34 N35	4	<b>√</b>	4
• DN 100, PN 25	N36	1	1	1
,	1450	•	·	•
Aseptic flange with notch to DIN 11864-2 Form A				
approved according to EHEDG				
• DN 50, PN 16	N43	1	1	1
• DN 65, PN 16	N44	1	<b>* *</b>	✓
• DN 80, PN 16	N45			✓
• DN 100, PN 16	N46	1	✓	✓
Aseptic flange with groove to DIN 11864-2 Form A approved according to EHEDG				
• DN 50, PN 16	N43 + P11	✓	✓	✓
• DN 65, PN 16	N44 + P11	✓	✓	✓
• DN 80, PN 16	N45 + P11	✓	✓	✓
• DN 100, PN 16	N46 + P11	✓	✓	✓
Aseptic clamp with groove to DIN 11864-3 FormA				
approved according to EHEDG				
• DN 50, PN 25	N53	✓	1	1
• DN 65, PN 25	N54	√ √ √	<b>√</b>	✓
• DN 80, PN 16	N55			
• DN 100, PN 16	N56	✓	✓	✓
1) p. c. c	0-			

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

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

<sup>3)</sup> Special seal in Viton included in the scope of delivery

<sup>4)</sup> Lower measuring limit -100 mbar (1.45 psi).

 $<sup>^{\</sup>rm 5)}$  The weldable socket can be ordered under accessories.

<sup>6)</sup> The maximum permissible temperatures of the medium depend on the respective cell fillings.

# Pressure Measurement Transmitters for general requirements

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

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set	Y01	✓	<b>√</b> 1)	
Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi				
Stainless steel tag plate and entry in device variable (measuring point description)	Y15	✓	✓	✓
Max. 16 characters, specify in plain text: Y15:				
Measuring point text (entry in device variable)	Y16	✓	✓	✓
Max. 27 characters, specify in plain text: Y16:				
Entry of HART address (TAG)	Y17	✓		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indicator in pressure	Y21	✓	✓	1
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*), inH <sub>2</sub> O*), ftH <sub>2</sub> O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units <sup>2</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	<b>√</b>		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	1
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	1

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

✓ = available

#### ordering example

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

B line: A22 + Y01 + Y21

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

C line: Y21: bar (psi)

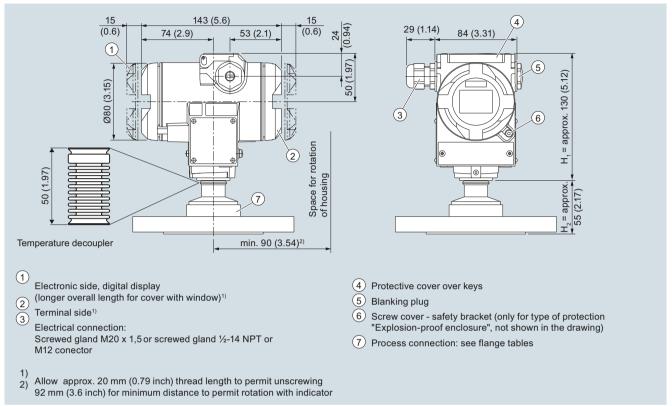
<sup>1)</sup> Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.

<sup>&</sup>lt;sup>2)</sup> Preset values can only be changed over SIMATIC PDM.

#### Transmitters for general requirements

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

#### Dimensional drawings



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.

#### Transmitters for general requirements

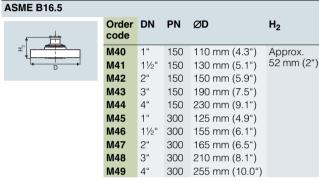
SITRANS P DS III for gauge/absolute pressure, with front-flush diaphragm

#### Flanges as per EN and ASME

#### Flange to EN

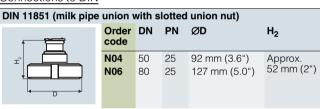
EN 1092-1					
<b>一</b>	Order code	DN	PN	ØD	H <sub>2</sub>
	M11	25	40	115 mm (4.5")	Approx.
D	M21	25	100	140 mm (5.5")	52 mm (2")
<u> </u>	M13	40	40	150 mm (5.9")	
	M23	40	100	170 mm (6.7")	
	M04	50	16	165 mm (6.5")	
	M14	50	40	165 mm (6.5")	
	M06	80	16	200 mm (7.9")	
	M16	80	40	200 mm (7.9")	

#### Flanges to ASME

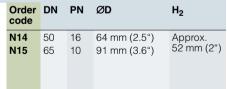


#### NuG and pharmaceutical connections

#### Connections to DIN



# Tri-Clamp nach DIN 32676 Order code



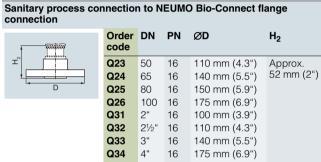
#### Other connections

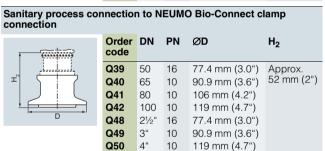
Varivent connection									
	Order code	DN	PN	ØD	H <sub>2</sub>				
I D	N28	40 125	40	84 mm (3.3")	Approx. 52 mm (2")				

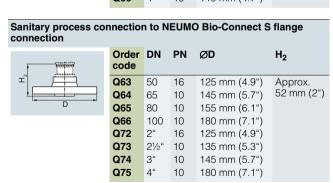
Biocontrol connection								
<b>↑ ==</b>	Order code	DN	PN	ØD	H <sub>2</sub>			
T D	Q53 Q54	50 65	16 16	90 mm (3.5") 120 mm (4.7")	Approx. 52 mm (2")			

# Sanitary process connection to DRD Order code M32 50 40 105 mm (4.1") Approx. 52 mm (2")

Sanitary process screw connection to NEUMO Bio-Connect								
	Order code	DN	PN	ØD	H <sub>2</sub>			
±	Q05	50	16	82 mm (3.2")	Approx.			
	Q06	65	16	105 mm (4.1")	52 mm (2")			
	Q07	80	16	115 mm (4.5")				
	Q08	100	16	145 mm (5.7")				
D	Q13	2"	16	82 mm (3.2")				
	Q14	21/2"	16	105 mm (4.1")				
	Q15	3"	16	105 mm (4.1")				
	Q16	4"	16	145 mm (5.7")				
	QIO	4	10	145 11111 (5.7 )				







### Transmitters for general requirements

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

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

Tilleaded Colliection	1 4 74 , 1	GI a	iu G2	acc. to Din 36	32
	Order code	DN	PN	ØD	H <sub>2</sub>
	R01	3⁄4"	60	37 mm (1.5")	Approx. 45 mm (1.8")
D .	R02	1"	60	48 mm (1.9")	Approx. 47 mm (1.9")
	R04	2"	60	78 mm (3.1")	Approx. 52 mm (2")

Tank connection TG 52/50 and TG52/150									
	Order code	DN	PN	ØD	H <sub>2</sub>				
I I	R10	25	40	63 mm (2.5")	Approx. 63 mm (2.5")				
D	R11	25	40	63 mm (2.5")	Approx. 170 mm (6.7")				

SMS socket with union nut									
	Order code	DN	PN	ØD	H <sub>2</sub>				
T D	M67 M68 M69	2" 2½" 3"		84 mm (3.3") 100 mm (3.9") 114 mm (4.5")	Approx. 52 mm (2")				

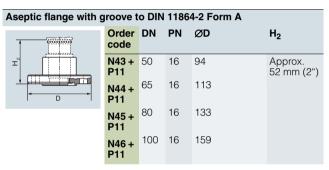
SMS threaded socket									
	Order code	DN	PN	ØD	H <sub>2</sub>				
		21/2"	25	70 x 1/6 mm 85 x 1/6 mm 98 x 1/6 mm	Approx. 52 mm (2")				
D									

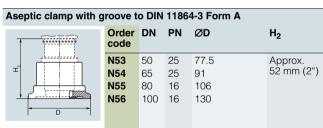
IDF socket with unio	n nut				
	Order code	DN	PN	ØD	H <sub>2</sub>
1	M82 M83 M84	2" 2½" 3"		77 mm (3") 91 mm (3.6") 106 mm (4.2")	Approx. 52 mm (2")
D					

IDF threaded socket					
()	Order code	DN	PN	ØD	H <sub>2</sub>
			25	64 mm (2.5") 77.5 mm (3.1") 91 mm (3.6")	Approx. 52 mm (2")

Aseptic threaded socket to DIN 11864-1 Form A								
(,	Order code	DN	PN	ØD	H <sub>2</sub>			
<b>1</b>	N33 N34 N35 N36	50 65 80 100	25 25 25 25 25	78 × 1/6" 95 × 1/6" 110 × ½" 130 × ½"	Approx. 52 mm (2")			

Aseptic flange with r	otch to	DIN :	11864	-2 Form A	
	Order code	DN	PN	ØD	H <sub>2</sub>
I I	N43	50	16	94	Approx. 52 mm (2")
	N44	65	16	113	52 mm (2")
	N45	80	16	133	
l D I	N46	100	16	159	





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

#### Technical specifications

	HART		PROFIBUS PA and F	OUNDATION Fieldbus		
Input						
Measured variable		Absolute	e pressure			
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span (min max.) Max. perm. test pressure		Nominal measuring range	Max. perm. test pressure		
	8.3 250 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		•		•		
• Measuring cell with silicone oil filling		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			
Lower limit (infinitely adjustable)	3.55 mA, factory preset to 3.84 mA		-			
Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA		-			
_oad						
Without HART	$R_{\rm B} \leq (U_{\rm H}$ - 10.5 V)/0.023 A in $\Omega$ , $U_{\rm H}$ : Power supply in V		-			
• With HART	$R_{\rm B}$ = 230 500 $\Omega$ (SIM) $R_{\rm B}$ = 230 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 ma		
Electrical damping (step width 0.1 s)		Set to 2 s	(0 100 s)			
Measuring accuracy		Acc. to IE	C 60770-1			
Reference conditions (All error data refer always refer to the set span)  Error in measurement at limit setting incl.	Increasing characteristi	ic, start-of-scale value 0 l ing, room temperature 2 (r = max. sp				
nysteresis and reproducibility			.0.1.0/			
Linear characteristic	. 0. 4. 0/		≤ 0.1 %			
- r ≤ 10	≤ 0.1 %					
- 10 < r ≤ 30	≤ 0.2 %		.0.1.0/ /			
_ong-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.1 · r) %/year		≤ 0.1 %/year			
nfluence of ambient temperature	41					
• 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		

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 (option	nal IP65/IP68)		
Temperature of medium				
Measuring cell with silicone oil filling		C (-40 +212 °F) F) with 30 bar a measuring cell		
Measuring cell with inert filling liquid	-20 +100 °C	C (-4 +212 °F)		
• In conjunction with dust explosion protection	-20 +60 °C	C (-4 +140 °F)		
Ambient conditions				
Ambient temperature				
- Transmitter (with 4-wire connection, observe temperature values of supplementary 4-wire electronics)	-40 +85 °C	(-40 +185 °F)		
- Display readable	-30 +85 °C	(-22 +185 °F)		
Storage temperature	-50 +85 °C	(-58 +185 °F)		
Climatic class				
- Condensation		idity 0 100 % suitable for use in the tropics		
Electromagnetic Compatibility				
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21			
Design				
Weight (without options)	≈ 1.5 kg (≈ 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. 1.4404/3	16L 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		inert filling liquid pressure 100 bar (1450 psi) at 60 °C (140 °F))		
Process connection		female thread $\frac{1}{2}$ -14 NPT or oval flange mounting thread M10 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 gauge pressure series)

SITRANS P DS III series for absolute pressur	HART	PROFIBUS PA and FOUNDATION Fieldbus		
Certificates and approvals		THO I BOOT A WILL TO CONDANION THOUBAG		
Classification according to PED 97/23/EC		group 1; complies with requirements of article 3, d engineering practice)		
Explosion protection				
Intrinsic safety "i"	PTB 13 A	ATEX 2007 X		
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb			
- Permissible ambient temperature	-40 +70 °C (-40 +15	85 °F) temperature class T4; 58 °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; $R_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $I_0 = 5.32 \text{ W}$ Linear barrier: $I_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $I_0 = 1.2 \text{ W}$		
- 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	ATEX 1160		
- Marking	Ex II 1/2 G E:	x d IIC T4/T6 Gb		
- Permissible ambient temperature		85 °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	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	$L_{\rm i} = 0.4  {\rm mH},  C_{\rm i} = 6  {\rm nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$		
Dust explosion protection for zone 21/22	PTB 01	ATEX 2055		
- Marking	Ex II 2 D I	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 W		
Type of protection "n" (zone 2)	PTB 13 A	ATEX 2007 X		
- Marking		nA II T4/T5/T6 Gc ic IIC T4/T5/T6 Gc		
- Connection (Ex nA)	$U_{\rm m} = 45 \ {\rm V}$	$U_{\rm m} = 32 \text{ V}$		
- Connection (Ex ic)	To circuits with values: $U_{\rm i} = 45~{\rm V}$	FISCO supply unit ic: $U_0 = 17.5 \text{ V}$ , $I_0 = 570 \text{ mA}$ Linear barrier: $U_0 = 32 \text{ V}$ , $I_0 = 132 \text{ mA}$ , $P_0 = 1 \text{ W}$		
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_{i} = 7 \mu H, C_{i} = 1,1 nF$		
Explosion protection acc. to FM	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 ABC DIV 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)

(i.e.i. gaage precedite con	.55)
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 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	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 to 100 s
- Simulation function	Input /Output
- Failure mode	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warn- ing 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
- Simulation function for mea- sured pressure value and sen- sor temperature	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

sor temperature

#### Transmitters for general requirements

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

Selection and Orderin	<u> </u>			le N		
Pressure transmitters f			7 M	F 4 2	33-	•
from gauge pressure s SITRANS P DS III with I				-	-	
Measuring cell filling						
0.11.	cleaning		١, ١			
Silicone oil Inert liquid <sup>1)</sup>	normal	_	1			
ineri ilquid '	grease-free to cleanliness level 2		3			
Measuring span (min.						
8.3 250 mbar a	(0.12 3.62 psia)	•	D			
43 1300 mbar a	(0.62 18.85 psia)	•	F			
0.16 5 bar a	(2.32 72.5 psia)		G			
1 30 bar a	(14.5 435 psia)	•	Н			
Wetted parts materials	· · · · · · · · · · · · · · · · · · ·					
Seal diaphragm	Process connection					
Stainless steel	Stainless steel	•		4		
Hastelloy	Stainless steel			3		
Hastelloy	Hastelloy			2		
Version for diaphragm s	seal <sup>2) 3) 4) 5) 6)</sup>			7		
Process connection						
• Connection shank G1/2	⊵B to EN 837-1	•		0		
• Female thread ½-14 N	NPT			1		
<ul> <li>Stainless steel oval fla</li> </ul>	ange with process con-					
nection (Oval flange h	nas no female thread)					
	<sub>6</sub> -20 UNF to EN 61518			2		
- Mounting thread M1				3		
- Mounting thread M1				4		
<ul> <li>Male thread M20 x 1.5</li> </ul>				5		
<ul> <li>Male thread ½ -14 NP</li> </ul>	4		_	6		
Non-wetted parts mate						
<ul> <li>Housing made of die-</li> </ul>				0		
<ul> <li>Housing stainless stee</li> </ul>	el precision casting"			3		
Version						
Standard versions					1	
<ul> <li>International version, tions, documentation</li> </ul>	English label inscrip-				2	
(no Order code select						
Explosion protection	,					
• None		•			4	١
<ul> <li>With ATEX, Type of present</li> </ul>						
- "Intrinsic safety (Ex i					E	
- "Explosion-proof (Ex						
	flameproof enclosure"				F	,
(Ex ia + Ex d)"9) - "Ex nA/ic (Zone 2)"10	0)				E	
	losion-proof enclosure				F	
	protection (Ex ia+ Ex d +					•
Zone 1D/2D) <sup>"9)</sup>						
<ul> <li>FM + CSA intrinsic sa</li> </ul>	fe (is)				F	
• FM + CSA (is + ep) +					5	3
<ul> <li>With FM + CSA, Type</li> </ul>						
- "Intrinsic Safe und E	xplosion Proof (is + xp)" <sup>8</sup>	3)			١	1C
Electrical connection/						
<ul> <li>Screwed gland Pg 13</li> </ul>						Α
	1.5					В
<ul> <li>Screwed gland M20x</li> </ul>						C
<ul> <li>Screwed gland M20x</li> <li>Screwed gland ½-14</li> </ul>	NPT					
• Screwed gland ½-14	NPT nousing) incl. mating					D
-	nousing) incl. mating	•				

	Article No.	
	7 M F 4 2 3 3 -	
•		0
•		1
•		6
•		7
	•	7 MF 4 2 3 3 -

 We can offer shorter delivery times for configurations designated with the Quick Ship Symbol
 For details see page 9/5 in the appendix.

Power supply units see Chap. 7 "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 (80 inH<sub>2</sub>O a).
- 3) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here. 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) The diaphragm seal is to be specified with a separate order number and must be included with the tranmitter order number, for example 7MF423.-.Y..-... and 7MF4900-1...-.B
- 6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 7) Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 8) Without cable gland, with blanking plug.
- 9) With enclosed cable gland Ex ia and blanking plug.
- <sup>10)</sup>Configurations with HAN and M12 connectors are only available in Ex ic.
- 11) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- <sup>12)</sup>M12 delivered without cable socket
- $^{13)}\mbox{Not}$  available with protection type "Ex d" (optiones D, P, N and R)
- 14) Not with protection types "Explosion-proof" and "Ex nA", "Intrinsic safe" and "Explosion proof".

#### Transmitters for general requirements

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

Selection and Orderin	•	Art	icle	No	Ο.		
Pressure transmitters from gauge pressure							
SITRANS P DS III with	PROFIBUS PA (PA)	7 M F 4 2 3 4 -					
SITRANS P DS III with (FF)	FOUNDATION Fieldbus	7 M F 4 2 3 5 -					
					-		
Measuring cell filling	Measuring cell						
Silicone oil Inert liquid <sup>1)</sup>	cleaning normal grease-free to cleanliness level 2	1 3					
Nominal measuring ra	nge						
250 mbar a 1300 mbar a 5 bar a 30 bar a	(3.62 psia) (18.85 psia) (72.5 psia) (435 psia)	F C	i à				
Wetted parts materials							
Seal diaphragm Stainless steel Hastelloy Hastelloy Version as diaphragms	Process connection  Stainless steel Stainless steel Hastelloy seal <sup>2)</sup> <sup>3)</sup> <sup>4)</sup> <sup>5)</sup> <sup>6)</sup>	_	A B C Y				
<ul> <li>Female thread ½-14 NPT</li> <li>Stainless steel oval flange with process connection (Oval flange has no female thread)</li> <li>Mounting thread <sup>7</sup>/<sub>16</sub>-20 UNF to IEC 61518</li> <li>Mounting thread M10 to DIN 19213</li> <li>Mounting thread M12 to DIN 19213</li> <li>Male thread M20 x 1.5</li> <li>Male thread ½ -14 NPT</li> </ul>			2 3 4 5	} !			
<ul><li>Non-wetted parts mate</li><li>Housing made of die-</li><li>Housing stainless ster</li></ul>	cast aluminium			0 3			
Version  • Standard versions • International version, English label inscriptions, documentation in 5 languages on CD (no Order code selectable)					1 2		
Explosion protection		_					
None     None	otootion:				4	A	
<ul> <li>With ATEX, Type of protection:</li> <li>"Intrinsic safety (Ex ia)"</li> <li>"Explosion-proof (Ex d)"<sup>7)</sup></li> <li>"Intrinsic safety and flameproof enclosure"</li> </ul>						B D P	
(Ex ia + Ex d)* <sup>8</sup> )  - "Ex nA/ic (Zone 2)" <sup>9</sup> )  - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)* <sup>8</sup> ) (not for DS III FF)						E R	
<ul> <li>FM + CSA intrinsic safe (is)</li> <li>FM + CSA (is + ep) + Ex ia + Ex d (ATEX)</li> <li>With FM + CSA, Type of protection:</li> </ul>						F S	
Intrinsic Safe und E     Electrical connection/     Screwed gland M20 x     Screwed gland ½-14     M12 connectors (stair	: 1.5 NPT					B C F	

Article No.	
7 M F 4 2 3 4 -	
7 M F 4 2 3 5 -	
	0
	1
	6
	7
	7 M F 4 2 3 4 -

- 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) The diaphragm seal is to be specified with a separate order number and must be included wiht the tranmitter order number, for example 7MF423.-..Y..-... and 7MF4900-1...-.B
- 6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 7) Without cable gland, with blanking plug.
- 8) With enclosed cable gland Ex ia and blanking plug.
- 9) Configurations with HAN and M12 connectors are only available in Ex ic.
- 10)M12 delivered without cable socket
- 11) Not with protection types "Explosion-proof" and "Ex nA", "Intrinsic safe" and "Explosion proof".

