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Pressure Measurement

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

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 measuring spans 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.

Pressure transmitters for applications with advanced requirements (Advanced)

> SITRANS P DS III Technical description

Pressure transmitter for gauge pressure

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

Measuring 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.

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

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

There are two series:

- Gauge pressure series
- Differential pressure series

Pressure transmitters for differential pressure and flow

Measured variables:

- Differential pressure
- Small positive or negative pressure
- Flow $q \sim \sqrt{\Delta p}$ (together with a primary differential pressure device (see Chapter "Flow Meters"))

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

Nominal measuring range

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

Pressure transmitters for level

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

Measuring 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.



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 enclosure. 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).

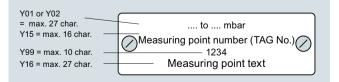
The approval label is located on the opposite side.

The enclosure 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 enclosure. 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 enclosure.

The electrical connections for the power supply and screen are accessible by unscrewing the rear cover. The bottom part of the enclosure 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 enclosure is a plastic cover (1), which hides the input keys.

Example for an attached measuring point label

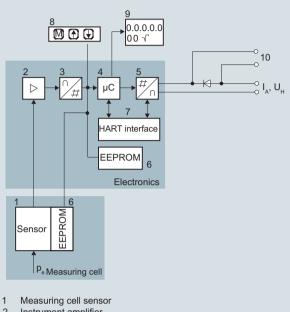


Technical description

Function

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Operation of electronics with HART communication



- 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
- HART interface 7
- Three input keys (local operation) 8
- 9 Digital display
- 10 Diode circuit and connection for external ammeter
- Output current
- I Û 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.

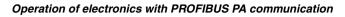
The diode circuit (10) protects against incorrect polarity.

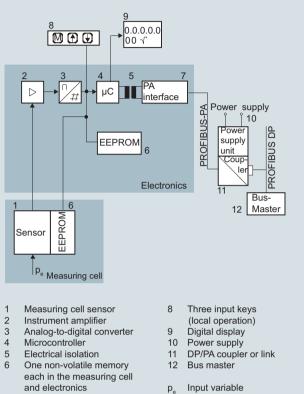
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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





PROFIBUS-PA interface 7

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.

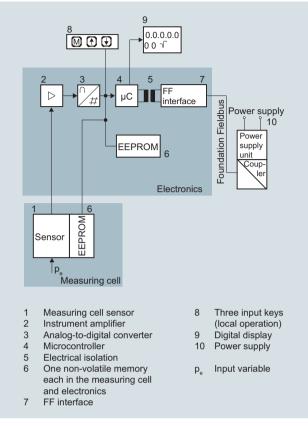
Using the three input buttons (8) you can parameterize the pressure transmitter directly at the measuring point. The input buttons can also be used to control the view of the results, the error messages and the operating modes on the display (9).

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.

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Technical description





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).

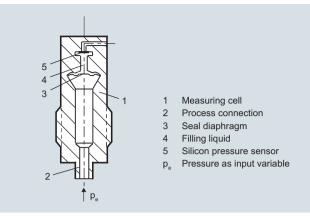
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

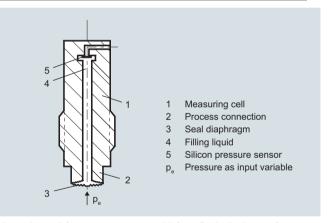
Measuring cell for gauge pressure



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



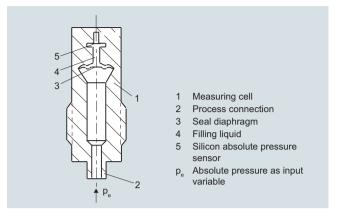
Measuring cell for gauge pressure, with front-flush diaphragm for paper industry, function diagram

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

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Technical description

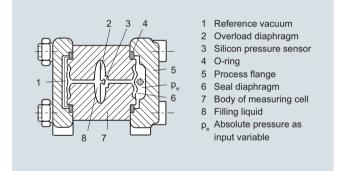
Measuring cell for absolute pressure from gauge pressure series



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

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

Measuring cell for absolute pressure from differential pressure series

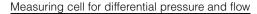


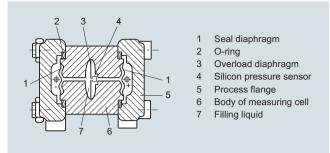
Measuring cell for absolute pressure from differential pressure series, function diagram

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.





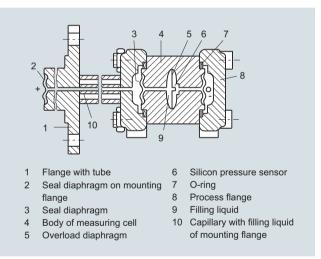
Measuring cell for differential pressure and flow, function diagram

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

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

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

Measuring cell for level



Measuring cell for level, function diagram

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

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

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

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

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Pressure Measurement

Pressure transmitters

Technical description

Parameterization DS III

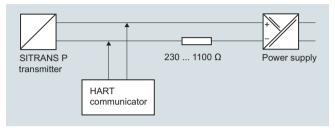
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

Parameterization using the input buttons (local operation)

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

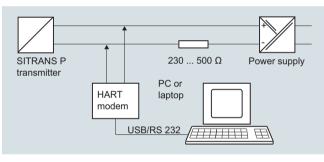
Parameterization using HART

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



Communication between a HART Communicator and a pressure transmitter

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



HART communication between a PC communicator and a pressure transmitter

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

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

Adjustable parameters, DS III with HART

Parameters	Input keys (DS III HART)	HART communication
Lower range value	х	Х
Upper range value	х	х
Electrical damping	х	х
Lower range value without applica- tion of a pressure ("Blind setting")	х	Х
Upper range value without applica- tion of a pressure ("Blind setting")	х	х
Zero adjustment	х	х
Current transmitter	х	х
Fault current	х	х
Disabling of buttons, write protec- tion	х	x ¹⁾
Type of dimension and actual dimension	х	Х
Characteristic (linear / square- rooted)	x ²⁾	x ²⁾
Input of characteristic		х
Freely-programmable LCD		х
Diagnostic functions		х
1) Cancel apart from write protection		

²⁾ Only differential pressure

Diagnostic functions for DS III with HART

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

Available physical units of display for DS III with HART

Table style: Te	chnical s	pecifications	2
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Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	Pa, MPa, kPa, bar, mbar, torr, atm, psi, g/cm ² , kg/cm ² , inH ₂ O, inH ₂ O (4 °C), mmH ₂ O, ftH ₂ O (20 °C), inHg, mmHg
Level (height data)	m, cm, mm, ft, in
Volume	m ³ , dm ³ , hl, yd ³ , ft ³ , in ³ , US gallon, Imp. gallon, bushel, barrel, barrel liquid
Mass	g, kg, t, lb, Ston, Lton, oz
volume flow	m³/d, m³/h, m³/s, l/min, l/s, ft³/d, ft³/min, ft³/s, US gallon/min, US gallon/s
Mass flow	t/d, t/h, t/min, kg/d, kg/h, kg/min, kg/s, g/d, g/h, g/min, g/s, lb/d, lb/h, lb/min, lb/s, LTon/d, LTon/h, STon/d, STon/h, STon/min
Temperature	K, °C, °F, °R
Miscellaneous	%, mA

Parameterization through PROFIBUS PA interface

Fully digital communication through PROFIBUS PA, profile 3.0, is particularly user-friendly. Through the PROFIBUS the DS III with PROFIBUS PA is connected to a process control system, e. g. SIMATIC PSC 7. Communication is possible even in a potentially explosive environment.

For parameterization through PROFIBUS you need suitable software, e.g. SIMATIC PDM (Process Device Manager).

Parameterization through FOUNDATION Fieldbus interface

Fully digital communication through FOUNDATION Fieldbus is particularly user-friendly. Through the FOUNDATION Fieldbus the DS III with FOUNDATION Fieldbus is connected to a process control system. Communication is possible even in a potentially explosive environment.

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

Adjustable parameters for DS III with PROFIBUS PA and FOUNDATION Fieldbus

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

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Diagnostic functions for DS III with PROFIBUS PA and FOUNDATION Fieldbus

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

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

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Technical specifications

recifical specifications				
SITRANS P, DS III series for gauge pressure				
Input				
Measured variable	Gauge pressure			
Measuring span (fully adjustable) or nominal measuring range, max. operating pressure (in accordance with 2014/68/EU Pressure Equipment Directive) and max. test pressure (pursu-		PROFIBUS PA/ FOUNDATION Fieldbus		
ant to DIN 16086) (for oxygen measurement, max. 100 bar/10 MPa/1450 psi and	Measuring span	Nominal measuring range	Max. operating pres- sure MAWP (PS)	Max. perm. test pressure
60 °C (140 °F) ambient temperature/temperature of medium)	8.3 250 mbar 0.83 25 kPa 0.12 3.6 psi	250 mbar 25 kPa 3.6 psi	4 bar 400 kPa 58 psi	6 bar 600 kPa 87 psi
	0.01 1 bar 1 100 kPa 0.15 14.5 psi	1 bar 100 kPa 14.5 psi	4 bar 400 kPa 58 psi	6 bar 600 kPa 87 psi
	0.04 4 bar 4 400 kPa 0.58 58 psi	4 bar 400 kPa 58 psi	7 bar 0.7 MPa 102 psi	10 bar 1 MPa 145 psi
	0.16 16 bar 16 1600 kPa 2.3 232 psi	16 bar 1600 kPa 232 psi	21 bar 2.1 MPa 305 psi	32 bar 3.2 MPa 464 psi
	0.63 63 bar 63 6300 kPa 9.1 914 psi	63 bar 6300 kPa 914 psi	67 bar 6.7 MPa 972 psi	100 bar 10 MPa 1450 psi
	1.6 160 bar 0.16 16 MPa 23 2321 psi	160 bar 16 MPa 2321 psi	167 bar 16.7 MPa 2422 psi	250 bar 25 MPa 3626 psi
	4 400 bar 0.4 40 MPa 58 5802 psi	400 bar 40 MPa 5802 psi	400 bar 40 MPa 5802 psi	600 bar 60 MPa 8702 psi
	7 700 bar 0.7 70 MPa 102 10153 psi	700 bar 70 MPa 10153 psi	800 bar 80 MPa 11603 psi	800 bar 80 MPa 11603 psi
Lower measuring limit (for 250mbar/25 kPa/3.6 psi measuring cells, the lower mea- suring limit is 750 mbar a/75 kPa a/10.8 psi a. The measuring cell is vacuum-resistant upt to 30 mbar a/3 kPa a/0.44 psi a.)		'	'	'
 Measuring cell with silicone oil filling 	30 mbar a/3 kPa a/0).44 psi a		
 Measuring cell with inert filling liquid 	30 mbar a/3 kPa a/0).44 psi a		
Upper measuring limit		uring span (max. 100 perature/temperature o		
Output	HART		PROFIBUS PA/FOL	INDATION Fieldbus
Output signal	4 20 mA		Digital PROFIBUS P. Fieldbus signal	A and FOUNDATION
 Lower limit (infinitely adjustable) 	3.55 mA, factory pre	eset to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory pres optionally set to 22.0		-	
Load				
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0$ $U_{\rm H}$: Power supply in	.023 A in Ω, i V	-	
• With HART	$R_{\rm B} = 230 \dots 500 \ \Omega \ ({\rm S} R_{\rm B} = 230 \dots 1100 \ \Omega \)$	SIMATIC PDM) bzw. (HART-Communicator)	-	
Physical bus	-		IEC 61158-2	
Protection against polarity reversal		hort-circuit and polarit jainst the other with m		
	A			

Set to 2 s (0 ... 100 s)

Electrical damping (step width 0.1 s)

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for gauge pressure

SITRANS P, DS III series for gauge pressure		
Measuring accuracy	Acc. to IEC 60770-	1
Reference conditions	 Increasing characteristic Lower range value 0 bar/kPa/psi Stainless steel seal diaphragm Silicone oil filling Room temperature 25 °C (77 °F) 	
Measuring span ratio r (spread, Turn-Down)	r = max. measuring	g span/set measuring span or nominal measuring range
Error in measurement at limit setting incl. hysteresis and reproducibility		
Linear characteristic		
- 250 mbar/25 kPa/3.6 psi	r ≤ 1.25 : 1.25 < r ≤ 30 :	≤ 0.065 % ≤ (0.008 · r + 0.055) %
- 1 bar/100 kPa/14.5 psi 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi 160 bar/16 MPa/2321 psi	r≤5: 5 <r≤100:< td=""><td>≤ 0.065 % ≤ (0.004 · r + 0.045) %</td></r≤100:<>	≤ 0.065 % ≤ (0.004 · r + 0.045) %
- 400 bar/40 MPa/5802 psi 700 bar/70 MPa/10152 psi	r ≤ 3 : 3 < r ≤ 10 : 10 < r ≤ 100 :	≤ 0.075 % ≤ (0.0029 · r + 0.071) % ≤ (0.005 · r + 0.05) %
Influence of ambient temperature (in percent per 28 °C (50 °F))		
• 250 mbar/25 kPa/3.6 psi	\leq (0.16 \cdot r + 0.1) %	
• 1 bar/100 kPa/14.5 psi	$\leq (0.05 \cdot r + 0.1) \%$	
 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi 160 bar/16 MPa/2321 psi 400 bar/40 MPa/5802 psi 	≤ (0.025 · r + 0.125) %
• 700 bar/70 MPa/10152 psi	\leq (0.08 · r + 0.16) %	6
Long-term stability (temperature change \pm 30 °C (\pm 54 °F))		
• 250 mbar/25 kPa/3.6 psi	≤ (0.25 · r) % per ye	ear
 1 bar/100 kPa/14.5 psi 4 bar/400 kPa/58 psi 	≤ (0.25 · r) % in 5 y	ears
 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi 160 bar/16 MPa/2321 psi 400 bar/40 MPa/5802 psi 	\leq (0.125 · r) % in 5	years
• 700 bar/70 MPa/10152 psi	\leq (0.25 \cdot r) % in 5 y	ears
Effect of mounting position		kPa/0.000725 psi per 10° inclination on is possible with position error compensation)
Effect of auxiliary power supply (in percent per change in voltage)	0.005 % per 1 V	
Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus	3 · 10 ⁻⁵ of nominal r	measuring range