### Transmitters for general requirements

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

		Oraci	code		order code			
Further designs			HART	PA	FF			
Add "-Z" to Article No. and specify Order code.								
Pressure transmitter with mounting								
bracket (1x fixing angle, 2 x nut, 2 x U-								
washer or 1 x bracket, 2 x nut, 2 x U-								
washer) made of: • Steel		A01	1	1	1			
Steel     Stainless steel	-		1	<b>✓</b>	1			
Plug	_	AUL	•	·	·			
• Han 7D (metal, gray)		A30	1					
Han 8U (instead of Han 7D)		A31	1					
• Angled		A32	1					
Han 8D (metal, gray)		A33	✓					
Cable sockets for M12 connectors		A50	1	1	1			
(stainless steel)		700		·	·			
Rating plate inscription (instead of Ger-								
man)		D44	,	,	,			
<ul><li>English</li><li>French</li></ul>		B11 B12	<b>✓</b>	<b>√</b>	-/			
• Spanish		B13	<b>V</b>	<b>v</b>	· /			
• Italian		B14	1	1	1			
English rating plate		B21	1	1	1			
Pressure units in inH <sub>2</sub> 0 and/or psi	Ī	D21	ľ	•	·			
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2 <sup>1)</sup>	•	C11	✓	✓	✓			
Inspection certificate <sup>2)</sup>	•	C12	1	/	1			
Acc. to EN 10204-3.1		0.2		•				
Factory certificate	•	C14	1	1	1			
Acc. to EN 10204-2.2		•						
Functional safety (SIL2)	•	C20	1					
Devices suitable for use according to IEC								
61508 and IEC 61511. Includes SIL confor	-							
mity declaration		0043)		,				
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol		C21 <sup>3)</sup>		<b>~</b>				
•		C23	1					
Functional safety (SIL2/3) Devices suitable for use according to IEC		023						
61508 and IEC 61511. Includes SIL confor	-							
mity declaration								
Device passport Russia		C99	✓	✓	✓			
(For price request please contact the technica support	ti .							
www.siemens.com/automation/support-								
request)								
Setting of upper limit of output signal to 22.0 mA	)	D05	✓					
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)	•	D07	✓	✓	1			
Degree of protection IP65/IP68		D12	1	1	1			
(only for M20 x 1.5 and ½-14 NPT)		J . Z			·			
Cumplied with aval florers		D37	1	1	1			
Supplied with oval Hande								
Supplied with oval flange (1 item), PTFE packing and screws in								

Selection and Ordering data Order code						
Selection and Ordering data	Order		-			
Further designs		HART	PA	FF		
Add " <b>-Z</b> " to Article No. and specify Order code.						
Use in or on zone 1D/2D	E01	✓	✓	✓		
(only together with type of protection						
"Intrinsic safety" (transmitter 7MF4B Ex ia)")						
Oxygen application	E10	✓	✓	✓		
(In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))						
Export approval Korea	E11	✓	✓	✓		
CRN approval Canada (Canadian Registration Number)	E22	✓	✓	✓		
Dual seal	E24	1	1	1		
Explosion-proof "Intrinsic safety" (Ex ia)	E25 <sup>4)</sup>	1	1	1		
to INMETRO (Brazil)			·	·		
(only for transmitter 7MF4						
"Flameproof" explosion protection	E26 <sup>4)</sup>	✓	✓	✓		
according to INMETRO (Brazil) (only for transmitter 7MF4D)						
, ,	E28 <sup>4)</sup>	,	,			
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28 '7	•	•			
Ex Approval IEC Ex (Ex ia)	E45 <sup>4)</sup>	1	1	1		
(only for transmitter 7MF4B)		ľ	·	•		
Ex Approval IEC Ex (Ex id)	E46 <sup>4)</sup>	✓	✓	✓		
(only for transmitter 7MF4	4					
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55 <sup>4)</sup>	✓	✓	✓		
(only for transmitter 7MF4B)						
Explosion protection "Explosion-proof" to NEPSI (China)	E56 <sup>4)</sup>	✓	✓	✓		
(only for transmitter 7MF4)						
Explosion-proof "Zone 2" to NEPSI (China)	E57 <sup>4)</sup>	✓	✓	✓		
(only for transmitter 7MF4						
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)	E70 <sup>4)</sup>	✓	✓	✓		
(only for transmitter 7MF4[B, D]Z + E11)						
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓		
Transient protector 6 kV (lightning pro-	J01	✓	1	1		
tection)						

- We can offer shorter delivery times for configurations designated with the Quick Ship Symbol . For details see page 9/5 in the appendix.
- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the <u>total</u> combination is certified here.
- 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) Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H
- 4) Option does not include ATEX approval, but instead includes only the country-specific approval.

### Transmitters for general requirements

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

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set  Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	✓	<b>√</b> 1)	
Stainless steel tag plate and entry in device variable (measuring point description)  Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text (entry in device variable)  Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG)  Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pres-	Y21	✓	✓	✓
sure 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*, inH <sub>2</sub> O*, ftH <sub>2</sub> O*, mmHG, inHG, psi, Pa, kPa, MPa, g/cm²,				
kg/cm <sup>2</sup> , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units <sup>2)</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		✓	✓
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	1

 We can offer shorter delivery times for configurations designated with the Quick Ship Symbol
 For details see page 9/5 in the appendix.

Factory mounting of valve manifolds, see accessories.

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

✓ = available

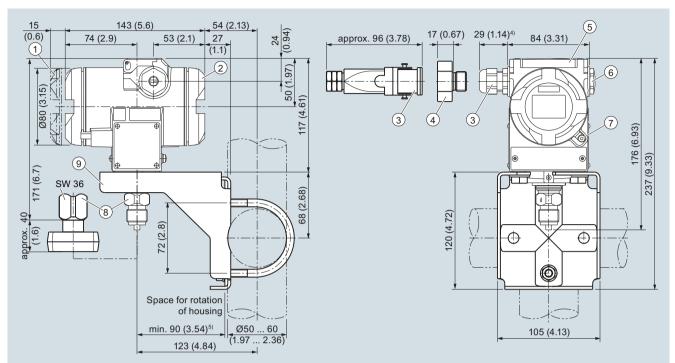
<sup>1)</sup> Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.

 $<sup>^{2)}\,</sup>$  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)<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
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- 2) Not with type of protection "Explosion-proof enclosure"
- 3) Not with type of protection "FM + CSA" [IS + XP]"
- 4) For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
- 5) Minimum distance for rotating

- 5 Protective cover over keys
- 6 Blanking plug
- 7 Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- 8 Process connection: Connection shank G½B or Oval flange
- 9 Mounting bracket (option)

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

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

#### Technical specifications

SITRANS P, DS III for absolute pressure (from	•	ire series)	DDOELD 10 Et	OUNDATION E		
	HART		PROFIBUS PA and F	OUNDATION Fieldbus		
Input		A1 1 .				
Measured variable		1	e pressure	1		
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		'				
Measuring cell with silicone oil filling		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			
• Lower limit (infinitely adjustable)	3.55 mA, factory prese	.55 mA, factory preset to 3.84 mA -				
Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA					
Load						
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.0$ $U_{\rm H}$ : Power supply in V	23 A in Ω,	-			
• With HART	$R_{\rm B} = 230 \dots 500 \Omega$ (SI $R_{\rm B} = 230 \dots 1100 \Omega$ (H		-			
Physical bus	-		IEC 61158-2			
Protection against polarity reversal	Protected against sho		rsal. Each connection a voltage.	gainst the other with max.		
Electrical damping (step width 0.1 s)		Set to 2 s	(0 100 s)			
Measuring accuracy		Acc. to IE	EC 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))		diaphragm, silicone oil fill- span / set span)		
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)	≤ (0.1 · r + 0.15) %/10	K	≤ 0.25 %/10 K			
Measured Value Resolution	-		$3 \cdot 10^{-5}$ of nominal me	asuring range		

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

,	the differential pressure series) HART	PROFIBUS PA and FOUNDATION Fieldbus
Rated conditions	Hart	THE IDEE TA UITA TO REALIST TELEBRAS
Degree of protection (to IEC 60529)	IP65 (optio	nal IP65/IP68)
Femperature of medium	ii 66 (6pile	na ii 66/ii 66/
• Measuring cell with silicone oil filling	-40 +100°C	C (-40 +212 °F)
• Measuring cell with inert filling liquid		C (-4 +212 °F)
In conjunction with dust explosion protection		C (-4 +140 °F)
Ambient conditions	20 100 0	, ( 1 1 1 10 1 )
Ambient temperature		
- Transmitter (with 4-wire connection, observe temperature values of supplementary 4-wire electronics)	-40 +85 °C	(-40 +185 °F)
- Display readable	-30 +85 °C	(-22 +185 °F)
Storage temperature	-50 +85 °C	(-58 +185 °F)
· Climatic class		
- Condensation		idity 0 100 % suitable for use in the tropics
Electromagnetic Compatibility		
- Emitted interference and interference immunity	Acc. to IEC 61326	and NAMUR NE 21
Design		
Veight (without options)	≈ 4.5 kg	(≈ 9.9 (lb)
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or	stainless steel precision casting, mat. no. 1.440
Vetted parts materials		
Seal diaphragm		oy C276, mat. no. 2.4819, Monel, mat. no. 2.436 m or gold
Process flanges and sealing screw		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	(maximum value with oxigen measurement	inert filling liquid pressure 100 bar (1450 psi) at 60 °C (140 °F))
Process connection		nting thread M10 to DIN 19213 or <sup>7</sup> / <sub>16</sub> -20 UNF C 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 $U_{\mathbb{H}}$		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
<ul> <li>Start-up current ≤ basic current</li> </ul>	-	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	
Certificates and approvals			
Classification according to PED 97/23/EC		d group 1; complies with requirements of article 3, d engineering practice)	
Explosion protection			
Intrinsic safety "i"	PTB 13	ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/i	ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 +70 °C (-40 +1	85 °F) temperature class T4; 58 °F) temperature class T5; 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: $U_0 = 17.5 \text{ V}, I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$	
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH},  C_{\rm i} = 6  {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$	
Explosion-proof "d"	PTB 99	ATEX 1160	
- Marking	Ex II 1/2 G E	x d IIC T4/T6 Gb	
- Permissible ambient temperature		85 °F) temperature class T4; I40 °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	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 (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, $R_{\rm i}=300$ $\Omega$	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	$L_{\rm i} = 0.4  {\rm mH}, \; C_{\rm i} = 6  {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$	
Dust explosion protection for zone 21/22	PTB 01	ATEX 2055	
- Marking	Ex II 2 D	IP65 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 W	
Type of protection "n" (zone 2)	PTB 13	ATEX 2007 X	
- Marking		nA II T4/T5/T6 Gc ic IIC T4/T5/T6 Gc	
- Connection (Ex nA)	$U_{\rm m} = 45 \text{ V}$	$U_{\rm m} = 32 \text{ V}$	
- Connection (Ex ic)	To circuits with values: $U_i = 45 \text{ V}$	FISCO supply unit ic: $U_0 = 17.5 \text{ V}, I_0 = 570 \text{ mA}$	
		Linear barrier: $U_0 = 32 \text{ V}, I_0 = 132 \text{ mA}, P_0 = 1 \text{ W}$	
- 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 protection acc. to FM	Certificate of C	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 C	ompliance 1153651	
- Identification (XP/DIP) or (IS)		EFG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABC DIV 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 differential pressure series)

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 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-specific 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 warn- ing 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 mea- sured pressure value and sen- sor 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 LCD

Yes

Yes

Constant value or over parameterizable ramp function

#### Transmitters for general requirements

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

(ITOIII dillerential	,			
Selection and Ordering	g data	Artic	le No	).
Pressure transmitters		7 M F	4 3 3	3 -
from differential press SITRANS P DS III with			-	
Measuring cell filling	Measuring cell clean-			
	ing			
Silicone oil	normal	1		
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3		
Measuring span (min.		-		
8.3 250 mbar a	(0.12 3.62 psia)	D		
43 1300 mbar a	(0.62 18.85 psia)	F		
0.16 5 bar a	(2.32 72.5 psia)	G		
1 30 bar a	(14.5 435 psia)	Н		
5.3 100 bar a	(76.9 1450 psia)	ΚE		
Wetted parts materials				
Seal diaphragm	Parts of measuring cell			
Stainless steel	Stainless steel	Α		
Hastelloy	Stainless steel	В		
Hastelloy	Hastelloy	C		
Tantalum Monel	Tantalum Monel	E		
Gold	Gold	Ľ		
Version for diaphragm s		Y		
Process connection	<del></del>			
	T with flange connection			
Sealing screw opposit	9			
- Mounting thread <sup>7</sup> / <sub>16</sub>	- -20 UNF to EN 61518		2	
<ul> <li>Mounting thread M1</li> </ul>			0	
(only for replacemen				
<ul> <li>Vent on side of proces</li> <li>Mounting thread <sup>7</sup>/<sub>16</sub></li> </ul>	ss flange '/		6	
<ul> <li>Mounting thread 7<sub>16</sub></li> <li>Mounting thread M1</li> </ul>			4	
(only for replacemen			7	
Non-wetted parts mate	erials	-		
process flange screws				
Stainless steel	Die-cast aluminum		2	
Stainless steel	Stainless steel precision casting <sup>8)</sup>		3	
	casting <sup>8)</sup>			
Version				
Standard versions				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 (Ex i				В
- "Explosion-proof (Ex	d)" <sup>9)</sup>			D
<ul> <li>"Intrinsic safety and (Ex ia + Ex d)" <sup>10)</sup></li> </ul>	flameproof enclosure"			Р
- "Ex nA/ic (Zone 2)"11	)			E
- "Intrinsic safety, expl	osion-proof enclosure and			R
dust explosion prote Zone 1D/2D)" <sup>10)</sup>	ction (Ex ia+ Ex d +			
<ul> <li>Zone 1D/2D)**107</li> <li>FM + CSA intrinsic sat</li> </ul>				F
• FM + CSA (is + ep) +	` '			S
• With FM + CSA, Type				
	xplosion Proof (is + xp)" 9)			NC
Electrical connection/				
Screwed gland Pg 13.				A
<ul> <li>Screwed gland M20 x</li> </ul>				В
• Screwed gland ½-14 I				С
<ul> <li>Han 7D plug (plastic h connector 12)</li> </ul>	nousing) incl. mating			D
• M12 connectors (stair	uless steel) <sup>12)</sup> 13)			F
MIL COMBOUNT (Stall				

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

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

Included in delivery of the device:

- 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 <u>total</u> combination is certified here.
- 4) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) The diaphragm seal is to be specified with a separate order number and must be included with the tranmitter order number, for example 7MF433.-.Y...... und 7MF4900-1...-.B
- 6) The standard measuring cell filling for configurations with remote seals (Y)
- 7) 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).
- 8) Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 9) Without cable gland, with blanking plug
- <sup>10)</sup>With enclosed cable gland Ex ia and blanking plug
- <sup>11)</sup>Configurations with HAN and M12 connectors are only available in Ex ic.
- 12) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 13)M12 delivered without cable socket

#### Transmitters for general requirements

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

Selection and Ordering	g data	Artic	le	No	).		
Pressure transmitter f	or absolute pressure						
from differential press	ure series						
SITRANS P DS III with	PROFIBUS PA (PA)	7 M F	- 4	3 3	3 4	-	
SITRANS P DS III with (FF)	FOUNDATION Fieldbus	7 M F	4	3 3	3 5	-	
(11)							1
Measuring cell filling	Measuring cell clean-		F		F		
measuring cen mining	ing						
Silicone oil	normal	1					
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3					
Nominal measuring ra							
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					
100 bar a	(1450 psia)	KE					
Wetted parts materials Seal diaphragm	Parts of measuring cell						
Stainless steel	Stainless steel	,					
Hastelloy	Stainless steel	É					
Hastelloy	Hastelloy		1				
Tantalum	Tantalum	E	1				
Monel	Monel	F					
Gold	Gold	L	-				
Version as diaphragm s	eal <sup>2) 3) 4) 5) 6)</sup>	١	1				
<ul> <li>Mounting thread M1 (only for replacement</li> <li>Vent on side of procest</li> </ul>	<sub>3</sub> -20 UNF to IEC 61518 0 to DIN 19213 nt requirement)		2 0				
<ul> <li>Mounting thread M1 (only for replacement</li> </ul>	0 to DIN 19213 nt requirement)		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, I documentation in 5 la (no Order code select</li> </ul>					1 2		
,							
Explosion protection	,					^	
Explosion protection  None	<u> </u>					A	
Explosion protection  None	otection:					A B	
Explosion protection None With ATEX, Type of pro- Intrinsic safety (Ex in the second se	otection: a)" d)" <sup>8)</sup>						
Explosion protection None With ATEX, Type of pro- Intrinsic safety (Ex in the second se	otection: a)" d)" <sup>8)</sup>					В	
Explosion protection None With ATEX, Type of pro- Intrinsic safety (Ex insurance of the control	otection: a)" d)"8) flameproof enclosure"					B D P	
Explosion protection None With ATEX, Type of pro- "Intrinsic safety (Ex in the safety and (Ex in the safety))  "Ex nA/ic (Zone 2)" 10"	otection: a)" d)*8) flameproof enclosure"					B D P	
■ Transition Protection  ■ None  ■ With ATEX, Type of proper or a	otection: a)" d)"8) flameproof enclosure" 0) osion-proof enclosure and ection (Ex ia + Ex d + for DS III FF)					B D P E R	
■ With ATEX, Type of properties a safety (Exister)  ■ With ATEX, Type of properties as a safety (Exister)  ■ "Explosion-proof (Exister)  ■ "Intrinsic safety and (Exia + Exd)"  ■ "Ex nA/ic (Zone 2)"  ■ "Intrinsic safety, explosion proted and explosion proted zone 1D/2D)"  ■ FM + CSA intrinsic safety.	obtection:  a)" d)"8) flameproof enclosure"  o) osion-proof enclosure and cction (Ex ia + Ex d + for DS III FF) fe (is)					B D P E R	
Explosion protection None With ATEX, Type of promotion and protection Intrinsic safety (Ex in "Explosion-proof (Ex in the Explosion and (Ex in the Explosion and (Ex in the Explosion protection and intrinsic safety, expl	obtection:  a)" d)"8) flameproof enclosure"  o) osion-proof enclosure and ection (Ex ia + Ex d + for DS III FF) fe (is) Ex ia + Ex d (ATEX)					B D P E R	
Explosion protection None With ATEX, Type of proceedings of proceedings of the protection of the proceeding of the proceeding of the proceeding of the protection of the prote	otection: a)" d)*8) flameproof enclosure" b) osion-proof enclosure and ction (Ex ia + Ex d + for DS III FF) fe (is) Ex ia + Ex d (ATEX) of protection: xplosion Proof (is + xp)* 8)					B D P E R	
Explosion protection None With ATEX, Type of proceedings of proceedings of the protection of the proceeding of the proceeding of the proceeding of the protection of the prote	otection: a)" d)*8) flameproof enclosure" b) osion-proof enclosure and ction (Ex ia + Ex d + for DS III FF) fe (is) Ex ia + Ex d (ATEX) of protection: xplosion Proof (is + xp)* 8) cable entry					B D P E R	
Explosion protection None With ATEX, Type of promotion and protection Intrinsic safety (Ex in "Explosion-proof (Ex in the Explosion and (Ex in the Explosion and (Ex in the Explosion protection and intrinsic safety, expl	otection:  a)"  d)"8)  flameproof enclosure"  o)  osion-proof enclosure and ection (Ex ia + Ex d + for DS III FF)  fe (is)  Ex ia + Ex d (ATEX)  of protection:  xplosion Proof (is + xp)" 8)  cable entry  1.5  NPT					B D D P E R F S	

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

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 (80 inH $_2$ O a).
- 3) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the <u>total</u> combination is certified here.
- 4) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) The diaphragm seal is to be specified with a separate order number and must be included with the tranmitter order number, for example 7MF433.-.Y.-.... und 7MF4900-1...-.B
- 6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 7) Not for nominal measuring range 100 bar a (1450 psia). Position of the top vent valve in the process flange (see dimensional drawing).
- 8) Without cable gland, with blanking plug
- 9) With enclosed cable gland Ex ia and blanking plug
- <sup>10)</sup>Configurations with HAN and M12 connectors are only available in Ex ic.
- 11)M12 delivered without cable socket
- <sup>12)</sup>Not available with protection type "Ex d" (options D, P, N and R)
- <sup>13)</sup>Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".

### Transmitters for general requirements

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

·				
Selection and Ordering data	Order	code		
	Ordel		D.	
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF
Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:				
<ul><li>Steel</li><li>Stainless steel</li></ul>	A01 A02	1	<b>✓</b>	<b>✓</b>
O-rings for process flanges				
(instead of FPM (Viton))	A20	./		./
<ul><li>PTFE (Teflon)</li><li>FEP (with silicone core, approved for food)</li></ul>	A20 A21	1	<b>V</b>	1
• FFPM (Kalrez, compound 4079)	A21	1	1	1
• NBR (Buna N)	A23	<b>V</b>	<b>✓</b>	<b>✓</b>
plug	4.00			
Han 7D (metal, gray)  Llan 3D (instand of Llan 3D)	A30	<b>√</b>		
Han 8U (instead of Han 7D)	A31 A32	<b>✓</b>		
<ul><li>Angled</li><li>Han 8D (metal, gray)</li></ul>	A32	<b>V</b>		
, , , , , , , , , , , , , , , , , , , ,		,		
Sealing screw 1/4-18 NPT, with valve in mat. of process flanges	A40	~	<b>✓</b>	<b>✓</b>
Cable sockets for M12 connectors	A50	1	✓	✓
(stainless steel)				
Rating plate inscription (instead of German)				
• English	B11	✓	✓	✓
• French	B12	✓	✓	✓
Spanish	B13	✓	✓	✓
• Italian	B14	✓	✓	✓
English rating plate Pressure units in inH <sub>2</sub> 0 and/or psi	B21	✓	✓	✓
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2 <sup>1)</sup>	C11	✓	✓	✓
Inspection certificate <sup>2)</sup>	C12	1	1	1
Acc. to EN 10204-3.1	012	ľ	•	Ť
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C20	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 <sup>3)</sup>		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C23	✓		
<b>Device passport Russia</b> (For price request please contact the technical support	C99	✓	✓	✓
www.siemens.com/automation/support-request)  Setting of upper limit of	D05	<b>√</b>		
output signal to 22.0 mA	200			
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)  (only together with seal diaphragm made of	D07	<b>√</b>	<b>√</b>	<b>√</b>
Hastelloy and stainless steel)  Degree of protection IP65/IP68	D12	1	<b>✓</b>	1
(only for M20 x 1.5 and 1/2-14 NPT)				
<b>Supplied with oval flange</b> (1 item), PTFE packing and screws in thread of process flange	D37	•	<b>√</b>	<b>√</b>

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF
Use in or on zone 1D/2D	E01	✓	1	✓
(only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia)")				
Oxygen application	E10	✓	✓	✓
(In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))				
Export approval Korea	E11	✓	✓	✓
<b>CRN approval Canada</b> (Canadian Registration Number)	E22	✓	✓	✓
Dual seal	E24	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25 <sup>4)</sup>	1	✓	✓
(only for transmitter 7MF4B)	4)	_		
"Flameproof" explosion protection accord- ing to INMETRO (Brazil) (only for transmitter 7MF4D)	E26 <sup>4</sup> )	1	<b>✓</b>	✓
Explosion-proof "Intrinsic safety" (Ex ia +	E28 <sup>4)</sup>	1	1	
Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)				
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4B)	E45 <sup>4)</sup>	✓	✓	✓
Ex Approval IEC Ex (Ex id) (only for transmitter 7MF4D)	E46 <sup>4)</sup>	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55 <sup>4)</sup>	1	✓	✓
(only for transmitter 7MF4B)				
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56 <sup>4)</sup>	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57 <sup>4)</sup>	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)	E70 <sup>4)</sup>	✓	✓	1
(only for transmitter 7MF4[B, D]Z + E11)				
Two coats of lacquer on casing and cover (PU on epoxy)	G10	1	✓	✓
Interchanging of process connection side	H01	✓	✓	✓
Vent on side for gas measurements	H02	✓	✓	1
Transient protector 6 kV (lightning protection)	J01	✓	1	✓
Process flange				
Hastelloy	K01	1	1	1
Monel     Stainless steel with RVDE insert.	K02	./	1	1
<ul> <li>Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F)</li> <li>For ½-14 NPT inner process connection on</li> </ul>	K04	•	•	•
the side in the middle of the process flange, vent valve not possible				

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>&</sup>lt;sup>3)</sup> Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H

<sup>4)</sup> Option does not include ATEX approval, but instead includes only the country-specific approval.

# **Pressure Measurement** Transmitters for general requirements

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

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set	Y01	1	<b>√</b> 1)	
Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi				
Stainless steel tag plate and entry in device variable (measuring point description)	Y15	✓	✓	✓
Max. 16 characters, specify in plain text: Y15:				
Measuring point text (entry in device variable)	Y16	✓	✓	✓
Max. 27 characters, specify in plain text: 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	Y22 +	✓		
non-pressure units <sup>2)</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)	Y01			
Preset bus address	Y25		✓	✓
possible between 1 and 126 Specify in plain text: Y25:				
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	1

Factory mounting of valve manifolds, see accessories.

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

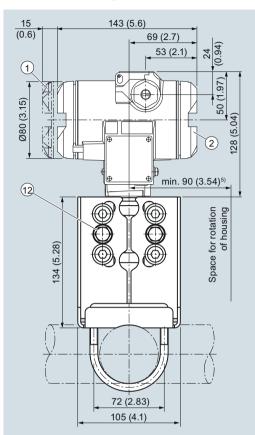
✓ = available

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

#### Transmitters for general requirements

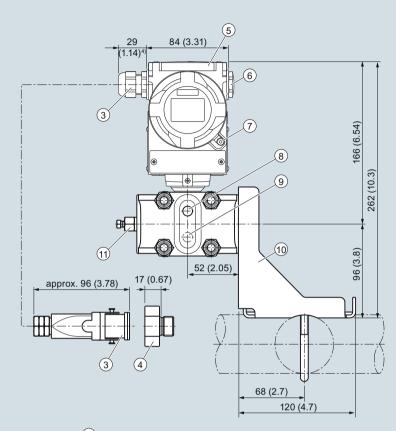
SITRANS P DS III for absolute pressure (from differential pressure series)

#### Dimensional drawings



- Electronic side, digital display
   (longer overall length for cover with window)¹¹)
- 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)



- 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

SITRANS P, DS III for differential pressure and	l flow			
	HART		PROFIBUS PA and F	FOUNDATION Fieldbus
nput				
Measured variable		Differential p	ressure and flow	
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	·	an or 30 mbar a (0.44 ps	, ,	. ,
Jpper measuring limit	100 % of max. spa	an (for oxygen version a	nd inert filling liquid; ma	ax. 120 bar (1740 psi))
<b>Dutput</b> Dutput signal	4 20 mA		Digital PROFIBUS PA FOUNDATION Fieldb	and
Lower limit (infinitely adjustable)	3.55 mA, factory prese		1 0011011110100	us signal
zono: min (minior) dajaotabro)		t to 3 84 mA	_	us signal
• Upper limit (infinitely adjustable)		t to 3.84 mA o 20.5 mA or optionally	-	us signal
	23 mA, factory preset to			us signal
_oad	23 mA, factory preset to set to 22.0 mA $R_{\rm R} \le (U_{\rm H} - 10.5 \text{ V})/0.02$	o 20.5 mA or optionally	-	us signal
oad • Without HART	23 mA, factory preset to set to 22.0 mA	o 20.5 mA or optionally 23 A in $\Omega$ , MATIC PDM) or	-	us signal
oad Without HART With HART	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$ : Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIM	o 20.5 mA or optionally 23 A in $\Omega$ , MATIC PDM) or	- - - IEC 61158-2	us signal
oad Without HART With HART Physical bus	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}: \text{Power supply in V}$ $R_{\rm B} = 230 \dots 500 \ \Omega \text{ (SIM}$ $R_{\rm B} = 230 \dots 1100 \ \Omega \text{ (Hz)}$	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or  ART Communicator)  t-circuit and polarity rev		us signal against the other with ma
oad Without HART With HART Physical bus Protection against polarity reversal	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}: \text{Power supply in V}$ $R_{\rm B} = 230 \dots 500 \ \Omega \text{ (SIM}$ $R_{\rm B} = 230 \dots 1100 \ \Omega \text{ (Hz)}$	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or  ART Communicator)  tt-circuit and polarity revesuppl	ersal. Each connection a y voltage.	Ü
Load  Without HART  With HART  Physical bus  Protection against polarity reversal  Electrical damping (step width 0.1 s)	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}: \text{Power supply in V}$ $R_{\rm B} = 230 \dots 500 \ \Omega \text{ (SIM}$ $R_{\rm B} = 230 \dots 1100 \ \Omega \text{ (Hz)}$	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or  ART Communicator)  t-circuit and polarity revisuppl  Set to 2 s	ersal. Each connection ay voltage.	Ü
Load  Without HART  With HART  Physical bus  Protection against polarity reversal  Electrical damping (step width 0.1 s)  Measuring accuracy  Reference conditions	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H}$ - 10.5 V)/0.02 $U_{\rm H}$ : Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIN $R_{\rm B} = 230 \dots 1100 \Omega$ (Hz.)  Protected against short	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or ART Communicator)  tt-circuit and polarity revisuppl  Set to 2 s  Acc. to 1	ersal. Each connection by voltage.  s (0 100 s)  EC 60770-1  bar, stainless steel sea	against the other with ma
Load  Without HART  With HART  Physical bus  Protection against polarity reversal  Electrical damping (step width 0.1 s)  Measuring accuracy  Reference conditions All error data refer always refer to the set span)  Error in measurement at limit setting incl.	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H}$ - 10.5 V)/0.02 $U_{\rm H}$ : Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIN $R_{\rm B} = 230 \dots 1100 \Omega$ (Hz.)  Protected against short	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or ART Communicator)  t-circuit and polarity revisuppl  Set to 2 s  Acc. to 1	ersal. Each connection by voltage.  s (0 100 s)  EC 60770-1  bar, stainless steel sea	against the other with ma
Load  Without HART  With HART  Physical bus  Protection against polarity reversal  Electrical damping (step width 0.1 s)  Weasuring accuracy  Reference conditions  All error data refer always refer to the set span)  Error in measurement at limit setting incl.  hysteresis and reproducibility	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H}$ - 10.5 V)/0.02 $U_{\rm H}$ : Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIN $R_{\rm B} = 230 \dots 1100 \Omega$ (Hz.)  Protected against short	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or ART Communicator)  t-circuit and polarity revisuppl  Set to 2 s  Acc. to 1	ersal. Each connection by voltage.  s (0 100 s)  EC 60770-1  bar, stainless steel sea	against the other with ma
Load  Without HART  With HART  Physical bus  Protection against polarity reversal  Electrical damping (step width 0.1 s)  Measuring accuracy  Reference conditions All error data refer always refer to the set span)  Error in measurement at limit setting incl.  hysteresis and reproducibility  Linear characteristic  r ≤ 10	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5  {\rm V})/0.02  U_{\rm H}$ : Power supply in V $R_{\rm B} = 230 \dots 500  \Omega  ({\rm SIM}  R_{\rm B} = 230 \dots 1100  \Omega  ({\rm Hz}  {\rm J})$ Protected against short ing, room terms in the set of t	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or ART Communicator)  tt-circuit and polarity revisuppl  Set to 2 s  Acc. to 1  cic, start-of-scale value 0  mperature 25 °C (77 °F)	ersal. Each connection by voltage.  s (0 100 s)  EC 60770-1  bar, stainless steel sea or: Span ratio (r = max.	against the other with ma
Doad  Without HART  With HART  Physical bus  Protection against polarity reversal  Electrical damping (step width 0.1 s)  Measuring accuracy  Reference conditions All error data refer always refer to the set span)  Error in measurement at limit setting incl. hysteresis and reproducibility  Linear characteristic  - r ≤ 10  - 10 < r ≤ 30	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5  {\rm V})/0.02  U_{\rm H}$ : Power supply in V $R_{\rm B} = 230 \dots 500  \Omega  ({\rm SIM}  R_{\rm B} = 230 \dots 1100  \Omega  ({\rm Hz}  {\rm J})$ Protected against short ing, room terms in the set of t	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or ART Communicator)  tt-circuit and polarity revisuppl  Set to 2 s  Acc. to 1  cic, start-of-scale value 0  mperature 25 °C (77 °F)	ersal. Each connection by voltage.  s (0 100 s)  EC 60770-1  bar, stainless steel sea or: Span ratio (r = max.	against the other with ma
Doad  Without HART  With HART  Physical bus  Protection against polarity reversal  Electrical damping (step width 0.1 s)  Measuring accuracy Reference conditions (All error data refer always refer to the set span)  Error in measurement at limit setting incl. hysteresis and reproducibility  Linear characteristic  - r ≤ 10  - 10 < r ≤ 30  - 30 < r ≤ 100	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5  {\rm V})/0.02  U_{\rm H}$ : Power supply in V $R_{\rm B} = 230 \dots 500  \Omega  ({\rm SIM}  R_{\rm B} = 230 \dots 1100  \Omega  ({\rm Hz}  {\rm J})$ Protected against short ing, room terms in the set of t	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or ART Communicator)  tt-circuit and polarity revisuppl  Set to 2 s  Acc. to 1  cic, start-of-scale value 0  mperature 25 °C (77 °F)	ersal. Each connection by voltage.  (a (0 100 s)  EC 60770-1  bar, stainless steel sea or: Span ratio (r = max.)  ≤ 0.075 %	against the other with ma
Load  • Without HART  • With HART  Physical bus  Protection against polarity reversal  Electrical damping (step width 0.1 s)  Measuring accuracy  Reference conditions (All error data refer always refer to the set span)  Error in measurement at limit setting incl. hysteresis and reproducibility  • Linear characteristic  • r ≤ 10  • 10 < r ≤ 30  • 30 < r ≤ 100  • Square-rooted characteristic (flow > 50 %)	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$ : Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIN $R_{\rm B} = 230 \dots 1100 \Omega$ (Hz)  - Protected against short increasing characteristing, room terms in the second se	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or ART Communicator)  tt-circuit and polarity revisuppl  Set to 2 s  Acc. to 1  cic, start-of-scale value 0  mperature 25 °C (77 °F)	ersal. Each connection by voltage.  s (0 100 s)  EC 60770-1  bar, stainless steel sea or: Span ratio (r = max.	against the other with ma
- 10 < r ≤ 30	23 mA, factory preset to set to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5  {\rm V})/0.02  U_{\rm H}$ : Power supply in V $R_{\rm B} = 230 \dots 500  \Omega  ({\rm SIM}  R_{\rm B} = 230 \dots 1100  \Omega  ({\rm Hz}  {\rm J})$ Protected against short ing, room terms in the set of t	o 20.5 mA or optionally 23 A in Ω,  MATIC PDM) or ART Communicator)  tt-circuit and polarity revisuppl  Set to 2 s  Acc. to 1  cic, start-of-scale value 0  mperature 25 °C (77 °F)	ersal. Each connection by voltage.  (a (0 100 s)  EC 60770-1  bar, stainless steel sea or: Span ratio (r = max.)  ≤ 0.075 %	against the other with m

# 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			
• Square-rooted characteristic (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			
Influence 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			
Influence 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 (optio	nal IP65/IP68)			
Temperature of medium					
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F) -20 +100	°C (-4 +212 °F) with 30 bar measuring cell			
Measuring cell with inert filling liquid	-20 +100 °C (-4 +212 °F)				
• In conjunction with dust explosion protection	-20 +60 °C	C (-4 +140 °F)			
Ambient conditions					
Ambient temperature					
- Transmitter (with 4-wire connection, observe temperature values of supplementary 4-wire electronics)	-40 +85 °C	(-40 +185 °F)			
- Display readable	-30 +85 °C	(-22 +185 °F)			
Storage temperature	-50 +85 °C	: (-58 +185 °F)			
Climatic class					
- Condensation		nidity 0 100 % , suitable for use in the tropics			
Electromagnetic Compatibility	,	,			
- Emitted interference and interference immunity	Acc. to IEC 61326	6 and NAMUR NE 21			
Design					
Weight (without options)	≈ 4.5 kg	g (≈ 9.9 (lb)			
Enclosure material		stainless steel precision casting, mat. no. 1.4408			
Wetted parts materials		<u>.</u>			
Seal diaphragm		oy C276, mat. no. 2.4819, Monel, mat. no. 2.4360, im or gold			
Measuring cell filling		inert filling liquid pressure 100 bar (1450 psi) at 60 °C (140 °F))			
Process connection	Female thread <sup>1</sup> / <sub>4</sub> -18 NPT and flange connection with mounting thread M10 to DIN 19213 or <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518				
Material of mounting brookst					
Material of mounting bracket					
• Steel	Sheet-steel, Mat. No.	. 1.0330, chrome-plated			

# 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 $U_{H}$		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
<ul> <li>With intrinsically-safe operation</li> </ul>	-	9 24 V
Current consumption		
Basic current (max.)	-	12.5 mA
<ul> <li>Start-up current ≤ basic current</li> </ul>	-	Yes
<ul> <li>Max. current in event of fault</li> </ul>	-	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)	Article 3, paragraph 1 (appendix 1); assigned to	oup 1; complies with basic safety requirements of a category III, conformity evaluation module H by V Nord.
Explosion protection		
Intrinsic safety "i"	PTB 13 AT	TEX 2007 X
- Marking	Ex II 1/2 G Ex ia/ib	IIC T4/T5/T6 Ga/Gb
- Permissible ambient temperature	-40 +70 °C (-40 +158	5 °F) temperature class T4; 3 °F) temperature class T5; 0 °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; $R_{\rm i}$ = 300 $\Omega$	$I_{L} = 17.5 \text{ V}$ $I_{L} = 380 \text{ mA}$ $P_{L} = 5.32 \text{ W}$
- Effective internal inductance/capacitance	$L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$	$L_i = 7 \mu H$ , $C_i = 1.1 nF$
• Explosion-proof "d"		ΔΤΕΧ 1160
·		d IIC T4/T6 Gb
- Marking		
- Permissible ambient temperature	-40 +60 °C (-40 +14)	5 °F) temperature class T4; 0 °F) temperature class T6
- Connection	··	To circuits with values: $U_{\rm H}$ = 9 32 V DC
Dust explosion protection for zone 20	PTB 01 A	ATEX 2055
- Marking		<sup>65</sup> 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: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $R_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $P_0 = 1 \text{ W}$
- Effective internal inductance/capacitance	$L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 \text{ nF}$
Dust explosion protection for zone 21/22		
		NTEX 2055
- Marking		65 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 W

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

SITRANS P, DS III for differential pressure and flow					
	HART	PROFIBUS PA and FOUNDATION Fieldbus			
Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X				
- Marking	Ex II 2/3 G Ex nA II T4/T5/T6 Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gc				
- Connection (Ex nA)	$U_{\rm m} = 45 \text{ V}$	$U_{\rm m} = 32 \text{ V}$			
- Connection (Ex ic)	To circuits with values: $U_i = 45 \text{ V}$	FISCO supply unit ic: $U_0 = 17.5 \text{ V}$ , $I_0 = 570 \text{ mA}$ Linear barrier:			
		$U_0 = 32 \text{ V}, I_0 = 132 \text{ mA}, P_0 = 1 \text{ W}$			
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH}, \; C_{\rm i} = 6  {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1,1 nF$			
<ul> <li>Explosion protection acc. to FM</li> </ul>	Certificate of C	ompliance 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				
<ul> <li>Explosion protection to CSA</li> </ul>	Certificate of Compliance 1153651				
- Identification (XP/DIP) or (IS)		EFG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD DIV 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-specific 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 warning limit and one alarm limit respectively
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit 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 mea- sured pressure value and sen- sor 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

<u> </u>						
Selection and Orderi	ng data		Artic	le N	0.	
SITRANS P DS III wit	h HART pressure trans-		7 M F	4 4	33-	
mitters for differentia PN 32/160 (MAWP 46					-	П
Measuring cell filling	Measuring cell clean- ing					
Silicone oil	normal	<b>&gt;</b>	1			
Inert liquid <sup>1)</sup>	grease-free to 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>&gt;</b>	В			
PN 160 (MAWP 2320 p	` /					
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)	▶•	D			
6 600 mbar	(2.409 240.9 inH <sub>2</sub> O)	▶•	E			
16 1600 mbar	(6.424 642.4 inH <sub>2</sub> O)	▶•	F			
50 5000 mbar	(20.08 2008 inH <sub>2</sub> O)	<b>&gt;</b>	G			
0,3 30 bar	(4.35 435 psi)	<b>&gt;</b>	Н			
Wetted parts materia	ls					
(stainless steel proces	s flanges)					
Seal diaphragm	Parts of measuring cell	_				
Stainless steel	Stainless steel		Α			
Hastelloy	Stainless steel		В			
Hastelloy	Hastelloy		С			
Tantalum <sup>3)</sup>	Tantalum		E			
Monel <sup>3)</sup>	Monel		Н			
Gold <sup>3)</sup>	Gold		L			
Version for diaphragm	seal <sup>4) 5) 6) 7)</sup>		Y			
Process connection						
	PT with flange connection	1				
• Sealing screw oppos	site process connection					
<ul> <li>Mounting thread <sup>7</sup>/</li> </ul>	<sub>16</sub> -20 UNF to IEC 61518	$\blacktriangleright lacktriangle$		2		
- Mounting thread M	10 to DIN 19213			0		
(only for replacement						
<ul> <li>Vent on side of proce</li> </ul>						
<ul> <li>Mounting thread <sup>1</sup>/</li> </ul>	<sub>16</sub> -20 UNF to IEC 61518			6		
- Mounting thread M				4		
(only for replacement	· · · · · · · · · · · · · · · · · · ·					
Non-wetted parts ma process flange screws						
Stainless steel	Die-cast aluminum	<b>&gt;</b>		2		
Stainless steel	Stainless steel precision casting <sup>8)</sup>			3		
Version						
<ul> <li>Standard versions</li> </ul>					1	
<ul> <li>International version</li> </ul>	, English label inscrip-	$\blacktriangleright lacktriangle$			2	
	n in 5 languages on CD					
(no Order code sele	ctable)					
Explosion protection					,	
<ul><li>None</li><li>With ATEX, Type of p</li></ul>	protection:				Α	
- "Intrinsic safety (Ex					В	
- "Explosion-proof (E					D	
	d flameproof enclosure"				P	
(Ex ia + Ex d)" <sup>10)</sup>	a namoproof enclosure	_				
- "Ex nA/ic (Zone 2)"	11)				E	
	plosion-proof enclosure	<b>&gt;</b>			R	
and dust explosion Zone 1D/2D)"10)	protection (Ex ia+ Ex d +					
• FM + CSA intrinsic s	afe (is)				F	
• FM + CSA (is + ep)	+ Ex ia + Ex d (ATEX)				S	
• With FM + CSA, Type	e of protection:					
- "Intrinsic Safe und E	Explosion Proof (is $+ xp$ )" $^{9}$	•			N	C

Selection and Ordering data		Article No.		
SITRANS P DS III with HART pressure transmitters for differential pressure and flow,		7MF4433-		
PN 32/160 (MAWP 464/2320 psi)				
Electrical connection/cable entry				
<ul> <li>Screwed gland Pg 13.5<sup>12)</sup></li> </ul>			Α	
<ul> <li>Screwed gland M20 x 1.5</li> </ul>	$\blacktriangleright lack$		В	
<ul> <li>Screwed gland ½-14 NPT</li> </ul>			С	
<ul> <li>Han 7D plug (plastic housing) incl. mating connector<sup>12)13)</sup></li> </ul>			D	
<ul> <li>M12 connectors (stainless steel)<sup>12) 14)</sup></li> </ul>			F	
Display				
Without display	•		(	)
<ul> <li>Without visible display (display concealed, setting: mA)</li> </ul>	<b>&gt;</b>		1	I
<ul> <li>With visible display</li> </ul>			6	6
<ul> <li>with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)</li> </ul>	•		7	7

- Available ex stock
- We can offer shorter delivery times for configurations designated with the Quick Ship Symbol . For details see page 9/5 in the appendix.