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for gauge pressure

SITRANS P, DS III series for gauge pressure	
Operating conditions	
Degree of protection	
according to EN 60529	IP66 (optional IP66/IP68)
according to NEMA 250	Type 4X
Temperature of medium	
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)
Measuring cell with inert filling liquid	· · · · · ·
- 1 bar/100 kPa/14.5 psi 4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi	-40 +85 °C (-40 +185 °F)
- 160 bar/16 MPa/2321 psi 400 bar/40 MPa/5802 psi 700 bar/70 MPa/10152 psi	-20 +100 °C (-4 +212 °F)
 Measuring cell with Neobee fill fluid (FDA-compliant) 	-10 +100 °C (+14 +212 °F)
 In conjunction with dust explosion protection 	-20 +60 °C (-4 +140 °F)
Ambient conditions	
 Ambient temperature (silicone oil and inert oil) 	
- Transmitter	-40 +85 °C (-40 +185 °F)
- Display readable	-30 +85 °C (-22 +185 °F)
Ambient temperature (Neobee fill fluid)	
- Transmitter	-10 +85 °C (+14 +185 °F)
Storage temperature	-50 +85 °C (-58 +185 °F)
Climatic class	
- Condensation	Relative humidity 0 100 %/Condensation permissible, suitable for use in the tropics
Electromagnetic Compatibility	
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21
Design	
Weight (without options)	Die-cast aluminum: \approx 2.0 kg (\approx 4.4 lb) Stainless steel precision casting: \approx 4.6 kg (\approx 10.1 lb)
Enclosure material	Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408
Wetted parts materials	
Connection shank	Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4602
Oval flange	Stainless steel, mat. no. 1.4404/316L
Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819
Measuring cell filling	Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 $^\circ C$ (140 $^\circ F))$
Process connection	Connection shank G½B to DIN EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi)) to DIN 19213 with mounting thread M10 or $^7/_{16}$ -20 UNF to IEC 61518/DIN EN 61518
Material of mounting bracket	
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plated
• Stainless steel 304	Sheet stainless steel, mat. no. 1.4301 (SS 304)
Stainless steel 316L	Sheet stainless steel, mat. no. 1.4404 (SS 316L)
Power supply $U_{ m H}$	HART PROFIBUS PA/FOUNDATION Fieldbus
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode
Power supply	- Supplied through bus
Separate supply voltage	- Not necessary
Bus voltage	
• Not Ex	- 9 32 V
With intrinsically-safe operation	- 9 24 V
Current consumption	
•	- 12.5 mA
Basic current (max)	12.0 11/4
Basic current (max.) Start-up current < basic current	- Vee
• Start-up current ≤ basic current	- Yes
	- Yes - 15.5 mA - Yes

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for gauge pressure

SITRANS P, DS III series for gauge pressure	HART	PROFIBUS PA/ FOUNDATION Fieldbus	
Certificates and approvals			
Classification according to PED 2014/68/EU		For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)	
Explosion protection			
Intrinsic safety "i"	PTB 13 ATEX 2007 X		
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb		
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatu -40 +70 °C (-40 +158 °F) temperatu -40 +60 °C (-40 +140 °F) temperatu	re class T5;	
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $l_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW; $P_{\rm i}$ = 300 Ω	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 174 \text{ mA}$, $P_0 = 1 \text{ W}$	
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$	
• Explosion-proof "d"	PTB 99 ATEX 1160		
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb		
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatu -40 +60 °C (-40 +140 °F) temperatu		
- 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 Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db		
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)		
- Max. surface temperature	120 °C (248 °F)		
- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}, \ l_i = 100 \text{ mA},$ $P_i = 750 \text{ mW}, \ R_i = 300 \Omega$	FISCO supply unit: $U_0 = 17.5$ V, $I_0 = 380$ mA, $P_0 = 5.32$ W Linear barrier: $U_0 = 24$ V, $I_0 = 250$ mA, $P_0 = 1$ W	
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 \text{ mH}, C_{\rm i} = 6 \text{ nF}$	$L_{\rm i} = 7 \mu {\rm H}, C_{\rm i} = 1.1 {\rm nF}$	
Dust explosion protection for zone 21/22	PTB 01 ATEX 2055		
- Marking	Ex II 2 D Ex tb IIIC T120°C Db		
- Connection	To circuits with values: $U_{\rm H}$ = 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	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc		
- Connection (Ex nA)	$U_{\rm m} = 45 {\rm V}$	<i>U</i> _m = 32 V	
- Connections (Ex ic)	To circuits with values: $U_{\rm i}$ = 45 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	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_i = 7 \mu\text{H}, C_i = 1.1 \text{nF}$	
Explosion protection acc. to FM	Certificate of Compliance 3008490	· · · · · · · · · · · · · · · · · · ·	
- Identification (XP/DIP) or (IS); (NI)		1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC L II, DIV 2, GP FG; CL III	
Explosion protection to CSA	Certificate of Compliance 1153651		

- Identification (XP/DIP) or (IS)

CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III

Pressure transmitters

for gauge pressure

			for gauge pressure
HART communication		FOUNDATION Fieldbus	
HABT	230 1100 Ω	communication	
Protocol	HART Version 5.x	Function blocks	3 function blocks analog input,
Software for computer	SIMATIC PDM		1 function block PID
PROFIBUS PA communication		 Analog input 	
Simultaneous communication with	4	 Adaptation to customer-specif- ic process variables 	Yes, linearly rising or falling characteristic
master class 2 (max.)	Configuration tool or local anaro	- Electrical damping, adjustable	0 100 s
The address can be set using	Configuration tool or local opera- tion (standard setting address 126)	- Simulation function	Output/input (can be locked within the device with a bridge)
Cyclic data usage		- Failure mode	parameterizable (last good value, substitute value, incorrect
Output byte	5 (one measured value) or 10 (two measured values)	Lisait as exite via a	value)
Input byte	0, 1, or 2 (register operating mode and reset function for	- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively
Internal preprocessing	metering)	 Square-rooted characteristic for flow measurement 	Yes
Device profile	PROFIBUS PA Profile for Pro-	• PID	Standard FOUNDATION
	cess Control Devices Version		Fieldbus function block
	3.0, class B	 Physical block 	1 resource block
Function blocks	2	Transducer blocks	1 transducer block Pressure with
 Analog input 			calibration, 1 transducer block
 Adaptation to customer-specif- ic process variables 	Yes, linearly rising or falling characteristic	Pressure transducer block	
- Electrical damping, adjustable	0 100 s	 Can be calibrated by applying two pressures 	Yes
- Simulation function	Input /Output	- Monitoring of sensor limits	Yes
- Failure mode	parameterizable (last good	- Simulation function: Measured	Constant value or over parame-
	value, substitute value, incorrect value)	pressure value, sensor tem-	terizable ramp function
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively	perature and electronics tem- perature	
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 			
 Can be calibrated by applying two pressures 	Yes		
- Monitoring of sensor limits	Yes		
 Specification of a container characteristic with 	Max. 30 nodes		
 Square-rooted characteristic for flow measurement 	Yes		
 Gradual volume suppression and implementation point of square-root extraction 	Parameterizable		
- Simulation function for mea- sured pressure value and sen- sor temperature	Constant value or over parame- terizable ramp function		

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for gauge pressure

Selection and Orderin	g data	Article No.	Selection and Ordering data	Article No.
Pressure transmitter f	•	7MF4033-	Pressure transmitter for gauge pressure,	7MF4033-
SITRANS P DS III with			SITRANS P DS III with HART	
	lo. for the online configu-		Explosion protection	
ration in the PIA Life	Cycle Portal.		• None	Α
Measuring cell filling	Measuring cell clean-		 With ATEX, Type of protection: 	
	ing		- "Intrinsic safety (Ex ia)"	В
Silicone oil	normal	1	- "Explosion-proof (Ex d)" ⁸⁾	D
Inert liquid ¹⁾	grease-free to cleanliness level 2	3	 "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"⁽⁹⁾ 	Р
FDA compliant fill fluid ²			- "Ex nA/ic (Zone 2)" ¹⁰⁾	E
Neobee oil	normal	4	 "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + 	R
Measuring span (min. 8.3 250 mbar	(0.12 3.6 psi)	А	Zone 1D/2D) ^{*9)11)}	
0.01 1 bar	(0.12 3.6 psi) (0.15 14.5 psi)	B	 FM + CSA intrinsic safe (is)¹²⁾ 	F
0.04 4 bar	(0.13 14.5 psi) (0.58 58 psi)	c	• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D ⁹⁾¹¹⁾¹²⁾	S
0.16 16 bar	(2.32 232 psi)			
0.63 63 bar	(9.14 914 psi)	E	With FM + CSA, Type of protection:	
1.6 160 bar	(23.2 2320 psi)	F	 "Intrinsic Safe and Explosion Proof (is + xp)⁽⁸⁾¹²⁾ 	NC
4.0 400 bar	(58.0 5802 psi)	G		-
7.0 700 bar	(102.010153 psi)	J	Electrical connection / cable entry	_
Wetted parts materials			Screwed gland M20 x1 .5	В
•	Process connection		Screwed gland ¹ / ₂ -14 NPT Device plug line 7D (plastic englacyme) incl	C
Seal diaphragm Stainless steel	Stainless steel	A	 Device plug Han 7D (plastic enclosure) incl. mating connector¹³⁾ 	D
Hastellov	Stainless steel	B	 Device plugs M12 (stainless steel)¹³⁾¹⁴⁾ 	F
Hastelloy	Hastelloy	c	Display	-
,	seals in conjunction with	Ŷ1	Without display	0
process connector "fem (recommended versio	ale thread 1/2-14 NPT"		 Without visible display (display concealed, setting: mA) 	1
Version for diaphragms with process connector		Y 0	With visible display (setting: mA)	6
shank"" 3) 4) 5) 6)		_	 with customer-specific display (setting as specified, Order code "Y21" or "Y22" required) 	7
Process connection			Power supply units see Chap. 7 "Supplementary Co	omponents"
 Connection shank G¹/₂ Female thread ¹/₂-14 N 		0		·
Stainless steel oval fla	ange with process con-		A quick-start guide is included in the scope of deliv	ery of the device.
nection (Oval flange h			 For oxygen application, add Order code E10. Available for measuring ranges 1 63 bar. 	
- Mounting thread ⁷ / ₁₀ IEC 61518/DIN EN 6	6-∠U UNF IO 31518	2	³⁾ When also ordering the quality test certificate (factor	ry calibration) accord-
- Mounting thread M1		3	ing to IEC 60770-2 for transmitters with mounted dia	aphragm seals:
- Mounting thread M1		4	Order this certificate only together with the remote s The measuring accuracy of the total combination is	
Male thread M20 x 1.5		5	⁴⁾ If the inspection certificate 3.1.is ordered for the trans	
Male thread 1/2 -14 NF	-	6	diaphragm seals this certificate must also be ordere	
Non-wetted parts mate			 remote seals. ⁵⁾ The diaphragm seal is to be specified with a separa 	to order number or -
Enclosure made of die		0	must be included with the transmitter order number,	for example
Enclosure stainless st		3	7MF403Y and 7MF4900-1B ⁶⁾ The standard measuring cell filling of configurations	
Version			is silicone oil.	
Standard version, Ger		1	 Not in conjunction with Electrical connection "Device Without coble cland with blocking plug 	∋ plug Han 7D".
setting for pressure un			⁸⁾ Without cable gland, with blanking plug ⁹⁾ With enclosed cable gland Ex ia and blanking plug	
 International version, I setting for pressure ur 	English plate inscription,	2	¹⁰ Configurations with device plugs Han and M12 are only available in Ex ic.	
Chinese version, Engli		3	11) 0 1 1 1 10 10 10 10 10 10 10 10 10 10 1	
setting for pressure un		v	¹²⁾ Explosion protection acc. to FM/CSA: suitable for ins	tallations according to
All versions include DV	D with compact operat-		NEC 500/505.	
ing instructions in vario	us EU languages.		 ¹³⁾ Only in connection with Ex approval A, B or E. ¹⁴⁾ M12 delivered without cable socket 	

Pressure transmitters

for gauge pressure

Selection and Ordering data		Article No.	Selection and Ordering data	Article No.
Pressure transmitter for gau	ge pressure		Pressure transmitter for gauge pressure	
SITRANS P DS III with PROFIB	BUS PA (PA)	7 M F 4 0 3 4 -	SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 0 3 4 -
SITRANS P DS III with FOUND	ATION Fieldbus (FF)	7 M F 4 0 3 5 -	SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 0 3 5 -
Click on the Article No. for tration in the PIA Life Cycle			Funda a la manda a la m	
Measuring cell filling Meas	suring cell clean-		 Explosion protection None 	А
Silicone oil norma Inert liquid ¹⁾ greas	se-free to lliness level 2	1 3 4	 With ATEX, Type of protection: "Intrinsic safety (Ex ia)" "Explosion-proof (Ex d)"⁸⁾ "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"⁹⁾ 	B D P
	ai	- 4	- "Ex nA/ic (Zone 2)" ¹⁰⁾	Е
Nominal measuring range250 mbar(3.6 p1 bar(14.54 bar(58 p	psi)	A B C	 "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)^{*9)} 11) FM + CSA intrinsic safe (is)¹²⁾ 	R
16 bar (232) 63 bar (914) 160 bar (2320)	psi)	D E F	• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D ⁹⁾¹¹⁾¹²⁾	s
400 bar (5802		GJ	 With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)^{r8)12)} 	NC
Wetted parts materials Seal diaphragm Proce	ess connection		Electrical connection/cable entry	-
Stainless steel Stainl	less steel less steel elloy a conjunction with ead ½-14 NPT" 5) 6) N 837-1 N 837-1 ith process connec- ale thread) ⁷⁾ NF to N 19213	A B C Y 1 Y 0 1 2 3 4	 Screwed gland M20 x 1.5 Screwed gland ½-14 NPT Device plugs M12 (stainless steel)¹³⁾¹⁴) Display Without display Without visible display (display concealed, setting: bar) With visible display (setting: bar) With visible display (setting: bar) with customer-specific display (setting as specified, Order code "Y21" required) A quick-start guide is included in the scope of delive 10 For oxygen application, add Order code E10. Available for measuring ranges 163 bar. When also ordering the quality test certificate (factor ing to IEC 60770-2 for transmitters with mounted dia Order this certificate only together with the remotes The measuring accuracy of the total combination is If the inspection certificate anust also be ordered for the transmitter and appragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragm seals this certificate must also be ordered for the transmitter and tappragmagments for the transmitter and tappragmagment for the transmitter and t	ry calibration) acco phragm seals: eals. certified here. nsmitter with mount
 Male thread ½ -14 NPT Male thread ½ -14 NPT Non-wetted parts materials Enclosure made of die-cast a Enclosure stainless steel pre Version Standard version, German la setting of pressure unit: bar International version, English setting of pressure unit: psi Chinese version, English labe 	abel inscription, abel inscription,	5 6 3 - 1 2 3	 remote seals. 5) The diaphragm seal is to be specified with a separar must be included with the transmitter order number, 7MF403Y and 7MF4900-1B 6) The standard measuring cell filling of configurations is silicone oil. 7) M10 fastening thread: Max. measuring span 160 bar (2320 psi) 7/16-20 UI thread: Max. measuring span 400 bar (5802 psi) 8) Without cable gland, with blanking plug. 9) With enclosed cable gland Ex ia and blanking plug. 10) Configurations with device plugs Han and M12 are of 11) Only in connection with IP66. 	for example with remote seals NF and M12 fasten
setting of pressure unit: kPa All versions include DVD with instructions in various EU lang	compact operating		 ¹²⁾ Explosion protection acc. to FM/CSA: suitable for ins NEC 500/505. ¹³⁾ M12 delivered without cable socket. ¹⁴⁾ Only in connection with Ex approval A, B, E or F. 	tallations according