Power supply units see Chap. 7 "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 <u>total</u> combination is certified here.
- 5) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 6) The diaphragm seal is to be specified with a separate order number and must be included with the tranmitter order number, for example 7MF443.-.Y.-.... und 7MF4900-1...-.B
- 7) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 8) Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 9) Without cable gland, with blanking plug
- $^{10)}$ With enclosed cable gland Ex ia and blanking plug
- $^{11)}\!\text{Configurations}$  with HAN and M12 connectors are only available in Ex ic.
- 12) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- $^{13)}\mbox{Permissible}$  only for crimp-contact of conductor cross-section 1  $\mbox{mm}^2$
- <sup>14)</sup>M12 delivered without cable socket. Not available with protection type "Explosion-proof".

# Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Orderin		Arti	cle	No	).			
Pressure transmitters and flow PN 32/160 (M	for differential pressure AWP 464/2320 psi)							
SITRANS P DS III with	• •	7 M	F 4	4 3	3 4			
	FOUNDATION Fieldbus	7 M	F 4	4 3	3 5	-		
(FF)								
Measuring cell filling	Measuring cell		H		H	7	H	
	cleaning							
Silicone oil Inert liquid <sup>1)</sup>	normal grease-free to	1 3						
mort nquid	cleanliness level 2							
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								
60 mbar	(24.09 inH <sub>2</sub> O)	С						
250 mbar	(100.4 inH <sub>2</sub> O)	D						
600 mbar	(240.9 inH <sub>2</sub> O)	E						
1600 mbar 5 bar	(642.4 inH <sub>2</sub> O)	F G						
o bar 30 bar	(2008 inH <sub>2</sub> O) (435 psi)	H						
Wetted parts materials		-						
(stainless steel process								
Seal diaphragm	Parts of measuring cell							
Stainless steel	Stainless steel		Α					
Hastelloy	Stainless steel		В					
Hastelloy 3)	Hastelloy		C					
Tantalum <sup>3)</sup> Monel <sup>3)</sup>	Tantalum Monel		E H					
Gold <sup>3)</sup>	Gold		п L					
Version as diaphragm s			Y					
Process connection		_ '						
	T with flange connection							
<ul> <li>Sealing screw opposit</li> </ul>								
	<sub>3</sub> -20 UNF to IEC 61518		2					
<ul> <li>Mounting thread M1 (only for replacement</li> </ul>			0					
<ul> <li>Venting on side of pro</li> </ul>								
- Mounting thread <sup>7</sup> / <sub>16</sub>	<sub>3</sub> -20 UNF to IEC 61518		6					
- Mounting thread M1	0 to DIN 19213		4					
(only for replacement		_						
Non-wetted parts mate process flange screws	Electronics housing							
Stainless steel	Die-cast aluminum			2				
Stainless steel	Stainless steel precision casting			3				
Version								
Standard versions					1			
<ul> <li>International version, documentation in 5 la</li> </ul>	English label inscriptions,				2			
(no Order code select								
Explosion protection		_						
• None						A		
With ATEX, Type of pr     "Intrinsic sefety (Ex.)						В		
<ul><li> "Intrinsic safety (Ex i</li><li> "Explosion-proof (Ex</li></ul>						D		
- "Intrinsic safety and	flameproof enclosure"					P		
(Ex ia + Ex d)" <sup>9)</sup>								
- "Ex nA/ic (Zone 2)" 1						E		
<ul> <li>"Intrinsic safety, expl</li> <li>dust explosion prote</li> </ul>	osion-proof enclosure and					R		
Zone 1D/2D) <sup>(9)</sup> (not	ection (Ex ia + Ex d + for DS III FF)							
<ul> <li>FM + CSA intrinsic sa</li> </ul>	fe (is)					F		
• FM + CSA (is + ep) +						S		
<ul> <li>With FM + CSA, Type</li> <li>"Intrinsic Seferand F</li> </ul>								
- mumsic sate und E	xplosion Proof (is + xp) <sup>(8)</sup>					N (	C	

Selection and Ordering data	Article No.
Pressure transmitters for differential pressure and flow PN 32/160 (MAWP 464/2320 psi)	
SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 4 3 4 -
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 4 3 5 -
Electrical connection/cable entry     Screwed gland M20 x 1.5     Screwed gland ½-14 NPT     M12 connectors (stainless steel) 11) 12) 13)	B C F
Display  Without display  Without visible display (display concealed, setting: bar)  With visible display  With customer-specific display (setting as specified, Order code "Y21" required)	0 1 6 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) 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 in  $\rm H_2O))$
- 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 <u>total</u> combination is certified here.
- 5) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 6) The diaphragm seal is to be specified with a separate order number and must be included with the tranmitter order number, for example 7MF443.-.Y..-... und 7MF4900-1...-.B
- 7) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 8) Without cable gland, with blanking plug.
- <sup>9)</sup> With enclosed cable gland Ex ia and blanking plug.
- $^{10)}\mbox{Configurations}$  with HAN and M12 connectors are only available in Ex ic.
- <sup>11)</sup>M12 delivered without cable socket
- $^{12)}\mbox{Not}$  available with protection type "Ex d" (options D, P, N and R)
- <sup>13)</sup>Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".

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

Selection and Ordering data Further designs Add "-Z" to Article No. and specify Order code.  Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) and e of:  Steel Stainless steel PTFE (felfon) FTFE (		0 1			
Add '2" to Article No. and specify Order code.  Pressure transmitter with mounting bracket (1x fixing angle, 2x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:  Steel	Selection and Ordering data	Order			
bracket (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:  Stalel  Stainless steel  O-rings for process flanges (instead of FPM (Vitron))  FTFE (Tefton)  FTFE (Tefton)  FFPM (Kalrez, compound 4079)  NBR (Buna N)  Plug  Han 7D (metal, gray)  Han 8U (instead of Han 7D)  A31  A32  Han 8U (instead of Han 7D)  A33  Han 8D (metal, gray)  A33  Caaling screws (2 unit(s)  A-18 NPT, with valve in mat. of process flanges  Cable sockets for M12 connectors (stainless steel)  Rating plate inscription (instead of German)  English  French  Spanish  Italian  B11  Cy  A22  A33  A34  B21  A35  A36  A40  A40  A40  A51  A52  A52  A53  A53  A54  B51  A55  Cable sockets for M12 connectors (stainless steel)  Rating plate inscription (instead of German)  English  English  English  French  Spanish  Italian  B14  Cy  A51  A52  A53  A55  A55  A55  A55  A55  A55	Add "-Z" to Article No. and specify Order		HART	PA	FF
• Steel • Stainless for process flanges (instead of FPM (Viton)) • PTFE (Teflon) • FEPP (with silicone core, approved for food) • FEPP (Kalrez, compound 4079) • NBR (Buna N)  Plug • Han 7D (metal, gray) • Han 8U (instead of Han 7D) • Angled • Han 8D (metal, gray) • Han 8D (metal, gray) • Angled • Han 8D (metal, gray) • Sealing screws (2 unit(s) • A-18 NPT, with valve in mat. of process flanges  Cable sockets for M12 connectors (stainless steel)  Rating plate inscription (instead of German) • English • French • B12 • French • B12 • French • Spanish • Italian • B14 • French • Spanish • Italian • B14 • Fressure units in inH <sub>2</sub> O and/or psi  Quality inspection certificate (Five-step actory calibration) to IEC 60770-21  Inspection certificate to EN 10204-2.2 • C14 • C20 • C20 • C20 • C21 • Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (PROFIsafe) Certificate and PROFIsafe protocol  Functional safety (PROFIsafe) Certificate and PROFIsafe proto	bracket (1x fixing angle, 2 x nut, 2 x U- washer or 1 x bracket, 2 x nut, 2 x U-				
(instead of FPM (Viton)) PTTE (Teffon) PTTE (Teffon) PEP (with silicone core, approved for food) Pulg  Han 7D (metal, gray) Pulg Phan 8U (instead of Han 7D) Pala 8U (instead of Han 7D) Pala 8D (metal, gray) Pala 8D (meta	• Steel		<b>√</b>	<b>√</b>	<b>√</b>
<ul> <li>FEP (with silicone core, approved for food)</li> <li>FFPM (Kalrez, compound 4079)</li> <li>NBR (Buna N)</li> <li>NBR (Buna N)</li> <li>Plug</li> <li>Han 7D (metal, gray)</li> <li>Han 8U (instead of Han 7D)</li> <li>Han 8D (metal, gray)</li> <li>Han 8D (metal, gray)</li> <li>Han 8D (metal, gray)</li> <li>Han 8D (metal, gray)</li> <li>A31</li> <li>Han 8DY, with valve in mat. of process flanges</li> <li>Cable sockets for M12 connectors (stainless steel)</li> <li>Rating plate inscription (instead of German)</li> <li>English</li> <li>French</li> <li>Spanish</li> <li>B11</li> <li>✓</li> <li>French</li> <li>Spanish</li> <li>B13</li> <li>✓</li> <li>French</li> <li>Spanish</li> <li>B14</li> <li>✓</li> <li>Fressure units in inH₂O and/or psi</li> <li>Quality inspection certificate (Five-step factory calibration) to IEC 60770-2¹¹</li> <li>Inspection certificate b EN 10204-2.2</li> <li>Functional safety (SIL2)</li> <li>Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration</li> <li>Functional safety (PROFisafe)</li> <li>Certificate and PROFisafe protocol</li> <li>Functional safety (PROFisafe)</li> <li>Certificate and PROFisafe protocol</li> <li>Functional safety (PROFisafe)</li> <li>Certificate and PROFisafe protocol</li> <li>Functional safety (SIL2/3)</li> <li>Device passport Russia</li> <li>(For price request please contact the technical support www.siemens.com/automation/support-request)</li> <li>Setting of upper limit of output signal to 22.0 mA</li> <li>Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)</li> <li>(only together with seal diaphragm made of Hastelloy and stainless steel)</li> <li>Degree of protection IP65/IP68</li> <li>(only for M20 x 1.5 and ½-14 NPT)</li> <li>Process flange screws made of Monel (max. nominal pressure PN20)</li> <li>Supplied with oval flange set</li> <li>(2 Items), PTFE packings and screws in</li> </ul>	O-rings for process flanges (instead of FPM (Viton))				
plug  Han 7D (metal, gray)  Han 8U (instead of Han 7D)  A31  A32  Han 8D (metal, gray)  A33  Sealing screws (2 unit(s)  A-18 NPT, with valve in mat. of process flanges  Cable sockets for M12 connectors (stainless steel)  Rating plate inscription (instead of German)  English  French  French  French  French  Spanish  Italian  Bull  Pressure units in inH <sub>2</sub> O and/or psi  Quality inspection certificate (Five-step factory calibration) to IEC 60770-2 <sup>11</sup> Inspection certificate <sup>2</sup> to EN 10204-3.1  Factory certificate to EN 10204-2.2  Purictional safety (SIL2)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (FROFisafe) Certificate and PROFisafe protocol  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (SIL2/3)  Certificate and PROFisafe protocol  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Device passport Russia  (For price request please contact the technical support  www.siemens.com/automation/support-request)  Device of protection IP65/IP68  (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel  (max. nominal pressure PN20)  Supplied with oval flange set  (2 items), PTFE packings and screws in	<ul><li>FEP (with silicone core, approved for food)</li><li>FFPM (Kalrez, compound 4079)</li></ul>	A21 A22	✓		✓
• Han 8U (instead of Han 7D) • Angled • Han 8D (metal, gray)  Sealing screws (2 unit(s) 4-18 NPT, with valve in mat. of process flanges  Cable sockets for M12 connectors (stainless steel)  Rating plate inscription (instead of German) • English • French • Spanish • Italian  But y y y y y y y y y y y y y y y y y y y	, ,	A23	<b>√</b>	<b>✓</b>	✓
Sealing screws (2 unit(s)  ¼-18 NPT, with valve in mat. of process flanges  Cable sockets for M12 connectors (stainless steel)  Rating plate inscription (instead of German)  • English  • French  • Spanish • Italian  English rating plate  Pressure units in inH <sub>2</sub> O and/or psi  Quality inspection certificate (Five-step factory calibration) to IEC 60770-2¹¹  Inspection certificate to EN 10204-3.1  Factory certificate to EN 10204-3.1  Functional safety (SIL2)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (PROFIsafe)  Certificate and PROFIsafe protocol  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Punctional safety (SIL2/3)  Device passport Russia  (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  Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)  Conly together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68  Conly for M2O x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	<ul><li>Han 8U (instead of Han 7D)</li><li>Angled</li></ul>	A31 A32	<b>√</b> ✓		
Cable sockets for M12 connectors (stainless steel)  Rating plate inscription (instead of German)  English French Spanish Italian  English B11	Sealing screws (2 unit(s) 1/4-18 NPT, with valve in mat. of process		<b>√</b>	✓	✓
(instead of German)  • English  • French  • Spanish • Italian  • Italian  • Italian  • B11  • Comparish • Italian •	Cable sockets for M12 connectors	A50	✓	✓	✓
• French • Spanish • Italian • B13 • Italian • B14 • Pressure units in inH₂O and/or psi  Quality inspection certificate (Five-step factory calibration) to IEC 60770-2¹¹  Inspection certificate²¹ to EN 10204-3.1 • C12 • C14 • C20 • C14 • C20 • C1508 and IEC 61511. Includes SIL conformity declaration  Functional safety (PROFIsafe) Certificate and PROFIsafe protocol  Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (SIL2/3) Device passport Russia (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  Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	- · · · · · · · · · · · · · · · · · · ·				
• Italian  ■ B14	• French	B12	✓	<b>√</b>	
Pressure units in inH20 and/or psi  Quality inspection certificate (Five-step factory calibration) to IEC 60770-2¹)  Inspection certificate²) to EN 10204-3.1  Factory certificate to EN 10204-2.2  Functional safety (SIL2)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (PROFIsafe) Certificate and PROFIsafe protocol  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Device suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Device passport Russia (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  Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)  (only together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	•		✓	✓	-
Inspection certificate <sup>2)</sup> to EN 10204-3.1  Factory certificate to EN 10204-2.2  Functional safety (SIL2)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (PROFIsafe)  Certificate and PROFIsafe protocol  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Device passport Russia  (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  Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)  (only together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68  (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	Pressure units in inH <sub>2</sub> O and/or psi	B21	<b>√</b>	✓	✓
Factory certificate to EN 10204-2.2  Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (PROFIsafe) Certificate and PROFIsafe protocol  Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Device passport Russia (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  Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	factory calibration) to IEC 60770-21)	C11	✓	✓	✓
Functional safety (SIL2)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Functional safety (PROFIsafe) Certificate and PROFIsafe protocol  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Device passport Russia (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  Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	Inspection certificate <sup>2)</sup> to EN 10204-3.1	C12			
Certificate and PROFIsafe protocol  Functional safety (SIL2/3)  Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Device passport Russia (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  Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL confor-			<b>✓</b>	•
Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration  Device passport Russia (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  Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in		C21 <sup>5)</sup>		✓	
(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  Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL confor-	C23	✓		
output signal to 22.0 mA  Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)  (only together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	(For price request please contact the technical support www.siemens.com/automation/support-	C99	✓	<b>✓</b>	✓
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)  (only together with seal diaphragm made of Hastelloy and stainless steel)  Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	Setting of upper limit of	D05	✓		
Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)  Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of	D07	✓	✓	✓
Process flange screws made of Monel (max. nominal pressure PN20)  Supplied with oval flange set (2 items), PTFE packings and screws in	Degree of protection IP65/IP68	D12	✓	✓	✓
(2 items), PTFE packings and screws in	Process flange screws made of Monel	D34	✓	✓	✓
	(2 items), PTFE packings and screws in	D37	✓	✓	✓

Selection and Ordering data	Order	code			
Further designs Add "-Z" to Article No. and specify Order code.			HART PA		
Use in or on zone 1D/2D  (only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia)")	E01	✓	✓	✓	
TÜV approval to AD/TRD  (only together with type of protection  "Intrinsic safety (Ex ia)")	E06	✓			
Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MAWP 464 psi), basic device with type of protection "Intrinsic safety (Ex ia)", to WHG and VbF, not together with measuring cell filling "inert liquid")	E08	✓			
Oxygen application (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	E10	✓	✓	✓	
Export approval Korea	E11	✓	✓	✓	
CRN approval Canada (Canadian Registration Number)	E22	✓	✓	✓	
Dual seal	E24	✓	✓	✓	
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25 <sup>4)</sup>	✓	✓	1	
(only for transmitter 7MF4B)  "Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4D)	E26 <sup>4)</sup>	✓	✓	✓	
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28 <sup>4)</sup>	✓	✓		
(only for transmitter 7MF4P) <b>Ex Approval IEC Ex (Ex ia)</b>	E45 <sup>4)</sup>	1	✓	✓	
(only for transmitter 7MF4B)  Ex Approval IEC Ex (Ex id)	E46 <sup>4)</sup>	✓	✓	✓	
(only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" to NEPSI (China)	E55 <sup>4)</sup>	1	✓	1	
(only for transmitter 7MF4B)  Explosion protection "Explosion-proof"	E56 <sup>4)</sup>	✓	✓	✓	
to NEPSI (China) (only for transmitter 7MF4D)					
Explosion-proof "Zone 2" to NEPSI (China)	E57 <sup>4)</sup>	✓	✓	✓	
(only for transmitter 7MF4E) "Intrinsic safety" and "Explosion-proof"	E70 <sup>4)</sup>	1	<b>√</b>	1	
explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4[B, D]Z + E11)					
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓	
Interchanging of process connection side	H01	1	✓	1	
Vent on side for gas measurements	H02	1	1	1	
Stainless steel process flanges for verti- cal differential pressure lines	H03	1	✓	1	
(not together with K01, K02 and K04)3)					

We can offer shorter delivery times for configurations designated with the Quick Ship Symbol . For details see page 9/5 in the appendix.

### Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Ordering data	Order code			
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF
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 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.
- 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) Not suitable for connection of remote seal
- 4) Option does not include ATEX approval, but instead includes only the country-specific approval.
- <sup>5)</sup> Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H

Selection and Ordering data	Order	code		
Additional data Please add "-Z" to Article 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 (max. 5 characters):	Y01	1	<b>√</b> 1)	
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	1		
Stainless steel tag plate and entry in device variable (measuring point description)	Y15	✓	✓	✓
Max. 16 characters, specify in plain text: Y15:				
Measuring point text (entry in device variable)	Y16	✓	✓	✓
Max. 27 char., specify in plain text: Y16:				
Entry of HART address (TAG)  Max. 8 char., specify in plain text: Y17:	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 <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 indicator in non-	Y22 <sup>3)</sup>	✓		
pressure units <sup>2)</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" or "Y02" is essential, unit with max. 5 characters)	† Y01 or Y02			
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	✓
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	✓

 We can offer shorter delivery times for configurations designated with the Quick Ship Symbol . For details see page 9/5 in the appendix.

Factory mounting of valve manifolds, see accessories.

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

✓ = available

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

#### Transmitters for general requirements

SITRANS P DS III
for differential pressure and flow

Selection and Orderin	g data	Artic	le No.
	HART pressure trans-		4533-
mitters for differential	pressure and flow,		
PN 420 (MAWP 6092 p			
Measuring cell filling	Measuring cell cleaning		
Silicone oil	normal	1	
Measuring span (min.	max.)		
2.5 250 mbar	(1.004 100.4 inH <sub>2</sub> O)	D	
6 600 mbar	(2.409 240.9 inH <sub>2</sub> O)	E	
16 1600 mbar	(6.424 642.4 inH <sub>2</sub> O)	F	
50 5000 mbar	(20.08 2008 inH <sub>2</sub> O)	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	A	
Hastelloy	Stainless steel	В.	
Gold <sup>1)</sup> Ausführung als Membra	Gold	L	
	andruckinittier / */ / */	ı	
Process connection	OT with flance consession		
<ul> <li>Sealing screw opposi</li> </ul>	T with flange connection		
	<sub>3</sub> -20 UNF to IEC 61518		3
<ul> <li>Mounting thread M1</li> </ul>			1
(only for replacement			
<ul> <li>Venting on side of pro</li> </ul>	cess flanges, location of		
vent valve at top of pr sional drawing)	ocess flanges (see dimen-		
	<sub>3</sub> -20 UNF to IEC 61518		7
- Mounting thread M1			5
(only for replacement	nt requirement)		
Non-wetted parts mate	erials		
process flange screws	Electronics housing		
Stainless steel	Die-cast aluminum		2
Stainless steel	Stainless steel precision		3
	casting <sup>6)</sup>	_	
Version			
Standard versions	English label inscriptions		1 2
documentation in 5 la	English label inscriptions, nauages on CD		2
(no Order code selec			
Explosion protection		-	
<ul> <li>None</li> </ul>			Α
■ \Mith ATEV Time of ~~	otection:		
<ul> <li>With ATEX, Type of pr</li> </ul>			
- "Intrinsic safety (Ex i	a)"		В
<ul><li>"Intrinsic safety (Ex in the safety (Ex in the safety)</li><li>"Explosion-proof (Ex in the safety)</li></ul>	a)" (d)" <sup>7)</sup>		B D
<ul><li>"Intrinsic safety (Ex in the safety (Ex in the safety)</li><li>"Explosion-proof (Ex in the safety)</li></ul>	a)" (d)" <sup>7)</sup>		
<ul> <li>"Intrinsic safety (Ex in the safety)</li> <li>"Explosion-proof (Ex in the safety)</li> <li>"Intrinsic safety and (Ex in the safety)</li> <li>"B)</li> </ul>	a)" d)" <sup>7)</sup> flameproof enclosure"		D P
<ul> <li>"Intrinsic safety (Ex in the safety and safety</li></ul>	a)" d)" <sup>7)</sup> flameproof enclosure"		D P E
- "Intrinsic safety (Ex i - "Explosion-proof (Ex i - "Intrinsic safety and (Ex ia + Ex d)"8)  - "Ex nA/ic (Zone 2)"9  - "Intrinsic safety, expl	a)" d)" flameproof enclosure" osion-proof enclosure and		D P
- "Intrinsic safety (Ex i "Explosion-proof (Ex i "Intrinsic safety and (Ex ia + Ex d)"8")  - "Ex nA/ic (Zone 2)"9"  - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"8")	a)" d)" flameproof enclosure" osion-proof enclosure and ection (Ex ia+ Ex d +		D P E R
<ul> <li>"Intrinsic safety (Ex i "Explosion-proof (Ex i "Intrinsic safety and (Ex ia + Ex d)"8)</li> <li>"Ex nA/ic (Zone 2)"9</li> <li>"Intrinsic safety, expl dust explosion prote Zone 1D/2D)"8)</li> <li>FM + CSA intrinsic sa</li> </ul>	a)" (d)" (d)" (flameproof enclosure" (osion-proof enclosure and ection (Ex ia+ Ex d +  fe (is)		D P E R
- "Intrinsic safety (Ex i - "Explosion-proof (Ex i - "Intrinsic safety and (Ex ia + Ex d)"8)  - "Ex nA/ic (Zone 2)"9  - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"8)  • FM + CSA intrinsic sa • FM + CSA (is + ep) +	a)" (d)" flameproof enclosure" osion-proof enclosure and ection (Ex ia+ Ex d +  fe (is) Ex ia + Ex d (ATEX)		D P E R
- "Intrinsic safety (Ex i - "Explosion-proof (Ex i - "Intrinsic safety and (Ex ia + Ex d)" <sup>8</sup> )  - "Ex nA/ic (Zone 2)" <sup>9</sup> ;  - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" <sup>8</sup> )  • FM + CSA intrinsic sa  • FM + CSA (is + ep) +  • With FM + CSA, Type	a)" (d)" flameproof enclosure"  cosion-proof enclosure and ection (Ex ia+ Ex d +  fe (is) Ex ia + Ex d (ATEX) of protection:		D P E R
- "Intrinsic safety (Ex i - "Explosion-proof (Ex i - "Intrinsic safety and (Ex ia + Ex d)" <sup>8</sup> )  - "Ex nA/ic (Zone 2)" <sup>9</sup> ;  - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" <sup>8</sup> )  • FM + CSA intrinsic sa  • FM + CSA (is + ep) +  • With FM + CSA, Type	a)" (d)" flameproof enclosure"  cosion-proof enclosure and ection (Ex ia+ Ex d +  fe (is) Ex ia + Ex d (ATEX) of protection:		D P E R
- "Intrinsic safety (Ex i - "Explosion-proof (Ex i - "Intrinsic safety and (Ex ia + Ex d)" <sup>8</sup> )  - "Ex nA/ic (Zone 2)" <sup>9</sup> ;  - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" <sup>8</sup> )  • FM + CSA intrinsic sa  • FM + CSA (is + ep) +  • With FM + CSA, Type  - "Intrinsic safety and (is + xp)" 7), max PN	a)"  flameproof enclosure"  cosion-proof enclosure and ection (Ex ia+ Ex d +  fe (is)  Ex ia + Ex d (ATEX)  of protection:  explosion-proof  360		D P E R
<ul> <li>"Intrinsic safety (Ex i = "Explosion-proof (Ex i = x d)"<sup>8</sup>)</li> <li>"Ex nA/ic (Zone 2)"<sup>9</sup></li> <li>"Intrinsic safety, expl dust explosion prote Zone 1D/2D)"<sup>8</sup>)</li> <li>FM + CSA intrinsic sa</li> <li>FM + CSA (is + ep) +</li> <li>With FM + CSA, Type</li> <li>"Intrinsic safety and (is + xp)" <sup>7</sup>), max PN</li> </ul> Electrical connection/	a)" d)"7) flameproof enclosure" osion-proof enclosure and ection (Ex ia+ Ex d + fe (is) Ex ia + Ex d (ATEX) of protection: explosion-proof 1360 cable entry		D P E R
- "Intrinsic safety (Ex i - "Explosion-proof (Ex i - "Intrinsic safety and (Ex ia + Ex d)" <sup>8</sup> )  - "Ex nA/ic (Zone 2)" <sup>9</sup> ;  - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" <sup>8</sup> )  • FM + CSA intrinsic sa  • FM + CSA (is + ep) +  • With FM + CSA, Type  - "Intrinsic safety and (is + xp)" 7), max PN	a)" (d)" flameproof enclosure"  osion-proof enclosure and ection (Ex ia+ Ex d +  fe (is) Ex ia + Ex d (ATEX) of protection: explosion-proof 1360  cable entry .5 <sup>10</sup>		D P E R F S
- "Intrinsic safety (Ex i - "Explosion-proof (Ex i - "Explosion-proof (Ex i a + Ex d)"8) - "Ex nA/ic (Zone 2)"9 - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"8) - FM + CSA intrinsic sa - FM + CSA (is + ep) + With FM + CSA, Type - "Intrinsic safety and (is + xp)" 7), max PN - "Intrinsic safety and (see the connection of th	a)"  id)" flameproof enclosure"  osion-proof enclosure and ection (Ex ia + Ex d +  fe (is) Ex ia + Ex d (ATEX) of protection: explosion-proof 360  cable entry .5 <sup>10</sup> 1.5  NPT		D P E R F S NC
- "Intrinsic safety (Ex i - "Explosion-proof (Ex i - "Intrinsic safety and (Ex ia + Ex d)"8) - "Ex nA/ic (Zone 2)"9 - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"8)  • FM + CSA intrinsic sa • FM + CSA (is + ep) + - With FM + CSA, Type - "Intrinsic safety and (is + xp)" 7), max PN  Electrical connection/ • Screwed gland Pg 13 • Screwed gland M20x • Screwed gland ½-14	a)"  id)" flameproof enclosure"  osion-proof enclosure and ection (Ex ia + Ex d +  fe (is) Ex ia + Ex d (ATEX) of protection: explosion-proof 360  cable entry .5 <sup>10</sup> 1.5  NPT		D P E R F S NC
- "Intrinsic safety (Ex i - "Explosion-proof (Ex i - "Intrinsic safety and (Ex ia + Ex d)" <sup>8</sup> )  - "Ex nA/ic (Zone 2)" <sup>9</sup> ;  - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" <sup>8</sup> )  • FM + CSA intrinsic sa  • FM + CSA (is + ep) +  • With FM + CSA, Type  - "Intrinsic safety and (is + xp)" <sup>7</sup> ), max PN  Electrical connection/  • Screwed gland Pg 13  • Screwed gland M20x	a)" a)" id)" flameproof enclosure" osion-proof enclosure and action (Ex ia+ Ex d +  fe (is) Ex ia + Ex d (ATEX) of protection: explosion-proof 360  cable entry .5 <sup>10</sup> 1.5 NPT nousing) incl. mating		D P E R F S NC

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

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

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

- $^{1)}$  Not in conjunction with max. span 600 mbar (240.9 inH $_2$ O)
- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the <u>total</u> combination is certified here.
- 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) The diaphragm seal is to be specified with a separate order number and must be included with the tranmitter order number, for example 7MF453.-.Y..... und 7MF4900-1....-B
- 5) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 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 Ex ia and blanking plug
- $^{9)}\,$  Configurations with HAN and M12 connectors are only available in Ex ic.
- <sup>10)</sup>Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- $^{11)}\mbox{Permissible}$  only for crimp-contact of conductor cross-section 1  $\mbox{mm}^2$
- <sup>12)</sup>M12 delivered without cable socket
- $^{13)}\mbox{Not}$  available with protection type "Ex d" (options D, P, N and R)
- <sup>14)</sup>Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".

# Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

	ering data	Arti	cle	No	).
Pressure transmitte and flow, PN 420 (M	ers for differential pressure MAWP 6092 psi)				
SITRANS P DS III w	vith PROFIBUS PA (PA)	7 M	F 4	5 3	3 4 -
SITRANS P DS III w	vith FOUNDATION Fieldbus	7 M	F 4	5 :	35-
(FF)					
		1 -			
Nominal measuring	g range				
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 mater					
(stainless steel proc					
Seal diaphragm	Parts of measuring cell				
Stainless steel	Stainless steel		A		
Hastelloy	Stainless steel		В		
Gold <sup>1)</sup>	Gold nbrandruckmittler <sup>2) 3) 4) 5)</sup>		L Y		
			T		
Process connectio					
	NPT with flange connection				
Sealing screw opp      Mounting through	posite process connection <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518		3		
- Mounting thread	M12 to DIN 19213		1		
	ment requirement)		ı.		
<ul> <li>Venting on side of</li> </ul>	process flanges, location of				
	f process flanges (see dimen-				
sional drawing).	7/ 2011NE : 150.04540				
	<sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518		7		
	M12 to DIN 19213 ment requirement)		5		
(Offig for replace)	ment requirement)	_			
Non-wetted parts n	natoriale				
Non-wetted parts n Process flange scre	naterials ws Electronics housing				
•				2	
Process flange scre Stainless steel	ws Electronics housing			2	
Process flange scre Stainless steel	ws Electronics housing  Die-cast aluminum				
Process flange scre Stainless steel Stainless steel Version	ws Electronics housing  Die-cast aluminum  Stainless steel precision casting	_			
Process flange scre Stainless steel Stainless steel  Version Standard versions	ws Electronics housing  Die-cast aluminum  Stainless steel precision casting	_			1
Process flange scre Stainless steel Stainless steel  Version Standard versions International version	ws Electronics housing  Die-cast aluminum  Stainless steel precision casting  on, English label inscriptions,	_			1 2
Process flange scre Stainless steel Stainless steel  Version Standard versions International versidocumentation in Standard versions	Die-cast aluminum Stainless steel precision casting  on, English label inscriptions, languages on CD	_			-
Process flange scre Stainless steel Stainless steel Version Standard versions International version documentation in the commentation in the commentation of the code seep seep seep seep seep seep seep se	Die-cast aluminum Stainless steel precision casting  on, English label inscriptions, following languages on CD electable)	_			-
Process flange scre Stainless steel Stainless steel Version • Standard versions • International versic documentation in section (no Order code se	Die-cast aluminum Stainless steel precision casting  on, English label inscriptions, following languages on CD electable)				-
Process flange scre Stainless steel Stainless steel Version • Standard versions • International versic documentation in section (no Order code see Explosion protection)	Die-cast aluminum Stainless steel precision casting  on, English label inscriptions, following languages on CD electable)	_			2
Process flange scre Stainless steel Stainless steel Version • Standard versions • International versic documentation in section (no Order code see Explosion protection)	Die-cast aluminum Stainless steel precision casting  Dn, English label inscriptions, I languages on CD lectable)  The protection:	_			2
Process flange scre Stainless steel Stainless steel Version • Standard versions • International version documentation in the company of the c	Die-cast aluminum Stainless steel precision casting  Don, English label inscriptions, 5 languages on CD electable)  on f protection: Ex ia)" (Ex d)" <sup>6</sup>				2 A
Process flange scre Stainless steel Stainless steel Version • Standard versions • International version documentation in (no Order code se Explosion protection • None • With ATEX, Type on "Intrinsic safety (no "Explosion-proof" intrinsic safety are safety of the safety are steel stainless of the safety are stainless stainless of the safety are stainless stainless safety are stainless	Die-cast aluminum Stainless steel precision casting  Dn, English label inscriptions, I languages on CD lectable)  f protection: Ex ia)"	-			2 А В
Process flange scre Stainless steel Stainless steel Version • Standard versions • International version documentation in (no Order code se Explosion protection • None • With ATEX, Type on "Intrinsic safety (see "Explosion-proof "Intrinsic safety and (Ex ia + Ex d)")	Die-cast aluminum Stainless steel precision casting  Don, English label inscriptions, 5 languages on CD electable)  Don  f protection: Ex ia)" (Ex d)"6) and flameproof enclosure"	-			A B D P
Process flange scre Stainless steel Stainless steel Version • Standard versions • International version documentation in (no Order code se Explosion protection • None • With ATEX, Type on "Explosion-proof "Intrinsic safety (compared to the compared to th	Die-cast aluminum Stainless steel precision casting  Don, English label inscriptions, 5 languages on CD electable)  Don  If protection: Ex ia)" (Ex d)"6) and flameproof enclosure"	-			A B D P
Process flange scre Stainless steel Stainless steel Stainless steel Version • Standard versions • International versic documentation in section (no Order code see Explosion protection • None • With ATEX, Type or "Explosion-proof or "Intrinsic safety (Ex ia + Ex d)"") - "Ex nA/ic (Zone 2 or "Intrinsic safety, er "Intrinsic safety	Die-cast aluminum Stainless steel precision casting  Dn, English label inscriptions, 5 languages on CD electable)  Dn  f protection: Ex ia)" (Ex d)"6) and flameproof enclosure"  2)" 8) explosion-proof enclosure and				A B D P
Process flange scre Stainless steel Stainless steel Stainless steel Version • Standard versions • International versic documentation in section (no Order code see Explosion protection • None • With ATEX, Type or "Explosion-proof or "Intrinsic safety (Ex ia + Ex d)"") - "Ex nA/ic (Zone 2 or "Intrinsic safety, er "Intrinsic safety	Die-cast aluminum Stainless steel precision casting  Don, English label inscriptions, 5 languages on CD electable)  Don  If protection: Ex ia)" (Ex d)"6) and flameproof enclosure"	-			A B D P
Process flange scre Stainless steel Stainless steel Stainless steel Version • Standard versions • International versic documentation in section (no Order code see Explosion protection • None • With ATEX, Type on a "Intrinsic safety (no Explosion-proof on the series of	Die-cast aluminum Stainless steel precision casting  Dn, English label inscriptions, I languages on CD lectable)  Dn  f protection: Ex ia)" (Ex d)"6) and flameproof enclosure"  2)"8) explosion-proof enclosure and rotection (Ex ia + Ex d + not for DS III FF) exafe (is)	-			A B D P E R
Process flange scre Stainless steel Stainless steel Stainless steel Version Standard versions International versic documentation in section (no Order code see Explosion protection (no Order code see State (no Order code see (no Order c	Die-cast aluminum Stainless steel precision casting  Dn, English label inscriptions, In languages on CD Idectable)  Dn  f protection: Ex ia)" (Ex d)"6) and flameproof enclosure"  2)"8) explosion-proof enclosure and rotection (Ex ia + Ex d + not for DS III FF) c safe (is) D) + Ex ia + Ex d (ATEX)				A B D P E R
Process flange scre Stainless steel Stainless steel Stainless steel Stainless steel  Version • Standard versions • International versic documentation in section of the sec	Die-cast aluminum Stainless steel precision casting  Don, English label inscriptions, 5 languages on CD electable)  Don  f protection: Ex ia)" (Ex d)"6) and flameproof enclosure"  22)" 8) explosion-proof enclosure and rotection (Ex ia + Ex d + not for DS III FF) c safe (is) b) + Ex ia + Ex d (ATEX) //pe of protection:				A B D P E R
Process flange scre Stainless steel Stainless steel Stainless steel Stainless steel  Version • Standard versions • International versic documentation in section of the sec	Die-cast aluminum Stainless steel precision casting  Don, English label inscriptions, 5 languages on CD electable)  Don  If protection: Ex ia)" (Ex d)"6) and flameproof enclosure"  22)" 8) explosion-proof enclosure and rotection (Ex ia + Ex d + not for DS III FF) c safe (is) b) + Ex ia + Ex d (ATEX) //pe of protection:				A B D P E R
Process flange scre Stainless steel Stainless steel Stainless steel Version • Standard versions • International versic documentation in section (no Order code see Explosion protection • None • With ATEX, Type on the end of the end	Die-cast aluminum Stainless steel precision casting  Dn, English label inscriptions, 5 languages on CD electable)  Dn  f protection: Ex ia)" (Ex d)"6) and flameproof enclosure"  2)"8) explosion-proof enclosure and rotection (Ex ia + Ex d + not for DS III FF) c safe (is) D) + Ex ia + Ex d (ATEX) //pe of protection: und explosion-proof PN 360				A B D P E R
Process flange scre Stainless steel Stainless steel Stainless steel Version • Standard versions • International versic documentation in section (no Order code see Explosion protection • None • With ATEX, Type on the employed of the employ	Die-cast aluminum Stainless steel precision casting  Dn, English label inscriptions, I languages on CD lectable)  Dn  f protection: Ex ia)" (Ex d)"6) and flameproof enclosure"  2)" 8) explosion-proof enclosure and rotection (Ex ia + Ex d + not for DS III FF) c safe (is) D) + Ex ia + Ex d (ATEX) //pe of protection: and explosion-proof PN 360  On/cable entry				A B D P E R
Process flange scre Stainless steel Stainless steel Stainless steel Version • Standard versions • International versic documentation in section (no Order code see Explosion protection • None • With ATEX, Type on the end of the end	Die-cast aluminum Stainless steel precision casting  Don, English label inscriptions, 5 languages on CD electable)  Don  If protection: Ex ia)" (Ex d)"6) and flameproof enclosure"  22)" 8) explosion-proof enclosure and rotection (Ex ia + Ex d + not for DS III FF) c safe (is) b) + Ex ia + Ex d (ATEX) ype of protection: and explosion-proof PN 360  Don/cable entry 20 x 1.5				A B D P E R

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

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<sub>2</sub>O)
- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the <u>total</u> combination is certified here.
- 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) The diaphragm seal is to be specified with a separate order number and must be included with the tranmitter order number, for example 7MF453.-.Y..-... und 7MF4900-1....-.B
- 5) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 6) Without cable gland, with blanking plug.
- 7) With enclosed cable gland Ex ia and blanking plug.
- 8) Configurations with HAN and M12 connectors are only available in Ex ic.
- 9) M12 delivered without cable socket
- <sup>10)</sup>Not available with protection type "Ex d" (options D, P, N and R)
- <sup>11)</sup>Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".

# Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

	0 1			
Selection and Ordering data	Order			
Further designs		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U- washer or 1 x bracket, 2 x nut, 2 x U- washer) made of:				
• Steel	A01	✓	✓	✓
Stainless steel	A02	✓	✓	✓
O-rings for process flanges (instead of FPM (Viton))	400		,	
<ul><li>PTFE (Teflon)</li><li>FEP (with silicone core, approved for food)</li></ul>	A20 A21	<b>√</b>	<b>v</b>	<b>V</b>
• FFPM (Kalrez, compound 4079)	A22	1	1	1
• NBR (Buna N)	A23	✓	✓	✓
Plug				
• Han 7D (metal, gray)	A30	1		
<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)	A40	1	1	1
1/4-18 NPT, with valve in mat. of process flanges				
Cable sockets for M12 conn. (stainless steel)	A50	✓	1	✓
Rating plate inscription (instead of German)				
• English	B11	✓	<b>/</b>	<b>√</b>
<ul><li>French</li><li>Spanish</li></ul>	B12 B13	1	<b>✓</b>	1
• Italian	B14	<b>V</b>	<b>*</b>	<b>V</b>
English rating plate	B21	1	1	1
Pressure units in inH <sub>2</sub> O 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	C14	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C20	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 <sup>1)</sup>		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C23	<b>√</b>		
<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 (MR 0103-2012 and MR 0175-2009)	D07	✓	✓	✓
(only together with seal diaphragm made of Hastelloy and stainless steel)	Dan	,	,	,
Degree of protection IP65/IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	•	•	•
Nom. press. rating PN 500 (MAWP 7250 psi) (Only for measuring cell 600 mbar 30 bar (240 inH <sub>2</sub> O 435 psi), SIL- und Ex-options not possible)) <sup>2)</sup>	D56	•		

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Use in or on zone 1D/2D	E01	✓	✓	✓
(only together with type of protection				
"Intrinsic safety" (transmitter 7MF4B Ex ia)")				
Export approval Korea	E11	1	1	1
Dual seal	E24	1	1	1
Explosion-proof "Intrinsic safety" (Ex ia) to		1	,	,
INMETRO (Brazil)	E25°	•	•	•
(only for transmitter 7MF4				
"Flameproof" explosion protection accord-	E26 <sup>3)</sup>	1	1	1
ing to INMETRO (Brazil)				
(only for transmitter 7MF4				
Explosion-proof "Intrinsic safety" (Ex ia +	E28 <sup>3)</sup>	✓	✓	
Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)				
, ,	E45 <sup>3)</sup>	1	./	./
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4B)	E45°	_	•	•
Ex Approval IEC Ex (Ex id)	E46 <sup>3)</sup>	1	1	1
(only for transmitter 7MF4D)			·	·
Explosion-proof "Intrinsic safety"	E55 <sup>3)</sup>	1	1	1
to NEPSI (China)				
(only for transmitter 7MF4	٥١			
Ex prot. "Explosion-proof" to NEPSI (China)	E56 <sup>3)</sup>	✓	✓	✓
(only for transmitter 7MF4D)	3)		,	
Explosion-proof "Zone 2" to NEPSI (China)	E57 <sup>3)</sup>	✓	✓	✓
(only for transmitter 7MF4E)				
"Intrinsic safety" and "Explosion-proof"	E70 <sup>3)</sup>	✓	✓	✓
explosion protection acc. to Kosha (Korea)				
(only for transmitter 7MF4[B, D]Z + E11)				
Two coats of lacquer on casing and cover	G10	✓	✓	✓
(PU on epoxy)				
Interchanging of process connection side	H01	✓	1	1
Stainless steel process flanges for vertical differential pressure lines	H03	1	✓	✓
Transient protector 6 kV (lightning protec-	J01	✓	✓	1
tion)				

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

Tested according to IEC 61010. Only for measuring materials of the group of fluids 2 in accordance with PED permissible. Not for use with dangerous media suitable.

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

### **Pressure Measurement** Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

	0 1			
Selection and Ordering data	Order			
Additional data		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set				
Specify in plain text:  • in the case of linear characteristic curve (max. 5 characters):	Y01	✓	<b>√</b> 1)	
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 and entry in device variable (measuring point descrip-	Y15	✓	✓	✓
tion)  Max. 16 characters, specify in plain text: Y15:				
Measuring point text (entry in device variable)	Y16	✓	✓	✓
Max. 27 char., specify in plain text: Y16:				
Entry of HART address (TAG)	Y17	✓		
Max. 8 char., specify in plain text: Y17:				
Setting of pressure indication in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi,				
Note: The following pressure units can be selected: bar, mbar, mm H <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 indication in	Y22 +	1		
non-pressure units <sup>2)</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" or "Y02" is essential, unit with max. 5 characters)	Y01 or Y02			
Preset bus address	Y25		✓	1
possible between 1 and 126 Specify in plain text: Y25:				
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	✓

Factory mounting of valve manifolds, see accessories.

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

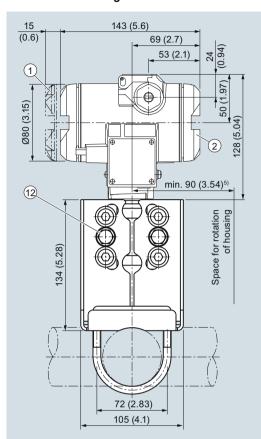
✓ = available

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

#### Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

#### Dimensional drawings



- 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
- 5 Protective cover over keys

6 Blanking plug

29 1 14)

(3)

approx. 96 (3.78)

Screw cover - safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)

52 (2.05)

166 (6.54)

(3.8)

96

262 (10.3)

(8)

(10)

68 (2.7)

120 (4.7)

- 8 Lateral venting for liquid measurement (Standard)
- 9 Lateral venting for gas measurement (suffix H02)
- 10 Mounting bracket (option)

17 (0.67)

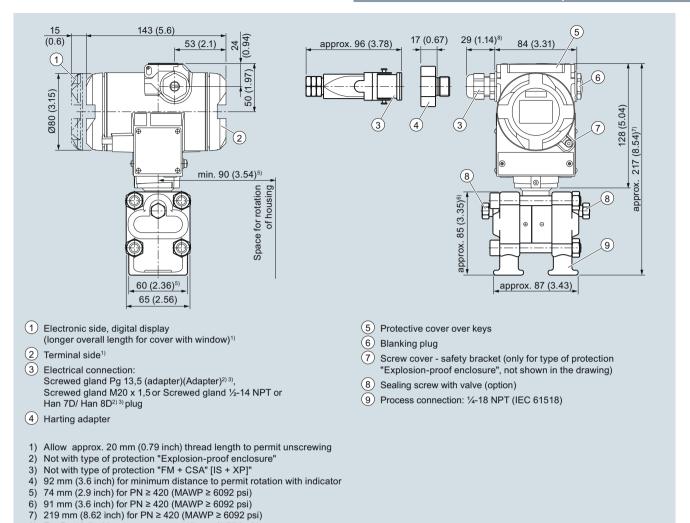
(4)

- 11 Sealing screw with valve (option)
- 12 Process connection: 1/4-18 NPT (IEC 61518)
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- 2) Not with type of protection "Explosion-proof enclosure"
- 3) Not with type of protection "FM + CSA" [IS + XP]"
- 4) 92 mm (3.62 inch) for minimum distance to permit rotation with indicator
- 5) For Pg 13,5 with adapter approx. 45 mm (1.77 inch)

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



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



For Pg 13,5 with adapter approx. 45 mm (1.77 inch)

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

# Transmitters for general requirements SITRANS P DS III for level

#### Technical specifications

evel pan (min max.)		PROFIBUS PA or FOU	NDATION Fieldbus
evel		PROFIBUS PA or FOU	NDATION Fieldbus
1			
1			
pan (min max.)			
	Maximum operating pressure	Nominal measuring range	Maximum operating pressure
5 250 mbar 10 100 inH <sub>2</sub> O)	See "Mounting flange"	250 mbar (100 inH <sub>2</sub> O)	See "Mounting flange"
5 600 mbar 10 240 inH <sub>2</sub> O)	See "Mounting flange"	600 mbar (240 inH <sub>2</sub> O)	See "Mounting flange"
3 1600 mbar 21 642 inH <sub>2</sub> O)	See "Mounting flange"	1600 mbar (642 inH <sub>2</sub> O)	See "Mounting flange"
60 5000 mbar 64 2000 inH <sub>2</sub> O)	See "Mounting flange"	5 bar (2000 inH <sub>2</sub> O)	See "Mounting flange"
- 1		_	1
Also avai			.44 psi a)
00 % of max. span		100 % of the max. nomi	nal measuring range
<u>`</u>			
20 mA			
.55 mA, factory preset	to 3.84 mA	-	
3 mA, factory preset to et to 22.0 mA	20.5 mA or optionally	-	
$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.023 \text{ A in } \Omega,$ $U_{\rm H}$ : Power supply in V		-	
		-	
		IEC 61158-2	
Protected against short-circuit and polarity reversal. Each connection against the other with multiple supply voltage.			ainst the other with max.
	Set to 2 s	(0 100 s)	
	Acc. to IE	C 60770-1	
		≤ 0.15 %	
0.15 %			
0.3 %			
$(0.0075 \cdot r + 0.075)$ %			
(0.25 · r)% every 5 yea tatic pressure max. 70 l	ırs bar (1015 psi)	≤ 0.25 % every 5 years static pressure max. 70	bar (1015 psi)
$(0.5 \cdot r + 0.2) \%^{1) 4)$		≤ 0.7 %	
$(0.3 \cdot r + 0.2) \%^{2) 4)$		≤ 0.5 %	
$(0.25 \cdot r + 0.2) \%^{3) 4}$		≤ 0.45 %	
		≤ 0.4 %/10 K	
		≤ 0.3 %/10 K	
(0.12 · r + 0.15) %/10 h ouble values at 10 < r s		≤ 0.27 %/10 K	
	3 1600 mbar 1 642 inH <sub>2</sub> O) 30 5000 mbar 4 2000 inH <sub>2</sub> O) Also avail 10 642 inH <sub>2</sub> O) Also avail 10 642 inH <sub>2</sub> O) Also avail 10 20 mA 55 mA, factory preset to 10 20 mA $\frac{1}{1000} = \frac{1}{1000} = \frac{1}{1$	See "Mounting flange"  1 $642 \text{ inH}_2\text{O}$ )  30 $5000 \text{ mbar}$ 4 $2000 \text{ inH}_2\text{O}$ )  See "Mounting flange"  -100 % of max. span of Also available as vacuum-resistant on the span of Mounting flange"  -100 % of max. span of Also available as vacuum-resistant on the span of Also available as vacuum-resistant on the span of Mounting flange"  -100 % of max. span on Also available as vacuum-resistant on the span of Mounting flange"  -100 % of max. span on Also available as vacuum-resistant on the span of Mounting flange"  -100 % of max. span on Also available as vacuum-resistant on the span of Mounting flange"  -100 % of max. span on Also available as vacuum-resistant on the span of Mounting flange"  -100 % of max. span on Also available as vacuum-resistant on the span of Mounting flange"  -100 % of max. span on Also available as vacuum-resistant on See "Mounting flange"  -100 % of max. span on Also available as vacuum-resistant on On Mounting flange"  -100 % of max. span on Also available as vacuum-resistant on On Mounting flange"  -100 % of max. span on On Self Mar Al Max A	3 1600 mbar 1 642 inH <sub>2</sub> O) See "Mounting flange" (642 inH <sub>2</sub> O) 50 5000 mbar 4 2000 inH <sub>2</sub> O) See "Mounting flange" 5 bar (2000 inH <sub>2</sub> O) -100 % of max. span or 500 mbar a (7.25 psia) Also available as vacuum-resistant remote seal: 30 mbar a (0 10 % of max. span or 500 mbar a (7.25 psia) Also available as vacuum-resistant remote seal: 30 mbar a (0 10 % of max. span or 500 mbar a (7.25 psia) Also available as vacuum-resistant remote seal: 30 mbar a (0 10 % of the max. nomi or 500 mbar a (0 20 mbar a (0 10 % of max. span or 500 mbar a (0 10 % of the max. nomi or 500 mbar a (0 10 % of max. span or 500 mbar a (0 10 % of max. span or 500 mbar a (0 10 % of max. span or 500 mbar a (0 10 % of max. span a (0 10 % of max. span a (0 10 % of max. span a (0 10 % of the max. nomi or 500 mbar a (0 10 % of max. span a (0 10 % of the max. nomi or 500 mbar a (0 10 % o

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

	HART	PROFIBUS PA or FOUNDATION Fieldbus	
Influence of static pressure			
• on the zero point			
- 250 mbar- (100 inH <sub>2</sub> O)-measuring cell	≤ (0.3 · r) % per nominal pressure	≤ 0.3 % per nominal pressure	
- 600 mbar- (240 inH <sub>2</sub> O)-measuring cell	≤ (0.15 · r) % per nominal pressure	≤ 0.15 % per nominal pressure	
- 1600 and 5000 mbar- (642 and 2000 inH <sub>2</sub> O)	- ≤ (0.1 · r) % per nominal pressure	≤ 0.1 % per nominal pressure	
measuring cell			
on the span	≤ (0.1 · r) % per nominal pressure	≤ 0.1 % per nominal pressure	
Measured Value Resolution	-	3 · 10 <sup>-5</sup> of nominal measuring range	
Rated conditions			
Degree of protection to IEC 60529	IP65 (option	nal IP65/IP68)	
Temperature of medium		f the respective flange connection!	
<ul> <li>Measuring cell with silicone oil filling</li> </ul>		(-40 +212 <sup>5)</sup> °F)	
- High-pressure side	$p_{abs}$ ≥ 1 bar: -40 +175 °C (-40 +347 °F) $p_{abs}$ < 1 bar: -40 +80 °C (-40 +176 °F)		
- Low-pressure side		(-40 +212 °F) unction with dust explosion protection	
Ambient conditions			
Ambient temperature			
- Transmitter (with 4-wire connection, observe temperature values of supplementary 4-wire electronics)		(-40 +185 °F)	
Display readable	-30 +85 °C	(-22 +185 °F)	
Storage temperature	-50 +85 °C	(-58 +185 °F)	
Climatic class			
- Condensation	Relative humidity 0 100 %, condensatio	n permissible, suitable for use in the tropics	
Electromagnetic Compatibility			
- Emitted interference and interference immunity	Acc. to IEC 61326	and NAMUR NE 21	
Design			
Weight (without options)			
To EN (pressure transmitter with mounting flange, without tube)	≈ 11 13 kg (≈	24.2 28.7 (lb)	
		24.2 28.7 (lb) ≈ 24.2 39.7 lb)	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)		≈ 24.2 39.7 lb)	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material	≈ 11 18 kg (≈	≈ 24.2 39.7 lb)	
flange, without tube)  To ASME (pressure transmitter with mounting	≈ 11 18 kg (≈	≈ 24.2 39.7 lb)	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side	≈ 11 18 kg (a Low-copper die-cast aluminum, GD-AlSi12 or s Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy	≈ 24.2 39.7 lb) stainless steel precision casting, mat. no. 1.440	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange	≈ 11 18 kg (a Low-copper die-cast aluminum, GD-AlSi12 or s Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup	≈ 24.2 39.7 lb)  stainless steel precision casting, mat. no. 1.440  mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE,	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling	≈ 11 18 kg (a Low-copper die-cast aluminum, GD-AlSi12 or s Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup	estainless steel precision casting, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, lex, mat. no. 1.4462	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling  Process connection	≈ 11 18 kg (a Low-copper die-cast aluminum, GD-AlSi12 or s Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup	≈ 24.2 39.7 lb) stainless steel precision casting, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, olex, mat. no. 1.4462 one oil	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread ¼-18 NPT and flange connect	stainless steel precision casting, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, lex, mat. no. 1.4462 one oil N and ASME	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling  Process connection  High-pressure side  Low-pressure side	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread ¼-18 NPT and flange connect	estainless steel precision casting, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, olex, mat. no. 1.4462 one oil  N and ASME tion with mounting thread M10 to DIN 19213 or	
flange, without tube)  • To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  • Seal diaphragm of mounting flange  Measuring cell filling  Process connection  • High-pressure side  • Low-pressure side  Power supply U <sub>H</sub>	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread ¼-18 NPT and flange connect	stainless steel precision casting, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, elex, mat. no. 1.4462 one oil  N and ASME tion with mounting thread M10 to DIN 19213 or to EN 61518	
flange, without tube)  • To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  • Seal diaphragm of mounting flange  Measuring cell filling  Process connection  • High-pressure side  • Low-pressure side  • Low-pressure side  Power supply U <sub>H</sub> Terminal voltage on transmitter	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread 1/4-18 NPT and flange connect 7/16-20 UNF	stainless steel precision casting, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, elex, mat. no. 1.4462 one oil  N and ASME tion with mounting thread M10 to DIN 19213 or to EN 61518	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling  Process connection  High-pressure side  Low-pressure side  Low-pressure side  Power supply U <sub>H</sub> Terminal voltage on transmitter  Separate 24 V power supply necessary	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread 1/4-18 NPT and flange connect  7/16-20 UNF	mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, elex, mat. no. 1.4462  one oil  N and ASME tion with mounting thread M10 to DIN 19213 or to EN 61518  Supplied through bus	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling  Process connection  High-pressure side  Low-pressure side  Low-pressure side  Power supply U <sub>H</sub> Terminal voltage on transmitter  Separate 24 V power supply necessary  Bus voltage	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread 1/4-18 NPT and flange connect  7/16-20 UNF	stainless steel precision casting, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, olex, mat. no. 1.4462 one oil  N and ASME cion with mounting thread M10 to DIN 19213 or to EN 61518  Supplied through bus - No	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling  Process connection  High-pressure side  Low-pressure side  Low-pressure side  Power supply U <sub>H</sub> Terminal voltage on transmitter  Separate 24 V power supply necessary  Bus voltage  Not Ex	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread 1/4-18 NPT and flange connect  7/16-20 UNF	stainless steel precision casting, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, olex, mat. no. 1.4462 one oil  N and ASME tion with mounting thread M10 to DIN 19213 or to EN 61518  Supplied through bus  No  9 32 V	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling  Process connection  High-pressure side  Low-pressure side  Low-pressure side  Terminal voltage on transmitter  Separate 24 V power supply necessary  Bus voltage  Not Ex  With intrinsically-safe operation	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread 1/4-18 NPT and flange connect  7/16-20 UNF	stainless steel precision casting, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, olex, mat. no. 1.4462 one oil  N and ASME tion with mounting thread M10 to DIN 19213 or to EN 61518  Supplied through bus  No	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling  Process connection  High-pressure side  Low-pressure side  Low-pressure side  Power supply U <sub>H</sub> Terminal voltage on transmitter  Separate 24 V power supply necessary  Bus voltage  Not Ex  With intrinsically-safe operation  Current consumption	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread 1/4-18 NPT and flange connect  7/16-20 UNF	mat. no. 2.4360, Hastelloy B2, mat. no. 1.440 C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, elex, mat. no. 1.4462 Die oil  N and ASME Lion with mounting thread M10 to DIN 19213 or to EN 61518  Supplied through bus  No  9 32 V 9 24 V	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling  Process connection  High-pressure side  Low-pressure side  Low-pressure side  Power supply U <sub>H</sub> Terminal voltage on transmitter  Separate 24 V power supply necessary  Bus voltage  Not Ex  With intrinsically-safe operation  Current consumption  Basic current (max.)	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread 1/4-18 NPT and flange connect  7/16-20 UNF	mat. no. 2.4360, Hastelloy B2, mat. no. 1.440  mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617 C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, elex, mat. no. 1.4462  one oil  N and ASME tion with mounting thread M10 to DIN 19213 or to EN 61518  Supplied through bus  No  9 32 V 9 24 V	
flange, without tube)  • To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  • Seal diaphragm of mounting flange  Measuring cell filling  Process connection  • High-pressure side  • Low-pressure side  • Low-pressure side  Power supply U <sub>H</sub> Terminal voltage on transmitter  Separate 24 V power supply necessary  Bus voltage  • Not Ex  • With intrinsically-safe operation  Current consumption  • Basic current (max.)  • Start-up current ≤ basic current	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread 1/4-18 NPT and flange connect  7/16-20 UNF	mat. no. 2.4360, Hastelloy B2, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, olex, mat. no. 1.4462 one oil  N and ASME cion with mounting thread M10 to DIN 19213 or to EN 61518  Supplied through bus  No  9 32 V 9 24 V  12.5 mA Yes	
flange, without tube)  To ASME (pressure transmitter with mounting flange, without tube)  Enclosure material  Wetted parts materials  High-pressure side  Seal diaphragm of mounting flange  Measuring cell filling  Process connection  High-pressure side  Low-pressure side  Low-pressure side  Power supply U <sub>H</sub> Terminal voltage on transmitter  Separate 24 V power supply necessary  Bus voltage  Not Ex  With intrinsically-safe operation  Current consumption  Basic current (max.)	≈ 11 18 kg (a  Low-copper die-cast aluminum, GD-AlSi12 or s  Stainless steel, mat. no. 1.4404/316L, Monel, Hastelloy C276, mat. no. 2.4819, Hastelloy stainless steel Dup Silico  Flange to E  Female thread 1/4-18 NPT and flange connect  7/16-20 UNF	mat. no. 2.4360, Hastelloy B2, mat. no. 1.440 mat. no. 2.4360, Hastelloy B2, mat. no. 2.4617, C4, mat. no. 2.4610, tantalum, PTFE, ETCFE, elex, mat. no. 1.4462 one oil  N and ASME tion with mounting thread M10 to DIN 19213 or to EN 61518  Supplied through bus  No  9 32 V 9 24 V	

# 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, engineering practice)	
Explosion protection			
Intrinsic safety "i"	PTB 13 ATEX 2007 X		
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb		
- Permissible ambient temperature	-40 +70 °C (-40 +15	5 °F) temperature class T4; 8 °F) temperature class T5; .0 °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; $R_{\rm i}=300$ $\Omega$	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	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$	
Explosion-proof "d"	PTB 99 A	ATEX 1160	
- Marking	Ex II 1/2 G Ex	d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +18 -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	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	(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 A	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 W	
Type of protection "n" (zone 2)	PTB 13 A	TEX 2007 X	
- Marking		nA II T4/T5/T6 Gc CIIC T4/T5/T6 Gc	
- Connection (Ex nA)	$U_{\rm m} = 45 \text{ V}$	$U_{\rm m} = 32  {\rm V}$	
- Connection (Ex ic)	To circuits with values: $U_i = 45 \text{ V}$	FISCO supply unit ic: $U_0 = 17.5 \text{ V}, I_0 = 570 \text{ mA}$	
		Linear barrier: $U_0 = 32 \text{ V}, I_0 = 132 \text{ mA}, P_0 = 1 \text{ W}$	
- 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 protection acc. to FM		mpliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, C 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 Con	mpliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP E T4T6; CL II, DI	FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABC V 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>2)</sup> Conversion of temperature error per 28 °C. Valid for temperature range -3 ... +53 °C < (0.24 · r + 0.16) % / 28 °C (50 °F).