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for gauge pressure

5.5.1					
Selection and Ordering data	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	✓	✓	
Stainless steel 304	A02	1	1	1	
Stainless steel 316L	A03	1	1	1	
Device plugs ¹⁾	700			·	
• Han 7D (metal)	A30	~			
		↓			
Han 8D (instead of Han 7D)	A31				
• Angled	A32	1			
• Han 8D (metal)	A33	✓			
Cable sockets for device plugs M12	A50	✓	✓	✓	
(metal (CuZn))					
Rating plate inscription					
(instead of German)					
• English	B11	✓	✓	✓	
• French	B12	1	✓	✓	
• Spanish	B13	1	✓	✓	
• Italian	B14	1	1	✓	
Cyrillic (russian)	B16	1	1	1	
, , ,		1	1		
English rating plate	B21	~	•	•	
Pressure units in inH ₂ 0 and/or psi					
Quality test certificate, 5-point factory	C11	✓	1	✓	
calibration (IEC 60770-2) ²⁾					
Inspection certificate ³⁾	C12	1	✓	✓	
Acc. to EN 10204-3.1					
	014	1	1	1	
Factory certificate	C14	v	v	v	
Acc. to EN 10204-2.2					
Inspection certificate (EN 10204-3.1)	C15	1	✓	✓	
PMI test of parts in contact with medium					
Functional safety (SIL2)	C20	1			
Devices suitable for use according to					
IEC 61508 and IEC 61511. Includes SIL					
conformity declaration					
Functional safety (PROFIsafe)	C21 ⁴⁾		✓		
Certificate and PROFIsafe protocol					
Functional safety (SIL2/3)	C23	✓			
Devices suitable for use according to					
IEC 61508 and IEC 61511. Includes SIL					
conformity declaration					
PED for Russia with initial calibration	C99	1	✓	✓	
mark					
Setting of the upper saturation limit of	D05	1			
the output signal to 22.0 mA					
Manufacturer's declaration acc. to NACE	D07	1	1	~	
(MR 0103-2012 and MR 0175-2009)	201			·	
Degree of protection IP66/IP68	D12	1	1	1	
(only for M20x1.5 and ½-14 NPT)	012	•	•	•	
			,	,	
Supplied with oval flange	D37	~	•	•	
(1 item), PTFE packing and screws in					
thread of oval flange					
Capri cable gland 4F CrNi and clamping	D59	✓	1	✓	
device (848699 + 810634) included					
Use in or on zone 1D/2D ⁵⁾	E01	✓	✓	✓	
(only together with type of protection					
"Intrinsic safety" (transmitter					
7MF4B Ex ia)" and IP66)					
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	1	1	1	
		-	•	•	

Selection and Ordering data	Order			
<i>Further designs</i> Add "- Z " to Article No. and specify Order code.		HART	PA	FF
CRN approval Canada (Canadian Registration Number)	E22 ⁶⁾	1	•	1
Dual seal	E24	✓	✓	~
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25 ⁷⁾	~	✓	*
(only for transmitter 7MF4B)				
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4D)	E26 ⁷⁾	1	~	~
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28 ⁷⁾	~	1	
(only for transmitter 7MF4P)				
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4B)	E45 ⁷⁾	~	1	~
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4D)	E46 ⁷⁾	~	✓	~
Explosion-proof "Intrinsic safety" to NEPSI (China)	E5 ⁷⁾	~	✓	~
(only for transmitter 7MF4B)				
Explosion protection "Explosion-proof" to NEPSI (China)	E56 ⁷⁾	~	~	~
(only for transmitter 7MF4D)	_`			
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57 ⁷⁾	~	~	~
Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)	E58 ⁷⁾	~	1	~
(only for transmitter 7MF4R)				
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter	E70 ⁷⁾	~	~	~
7MF4[B, D]Z + E11)				
Ex-protection Ex ia according to EAC Ex (Russia)	E80	1	~	~
(only for transmitter 7MF4B)				
Ex-protection Ex d according to EAC Ex (Russia) (only for transmitter 7MF4D)	E81	~	•	~
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82	1	~	~
(only for transmitter 7MF4E) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) (only for transmitter 7MF4R)	E83	*	*	*
Two coats of lacquer on enclosure and cover (PU on epoxy)	G10	~	1	~
Transient protector 6 kV (lightning pro- tection)	J01	1	1	~
Process connection Astava	J06	✓	1	1

Pressure transmitters

SITRANS P DS III for gauge pressure

Selection and Ordering data	Order	code		
<i>Further designs</i> Add " -2 " to Article No. and specify Order code.		HART	PA	FF
Marine approvals				
 Det Norske Veritas Germanischer Lloyd (DNV-GL) 	S10	~	~	~
Lloyds Register (LR)	S11	✓	✓	~
 French marine classification society Bureau Veritas (BV) 	S12	1	1	~
 American Bureau of Shipping (ABS) 	S14	✓	✓	✓
Russian Maritime Register (RMR)	S16	✓	✓	~
 Korean Register of Shipping (KR) 	S17	✓	✓	✓

1) Device plug Han IP65

- ²⁾ When also ordering the quality test certificate (factory calibration) according to IEC 60770-2 for transmitters with mounted diaphragm seals: Order this certificate only together with the remote seals. The measuring accuracy of the total combination is certified here.
- ³⁾ If the inspection certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- ⁴⁾ Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H
- ⁵⁾ Option does not contain gas explosion protection; only dust explosion protection: Use in or at Zone 1D/2D.
- 6) Cannot be ordered with remote seal.
- ⁷⁾ When the additional ex option is selected, the ATEX marking on the device is omitted. Only the Ex option selected via the Z option is marked.

Only the stand Ondering state	Quala			
Selection and Ordering data	Order			
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)	
Stainless steel tag plate and entry in device variable (measuring point description) Max. 16 characters, specify in plain text: Y15:	Y15 ²⁾	*	•	•
Measuring point text (entry in device variable) Max. 27 characters, specify in plain text:	Y16	*	*	~
Y16: Entry of HART address (TAG)	Y17	~		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indication in pres- sure units	Y21	1	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H_2O^*), in H_2O^*), ft H_2O^*),				
mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units ³⁾ Specify in plain text: Y22: up to //min, m ³ /h, m, USgpm, (specification of measuring range in pres- sure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01	*		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		•	~
Damping adjustment in seconds (0 100 s)	Y30	~	*	~
Factory mounting of valve manifolds, see acc	essories	6.		

Factory mounting of valve manifolds, see accessories.

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

✓ = available

Ordering example

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

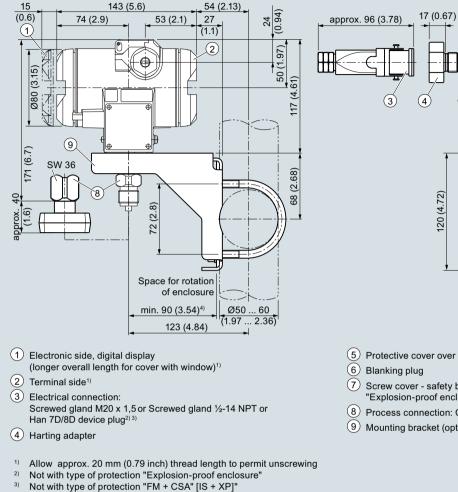
¹⁾ Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.

- 2) If you do not wish to have any text engraved for Y15, then do not make any further text entries as "Y15:".
- ³⁾ Preset values can only be changed over SIMATIC PDM.

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for gauge pressure

Dimensional drawings



4) Minimum distance for rotating

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

- 5 Protective cover over keys
- 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

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176 (6.93)

237 (9.33)

84 (3.31)

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105 (4.13)

(9) Mounting bracket (option)

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for gauge/absolute pressure, with front-flush diaphragm

Technical specifications

SITRANS P DS III series for gauge and absolute pressure	e, with front-flush diaph	ragm		
Input of gauge pressure, with front-flush diaphragm				
Measured variable	Gauge pressure, front-	flush		
Measuring span (continuously adjustable) or nominal mea- suring range, max. operating pressure and max. test pres- sure	HART	PROFIBUS PA/ FOUNDATION Fieldbus		
	Measuring span	Nominal measur- ing range	Max. operating pressure MAWP (PS)	Max. perm. test pressure
	0.01 1 bar 1 100 kPa 0.15 14.5 psi	1 bar 100 kPa 14.5 psi	4 bar 400 kPa 58 psi	6 bar 600 kPa 87 psi)
	0.04 4 bar 4 400 kPa 0.58 58 psi	4 bar 400 kPa 58 psi	7 bar 0.7 MPa 102 psi	10 bar 1 MPa 145 psi
	0.16 16 bar 16 1600 kPa 2.3 232 psi	16 bar 1600 kPa 232 psi	21 bar 2.1 MPa 305 psi	32 bar 3.2 MPa 464 psi
	0.63 63 bar 63 6300 kPa 9.1 914 psi	63 bar 6300 kPa 914 psi	67 bar 6.7MPa 972 psi	100 bar 10 MPa 1450 psi
Lower measuring limit				
 Measuring cell with silicone oil filling 	100 mbar a/10 kPa a/1	.45 psi a		
 Measuring cell with inert filling liquid 	100 mbar a/10 kPa a/1	.45 psi a		
Measuring cell with Neobee	100 mbar a/10 kPa a/1	.45 psi a		
Upper measuring limit	100 % of max. measur	ing span		
Input of absolute pressure, with front-flush diaphragm				
Measured variable	Absolute pressure, from	nt-flush		
Measuring span (continuously adjustable) or nominal mea- suring range, max. operating pressure and max. test pres- sure	HART	PROFIBUS PA/ FOUNDATION Fieldbus		
	Measuring span	Nominal measur- ing range	Max. operating pressure MAWP (PS)	Max. perm. test pressure
	43.34 1300 mbar a 4.33 130 kPa a 17 525 inH ₂ O a	1300 mbar a 130 kPa a 525 inH ₂ O a	2.6 bar a 260 kPa a 37.7 psi a	10 bar a 1 MPa a 145 psi a
	160 5000 mbar a 16 500 kPa a 2.32 72.5 psi a	5000 mbar a 500 kPa a 72.5 psi a	10 bar a 1 MPa a 145 psi a	30 bar a 3 MPa a 435 psi a
	1 30 bar a 0.1 3 MPa a 14.6 435 psi a	30 bar a 3 MPa a 435 psi a	45 bar a 4.5 MPa a 653 psi a	100 bar a 10 MPa a 1450 psi a
	Depending on the proc	ess connection, the m	neasuring span may	differ from these values
Lower measuring limit	0 mbar a/0 kPa a/0 ps	а		
Upper measuring limit	100 % of max. measur	ing span		
Output	HART		PROFIBUS PA/FO	
Output signal	4 20 mA		Digital PROFIBUS TION Fieldbus sig	PA and FOUNDA- Inal
Lower limit (infinitely adjustable)	3.55 mA, factory prese		-	
Upper limit (infinitely adjustable)	23 mA, factory preset ally set to 22.0 mA	to 20.5 mA or option-		
Load		2 A in C		
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 Ω,	-	
With HART	$R_{\rm B} = 230 \dots 500 \ \Omega \ ({\rm SII}) R_{\rm B} = 230 \dots 1100 \ \Omega \ ({\rm H})$	IATIC PDM) or ART Communicator)	-	
Physical bus	-		IEC 61158-2	
Protection against polarity reversal	Protected against shore other with max. supply		reversal. Each con	nection against the
Electrical damping (step width 0.1 s)	Set to 2 s (0 100 s)			

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for gauge/absolute pressure, with front-flush diaphragm