<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) 0.32</sup> instead of 0.16 at 10 < r < 30

<sup>&</sup>lt;sup>5)</sup> This value may be increased if the process connection is sufficiently insulated.

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

HART communication	
HART	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measured value) or 10 (two measured values)
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
Analog input	
<ul> <li>Adaptation to customer-specific 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 warning limit and one alarm limit respectively
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit 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 mea- sured pressure value and sen- sor temperature</li> </ul>	Constant value or over parameterizable ramp function

FOUNDATION Fieldbus communication	
Function blocks	3 function blocks analog input, 1 function block PID
<ul> <li>Analog input</li> </ul>	
<ul> <li>Adaptation to customer-specific process variables</li> </ul>	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively
<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes
• PID	Standard FOUNDATION Field- bus function block
Physical block	1 resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
Pressure transducer block	
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes
- Monitoring of sensor limits	Yes
- Simulation function: Measured pressure value, sensor temperature and electronics temperature	Constant value or over parameterizable ramp function
Mounting flange	
Nominal diameter	Nominal pressure
• Acc. to EN 1092-1	
- DN 80	PN 40
- DN100	PN16, PN40

Class 150, class 300

Class 150, class 300

• To ASME B16.5 - 3 inch

- 4 inch

#### Transmitters for general requirements

# SITRANS P DS III for level

Selection and Orderin		Artic	le	No	).			
Pressure transmitter f		7 M F	7MF4633-					
SITRANS P DS III with	HART	Y						
Measuring cell filling	Measuring cell cleaning							
Silicone oil	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						
Process connection of	f low-pressure side							
	T with flange connection							
<ul> <li>Mounting thread <sup>7</sup>/<sub>16</sub>-2</li> </ul>	20 UNF to IEC 61518		2					
<ul> <li>Mounting thread M10</li> </ul>	to DIN 19213		0					
(only for replacement								
Non-wetted parts mate process flange screws								
Stainless steel	Die-cast aluminum			2				
Stainless steel	Stainless steel precision			3				
Stairliess steer	casting <sup>1)</sup>			3				
Version		_						
<ul> <li>Standard versions</li> </ul>					1			
<ul> <li>International version, I</li> </ul>	English label inscriptions,				2			
documentation in 5 la	nguages on CD							
(no Order code select	able)							
Explosion protection								
None     None	-441					Α		
With ATEX, Type of pro								
<ul><li>"Intrinsic safety (Ex i</li><li>"Explosion-proof (Ex</li></ul>						В		
- Explosion-proof (Ex	flamouroet analogura"					D P		
- "Intrinsic safety and (Ex ia + Ex d)" <sup>3)</sup>	nameproor enclosure					г .		
- "Ex nA/ic (Zone 2)" 4	)					Е		
- "Intrinsic safety expl	osion-proof enclosure and					R		
dust explosion prote Zone 1D/2D)" <sup>3)</sup>	ection (Ex ia+ Ex d +							
• FM + CSA intrinsic sa						F		
• FM + CSA (is + ep) +						S		
• With FM + CSA, Type	of protection:							
- "Intrinsic Safe und E	xplosion Proof (is + xp)"1)					NC		
Electrical connection/	cable entry	_						
<ul> <li>Screwed gland Pg 13</li> </ul>						Α		
<ul> <li>Screwed gland M20x<sup>-</sup></li> </ul>						В		
<ul> <li>Screwed gland ½-14 l</li> </ul>	NPT					С		
<ul> <li>Han 7D plug (plastic l connector<sup>5)</sup></li> </ul>	nousing) incl. mating					D		
<ul> <li>M12 connectors (stair</li> </ul>	nlace etaal) 5) 6) 7)					F		
	11000 31001)						ı	
<ul><li>Display</li><li>Without display</li></ul>							(	
<ul> <li>Without display</li> <li>Without visible display</li> </ul>	I						ľ	
(display concealed, s							ľ	
With visible display	,						e	
• With customer-specific	c display (setting as						7	
specified, Order code	"Y21" or "Y22" required)							

#### Ordering information

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

#### ordering example

Item line 1: 7MF4633-1EY20-1AA1-Z

B line: Y0

C line: Y01: 80 to 143 mbar (1.16 to 2.1 psi)

Item line 2: 7MF4912-3GE01

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

Included in delivery of the device:

- 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 electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 2) Without cable gland, with blanking plug.
- 3) With enclosed cable gland Ex ia and blanking plug.
- 4) Configurations with HAN and M12 connectors are only available in Ex nL.
- 5) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 6) M12 delivered without cable socket
- $^{7)}$  Not available with protection type "Ex d" (optiones D, P, N and R)

# Transmitters for general requirements

SITRANS P DS III for level

#### Selection and Ordering data Article No. Pressure transmitters for level SITRANS P DS III with PROFIBUS PA (PA) 7MF4634-SITRANS P DS III with FOUNDATION Fieldbus 7MF4635-Nominal measuring range 250 mbar (100 inH<sub>2</sub>O) D (240 inH<sub>2</sub>O) 600 mbar Ε F 1600 mbar (642 inH<sub>2</sub>O) (2000 inH<sub>2</sub>O) G 5 bar Process connection of low-pressure side Female thread 1/4-18 NPT with flange connection Mounting thread <sup>7</sup>/<sub>16</sub>-20 UNF to IEC 61518 Mounting thread M10 to DIN 19213 (only for replacement requirement) Non-wetted parts materials process flange screws Electronics housing Stainless steel Die-cast aluminum 2 Stainless steel 3 Stainless steel precision casting Version Standard versions International version, English label inscriptions, 2 documentation in 5 languages on CD (no Order code selectable) **Explosion protection** None • With ATEX, Type of protection: - "Intrinsic safety (Ex ia)" - "Explosion-proof (Ex d)"1) ח - "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"<sup>2</sup>) - "Ex nA/ic (Zone 2)" 3) E - "Intrinsic safety, explosion-proof enclosure and R dust explosion protection (Ex ia + Ex d + Zone 1D/2D)\*2) (not for DS III FF) • FM + CSA intrinsic safe (is) • FM + CSA (is + ep) + Ex ia + Ex d (ATEX) S • With FM + CSA, Type of protection: "Intrinsic Safe und Explosion Proof (is + xp)"<sup>1)</sup> NC Electrical connection/cable entry • Screwed gland M20 x 1.5 В • Screwed gland 1/2-14 NPT C • M12 connectors (stainless steel)<sup>4) 5)</sup> Display Without display • Without visible display (display concealed, setting: bar) With visible display • With customer-specific display (setting as

specified, Order code "Y21" required)

#### Ordering information

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

#### ordering example

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

Included in delivery of the device:

- 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 Ex ia and blanking plug.
- 3) Configurations with HAN and M12 connectors are only available in Ex nL.
- 4) M12 delivered without cable socket
- 5) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".

# Transmitters for general requirements SITRANS P DS III for level

Selection and Ordering data	Order code				
Further designs		HART	PA	FF	
Add "-Z" to Article No. and specify Order code.					
O-rings for process flanges on low-pressure side (instead of FPM (Viton)) • PTFE (Teflon)	A20	<b>√</b>	<b>√</b>	<b>√</b>	
<ul> <li>FEP (with silicone core, approved for food)</li> <li>FFPM (Kalrez, compound 4079)</li> <li>NBR (Buna N)</li> </ul>	A21 A22 A23	<b>∀ ∀ ∀</b>	<b>∀ ∀</b>	<b>√</b> ✓	
<ul> <li>Plug</li> <li>Han 7D (metal, gray)</li> <li>Han 8U (instead of Han 7D)</li> <li>Angled</li> <li>Han 8D (metal, gray)</li> </ul>	A30 A31 A32 A33	* * * * * * * * * * * * * * * * * * *			
Sealing screw '4-18 NPT, with valve in mat. of process flanges Cable sockets for M12 connectors (stain-	A40 A50	<b>√</b>	<b>√</b>	<b>4</b>	
less steel)	,100				
Rating plate inscription (instead of German)	D44	,	,		
English     French	B11 B12	<b>√</b>	1	<b>√</b>	
• Spanish	B13	✓.	✓	1	
• Italian	B14	✓	✓	<b>✓</b>	
English rating plate Pressure units in inH <sub>2</sub> 0 and/or psi	B21	✓	✓	✓	
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) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C20	✓			
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 <sup>1)</sup>		✓		
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C23	✓			
Device passport Russia (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	✓			
Degree of protection IP65/IP68 (only for M20x1.5 and ½-14 NPT)	D12	✓	✓	✓	
<b>Supplied with oval flange</b> (1 item), PTFE packing and screws in thread of process flange	D37	<b>✓</b>	1	1	

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "- $\mathbf{Z}$ " to Article No. and specify Order code.				
Use on zone 1D / 2D (only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia)")	E01	✓	✓	✓
Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MAWP 464 psi), basic device with type of protection "Intrinsic safety (Ex ia)", to WHG and VbF, not together with measuring cell filling "inert liquid")	E08	<b>√</b>		
Export approval Korea	E11	✓	✓	✓
<b>CRN approval Canada</b> (Canadian Registration Number)	E22	✓	✓	✓
Dual seal	E24	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25 <sup>2)</sup>	✓	✓	✓
(only for transmitter 7MF4B)  "Flameproof" explosion protection according to the NAMETRO (Description)	E26 <sup>2)</sup>	1	✓	✓
ing to INMETRO (Brazil) (only for transmitter 7MF4D)				
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28 <sup>2)</sup>	✓	✓	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4	E45 <sup>2)</sup>	✓	✓	✓
Ex Approval IEC Ex (Ex id) (only for transmitter 7MF4D)	E46 <sup>2)</sup>	1	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55 <sup>2)</sup>	✓	✓	✓
(only for transmitter 7MF4B)  Explosion protection "Explosion-proof" to	E56 <sup>2)</sup>	1	✓	✓
NEPSI (China) (only for transmitter 7MF4D)				
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57 <sup>2)</sup>	1	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)	E70 <sup>2)</sup>	1	✓	1
(only for transmitter 7MF4[B, D]Z + E11)				
Two coats of lacquer on casing and cover (PU on epoxy)	G10	1	✓	✓
Replacement of process connection side	H01	✓	✓	✓
Transient protector 6 kV (lightning protection)	J01	1	✓	✓

Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H
 Option beinhaltet keine ATEX-Zulassung, sondern nur die landesspezifische Zulassung.

# Transmitters for general requirements

SITRANS P DS III for level

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set	Y01	✓	<b>√</b> 1)	
Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi				
Stainless steel tag plate and entry in device variable (measuring point description)	Y15	✓	✓	✓
Max. 16 characters, specify in plain text: Y15:				
Measuring point text (entry in device variable)	Y16	✓	✓	✓
Max. 27 characters, specify in plain text: 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 <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 indicator in	Y22 <sup>3)</sup>	1		
non-pressure units <sup>2)</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:				
Damping adjustment in seconds	Y30	✓	✓	✓
(0 100 s)				

Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and  $\overline{\text{D05}}$  can be factory preset

✓ = available

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

<sup>3)</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 level

Selection and Orderi	ng data	А	rti	cle	Ν	o. Ord	. co	de
Mounting flange	<u> </u>	7	M	F4	19	12-		
	ne SITRANS P pressure part) for level, for DS III	3	-					
Connection to EN 10	92-1							
Nominal diameter	Nominal pressure							
DN 50	PN 40		Α					
	PN 100		В					
DN 80	PN 40		D					
DN 100	PN 16		G					
	PN 40		Н					
Connection to ASME	B16.5							
Nominal diameter	Nominal pressure							
2 inch	class 150		L					
	class 300		M					
	class 400/600		N					
	class 900/1500		Р					
3 inch	Class 150		Q					
	Class 300		R					
4 inch	Class 150		Т					
	Class 300		U					
	der code and plain text:		z				J 1	γ
Nominal diameter:;	Nominal press.:		Γ				ľ	l
Wetted parts materia	ls							
<ul> <li>Stainless steel 316L</li> </ul>				Α				
<ul> <li>Coated with PFA</li> </ul>				D				
<ul> <li>Coated with PTFE</li> </ul>				E (	)			
<ul> <li>Coated with ECTFE<sup>1</sup></li> </ul>	)			F				
Monel 400, mat. no.	2.4360			G				
<ul> <li>Hastelloy C276, mat</li> </ul>				J				
Hastelloy C4, mat. n				U				
Tantalum				Κ				
<ul> <li>Duplex 2205, mat. n</li> </ul>	o. 1.4462			Q				
<ul> <li>Duplex 2205, mat. n</li> </ul>	o. 1.4462, incl. main body			R				
• Stainless steel 316L	gold plated,			S	)			
thickness approx. 25								
Tube length								
• None				C	)			
• 50 mm	(1.97 inch)			1				
• 100 mm	(3,94 inch)			2	2			
• 150 mm	(5.90 inch)			3	3			
• 200 mm	(7.87 inch)			4	ļ			
	der code and plain text:			<b>Z</b> 8	3		K 1	Υ
	ntact with medium:,							
tubus length:								
Filling liquid								
<ul> <li>Silicone oil M5</li> </ul>					1			
<ul> <li>Silicone oil M50</li> </ul>					2			
<ul> <li>High-temperature oi</li> </ul>					3			
Halocarbon oil (for C	<sub>2</sub> -measurement)				4			
<ul> <li>Glycerin/water<sup>2)</sup></li> </ul>					6			
<ul> <li>Food oil (FDA-listed)</li> </ul>					7			
Other version, add					9		M 1	Υ
Order code and plain	text:							
filling liquid:								
43								

<sup>1)</sup> For vacuum on request

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Spark arrester	A01	✓	✓	1
For mounting on zone 0 (incl. documentation)				
Remote seal nameplate attached out of stainless steel, contains Article No. and order number of the remote seal supplier	B20	•	✓	✓
2.2 Certificate for oil-free and grease-free cleaning For inert filling liquid, not for operation with oxygen, Option E10 cannot be selected.	C10	✓	✓	✓
Quality inspection certificate (Five-step factory calibration) to IEC 60770-2	C11	✓	✓	✓
Inspection certificate Acc. to EN 10204-3.1	C12	✓	✓	✓
2.2 Certificate of FDA approval of fill oil Only in conjunction with filling liquid "Food oil" (FDA listed)"	C17	✓	✓	✓
"Functional safety (SIL2)" certificate to IEC 61508  (only for conjunction with the Order code "C20"	C20	<b>✓</b>	✓	
in the case of SITRANS P DS III transmitter) "Functional safety (SIL2/3)" certificate	C23	✓	✓	
to IEC 61508  (only for conjunction with the Order code "C23" in the case of SITRANS P DS III transmitter)				
Certification acc. to NACE MR-0175 Includes acceptance test certificate 3.1 acc. to EN 10204 (only for wetted parts made of stainless steel 1.4404/316L and Hastelloy C276)	D07	✓	1	1
Certification acc. to NACE MR-0103 Includes acceptance test certificate 3.1 acc. to EN 10204 (only for wetted parts made of stainless steel 1.4404/316L and Hastelloy C276)	D08	✓	✓	✓
Epoxy painting Not possible with vacuum-proof design Color: transparent, coverage: front and rear of the remote seal, capillary(ies) or connecting tube, process connection of the transmitter. With transmitters 7MF40 and 7MF42, only possible with process connection G½B according to EN837-1.	E15	✓	✓	✓
Sealing surface B1 or ASME B16.5 RF 125 250 AA instead of sealing surface B2 or RFSF (only for wetted parts made of Hastelloy C276 (2.4819), tantalum and Duplex 2205 (1.4462) and for nominal sizes 2", 3", DN 50 and DN 80)	J12	<b>✓</b>	<b>√</b>	✓
Sealing surface groove, EN 1092-1, form D instead of sealing surface B1 (only for wetted parts made of stainless steel 316L)	J14	✓	✓	✓
Sealing surface RJF (groove) ASME B16.5 instead of sealing surface ASME B16.5 RF 125 250 AA (only for wetted parts made of stainless steel 316L)	J24	✓	✓	✓
Elongated pipe, 150 mm instead of 100 mm, max. medium temperature 250 °C, observe the maximum permissible media temperature of the filling liquid.	R15	<b>√</b>	<b>√</b>	✓
Elongated pipe, 200 mm instead of 100 mm, max. medium temperature 300 °C, observe the maximum permissible media temperature of the filling liquid.	R20	<b>√</b>	✓	1
Vacuum-proof design (for use in low-pressure range) Note: suffix "Y01" required with press. transm.  ✓ = available	V04	✓	✓	1

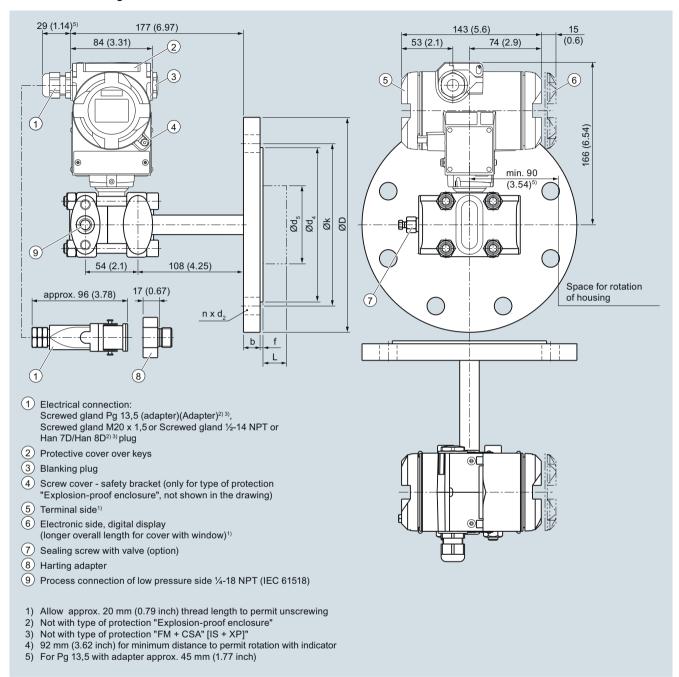
✓ = available

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

### 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	b	D	d	d <sub>2</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>M</sub>	f	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
DN 50	PN 10/16/ 25/40	20	165	90	18	102	48.3	45 <sup>1)</sup>	2	125	8	0, 50, 100, 150 or 200
	PN 100	28	195	90	26	102	48.3	45 <sup>1)</sup>	2	145	8	
DN 80	PN 10/16/ 25/40	24	200	90	18	138	76	72 <sup>2)</sup>	2	160	8	
	PN 100	32	230	90	26	138	76	72 <sup>2)</sup>	2	180	8	
DN 100	PN 10/16	20	220	115	18	158	94	89	2	180	8	
	PN 25/40	24	235	115	22	162	94	89	2	190	8	

### Connection to ASME B16.5

Nominal diameter	Nominal pressure	b	D	d <sub>2</sub>	d <sub>4</sub>	d <sub>5</sub>	d <sub>M</sub>	f	k	n	L
	lb./sq.in	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)		inch (mm)
2 inch	150	0.77 (19,5)	5.91 (150)	0.79 (20)	3.62 (92)	1.9 (48.3)	1.77 <sup>1)</sup> (45)	0.08 (2)	4.74 (120.5)	4	0, 2, 3.94,
	300	0.89 (22.7)	6.5 (165)	0.79 (20)	3.62 (92)	1.9 (48.3)	1.77 <sup>1)</sup> (45)	0.08 (2)	5 (127)	8	5.94 or 7.87 (0, 50, 100,
	400/600	1.28 (32.4)	6.5 (165)	0.79 (20)	3.62 (92)	1.9 (48.3)	1.77 <sup>1)</sup> (45)	0.28 (7)	5 (127)	8	150 or 200)
	900/1500	1.78 (45.1)	8.46 (215)	1.02 (26)	5 (127)	1.9 (48.3)	1.77 <sup>1)</sup> (45)	0.28 (7)	6.5 (165)	8	
3 inch	150	0.96 (24.3)	7.48 (190)	0.79 (20)	5 (127)	3 (76)	2.83 <sup>2)</sup> (72)	0.08 (2)	6 (152.5)	4	=
	300	1.14 (29)	8.27 (210)	0.87 (22)	5 (127)	3 (76)	2.83 <sup>2)</sup> (72)	0.08 (2)	6.63 (168.5)	8	
	600	1.53 (38.8)	8.27 (210)	0.87 (22)	5 (127)	3 (76)	2.83 <sup>2)</sup> (72)	0.28 (7)	6.63 (168.5)	8	
4 inch	150	0.96 (24.3)	9.06 (230)	0.79 (20)	6.22 (158)	3.69 (94)	3.5 (89)	0.08 (2)	7.5 (190.5)	8	=
	300	1.27 (32.2)	10.04 (255)	0.87 (22)	6.22 (158)	3.69 (94)	3.5 (89)	0.08 (2)	7.87 (200)	8	
	400	1.65 (42)	10.04 (255)	1.02 (26)	6.22 (158)	3.69 (94)	3.5 (89)	0.28 (7)	7.87 (200)	8	

d: Internal diameter of gasket to DIN 2690

d<sub>M</sub>: Effective diaphragm diameter

 $<sup>^{1)}</sup>$  59 mm = 2.32 inch with tube length L=0.