SITRANS P DS III series for gauge and absolute pressure,	with front-flush diaphragm	
Measuring accuracy	Acc. to IEC 60770-1	
Reference conditions (All error data refer always refer to the set span)	 Increasing characteristic Lower range value 0 bar/kPa/psi Stainless steel seal diaphragm Silicone oil filling Room temperature 25 °C (77 °F) 	
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring sp	oan or nominal measuring range
Error in measurement at limit setting incl. hysteresis and reproducibility		
Linear characteristic	Gauge pressure, front-flush	Absolute pressure, front-flush
- r ≤ 5	≤ 0.075 %	-
- 5 < r ≤ 100	≤ (0.005 · r + 0.05) %	-
- r ≤ 10	-	≤ 0.2 %
- 10 < r ≤ 30	-	≤ 0.4 %
Influence of ambient temperature (in percent per 28 °C (50 °F)) Effect of ambient temperature	$\leq (0.08 \cdot r + 0.16) \%$	≤ (0.16 · r + 0.24) %
(in pressure per temperature change)		
temperature and ambient temperature	3 mbar/0.3 kPa/0.04 psi per 10 K	
	≤ (0.25 · r) % in 5 years	
	0.4 mbar/0.04 kPa/0.006 per 10° inclination (zero point correction is possible with positi	
Effect of auxiliary power supply (in percent per change in voltage)	0.005 % per 1 V	
Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus	3 · 10 ⁻⁵ of nominal measuring range	
Operating conditions		
Installation conditions		
Ambient temperature	Observe the temperature class in areas sub	pject to explosion hazard.
Measuring cell with silicone oil	-40 +85 °C (-40 +185 °F)	
Measuring cell with Neobee oil (with front-flush diaphragm)	-10 +85 °C (14 +185 °F)	
 Measuring cell with inert liquid 	-40 +85 °C (-40 +185 °F)	
Transmitter	-40 +85 °C (-40 +185 °F)	
Display readable	-30 +85 °C (-22 +185 °F)	
Storage temperature	-50 +85 °C (-58 +185 °F) (in the case of Neobee: -20 +85 °C (-4 (for high temperature oil: -10 + 85 °C (14	
Climatic class		
Condensation	Relative humidity 0 100 % Condensation permissible, suitable for use	in the tropics
Degree of protection		
according to EN 60529	IP66 (optional IP66/IP68)	
according to NEMA 250	Type 4X	
Electromagnetic Compatibility		
Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21	
Medium conditions	The max. medium temperature of the front- into account in accordance with the relevan DIN 11851 etc.).	
Temperature of medium		
Measuring cell with silicone oil	-40 +100 °C (-40 +212 °F)	
U	-40 +150 °C (-40 +302 °F)	
Measuring cell with Neobee oil (with front-flush diaphragm)	-10 +150 °C (14 302 °F)	
Measuring cell with silicone oil, with temperature decoupler (only for gauge pressure version with front-flush diaphragm)	-40 +200 °C (-40 +392 °F)	
	-10 +200 °C (14 392 °F)	
	-20 +100 °C (-4 +212 °F)	
	-10 +250 °C (14 482 °F)	

Pressure transmitters

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

SITRANS P DS III series for gauge and absolute pres	ssure, with front-flush diaphragm					
Design						
Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)	≈ 1.5 kg (≈ 3.3 lb)				
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 no. 1.4408	Low-copper die-cast aluminum, GD-AISi12 or stainless steel precision casting, mat. no. 1.4408				
Wetted parts materials	Stainless steel, mat. no. 1.4404/316L or Ha	astelloy C276, mat. no. 2.4819				
Measuring cell filling	Silicone oil or inert filling liquid					
Process connection	 Flanges as per EN and ASME 					
	 F&B and pharmaceutical flanges 					
Surface quality touched-by-media	$R_a\text{-values} \le 0.8~\mu\text{m}$ (32 $\mu\text{-inch})/\text{welds}~R_a) \le$ (Process connections acc. to 3A; $R_a\text{-value}$ (32 $\mu\text{-inch})$	R_a -values \leq 0.8 μm (32 μ -inch)/welds $R_a) \leq$ 1.6 μm (64 μ -inch) (Process connections acc. to 3A; R_a -values \leq 0.8 μm (32 μ -inch)/welds $R_a) \leq$ 0.8 μm (32 μ -inch)				
Power supply U_{H}	HART	PROFIBUS PA/FOUNDATION Fieldbus				
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-				
Power supply	-	Supplied through bus				
Separate supply voltage	-	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				

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for gauge/absolute pressure, with front-flush diaphragm SITRANS P DS III series for gauge and absolute pressure, with front-flush diaphragm Certificates and approvals Classification according to PED 2014/68/EU For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice) Explosion protection PTB 13 ATEX 2007 X · Intrinsic safety "i" Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb - Marking -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 - Permissible ambient temperature - Connection To certified intrinsically-safe circuits with FISCO supply unit: peak values: $U_{\rm o} = 17.5$ V, $\dot{l}_{\rm o} = 380$ mA, $P_{\rm o} = 5.32$ 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: $U_{\rm o} = 24$ V, $I_{\rm o} = 250$ mA, $P_{\rm o} = 1.2$ W - Effective internal inductance/capacitance $L_{\rm i} = 0.4 \, \rm mH, \, C_{\rm i} = 6 \, \rm nF$ $L_{i} = 7 \mu H, C_{i} = 1.1 nF$ PTB 99 ATEX 1160 Explosion-proof "d" Ex II 1/2 G Ex d IIC T4/T6 Gb - Marking -40 \dots +85 °C (-40 \dots +185 °F) temperature class T4; -40 \dots +60 °C (-40 \dots +140 °F) temperature class T6 - Permissible ambient temperature To circuits with values: $U_{\rm H}$ = 9 ... 32 V - Connection To circuits with values: $U_{\rm H} = 10.5 \dots 45 \,\rm V$ DC DC Dust explosion protection for zone 20 PTB 01 ATEX 2055 Ex II 1 D Ex ta IIIC T120°C Da - Marking Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db -40 ... +85 °C (-40 ... +185 °F) - Permissible ambient temperature - Max. surface temperature 120 °C (248 °F) - Connection To certified intrinsically-safe circuits with FISCO supply unit: $U_0 = 17.5$ V, $I_0 = 380$ mA, $P_0 = 5.32$ W peak values: $U_{\rm i} = 30$ V, $I_{\rm i} = 100$ mA Linear barrier: $P_{\rm i} = 750 \text{ mW}, R_{\rm i} = 300 \Omega$ $U_{\rm o}$ = 24 V, $I_{\rm o}$ = 250 mA, $P_{\rm o}$ = 1 W - Effective internal inductance/capacitance $L_{\rm i} = 0.4 \text{ mH}, C_{\rm i} = 6 \text{ nF}$ $L_{i} = 7 \mu H, C_{i} = 1.1 nF$ Ex II 2 D Ex tb IIIC T120°C Db Dust explosion protection for zone 21/22 - Marking Ex II 2 D IP65 T 120 °C To circuits with values: $U_{\rm H}$ = 10.5 ... 45 V To circuits with values: $U_{\rm H} = 9 \dots 32 \,\rm V$ - Connection DC; DC; $P_{max} = 1.2 \text{ W}$ $P_{\text{max}} = 1 \text{ W}$ Type of protection "n" (zone 2) PTB 13 ATEX 2007 X - Marking Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc - Connection (Ex nA) $U_{\rm m} = 45 \, {\rm V}$ $U_{\rm m} = 32 \, {\rm V}$ - Connections (Ex ic) To circuits with values: FISCO supply unit ic: $U_{\rm i} = 45 \, {\rm V}$ $U_{\rm o} = 17.5$ V, $I_{\rm o} = 570$ mA Linear barrier: $U_{\rm O}$ = 32 V, $I_{\rm O}$ = 132 mA, $P_{\rm O}$ = 1 W $L_{\rm i} = 0.4 \text{ mH}, C_{\rm i} = 6 \text{ nF}$ - Effective internal inductance/capacitance $L_{i} = 7 \mu H, C_{i} = 1.1 nF$ Explosion protection acc. to FM Certificate of Compliance 3008490 - Identification (XP/DIP) or (IS); (NI) CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III Explosion protection to CSA Certificate of Compliance 1153651 - Identification (XP/DIP) or (IS) CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV

Hygiene version

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

2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III

Pressure transmitters

1

		for gauge/absolute pressure	, with front-flush diaphragm
HART communication		FOUNDATION Fieldbus communication	
HART	230 1100 Ω		O function blocks and an input
Protocol	HART Version 5.x	Function blocks	3 function blocks analog input, 1 function block PID
Software for computer	SIMATIC PDM	 Analog input 	
PROFIBUS PA communication Simultaneous communication with	4	 Adaptation to customer-specif- ic process variables 	Yes, linearly rising or falling characteristic
master class 2 (max.)		- Electrical damping, adjustable	0 100 s
The address can be set using	Configuration tool or local operation (standard setting address 126)	- Simulation function	Output/input (can be locked within the device with a bridge)
Cyclic data usage		- Failure mode	parameterizable (last good value, substitute value, incorrect
Output byte	5 (one measured value) or 10 (two measured values)	- Limit monitoring	value) Yes, one upper and lower warn-
Input byte	0, 1, or 2 (register operating mode and reset function for metering)	, , , , , , , , , , , , , , , , , , ,	ing limit and one alarm limit respectively
Internal preprocessing		 Square-rooted characteristic for flow measurement 	Yes
Device profile	PROFIBUS PA Profile for Pro- cess Control Devices Version	• PID	Standard FOUNDATION Fieldbus function block
	3.0, class B	Physical block	1 resource block
Function blocks	2	Transducer blocks	1 transducer block Pressure with
 Analog input 			calibration, 1 transducer block LCD
 Adaptation to customer-specif- ic process variables 	Yes, linearly rising or falling characteristic	Pressure transducer block	200
- Electrical damping, adjustable	0 100 s	- Can be calibrated by applying	Yes
- Simulation function	Input /Output	two pressures - Monitoring of sensor limits	Yes
- Failure mode	parameterizable (last good value, substitute value, incorrect value)	 Simulation function: Measured pressure value, sensor tem- 	Constant value or over parame- terizable ramp function
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively	perature and electronics tem- perature	
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 			
 Can be calibrated by applying two pressures 	Yes		
- Monitoring of sensor limits	Yes		
 Specification of a container characteristic with 	Max. 30 nodes		
 Square-rooted characteristic for flow measurement 	Yes		
 Gradual volume suppression and implementation point of square-root extraction 	Parameterizable		
 Simulation function for mea- sured pressure value and sen- sor temperature 	Constant value or over parame- terizable ramp function		

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Pressure transmitters

for applications with advanced requirements (Advanced) SITRANS P DS III

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		<i>(</i>) 1 10			
for gauge/absolute	pressure, with front-	flush dia	phragm		
Selection and Ordering	data	Article N	0.	Selection and Ordering data	Article No.
Pressure transmitter for gauge and absolute pressure, front-flush diaphragm, SITRANS P DS III HART		sure, front-flush diaphragm,		Pressure transmitter for gauge and absolute pressure, front-flush diaphragm, SITRANS P DS III HART	7 M F 4 1 3 3 -
Click on the Article No ration in the PIA Life C				Display • Without display	
Silicone oil Inert liquid	Measuring cell cleaning normal	1 3		 Without visible display (display concealed, setting: mA) With visible display (setting: mA) 	
	normal	4		 With customer-specific display (setting as specified, Order code "Y21" or "Y22" required) 	
Measuring span (min				. ,	
0.04 4 bar 0.16 16 bar	(0.15 14.5 psi) (0.58 58 psi) (2.32 232 psi) (9.14 914 psi)	B C D E		Power supply units see Chap. 7 "Supplementary C A quick-start guide is included in the scope of deli ¹⁾ Not with temperature decoupler P00, not for process	very of the device s connections R02
	(0.63 18.86 psi a) ¹⁾ (2.43 72.5 psi a) ¹⁾ (4.35 435 psi a) ¹⁾	S T U		 R04, R10 and R11, and can only be ordered in conji Only available for flanges with options M, N and Without cable gland, with blanking plug Configurations with device plugs Han and M12 are Explosion protection acc. to FM/CSA: suitable for inst 	Q only available in E
Wetted parts materials Seal diaphragm	Connection shank			 Application protection acc. to FM/CSA: suitable for ins NEC 500/505. Only in connection with IP66. 	stallations accordin
	Stainless steel Stainless steel	AB		 With enclosed cable gland Ex ia and blanking plug Only in connection with Ex approval A, B or E. Only in connection with Ex approval A, B, E or F. 	
 Enclosure made of die- Enclosure stainless stere Version Standard version, Gerrisetting for pressure uni International version, Essetting for pressure uni Chinese version, Englisisetting for pressure unit: All versions include DVD instructions in various EU 	el precision casting nan plate inscription, t: bar nglish plate inscription, t: bar h plate inscription, Pascal with compact operating	3	1 2 3		
 Explosion protection None With ATEX, Type of pro "Intrinsic safety (Ex ia "Explosion-proof (Ex of a structure)" FM + CSA intrinsic safet FM + CSA (is + ep) + E Zone 1D/2D⁵)⁶)⁷ With FM + CSA, Type of a structure safe and Explosion)" d)" ³⁾ e (is) ⁵⁾ Ex ia + Ex d (ATEX) +		A B D F S N C		
 Electrical connection/c Inner thread M20 x 1.5 Female thread ½-14 Ni Device plug Han 7D (p mating connector⁸⁾ Device plugs M12 (stail 	PT lastic enclosure) incl.		B C D		

Pressure transmitters

				for gauge/absolute pressure, with front-fl	ush diaphrag
Selection and Orderin	g data	Article N	0.	Selection and Ordering data	Article No.
Pressure transmitter F pressure, front-flush c	P for gauge and absolute diaphragm:			Pressure transmitter P for gauge and absolute pressure, front-flush diaphragm:	
SITRANS P DS III with P	PROFIBUS PA (PA)	7 M F 4 1	34 -	SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 1 3 4 -
SITRANS P DS III with F	OUNDATION Fieldbus (FF)	7 M F 4 1	35-	SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 1 3 5 -
↗ Click on the Article N ration in the PIA Life	No. for the online configu- Cycle Portal.			Display	
Measuring cell filling Silicone oil Inert liquid FDA compliant fill fluid • Neobee oil	Measuring cell clean- ing normal normal	1 3 4		 Vithout display Without visible display (display concealed, setting: bar) With visible display (setting: bar) With customer-specific display (setting as specified, Order code "Y21" required) 	
Nominal measuring ra	•			A quick-start guide is included in the scope of deliver	ry of the device.
1 bar 4 bar 16 bar 63 bar 1300 mbar a ¹⁾ 5 bar a ¹⁾ 30 bar a ¹⁾	(14.5 psi) (58 psi) (232 psi) (914 psi) (18.86 psi a) ¹⁾ (72.5 psi a) ¹⁾ (435 psi a) ¹⁾	B C D E S T U		 Not with temperature decoupler P00, not for process of R02, R04, R10 and R11, and can only be ordered in c cone oil. Only available for flanges with options M, N and Q. Without cable gland, with blanking plug Configurations with device plugs Han and M12 are on Explosion protection acc. to FM/CSA: suitable for insta 	onjunction with s
Wetted parts materials				NEC 500/505. ⁶⁾ Only in connection with IP66.	
Seal diaphragm	Connection shank			⁷⁾ With enclosed cable gland Ex ia and blanking plug.	
Stainless steel Hastellov ²⁾	Stainless steel Stainless steel	AB		 Only in connection with Ex approval A, B, E or F. M12 delivered without cable socket 	
Q Non-wetted parts mate • Enclosure made of die • Enclosure stainless st	e-cast aluminium	- 0			
Version • Standard version, Ger setting for pressure ur • International version, setting for pressure ur • Chinese version, Engli setting for pressure un	rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal D with compact operating	-	1 2 3		
Explosion protection					
 None With ATEX, Type of pr - "Intrinsic safety (Ex i - "Explosion-proof (Ex - "Ex nA/ic (Zone 2)"⁴ FM + CSA intrinsic sa FM + CSA (is + ep) + Zone 1D/2D⁵⁾⁶⁾⁷⁷ With FM + CSA, Type - "Intrinsic Safe and Ex (available soon) 	ia)" (d) ^{*3)} fe (is) ⁵⁾ Ex ia + Ex d (ATEX) + of protection: xplosion Proof (is + xp) ^{*3)5)}		A B D F S N C		
 Electrical connection// Screwed gland M20 × Screwed gland ½-14 Device plugs M12 (statement) 	: 1.5 NPT		B C F		

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for gauge/absolute pressure, with front-flush diaphragm

Selection and Ordering data	Order				Selection and Ordering data	Order			
<i>urther designs</i> dd " -Z" to Article No. and specify Order code.		HART	PA	FF	<i>Further designs</i> Add "- Z " to Article No. and specify Order code.		HART	PA	
evice plugs ¹⁾					Explosion-proof "Intrinsic safety" to NEPSI	E55 ⁴⁾	✓	✓	-
lan 7D (metal)	A30	✓			(China)				
an 8D (instead of Han 7D)	A31	√.			(only for transmitter 7MF4B)				
Angled	A32	1			Explosion protection "Explosion-proof" to	E56 ⁴⁾	✓	~	
lan 8D (metal)	A33	√			NEPSI (China) (only for transmitter 7MF4D)				
ble sockets for device plugs M12 etal (CuZn))	A50	~	~	~	Ex protection "Zone 2" to NEPSI (China)	E57 ⁴⁾	1	~	
ating plate inscription (instead of German)					(only for transmitter 7MF4E)				
English	B11	✓	✓	✓	Ex protection "Ex ia", "Ex d" and "Zone 2"	E58 ⁴⁾	✓	1	
French	B12	√	✓.	✓	to NEPSI (China)				
Spanish	B13	1	1	1	(only for transmitter 7MF4R)				
talian Cyrillic (russian)	B14 B16	4	√ √	√ √	"Intrinsic safety" and "Explosion-proof"	E70 ⁴⁾	~	~	
					explosion protection acc. to Kosha (Korea) (only for transmitter				
n glish rating plate essure units in inH ₂ 0 and/or psi	B21	~	~	~	7MF4[B, D]Z + E11)				
ality test certificate, 5-point	C11	1	✓	✓	Ex-protection Ex ia according to EAC Ex	E80	✓	✓	
ory calibration (IEC 60770-2)					(Russia)			,	
pection certificate	C12	1	✓	1	Ex-protection Ex d according to EAC Ex (Russia)	E81	~	~	
c. to EN 10204-3.1					Ex-protection Ex nA/ic (Zone 2) according to	F82	1	1	
actory certificate	C14	✓	~	1	EAC Ex (Russia)	202			
cc. to EN 10204-2.2					Ex-protection Ex ia + Ex d + Zone 1D/2D	E83	1	1	
unctional safety (SIL2)	C20	~			according to EAC Ex (Russia)				
vices suitable for use according to C 61508 and IEC 61511. Includes SIL con- mity declaration					Two coats of lacquer on enclosure and cover (PU on epoxy)	G10	1	1	
ictional safety (PROFIsafe)	C21 ²⁾		~		Transient protector 6 kV (lightning protec-	J01	✓	✓	-
tificate and PROFIsafe protocol					tion)				
nctional safety (SIL2/3)	C23	✓			Flanges to EN 1092-1, Form B1				
vices suitable for use according to 61508 and IEC 61511. Includes SIL con-					• DN 25, PN 40 ⁵⁾	M11	1	1	
mity declaration					• DN 40, PN 40	M13	1	1	
D for Russia with initial calibration mark	C99	1	~	1	• DN 40, PN 100	M23 M04	√ √	√ √	
tting of the upper saturation limit of the	D05	✓			• DN 50, PN 16 • DN 50, PN 40	M04 M14	¥	¥	
tput signal to 22.0 mA	D05	•			• DN 80, PN 16	M06	¥	1	
egree of protection IP66/IP68	D12	1	✓	1	• DN 80, PN 40	M16	1	1	
nly for M20x1.5 and ½-14 NPT)					Flanges to ASME B16.5				
apri cable gland 4F CrNi and clamping	D59	~	✓	1	Stainless steel flange 1" class 150 ⁵⁾	M40	1	1	
vice (848699 + 810634) included					• Stainless steel flange 11/2" class 150	M41	✓	~	
xygen application	E10	✓	✓	✓	Stainless steel flange 2" class 150	M42	✓	✓	
the case of oxygen measurement and inert					 Stainless steel flange 3" class 150 	M43	1	1	
uid max. 100 bar (1450 psi) at 60°C (140 °F))					Stainless steel flange 4" class 150	M44	1	1	
xport approval Korea	E11	✓	✓	✓	Stainless steel flange 1½" class 300 Steinless steel flange 2" class 200	M46	4	1	
RN approval Canada	E22 ³⁾	1	~	1	 Stainless steel flange 2" class 300 Stainless steel flange 3" class 300 	M47 M48	√ √	√ √	
Canadian Registration Number)					Stainless steel flange 4" class 300	M48 M49	~	↓	
ual seal	E24	1	✓	~	Threaded connector to DIN 3852-2,			·	-
plosion-proof "Intrinsic safety" (Ex ia) to	E25 ⁴⁾	✓	1	1	form A, thread to ISO 228				
METRO (Brazil)					• G ³ /4"-A, front-flush ⁶⁾	R01	✓	~	
nly for transmitter 7MF4B)					• G 1"-A, front-flush ⁶⁾	R02	1	1	
lameproof" explosion protection accord- g to INMETRO (Brazil)	E26 ⁴⁾	~	~	1	• G 2"-A, front-flush	R04	~	~	
hly for transmitter 7MF4D)					Tank connection ⁷⁾				
xplosion-proof "Intrinsic safety" (Ex ia +	E28 ⁴⁾	1	1		Sealing is included in delivery	Dic	,	,	
a) to INMETRO (Brazil) hly for transmitter 7MF4P)	E28*)	v	v		• TG 52/50, PN 40 • TG 52/150, PN 40	R10 R11	*	~	
Approval IEC Ex (Ex ia)	E45 ⁴⁾	1	~	✓					
nly for transmitter 7MF4B)									
x Approval IEC Ex (Ex d)	E46 ⁴⁾	✓	1	1					
only for transmitter 7MF4D)									

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Pressure Measurement

Pressure transmitters

for applications with advanced requirements (Advanced)

SITRANS P DS III

					for gauge/absolute pressure, with f	ront-fl	ush di	aphi	agm
Selection and Ordering data	Order	code			Selection and Ordering data	Order	code		
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF	Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF
Sanitary process connection according					Sanitary process connection to				
DIN 11851 (Dairy connection with slotted union nut)					NEUMO Bio-Connect clamp connection EHEDG compliant				
• DN 50, PN 25	N04	✓	~	~	• DN 50, PN 16	Q39	~	✓	✓
• DN 80, PN 25	N06	✓	✓	✓	• DN 65, PN 10	Q40	✓	✓	✓
Tri-Clamp connection according					• DN 80, PN 10	Q41	~	~	✓
DIN 32676/ISO 2852					• DN 100, PN 10	Q42	1	1	1
• DN 50/2", PN 16	N14	1	1	1	• DN 2½", PN 16	Q48	√ √	√ √	√ √
• DN 65/2.5", PN 10	N15 N22	√ √	✓ ✓	✓ ✓	• DN 3", PN 10 • DN 4", PN 10	Q49 Q50	↓	¥.	¥
 Clamp 2" ISO 2852 PN 16 Clamp 3" ISO 2852 PN 16 	N23	¥ ✓	¥	¥	· · · · · · · · · · · · · · · · · · ·	450	•	-	
•	1125	•	•	•	Bio-Control sanitary process connectionDN 50, PN 16	Q53	1	1	~
Varivent connection EHEDG compliant					• DN 65, PN 16	Q54	· /	~	1
• Type N = 68 for Varivent enclosure	N28	~	✓	~	Sanitary process connection to	u o .			
DN 40 125 and 1½" 6", PN 40					NEUMO Bio-Connect S flange connection				
Temperature decoupler up to 200 °C ⁸⁾	P00	✓	✓	✓	• DN 2", PN 16	Q72	1	✓	✓
for version with front-flush diaphragm					Aseptic threaded socket to DIN 11864-1				
Sanitary process connection to DRD					Form A				
• DN 50, PN 40	M32	~	~	~	• DN 50, PN 25	N33	1	1	✓
SMS socket with union nut					• DN 65, PN 25	N34	× .	1	1
• 2"	M67	✓	✓	✓	• DN 80, PN 25	N35	√ √	1	1
• 21/2"	M68	√	√	✓	• DN 100, PN 25	N36	v	v	•
• 3"	M69	~	~	~	Aseptic flange with notch to DIN 11864-2 Form A				
SMS threaded socket					• DN 50, PN 16	N43	1	1	~
• 2"	M73	√	1	✓.	• DN 65, PN 16	N44	1	· •	1
• 21/2"	M74	1	1	1	• DN 80, PN 16	N45	1	1	1
• 3"	M75	~	~	~	• DN 100, PN 16	N46	1	✓	✓
IDF socket with union nut ISO 2853					Aseptic flange with groove to DIN 11864-2				
• 2"	M82	1	1	1	Form A				
• 2½" • 3"	M83 M84	√ √	√ √	1 1	• DN 50, PN 16	N43 +	~	1	✓
	10104	•	•	•		P11			
IDF threaded socket ISO 2853 • 2"	MOO	~	~	~	• DN 65, PN 16	N44 +	~	~	✓
• 2 • 2½"	M92 M93	↓	↓	↓	DN 90 DN 16	P11 N45 +	1	1	~
• 3"	M94	1	~	1	• DN 80, PN 16	P11	•	•	•
			-		• DN 100, PN 16	N46 +	1	✓	✓
Sanitary process connection to NEUMO Bio-Connect screw connection						P11			
EHEDG compliant					Aseptic clamp with groove to DIN 11864-3				
• DN 50, PN 16	Q05	1	1	1		NEO			
• DN 65, PN 16	Q06	4	1	1	• DN 50, PN 25 • DN 65, PN 25	N53 N54	✓ ✓	√ √	✓ ✓
• DN 80, PN 16 • DN 100, PN 16	Q07 Q08	√ √	√ √	√ √	• DN 85, PN 25 • DN 80, PN 16	N54	v √	1	¥ ✓
• DN 100, PN 16 • DN 2", PN 16	Q13	↓	↓	¥	• DN 100, PN 16	N56	✓	1	· /
• DN 2½", PN 16	Q14	↓	~	¥					
• DN 3", PN 16	Q15	✓	✓	~	 Device plug Han IP65 Profisafe transmitters can only be operated wi 	th tha C			2.4
• DN 4", PN 16	Q16	✓	✓	✓	configuration software in combination with S7-	400H.	r i Syste	1115 V). I
Sanitary process connection to NEUMO Bio-Connect flange connection EHEDG compliant • DN 50, PN 16	Q23	✓	✓	✓	 ³⁾ Cannot be ordered with remote seal. ⁴⁾ When the additional ex option is selected, the is omitted. Only the Ex option selected via the ⁵⁾ Special seal in Viton included in the scope of 	Z optio delivery	n is marł		levice
• DN 65, PN 16	Q24	1	1	1	FKM; temperature range -20 +200 °C (-4				11
• DN 80, PN 16	Q25	✓	✓	~	⁶⁾ Cannot be combined with Order code P00. C cone oil measuring cell filling.	an only l	be order	ed wit	n sili-
• DN 100, PN 16	Q26	✓	✓	✓	7) The weldable socket can be ordered under a	ccessori	ies.		
• DN 2", PN 16	Q31	✓	✓	✓	8) 3A and EHEDG compliant. The maximum per	missible	tempera		
• DN 2½", PN 16	Q32	✓	✓.	✓	medium depend on the respective cell fillings	s (see me	eaium co	onditio	ns).
• DN 3", PN 16	Q33	1	1	1					
• DN 4", PN 16	Q34	1	✓	~					