 $<sup>^{2)}</sup>$  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

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	
• 24 V version	-20 +80 °C (-4 +176 °F)
• 230 V version	-20 +60 °C (-4 +140 °F)
Storage temperature	-50 +85 °C (-58 +185 °F)
Degree of protection	IP54 to IEC 60529
Electromagnetic compatibility (EMC)	IEC 61236
Condensation	Relative humidity 0 95 % condensation permissible

### Structural design

Dimensions (W  $\times$  H  $\times$  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**

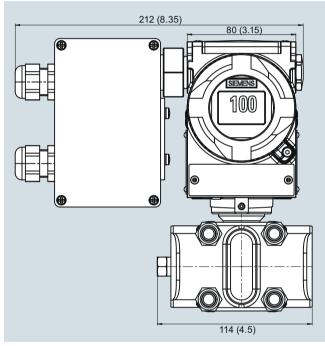
Supply voltage

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

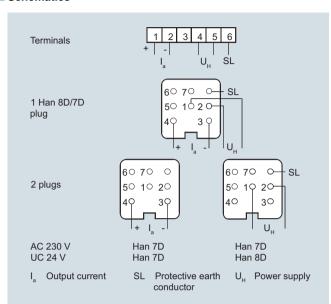


SITRANS P pressure transmitters with supplementary electronics for fourwire connection, dimension drawing, dimensions in mm

# 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			Order code				
connection Article No. of th	y electronics for 4-wire e transmitter B. add "-Z" and Order code.	V					
Power supply	Electrical connection						
24 V AC/DC	Terminals; 2 Pg screwed glands, to left	1					
	2 Han 7D/Han 8U plugs incl. mating connector, to left	3					
	1 Han 7D plug incl. mating connector, angled	5					
	Terminals; 1 Pg screwed gland, downwards	6					
	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	t .						
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	ering data	Art	icle	No.			
Replacement mea	suring cell for pressure	7 N	7MF4990-				
for SITRANS P DS III				0 - 0 D B			
Measuring cell fill	ing Measuring cell cleaning						
Silicone oil	Normal	1					
Inert liquid	grease-free to cleanliness level 2	3					
Measured span (m	nin max.)						
0.01 1 bar	(0.15 14.5 psi)	В					
0.04 4 bar	(0.6 58 psi)	C					
0.16 16 bar	(2.32 232 psi)	D					
0.63 63 bar	(9.14 914 psi)	E					
1.6 160 bar	(23.2 2320 psi)	F					
4.0 400 bar	(58.0 5802 psi)	G					
7.0 700 bar	(102.0 10153 psi)	J					
Wetted parts mate	erials						
Seal diaphragm	Process connection						
Stainless steel	Stainless steel	-	Α				
Hastelloy	Stainless steel		В				
Hastelloy	Hastelloy		С				
Process connection	on						
<ul> <li>Connection shank</li> </ul>	k G½B to EN 837-1		0				
• Female thread 1/2-	-14 NPT		1				
<ul> <li>Oval flange made</li> </ul>							
max. span 160 ba							
-	d <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518		2				
- Mounting thread	d M10 to DIN 19213		3				
Further designs		Ord	der	code			
Please add "-Z" to A Order code.	Article No. and specify						
Inspection certific	ate	C1	2				
to EN 10204-3.1							

Selection and Orde	ring data	А	rticl	е	No.
Replacement measuring cell for absolute pressure for SITRANS P DS III (from the pressure series)				_	992- 0-0DB0
Measuring cell fillin Silicone oil Inert liquid	ng Measuring cell cleaning Normal grease-free to cleanliness level 2	1			
Measured span (mi 8.3 250 mbar a 43 1300 mbar a 0.16 5 bar a 1 30 bar a	n max.) (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 mater Seal diaphragm Stainless steel Hastelloy Hastelloy	ials Process connection Stainless steel Stainless steel Hastelloy		A B C		
Process connection  • Connection shank G½B to EN 837-1  • Female thread ½-14 NPT  • Oval flange made of stainless steel, max. span 160 bar (2320 psi)  - Mounting thread <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518  - Mounting thread M10 to DIN 19213				0 1 2 3	
Further designs Please add "-Z" to Ar Order code.	ticle No. and specify	С	rde	rc	code
Inspection certificate to EN 10204-3.1	te	C	12		

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

7.0000001100/Opailo I ai to					
Selection and Orderin	ng data	Article No.			
	ring cell for absolute pres-	7MF4993-			
SITRANS P DS III with	ential pressure series) for HART, DS III with PROFIBUS JNDATION Fieldbus series	- 0 D C 0			
Measuring cell filling	Measuring cell cleaning				
Silicone oil	Normal	1			
Inert liquid	grease-free to cleanliness level 2	3			
Measured span (min.	max.)				
8.3 250 mbar a	(0.12 3.62 psia)	D			
43 1300 mbar a	(0.62 18.85 psia)	F			
0.16 5 bar a	(2.32 72.5 psia)	G			
1 30 bar a	(14.5 435 psia)	H			
5.3 100 bar a	(76.9 1450 psia)	KE			
Wetted parts materia					
Seal diaphragm	Parts of measuring cell				
Stainless steel	Stainless steel	Α			
Hastelloy	Stainless steel	В			
Hastelloy	Hastelloy	С			
Tantalum	Tantalum	E			
Monel	Monel	Н			
Gold	Gold	L			
Process connection					
	PT with flange connection				
	site process connection				
- Mounting thread M	10 to DIN 19213	0			
<ul> <li>Mounting thread '/</li> </ul>	<sub>16</sub> -20 UNF to IEC 61518	2			
<ul> <li>Vent on side of proce</li> </ul>					
- Mounting thread M		4			
<ul> <li>Mounting thread '/</li> </ul>	<sub>16</sub> -20 UNF to IEC 61518	6			
Non-wetted parts ma • Stainless steel proce		2			
<u> </u>	and harige solews	-			
Further designs Please add "-Z" to Artic Order code.	cle No. and specify	Order code			
O-rings for process f	langes	_			
(instead of FPM (Viton)					
<ul> <li>PTFE (Teflon)</li> </ul>		A20			
• FEP (with silicone co	re, approved for food)	A21			
• FFPM (Kalrez, comp		A22			
<ul> <li>NBR (Buna N)</li> </ul>		A23			
Inspection certificate to EN 10204-3.1		C12			
Process connection	G½B	D16			
Remote seal flanges		D20			
(not together with K01	, K02 and K04)	220			
Vent on side for gas	•	H02			
Process flanges	<u> </u>				
• without		K00			
• with process flange i	made of				
- Hastelloy		K01			
- Monel		K02			
- Stainless steel with	PVDF insert	K04			
max. PN 10 (MAWF	P 145 psi)				
	f medium 90 °C (194 °F)				
	r process connection on the of the process flange, vent				
valve not possible	or the process hange, verit				
*1	100 bar (76.9 1450 psi)"				
. 10t 10t opair 0.0 1	. 00 5a. (10.0 1400 poi)				

Selection and Orde	ering data	Articl	e No
	suring cell for differential	_	4994-
pressure and PN 32	2/160 (MAWP 464/2320 psi) for		- 0 DC 0
	th HART, DS III with PROFIBUS OUNDATION Fieldbus series		- 0000
Silicone oil	ng Measuring cell cleaning Normal	1	
Inert liquid	grease-free to	3	
men nquiu	cleanliness level 2	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)	0 psi)		
1 60 mbar	(0.4 24 inH <sub>2</sub> O)	С	
2.5 250 mbar	(1 100 inH <sub>2</sub> O)	D	
6 600 mbar	(2.4 240 inH <sub>2</sub> O)	E	
16 1600 mbar 50 5000 mbar	(6.4 642 inH <sub>2</sub> O)	F G	
0.3 30 bar	(20 2000 inH <sub>2</sub> O) (4.35 435 psi)	Н	
Wetted parts mater			
(stainless steel proc	<b>o</b> ,		
Seal diaphragm	Parts of measuring cell		
Stainless steel	Stainless steel	A	
Hastelloy Hastelloy	Stainless steel Hastelloy	B	
Tantalum <sup>2)</sup>	Tantalum	E	
Monel <sup>2)</sup>	Monel	H	
Gold <sup>2)</sup>	Gold	L	
Process connectio			
	NPT with flange connection posite process connection		
- Mounting thread	M10 to DIN 19213		0
<ul> <li>Mounting thread</li> </ul>	<sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518		2
Vent on side of pro			4
	M10 to DIN 19213 <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518		4 6
Non-wetted parts n		-	
Stainless steel proce			2
Further designs	<del>-</del>	Orde	r code
	rticle No. and specify Order	0.00	. 0000
code.			
O-rings for process	s flanges		
(instead of FPM (Vito	on))		
PTFE (Teflon)     FFP (with allianne)	acro approved for food)	A20 A21	
• FFPM (Kalrez, con	core, approved for food)	A21	
• NBR (Buna N)	1	A23	
Inspection certifica	ate	C12	
to EN 10204-3.1			
Remote seal flange	es	D20	
(not together with K			
Vent on side for ga	s measurements	H02	
•	cess flanges for vertical	H03	
differential pressur			
(not together with K			
Process flanges			
• without		K00	
• with process flang	e made of		
- Hastelloy		K01	
- Monel		K02	
- Stainless steel w		K04	
max. PN 10 (MA)	WP 145 psi) e of medium 90 °C (194 °F)		
	ner process connection on the		
side in the middl	e of the process flange, vent		
valve not possib	le		

Not suitable for connection of remote seal
 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 Orderin	g data	Artic	le N	lo.
Replacement measuri pressure and PN 420 SITRANS P DS III with F PA and DS III with FOU	mg cell for differential (MAWP 6092 psi) for HART, DS III with PROFIBUS NDATION Fieldbus series			95- -0DC0
Measuring cell filling Silicone oil	Measuring cell cleaning Normal	1		
Measured span (min. 2.5 250 mbar 6 600 mbar 16 1600 mbar 50 5000 mbar 0.3 30 bar	max.) (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 material				
(stainless steel process Seal diaphragm	Parts of measuring cell			
Stainless steel Hastelloy Gold <sup>1)</sup>	Stainless steel Stainless steel Gold	A B		
<ul> <li>Vent on side of proce</li> <li>Mounting thread M<sup>1</sup></li> <li>Mounting thread <sup>7</sup>/<sub>1</sub></li> <li>Non-wetted parts mat</li> </ul>	12 to DIN 19213 6-20 UNF to IEC 61518 ss flange 12 to DIN 19213 6-20 UNF to IEC 61518 erials	-	1 3 5 7	
• Stainless steel proces	ss flange screws	Orde	2	
Further designs  Please add "-Z" to Artic code.	le No. and specify Order	Orde	er Co	oue
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)		A20 A21 A22 A23		
Inspection certificate to EN 10204-3.1		C12		
Stainless steel proces differential pressure l	s flanges for vertical ines	H03		
without process flang	es	K00		

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

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

Accessories/Spare Parts			
Selection and Ordering data	Article No.	Selection and Ordering data	Article No.
Spare parts/Accessories		Mounting screws	
Mounting bracket and fastening parts for pressure transmitters  SITRANS P DS III with HART, DS III with		For measuring point label, grounding and connection terminals or for display (50 units)	7MF4997-1CD
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		Sealing screws (1 set = 2 units) for process flange • made of stainless steel • made of Hastelloy	7MF4997-1CG 7MF4997-1CH
Fieldbus (7MF423C.)  • made of steel	7MF4997-1AB	Sealing screws with vent valve Complete (1 set = 2 units)  • made of stainless steel	ZME400Z 40D
made of stainless steel	7MF4997-1AH	made of Hastelloy	7MF4997-1CP 7MF4997-1CQ
for pressure transmitters  SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF403A.,B.,D. andF.) For absolute pressure transmitters SITRANS P DS III with HART, DS III with		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
PROFIBUS PA and DS III with FOUNDATION Fieldbus 7MF423A.,B.,D. andF.)  • made of steel  • made of stainless steel	7MF4997-1AC 7MF4997-1AJ	Connection board  • for SITRANS P DS III  • for SITRANS P DS III PROFIBUS PA and FOUNDATION Fieldbus	7MF4997-1DN 7MF4997-1DP
Mounting and fastening brackets For differential pressure transmitters with flange thread M10 SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF433 and 7MF443) • made of steel	7MF4997-1AD	• FPM (Viton) • PTFE (Teflon) • FEP (with silicone core, approved for food) • FFPM (Kalrez, compound 4079) • NBR (Buna N)	7MF4997-2DA 7MF4997-2DB 7MF4997-2DC 7MF4997-2DD 7MF4997-2DE
made of stainless steel	7MF4997-1AK	Sealing ring for process connection	see "Fittings"
Mounting and fastening brackets For differential pressure transmitters with flange thread M12		Weldable sockets for PMC connection  • PMC Style Standard: Thread 1½"  • PMC Style Minibolt: front-flush 1"	7MF4997-2HA 7MF4997-2HB
SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF453)  • made of steel  • made of stainless steel  Mounting and fastening brackets	7MF4997-1AE 7MF4997-1AL	Gaskets for PMC connection (packing unit = 5 units)  • PTFE seal for PMC Style Standard: Thread 1½"  • Gasket made of Viton for PMC Style Minibolt: front-flush 1"	7MF4997-2HC 7MF4997-2HD
For differential and absolute pressure transmitters with flange thread 7/16 -20 UNF SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus		Weldable socket for TG52/50 and TG52/150 connection  • TG52/50 connection  • TG52/150 connection	7MF4997-2HE 7MF4997-2HF
(7MF433, 7MF443 and 7MF453)  • made of steel	7MF4997-1AF	Seals for TG 52/50 and TG 52/150 made of silicone (FDA compliant)	7MF4997-2HG
made of stainless steel	7MF4997-1AM	Seals for flange connection with front-flush	
Cover made of die-cast aluminum, including gasket, for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus • without window • with window	7MF4997-1BB 7MF4997-1BE	diaphragm Material FPM (Viton), 10 units  DN 25, PN 40 (M11)  DN 25, PN 100 (M21)  1", class 150 (M40)  1", class 300 (M45)	7MF4997-2HH 7MF4997-2HJ 7MF4997-2HK 7MF4997-2HL
	7 IVII 7337-1DE	Available ex stock	
Cover made of stainless steel, including gasket, for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus			
<ul><li>without window</li><li>with window</li></ul>	7MF4997-1BC 7MF4997-1BF		

**Digital indicator** 

• without inscription (5 units)

DS III with FOUNDATION Fieldbus

• Printed (1 unit) Data according to Y01 or Y02, Y15, Y16 and Y99 (see "Pressure transmitters")

Including mounting material for SITRANS P DS III with HART, DS III with PROFIBUS PA and

7MF4997-1CA 7MF4997-1CB-Z Y..: .....

7MF4997-1BR

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

**Accessories/Spare Parts** 

Selection and Ordering data	Article 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> <li>for SITRANS DS III with PROFIBUS PA</li> <li>German</li> <li>English</li> <li>French</li> </ul>	A5E00047090 A5E00047092 A5E00053218 A5E00053219 A5E00053220 A5E00053275 A5E00053276 A5E00053277
<ul> <li>Spanish</li> <li>Italian</li> <li>for SITRANS DS III with FOUNDATION Fieldbus</li> <li>German</li> <li>English</li> </ul>	A5E00053278 A5E00053279 A5E00279629 A5E00279627
Compact operating instructions The compact operating instructions are available in 21 EU languages on the product CD supplied with each transmitter. They can also be downloaded from the SITRANS P web page.	
Brief instruction (Leporello)	
German, English • for SITRANS DS III with HART - German, English	A5E00047093
for SITRANS DS III with PROFIBUS PA     German, English     GOLDBAND BOUNDATION	A5E00053274
<ul> <li>for SITRANS DS III with FOUNDATION Fieldbus</li> <li>German, English</li> </ul>	A5E00282355
CD with SITRANS P documentation German, English, French, Spanish, Italian incl. compact operating instructions in 21 EU languages	A5E00090345
Certificates (order only via SAP)	
instead of Internet download	
• hard copy (to order)	A5E03252406
• on CD (to order)	A5E03252407
Operating Instructions for replacement of electronics, measuring cell and connection board (only available from the Internet) <sup>1)</sup>	A5E00078060
HART modem	
<ul><li>with RS232 interface</li><li>with USB interface</li></ul>	7MF4997-1DA 7MF4997-1DB
Supplementary electronics for 4-wire connection	See page 1/159

Available ex stock

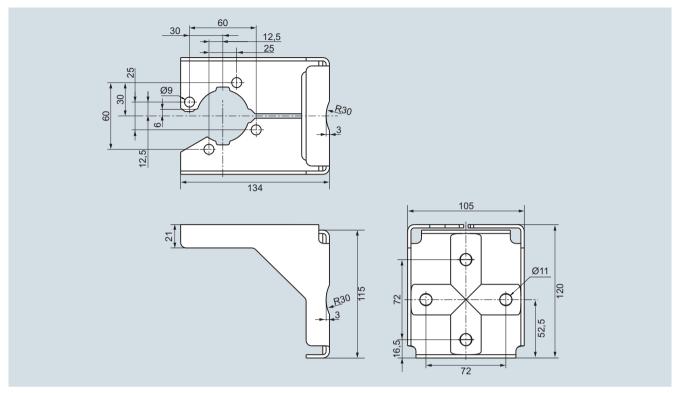
Power supply units see Chap. 7 "Supplementary Components".

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

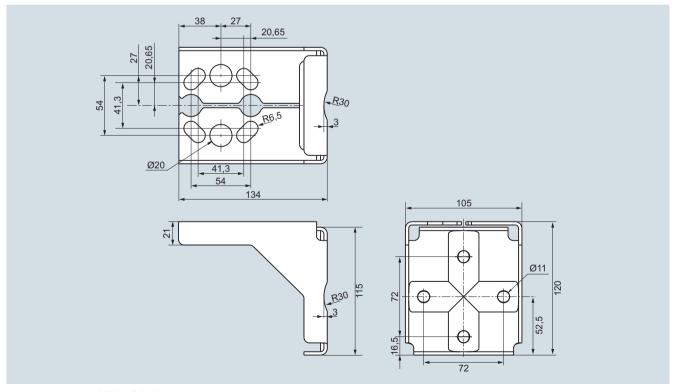
# Transmitters for general requirements

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 Article 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

### 7MF9011-4EA

### valve manifold on relative and absolute pressure transmitters



Add <b>-Z</b> to the Article No. of the transmitter and add Order codes	Order 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  Delivery incl. high-pressure test certified by test report to EN 10204-2.2	A70 A71 A72
Further designs:  Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	A02
Supplied acceptance test certificate to EN 10204- 3.1 for transmitters and mounted valve manifold	C12

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



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

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



	•	
1	Add <b>-Z</b> to the Article 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

<sup>1)</sup> For 7MF453.-... transmitters, you require a 7/10-20 UNF connection thread in the process flange

# Transmitters for general requirements

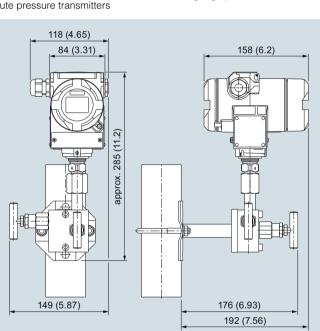
SITRANS P DS III - Factory-mounting of valve manifolds on transmitters

### Dimensional drawings

### Valve manifolds mounted on SITRANS P DS III



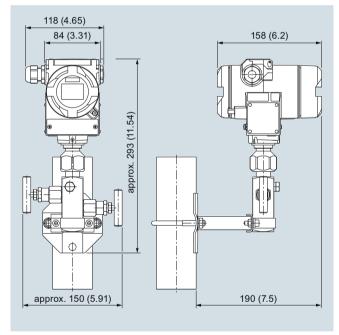
7MF9011-4EA valve manifold with mounted gauge pressure and absolute pressure transmitters



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



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



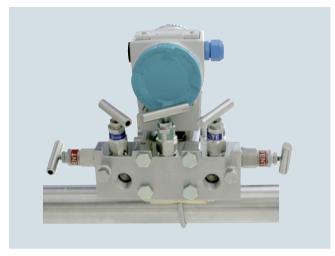
7MF9011-4FA valve manifold with mounted gauge pressure and absolute pressure transmitters, dimensions in mm (inch)

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

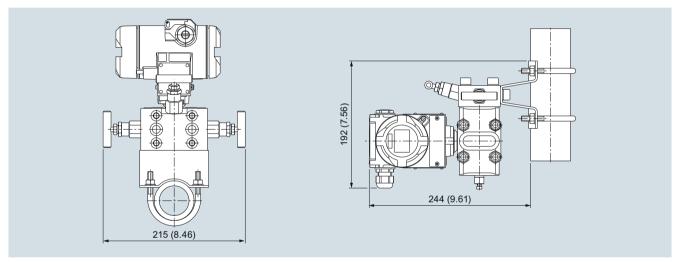
of valve manifolds on transmitters



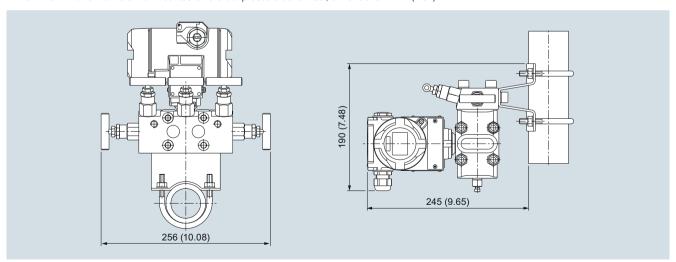
7MF9411-5BA valve manifold with mounted differential pressure trans-



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)