Selection and Ordering data Order code Further designs Add *-Z* to Article No. and specify Order code. HART PA FF Sanitary process connection to NEUMO Bio-Connect clamp connection EHEDG compliant Q39 ✓ ✓ ✓ DN 65, PN 10 Q40 ✓ ✓ ✓ ✓ DN 65, PN 10 Q40 ✓ ✓ ✓ ✓ DN 100, PN 10 Q42 ✓ ✓ ✓ ✓ DN 100, PN 10 Q42 ✓ ✓ ✓ ✓ DN 100, PN 10 Q49 ✓ ✓ ✓ ✓ ✓ DN 4*, PN 10 Q49 ✓ ✓ ✓ ✓ ✓ DN 50, PN 16 Q53 ✓ ✓ ✓ ✓ ✓ Sanitary process connection to NEUMO Bio-Connect S flange connection Q72 ✓ ✓ ✓ DN 65, PN 25 N33 ✓ ✓ ✓ ✓ DN 60, PN 25 N36 ✓ ✓ ✓ ✓ DN 60, PN 16 <th>ior gauge/absolute pressure, with h</th> <th></th> <th></th> <th></th> <th>agiii</th>	ior gauge/absolute pressure, with h				agiii
Further designs Add "-Z" to Article No. and specify Order code. HART PA FF Sanitary process connection to NEUMO Bio-Connect clamp connection EHEDG compliant Q39 ✓ ✓ ✓ 0 N 50, PN 16 Q39 ✓ ✓ ✓ ✓ 0 DN 50, PN 16 Q40 ✓ ✓ ✓ ✓ 0 DN 50, PN 10 Q41 ✓ ✓ ✓ ✓ 0 DN 100, PN 10 Q42 ✓ ✓ ✓ ✓ 0 DN 3", PN 10 Q49 ✓ ✓ ✓ ✓ ✓ 0 DN 50, PN 16 Q53 ✓ ✓ ✓ ✓ ✓ 1 DN 50, PN 16 Q53 ✓ ✓ ✓ ✓ ✓ Sanitary process connection to NEUMO Bio-Connect S flange connection Q72 ✓ ✓ ✓ 2 DN 50, PN 25 N33 ✓ ✓ ✓ ✓ DN 50, PN 25 N36 ✓ ✓ ✓ ✓ DN 80, PN 16 N43 ✓ ✓ ✓	Selection and Ordering data	Ordor	codo		
Add *Z to Article No. and specify Order code. Image: Second S	· · · · · · · · · · · · · · · · · · ·	Juer		DA	
NEUMO Bio-Connect clamp connection EHEDG compliant Q39 ✓ ✓ DN 50, PN 16 Q40 ✓ ✓ ✓ DN 80, PN 10 Q41 ✓ ✓ ✓ DN 100, PN 10 Q42 ✓ ✓ ✓ DN 30, PN 10 Q42 ✓ ✓ ✓ DN 30, PN 10 Q42 ✓ ✓ ✓ DN 3', PN 10 Q50 ✓ ✓ ✓ DN 4', PN 10 Q53 ✓ ✓ ✓ DN 50, PN 16 Q53 ✓ ✓ ✓ DN 50, PN 16 Q53 ✓ ✓ ✓ Sanitary process connection to NEUMO Bio-Connect S flange connection Q72 ✓ ✓ ✓ Son 50, PN 25 N33 ✓ ✓ ✓ ✓ ✓ DN 50, PN 25 N33 ✓ ✓ ✓ ✓ ✓ DN 65, PN 25 N36 ✓ ✓ ✓ ✓ ✓ DN 50, PN 16 N43 ✓ </td <td>· · · · · · · · · · · · · · · · · · ·</td> <td></td> <td>HART</td> <td>PA</td> <td>FF</td>	· · · · · · · · · · · · · · · · · · ·		HART	PA	FF
EHEDG compliant Q39 ✓ ✓ ✓ • DN 50, PN 16 Q40 ✓ ✓ ✓ • DN 86, PN 10 Q41 ✓ ✓ ✓ • DN 10, PN 10 Q42 ✓ ✓ ✓ • DN 30, PN 10 Q42 ✓ ✓ ✓ • DN 30, PN 10 Q48 ✓ ✓ ✓ • DN 3'', PN 10 Q50 ✓ ✓ ✓ • DN 4'', PN 10 Q53 ✓ ✓ ✓ Bio-Control sanitary process connection Q53 ✓ ✓ ✓ • DN 50, PN 16 Q54 ✓ ✓ ✓ ✓ Sanitary process connection to Nteumo Bio-Connect S flange connection Q72 ✓ ✓ ✓ NEUMO Bio-Connect S flange connection Q72 ✓ ✓ ✓ ✓ ✓ DN 50, PN 25 N33 ✓ ✓ ✓ ✓ ✓ ✓ ✓ DN 80, PN 25 N36 ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ DN 50, PN 16					
• DN 50, PN 16 Q39 ✓ ✓ ✓ • DN 65, PN 10 Q40 ✓ ✓ ✓ • DN 80, PN 10 Q41 ✓ ✓ ✓ • DN 100, PN 10 Q42 ✓ ✓ ✓ • DN 2½*, PN 16 Q48 ✓ ✓ ✓ • DN 3*, PN 10 Q49 ✓ ✓ ✓ • DN 4*, PN 10 Q50 ✓ ✓ ✓ Bio-Control sanitary process connection Q53 ✓ ✓ ✓ • DN 50, PN 16 Q53 ✓ ✓ ✓ ✓ Sanitary process connection to Q54 ✓ ✓ ✓ ✓ NEUMO Bio-Connect S flange connection 0.072 ✓ ✓ ✓ ✓ • DN 50, PN 25 N33 ✓ ✓ ✓ ✓ ✓ ✓ • DN 80, PN 25 N36 ✓ ✓ ✓ ✓ ✓ ✓ • DN 100, PN 25 N36 ✓ ✓ ✓ ✓ ✓ ✓ • DN 50, PN 16 N43 ✓ ✓	•				
• DN 65, PN 10 Q40 ✓ ✓ ✓ • DN 80, PN 10 Q41 ✓ ✓ ✓ • DN 100, PN 10 Q42 ✓ ✓ ✓ • DN 2½", PN 16 Q48 ✓ ✓ ✓ • DN 3", PN 10 Q49 ✓ ✓ ✓ • DN 4", PN 10 Q50 ✓ ✓ ✓ Bio-Control sanitary process connection Q53 ✓ ✓ ✓ • DN 50, PN 16 Q53 ✓ ✓ ✓ • DN 50, PN 16 Q54 ✓ ✓ ✓ • DN 50, PN 16 Q52 ✓ ✓ ✓ • DN 50, PN 25 N33 ✓ ✓ ✓ • DN 50, PN 25 N34 ✓ ✓ ✓ • DN 80, PN 25 N36 ✓ ✓ ✓ • DN 80, PN 16 N43 ✓ ✓ ✓ • DN 50, PN 16 N45 ✓ ✓ ✓ • DN 50, PN 16 N45 ✓ ✓ ✓ • DN 50, PN 16 N45 ✓ ✓ ✓	•	020			1
• DN 80, PN 10 Q41 ✓ ✓ ✓ • DN 100, PN 10 Q42 ✓ ✓ ✓ • DN 2½*, PN 16 Q48 ✓ ✓ ✓ • DN 3*, PN 10 Q49 ✓ ✓ ✓ • DN 4*, PN 10 Q50 ✓ ✓ ✓ Bio-Control sanitary process connection Q53 ✓ ✓ ✓ • DN 65, PN 16 Q54 ✓ ✓ ✓ Sanitary process connection to NS ✓ ✓ ✓ • DN 65, PN 16 Q72 ✓ ✓ ✓ • DN 50, PN 25 N33 ✓ ✓ ✓ • DN 50, PN 25 N34 ✓ ✓ ✓ • DN 80, PN 25 N35 ✓ ✓ ✓ • DN 100, PN 25 N36 ✓ ✓ ✓ • DN 80, PN 16 N43 ✓ ✓ ✓ • DN 50, PN 16 N44 ✓ ✓ ✓ • DN 50, PN 16 N44 ✓ ✓ ✓ • DN 50, PN 16 N44 ✓ ✓<				*	
• DN 100, PN 10 Q42 ✓ ✓ ✓ • DN 2½*, PN 16 Q48 ✓ ✓ ✓ • DN 3*, PN 10 Q49 ✓ ✓ ✓ • DN 4*, PN 10 Q50 ✓ ✓ ✓ Bio-Control sanitary process connection Q53 ✓ ✓ ✓ • DN 50, PN 16 Q54 ✓ ✓ ✓ Sanitary process connection to Q53 ✓ ✓ ✓ REUMO Bio-Connect S flange connection Q72 ✓ ✓ ✓ Sanitary process connection to Q72 ✓ ✓ ✓ Sanitary process connection to Q72 ✓ ✓ ✓ Aseptic threaded socket to DIN 11864-1 G72 ✓ ✓ ✓ Form A N33 ✓ ✓ ✓ ✓ DN 50, PN 25 N35 ✓ ✓ ✓ ✓ ✓ DN 80, PN 25 N36 ✓ ✓ ✓ ✓ ✓ ✓ DN 50, PN 16 N43 ✓ ✓ ✓ ✓ ✓					
• DN 2½", PN 16 Q48 ✓ ✓ ✓ • DN 3", PN 10 Q49 ✓ ✓ ✓ • DN 4", PN 10 Q50 ✓ ✓ ✓ Bio-Control sanitary process connection Q53 ✓ ✓ ✓ • DN 50, PN 16 Q53 ✓ ✓ ✓ ✓ Sanitary process connection to Q54 ✓ ✓ ✓ Septic threaded socket to DIN 11864-1 Q72 ✓ ✓ ✓ Form A DN 50, PN 25 N33 ✓ ✓ ✓ • DN 50, PN 25 N33 ✓ ✓ ✓ ✓ • DN 50, PN 25 N35 ✓ ✓ ✓ ✓ • DN 80, PN 25 N36 ✓ ✓ ✓ ✓ • DN 50, PN 16 N43 ✓ ✓ ✓ ✓ • DN 80, PN 16 N43 ✓ ✓ ✓ ✓ • DN 80, PN 16 N44 ✓ ✓ ✓ ✓ • DN 50, PN 16 N45 ✓ ✓ ✓ ✓ • DN 50,					
• DN 3", PN 10 Q49 ✓ ✓ ✓ • DN 4", PN 10 Q50 ✓ ✓ ✓ Bio-Control sanitary process connection Q53 ✓ ✓ ✓ • DN 50, PN 16 Q54 ✓ ✓ ✓ Sanitary process connection to Q72 ✓ ✓ ✓ Sanitary process connect of Isinge connection Q72 ✓ ✓ ✓ • DN 2", PN 16 Q72 ✓ ✓ ✓ ✓ Aseptic threaded socket to DIN 11864-1 Q72 ✓ ✓ ✓ • DN 50, PN 25 N33 ✓ ✓ ✓ ✓ • DN 80, PN 25 N36 ✓ ✓ ✓ ✓ • DN 100, PN 25 N36 ✓ ✓ ✓ ✓ • DN 50, PN 16 N43 ✓ ✓ ✓ ✓ • DN 50, PN 16 N44 ✓ ✓ ✓ ✓ • DN 80, PN 16 N44 ✓ ✓ ✓ ✓ • DN 50, PN 16 N44 ✓ ✓ ✓ ✓ <					
• DN 4", PN 10 Q50 ✓ ✓ ✓ Bio-Control sanitary process connection Q53 ✓ ✓ ✓ • DN 50, PN 16 Q54 ✓ ✓ ✓ Sanitary process connection to Q54 ✓ ✓ ✓ NEUMO Bio-Connect S flange connection Q72 ✓ ✓ ✓ • DN 50, PN 16 Q72 ✓ ✓ ✓ ✓ Aseptic threaded socket to DIN 11864-1 Q72 ✓ ✓ ✓ • DN 50, PN 25 N33 ✓ ✓ ✓ ✓ • DN 65, PN 25 N34 ✓ ✓ ✓ ✓ • DN 80, PN 25 N36 ✓ ✓ ✓ ✓ • DN 100, PN 25 N36 ✓ ✓ ✓ ✓ • DN 50, PN 16 N43 ✓ ✓ ✓ ✓ • DN 80, PN 16 N44 ✓ ✓ ✓ ✓ • DN 80, PN 16 N44 ✓ ✓ ✓ ✓ • DN 50, PN 16 N44 ✓ ✓ ✓ ✓ <tr< td=""><td></td><td></td><td></td><td></td><td></td></tr<>					
Bio-Control sanitary process connection Q53 ✓ ✓ DN 65, PN 16 Q54 ✓ ✓ Sanitary process connection to NEUMO Bio-Connect S flange connection Q72 ✓ ✓ Sanitary process connection to NEUMO Bio-Connect S flange connection Q72 ✓ ✓ Sanitary process connection to NEUMO Bio-Connect S flange connection Q72 ✓ ✓ Sapple threaded socket to DIN 11864-1 Q72 ✓ ✓ Form A DN 65, PN 25 N33 ✓ ✓ DN 85, PN 25 N34 ✓ ✓ ✓ DN 80, PN 25 N36 ✓ ✓ ✓ DN 50, PN 16 N43 ✓ ✓ ✓ DN 50, PN 16 N43 ✓ ✓ ✓ DN 50, PN 16 N44 ✓ ✓ ✓ DN 80, PN 16 N46 ✓ ✓ ✓ DN 50, PN 16 N44 ✓ ✓ ✓ DN 50, PN 16 N44 ✓ ✓ ✓ DN 50, PN 16 N44 ✓ ✓ ✓ DN 80, PN 16					
• DN 50, PN 16 Q53 ✓ ✓ ✓ • DN 65, PN 16 Q54 ✓ ✓ ✓ Sanitary process connection to NEUMO Bio-Connect S flange connection Q72 ✓ ✓ ✓ ON 2", PN 16 Q72 ✓ ✓ ✓ ✓ ✓ Aseptic threaded socket to DIN 11864-1 Form A Q72 ✓ ✓ ✓ ✓ • DN 50, PN 25 N33 ✓ ✓ ✓ ✓ ✓ ✓ • DN 65, PN 25 N34 ✓	,	400	•		-
• DN 65, PN 16 Q54 ✓ ✓ ✓ Sanitary process connection to Q72 ✓ ✓ ✓ Septic threaded socket to DIN 11864-1 Q72 ✓ ✓ ✓ Form A Q72 ✓ ✓ ✓ ✓ • DN 50, PN 25 N33 ✓ ✓ ✓ ✓ • DN 65, PN 25 N34 ✓ ✓ ✓ ✓ • DN 80, PN 25 N35 ✓ ✓ ✓ ✓ • DN 100, PN 25 N36 ✓ ✓ ✓ ✓ • DN 50, PN 125 N36 ✓ ✓ ✓ ✓ ✓ • DN 50, PN 16 N43 ✓ ✓ ✓ ✓ ✓ ✓ • DN 65, PN 16 N44 ✓		050			
Sanitary process connection to NEUMO Bio-Connect S flange connection Q72 ✓ ✓ Aseptic threaded socket to DIN 11864-1 Form A Q72 ✓ ✓ DN 50, PN 25 N33 ✓ ✓ ✓ DN 80, PN 25 N34 ✓ ✓ ✓ DN 100, PN 25 N35 ✓ ✓ ✓ DN 100, PN 25 N36 ✓ ✓ ✓ DN 100, PN 25 N36 ✓ ✓ ✓ DN 50, PN 16 N43 ✓ ✓ ✓ DN 50, PN 16 N44 ✓ ✓ ✓ DN 65, PN 16 N44 ✓ ✓ ✓ DN 80, PN 16 N45 ✓ ✓ ✓ DN 50, PN 16 N45 ✓ ✓ ✓ DN 50, PN 16 N45 ✓ ✓ ✓ DN 50, PN 16 N43 + ✓ ✓ ✓ DN 50, PN 16 N45 + ✓ ✓ ✓ DN 80, PN 16 N45 + ✓ ✓ ✓ DN 100, PN 16 N45 + ✓ ✓ <td></td> <td></td> <td></td> <td></td> <td>*</td>					*
NEUMO Bio-Connect S flange connection Q72 ✓ ✓ • DN 2", PN 16 Q72 ✓ ✓ ✓ Aseptic threaded socket to DIN 11864-1 N33 ✓ ✓ ✓ • DN 50, PN 25 N33 ✓ ✓ ✓ ✓ • DN 65, PN 25 N34 ✓ ✓ ✓ ✓ • DN 80, PN 25 N35 ✓ ✓ ✓ ✓ • DN 100, PN 25 N36 ✓ ✓ ✓ ✓ Aseptic flange with notch to DIN 11864-2 V ✓ ✓ ✓ • DN 50, PN 16 N43 ✓ ✓ ✓ ✓ • DN 80, PN 16 N45 ✓ ✓ ✓ ✓ • DN 100, PN 16 N45 ✓ ✓ ✓ ✓ • DN 50, PN 16 N43 ✓ ✓ ✓ ✓ ✓ • DN 50, PN 16 N43 ✓	· · · · · · · · · · · · · · · · · · ·	Q54	v	v	•
• DN 2", PN 16 Q72 ✓ ✓ ✓ Aseptic threaded socket to DIN 11864-1 - - ✓ ✓ • DN 50, PN 25 N33 ✓ ✓ ✓ ✓ • DN 65, PN 25 N34 ✓ ✓ ✓ ✓ • DN 80, PN 25 N35 ✓ ✓ ✓ ✓ • DN 100, PN 25 N36 ✓ ✓ ✓ ✓ Aseptic flange with notch to DIN 11864-2 - ✓ ✓ ✓ • DN 50, PN 16 N43 ✓ ✓ ✓ ✓ • DN 80, PN 16 N44 ✓ ✓ ✓ ✓ • DN 100, PN 16 N45 ✓ ✓ ✓ ✓ • DN 100, PN 16 N43 + ✓ ✓ ✓ ✓ • DN 50, PN 16 N43 + ✓ ✓ ✓ ✓ • DN 65, PN 16 N43 + ✓ ✓ ✓ ✓ • DN 80, PN 16 N45 + ✓ ✓ ✓ ✓ • DN 80, PN 16 N45 + ✓ ✓ ✓ ✓ </td <td></td> <td></td> <td></td> <td></td> <td></td>					
Aseptic threaded socket to DIN 11864-1 Form A DN 50, PN 25 DN 85, PN 25 DN 80, PN 25 DN 100, PN 25 N36 ODN 50, PN 125 N36 ODN 50, PN 25 N36 ODN 100, PN 25 Aseptic flange with notch to DIN 11864-2 Form A ODN 50, PN 16 N44 ODN 80, PN 16 N45 ODN 80, PN 16 N45 ODN 100, PN 16 N46 ODN 50, PN 16 N45 ODN 80, PN 16 ODN 50, PN 16 ODN 50, PN 16 ODN 50, PN 16 ODN 50, PN 16 ODN 80, PN 16 ODN 80, PN 16 ODN 80, PN 16 ODN 80, PN 16 ODN 100, PN 16 N45 + V ODN 100, PN 16 N45 + ODN 100, PN 16 N46 + V V ODN 100, PN 16 N46 + V	•	070		1	1
Form A N33 V V • DN 50, PN 25 N34 V V V • DN 65, PN 25 N34 V V V • DN 80, PN 25 N35 V V V • DN 100, PN 25 N36 V V V • DN 100, PN 25 N36 V V V • DN 100, PN 25 N36 V V V • DN 100, PN 25 N36 V V V • DN 50, PN 16 N43 V V V • DN 80, PN 16 N44 V V V • DN 100, PN 16 N45 V V V • DN 50, PN 16 N43 V V V • DN 50, PN 16 N43 V V V • DN 65, PN 16 N44 V V V • DN 80, PN 16 N44 V V V • DN 80, PN 16 N46 V V V	• DN 2°, PN 16	Q/2	•	•	•
• DN 50, PN 25 N33 · · · · • DN 65, PN 25 N34 · · · · • DN 80, PN 25 N35 · · · · • DN 100, PN 25 N36 · · · · • DN 100, PN 25 N36 · · · · • DN 50, PN 16 N43 · · · · • DN 65, PN 16 N44 · · · · • DN 80, PN 16 N45 · · · · • DN 100, PN 16 N45 · · · · • DN 100, PN 16 N43 · · · · • DN 50, PN 16 N43 · · · · • DN 50, PN 16 N43 + P11 · · · · • DN 65, PN 16 N44 + P11 · · · · • DN 80, PN 16 N45 + P11 · · · · • DN 100, PN 16 N46 + P11 · · <td< td=""><td>_ • ·</td><td></td><td></td><td></td><td></td></td<>	_ • ·				
• DN 65, PN 25 N34 · · · · • DN 80, PN 25 N35 · · · · • DN 100, PN 25 N36 · · · · • DN 100, PN 25 N36 · · · · • DN 100, PN 25 N36 · · · · • DN 50, PN 16 N43 · · · · • DN 65, PN 16 N44 · · · · • DN 80, PN 16 N45 · · · · • DN 100, PN 16 N46 · · · · • DN 50, PN 16 N43 + · · · · • DN 50, PN 16 N43 + · · · · • DN 65, PN 16 N43 + · · · · • DN 80, PN 16 N45 + · · · · • DN 80, PN 16 N46 + · · · · • DN 100, PN 16 N46 + · · ·		N33	✓	✓	1
• DN 80, PN 25 N35 · · · · • DN 100, PN 25 N36 · · · · Aseptic flange with notch to DIN 11864-2 ////////////////////////////////////	*	N34	✓	✓	1
• DN 100, PN 25 N36 ✓ ✓ ✓ Aseptic flange with notch to DIN 11864-2 ✓ ✓ • DN 50, PN 16 N43 ✓ ✓ ✓ • DN 65, PN 16 N44 ✓ ✓ ✓ • DN 80, PN 16 N45 ✓ ✓ ✓ • DN 100, PN 16 N46 ✓ ✓ ✓ • DN 100, PN 16 N46 ✓ ✓ ✓ • DN 50, PN 16 N43 ✓ ✓ ✓ • DN 50, PN 16 N43 ✓ ✓ ✓ • DN 65, PN 16 N44 ✓ ✓ ✓ • DN 60, PN 16 N44 ✓ ✓ ✓ • DN 80, PN 16 N44 ✓ ✓ ✓ • DN 80, PN 16 N44 ✓ ✓ ✓ • DN 100, PN 16 N46 ✓ ✓ ✓ • DN 100, PN 16 N46 ✓ ✓ ✓ • DN 100, PN 16 N46 ✓ ✓ ✓ • DN 50, PN 25 N53 ✓ ✓		N35	✓	✓	1
Form A N43 V V V • DN 50, PN 16 N44 V V V • DN 65, PN 16 N45 V V V • DN 80, PN 16 N45 V V V • DN 100, PN 16 N46 V V V • DN 100, PN 16 N46 V V V • DN 50, PN 16 N43 + V V V • DN 50, PN 16 N43 + V V V • DN 65, PN 16 N44 + V V V • DN 80, PN 16 N44 + V V V • DN 80, PN 16 N44 + V V V • DN 100, PN 16 N46 + V V V • DN 100, PN 16 N46 + V V V Aseptic clamp with groove to DIN 11864-3 Form A N46 + V V V • DN 50, PN 25 N53 V V V		N36	✓	1	1
• DN 50, PN 16 N43 · · · · • DN 65, PN 16 N44 · · · · • DN 80, PN 16 N45 · · · · • DN 100, PN 16 N46 · · · · • DN 100, PN 16 N46 · · · · • Septic flange with groove to DIN 11864-2 V · · · · • DN 50, PN 16 N43 + P11 · · · · · • DN 65, PN 16 N44 + P11 · · · · · • DN 80, PN 16 N44 + P11 · · · · • DN 100, PN 16 N46 + P11 · · · · • DN 100, PN 16 N46 + P11 · · · · • DN 100, PN 16 N46 + P11 · · · · • DN 50, PN 25 N53 · · · ·					
• DN 65, PN 16 N44 ✓ ✓ ✓ • DN 80, PN 16 N45 ✓ ✓ ✓ • DN 100, PN 16 N46 ✓ ✓ ✓ Aseptic flange with groove to DIN 11864-2 ✓ ✓ ✓ ✓ • DN 50, PN 16 N43 + ✓ ✓ ✓ ✓ • DN 65, PN 16 N44 + ✓ ✓ ✓ ✓ • DN 65, PN 16 N44 + ✓ ✓ ✓ ✓ • DN 80, PN 16 N44 + ✓ ✓ ✓ ✓ • DN 80, PN 16 N44 + ✓ ✓ ✓ ✓ • DN 100, PN 16 N45 + ✓ ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ ✓ • DN 50, PN 25 N53 ✓ ✓ ✓		N/42			
• DN 80, PN 16 N45 ✓ ✓ ✓ • DN 100, PN 16 N46 ✓ ✓ ✓ Aseptic flange with groove to DIN 11864-2 ✓ ✓ ✓ ✓ • DN 50, PN 16 N43 + ✓ ✓ ✓ • DN 65, PN 16 N44 + ✓ ✓ ✓ • DN 80, PN 16 N44 + ✓ ✓ ✓ • DN 80, PN 16 N45 + ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ • DN 50, PN 25 N53 ✓ ✓ ✓	*		*	*	
• DN 100, PN 16 N46 ✓ ✓ Aseptic flange with groove to DIN 11864-2 ✓ ✓ ✓ • DN 50, PN 16 N43 + ✓ ✓ ✓ • DN 65, PN 16 N44 + ✓ ✓ ✓ • DN 80, PN 16 N45 + ✓ ✓ ✓ • DN 100, PN 16 N45 + ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ • DN 50, PN 25 N53 ✓ ✓ ✓	,			•	
Aseptic flange with groove to DIN 11864-2 Image: Constraint of the sector of the s	*		1	1	1
Form A K <td>,</td> <td>1440</td> <td>•</td> <td>•</td> <td>•</td>	,	1440	•	•	•
• DN 65, PN 16 N44 + ✓ ✓ ✓ • DN 80, PN 16 N45 + ✓ ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ ✓ Aseptic clamp with groove to DIN 11864-3 Form A × ✓ ✓ ✓ • DN 50, PN 25 N53 ✓ ✓ ✓					
• DN 65, PN 16 • DN 80, PN 16 • DN 80, PN 16 • DN 100, PN 16 • DN 100, PN 16 • DN 100, PN 25 • DN 50, PN 25	• DN 50, PN 16		~	1	✓
• DN 80, PN 16 N45 + ✓ ✓ • DN 100, PN 16 N46 + ✓ ✓ Aseptic clamp with groove to DIN 11864-3 Form A ✓ ✓ • DN 50, PN 25 N53 ✓ ✓ ✓					
• DN 100, PN 16 P11 • DN 100, PN 16 N46 + P11 Aseptic clamp with groove to DIN 11864-3 Form A • DN 50, PN 25 N53	• DN 65, PN 16		~	~	~
• DN 100, PN 16 N46 + P11 Y Y Y Aseptic clamp with groove to DIN 11864-3 • DN 50, PN 25 N53 Y Y	• DN 80, PN 16		1	1	✓
Aseptic clamp with groove to DIN 11864-3 Form A • DN 50, PN 25 N53 V	• DN 100, PN 16	N46 +	~	1	~
Form A N53 ✓ ✓ • DN 50, PN 25 N53 ✓ ✓ ✓		P11			
• DN 50, PN 25 N53 🖌 🎸					
		N53	1	1	1
	*		1	1	1
• DN 80, PN 16 N55 ✓ ✓ ✓				1	1
• DN 100, PN 16 N56 ✓ ✓ ✓				1	1
¹⁾ Device plug Han IP65					

Pressure transmitters

for applications with advanced requirements (Advanced) 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 Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	1	√ 1)	
Stainless steel tag plate and entry in device variable (measuring point descrip- tion) 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	1	~	✓
Entry of HART address (TAG)	Y17	1		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indicator in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm $H_2O^{(1)}$, in $H_2O^{(1)}$, ft $H_2O^{(2)}$, mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or %	Y21	*	*	•
"") ref. temperature 20 °C Setting of pressure indication in non-pressure units ²) Specify in plain text: Y22: up to I/min, m ³ /h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01	*		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		1	1
Damping adjustment in seconds (0 100 s)	Y30	~	~	~

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

ordering example

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

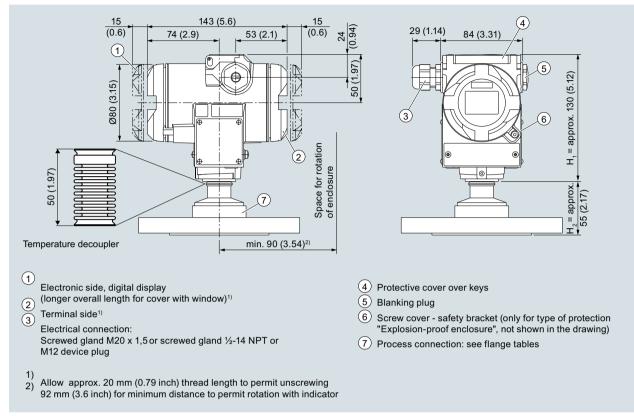
Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.
 Preset values can only be changed over SIMATIC PDM.

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Pressure transmitters for applications with advanced requirements (Advanced) 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 H1 and H2.

- H₁ = Height of the SITRANS P300 up to a defined cross-section
- H_2 = Height of the flange up to this defined cross-section

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

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for gauge/absolute pressure, with front-flush diaphragm

Flanges according to EN and ASME

Flange according to EN

EN 1092-1					
	Order code	DN	PN	ØD	H ₂
	M11	25	40	115 mm (4.5")	Approx.
	M13	40	40	150 mm (5.9")	52 mm (2")
U	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 according to ASME

ASME B16.5

	Order code	DN	PN	ØD	H ₂
≖่⊢−₽	M40	1"	150	110 mm (4.3")	Approx.
	M41	11⁄2"	150	130 mm (5.1")	52 mm (2")
D	M42	2"	150	150 mm (5.9")	
	M43	3"	150	190 mm (7.5")	
	M44	4"	150	230 mm (9.1")	
	M46	11⁄2"	300	155 mm (6.1")	
	M47	2"	300	165 mm (6.5")	
	M48	3"	300	210 mm (8.1")	
	M49	4"	300	255 mm (10.0")	

NuG and pharmaceutical connections

Connections to DIN

DIN 11851 (milk pipe union with slotted union nut)									
	Order code	DN	PN	ØD	H ₂				
	N04			92 mm (3.6")	Approx. 52 mm (2")				
	N06	80	25	127 mm (5.0")	52 mm (2)				

Tri-Clamp nach DIN 32676

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

Other connections

Varivent connection					
+	Order code	DN	PN	ØD	H ₂
	N28	40 125	40	84 mm (3.3")	Approx. 52 mm (2")

Sanitary process connection to DRD

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

Sanitary process screw connection to NEUMO Bio-Connect

••					
- The second se	Order code	DN	PN	ØD	H ₂
	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")	
إصطناعها	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")	

Sanitary process connection to NEUMO Bio-Connect flange connection

	Order code	DN	PN	ØD	H ₂
	Q23	50	16	110 mm (4.3")	Approx.
	Q24	65	16	140 mm (5.5")	52 mm (2")
D	Q25	80	16	150 mm (5.9")	
	Q26	100	16	175 mm (6.9")	
	Q31	2"	16	100 mm (3.9")	
	Q32	21/2"	16	110 mm (4.3")	
	Q33	3"	16	140 mm (5.5")	
	Q34	4"	16	175 mm (6.9")	

Sanitary process connection to NEUMO Bio-Connect clamp connection

	Order code	DN	PN	ØD	H ₂
لسلسل	Q39	50	16	77.4 mm (3.0")	Approx.
I \	Q40	65	10	90.9 mm (3.6")	52 mm (2")
	Q41	80	10	106 mm (4.2")	
	Q42	100	10	119 mm (4.7")	
D	Q48	21/2"	16	90.9 mm (3.6")	
	Q49	3"	10	106 mm (4.2")	
	Q50	4"	10	119 mm (4.7")	

Sanitary process connection to NEUMO Bio-Connect S flange connection

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

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

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Order code	DN	PN	ØD	H ₂
R01	3⁄4"	60	37 mm (1.5")	Approx. 45 mm (1.8")
R02	1"	60	48 mm (1.9")	Approx. 47 mm (1.9")
R04	2"	60	78 mm (3.1")	Approx. 52 mm (2")

Pressure transmitters

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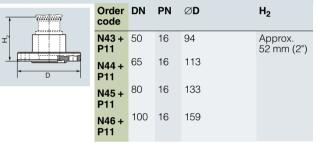
SITRANS P DS III

for gauge/absolute pressure, with front-flush diaphragm

Aseptic threaded socket to DIN 11864-1 Form A									
	Order code	DN	PN	ØD	H ₂				
, kanalana ka	N33	50	25	78 x 1/6"	Approx.				
I I I	N34	65	25	95 x 1/6"	52 mm (2")				
	N35	80	25	110 x ¼"					
	N36	100	25	130 x ¼"					

Aseptic flange with notch to DIN 11864-2 Form A									
	Order code	DN	PN	ØD	H ₂				
I III	N43	50	16	94	Approx. 52 mm (2")				
	N44	65	16	113	52 mm (2")				
	N45	80	16	133					
I D I	N46	100	16	159					

Aseptic flange with groove to DIN 11864-2 Form A



Aseptic clamp with groove to DIN 11864-3 Form A

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

Tank connection TG 52/50 and TG52/150 ΡN Order DN ØD H₂ code Approx. 63 mm (2.5") R10 63 mm (2.5") 25 40 Approx. 170 mm (6.7") R11 25 40 63 mm (2.5")

SMS socket with union nut

	Order code	DN	PN	ØD	H ₂
I (III)	M67	2"	25	84 mm (3.3")	Approx.
	M68	21/2"	25	100 mm (3.9")	52 mm (2")
	M69	3"	25	114 mm (4.5")	

SMS threaded socket

	Order code	DN	PN	ØD	H ₂
	M73	2"	25	70 x 1/6 mm	Approx.
	M74	21/2"	25	85 x 1/6 mm	52 mm (2")
	M75	3"	25	98 x 1/6 mm	
I- D -I					

IDF socket with union nut

	Order code	DN	PN	ØD	H ₂
	M82	2"	25	77 mm (3")	Approx.
//	M83	21/2"	25	91 mm (3.6")	52 mm (2")
	M84	3"	25	106 mm (4.2")	
← D					

IDF threaded socket

Di incluci sooket					
	Order code	DN	PN	ØD	H ₂
	M93			64 mm (2.5") 77.5 mm (3.1") 91 mm (3.6")	Approx. 52 mm (2")

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for absolute pressure (from gauge pressure series)

Technical specifications

SITRANS P DS III series for absolute pressure (from the gauge pressure series) Input Measured variable Absolute pressure Measuring span (fully adjustable) or nominal measuring HART **PROFIBUS PA/** range, max. operating pressure (in accordance with FOUNDATION 2014/68/EU Pressure Equipment Directive) and max. test Fieldbus pressure (pursuant to DIN 16086) Measuring span Nominal measur-Max. operating Max. perm. ing range pressure MAWP test pressure (PS) 8.34 ... 250 mbar a 250 mbar a 1.5 bar a 6 bar a 0.83 ... 25 kPa a 25 kPa a 150 kPa a 600 kPa a 100 inH₂O a 3.35 ... 100 inH₂O a 21.8 psi a 87 psi a 43.34 ... 1300 mbar a 10 bar a 1300 mbar a 2.6 bar a 4.33 ... 130 kPa a 130 kPa a 260 kPa a 1 MPa a 17.42 ... 522.4 inH₂O a 525 inH2O a 37.7 psi a 145 psi a 170 ... 5000 mbar a 5000 mbar a 10 bar a 30 bar a 17 ... 500 kPa a 500 kPa a 1 MPa a 3 MPa a 2.43 ... 72.5 psi a 72.5 psi a 145 psi a 435 psi a 1 ... 30 bar a 0.1 ... 3 MPa a 45 bar a 100 bar a 30 bar a 10 MPa a 3 MPa a 4.5 MPa a 14.6 ... 435 psi a 435 psi a 653 psi a 1450 psi a 5,34 ... 160 bar a 160 bar a 167 bar a 250 bar a 0.53 ... 16 MPa a 77.4 ... 2321 psi a 16 MPa a 2321 psi 16,7 MPa a 2422 psi 25 MPa a 3626 psi 13.34 ... 400 bar a 400 bar a 400 bar a 600 bar a 1.3 ... 40 MPa a 60 MPa a 40 MPa a 40 MPa a 193.4 ... 5802 psi a 5802 psi a 5802 psi a 8702 psi a 23.34 ... 700 bar a 700 bar a 800 bar a 800 bar a 2.33 ... 70 MPa a 338.43 ... 10153 psi a 70 MPa a 80 MPa a 80 MPa a 10153 psi a 11603 psi a 11603 psi a Lower measuring limit · Measuring cell with silicone oil filling 0 mbar a/0 kPa a/0 psi a Measuring cell with inert filling liquid - for temperature of medium -20 °C < $\vartheta \le +60$ °C 30 mbar a/3 kPa a/0.44 psi a $(-4 \,^{\circ}\text{F} < 9 \le +140 \,^{\circ}\text{F})$ 30 mbar a + 20 mbar a · (9 - 60 °C)/°C for temperature of medium $60 \degree C < 9 \le +100 \degree C (max. 85 \degree C for measuring cell 30 bar)$ 3 kPa a + 2 kPa a · (9 - 60 °C)/°C (140 °F < 9 ≤ +212 °F (max. 185 °F for measuring cell 0.44 psi a + 0.29 psi a · (9 - 140 °F)/°F 435 psi)) Upper measuring limit 100 % of max. measuring span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/temperature of medium) Lower range value Between the measuring limits (fully adjustable) Output **PROFIBUS PA/FOUNDATION Fieldbus** HART Output signal 4 ... 20 mA Digital PROFIBUS PA and FOUNDATION Fieldbus signal Lower limit (infinitely adjustable) 3.55 mA, factory preset to 3.84 mA Upper limit (infinitely adjustable) 23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA Load Without HART $R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.023 \text{ A in } \Omega$ U_H: Power supply in V With HART $R_{\rm B}$ = 230 ... 500 Ω (SIMATIC PDM) or $R_{\rm B} = 230 \dots 1100 \Omega$ (HART Communicator) Physical bus IEC 61158-2 Protected against short-circuit and polarity reversal. Protection against polarity reversal Each connection against the other with max. supply voltage. Electrical damping (step width 0.1 s) Set to 2 s (0 ... 100 s)

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for absolute pressure (from gauge pressure series)

SITRANS P DS III series for absolute pressure (from the gauge pressure series)		
Measuring accuracy	Acc. to IEC 60770-1	
Reference conditions (All error data refer always refer to the set span)	 Increasing characteristic Lower range value 0 bar/kPa/psi Stainless steel seal diaphragm Silicone oil filling Room temperature 25 °C (77 °F) 	
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span or nominal measuring range	
Error in measurement at limit setting incl. hysteresis and reproducibility		
Linear characteristic		
- r ≤ 10	≤ 0.1 %	
- 10 < r ≤ 30	≤ 0.2 %	
Influence of ambient temperature (in percent per 28 °C (50 °F))		
• 250 mbar a/25 kPa a/3.6 psi a	\leq (0.15 · r + 0.1) %	
 1300 mbar a/130 kPa a/18.8 psi a 5 bar a/500 kPa a/72.5 psi a 30 bar a/3000 kPa a/435 psi a 100 bar a/10 MPa a/1450 psi a 160 bar a/16 MPa a/2321 psi a 400 bar a/40 MPa a/5802 psi a 700 bar a/50 MPa a/10152 psi a 	≤ (0.08 · r + 0.16) %	
Long-term stability (temperature change ± 30 °C (± 54 °F))	\leq (0.25 · r) % in 5 years	
Effect of mounting position (in pressure per change in angle)	\leq 0.05 mbar/0.005 kPa/0.000725 psi per 10° inclination (zero point correction is possible with position error compensation)	
Effect of auxiliary power supply (in percent per change in voltage)	0.005 % per 1 V	
Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus	3 · 10 ⁻⁵ of nominal measuring range	
Operating conditions		
Degree of protection		
according to EN 60529	IP66 (optional IP66/IP68)	
according to NEMA 250	Type 4X	
Temperature of medium		
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F) -20 +100 °C (-4 +212 °F) with 30 bar a measuring cell	
 Measuring cell with inert filling liquid 	-20 +100 °C (-4 +212 °F)	
 In conjunction with dust explosion protection 	-20 +60 °C (-4 +140 °F)	
Ambient conditions		
Ambient temperature		
- Transmitter	-40 +85 °C (-40 +185 °F)	
- Display readable	-30 +85 °C (-22 +185 °F)	
Storage temperature	-50 +85 °C (-58 +185 °F)	
Climatic class		
- Condensation	Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics	
Electromagnetic Compatibility		
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21	

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Design * 1.5 kg (* 3.3 lb) 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. 1.4408 Wetted parts materials • Connection shank • Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4602 • Oval flange Stainless steel, mat. no. 1.4404/316L or Hastelloy C26, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C26, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C26, mat. no. 2.4819 Process connection Connection shank G½B to EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or 7/16-20 UNI to EC 61518/DIN EN 61518 Material of mounting bracket Sheet-steel, Mat. No. 1.0330, chrome-plated • Stainless steel 304 Sheet-steel, Mat. No. 1.404 (SS 316L) Power supply U _H HART PROFIBUS PAFOUNDATION Fieldbu Power supply U _H Los 45 V DC 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode - Power supply U _H HART PROFIBUS PAFOUNDATION Fieldbu Power supply Voltage - - - Bus voltage - 9 32	for absolute pressure (from gauge pressure series)			
Weight (without options) = 1.5 kg (= 3.3 lb) Enclosure material Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat no. 1.4408 Wetted parts materials - • Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4602 • Oval flange Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Connection shank G½B to EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or 7/ ₁₆ -20 UNF to IEC 61518/DIN EN 61518 Material of mounting bracket - • Stainless steel 304 Sheet stainless steel, mat. no. 1.4404 (SS 304) • Stainless steel 316L Sheet stainless steel, mat. no. 1.4404 (SS 304) • Stainless steel 304 Sheet stainless steel, mat. no. 1.4404 (SS 304) • Stainless steel 304 Sheet stainless steel, mat. no. 1.4404 (SS 304) • Stainless steel 304 Sheet stainless steel, mat. no. 1.4404 (SS 304) • Stainless steel 316L Supplied	SITRANS P DS III series for absolute pressure (from the gauge pressure series)			
Enclosure material Low-coper die-cast aluminum, GD-AISI 12 or stainless steel precision casting, mat no. 1.4408 Wetted parts materials Connection shank Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4602 Oval flange Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Process connection Connection shank G½B to EN 837-1, female thread ½-14 NPT or oval flange (PN 106 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or 7/1e*20 UNI to IEC 61518/DIN EN 61518 Material of mounting bracket Steel Stainless steel 304 Sheet-steel, Mat. No. 1.0330, chrome-plated Stainless steel 316L Sheet stainless steel, mat. no. 1.4404 (SS 316L) Power supply U _H HART Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Power supply Voltage - Bus voltage - Vith intrinsically-safe operation - Current consumption - Basic current (max.) - Basic current (max.) - Basic current is vent of	Design			
No. 1.4408Wetted parts materials• Connection shank• Oval flangeStainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4602• Seal diaphragmMeasuring cell fillingMeasuring cell filling(maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))Process connection(PN 160 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or 7/16*20 UNI to IEC 61518/DIN EN 61518Material of mounting bracket• Steel• Steel• Stainless steel, Mat. No. 1.0330, chrome-plated• Stainless steel 304• Sheet-steel, Mat. No. 1.0330, chrome-plated• Stainless steel 316LPower supply U_H Terminal voltage on transmitter10.5 45 V DC• Not Ex• Start-up current ≤ basic current• Max. current in	Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)		
• One-ction shankStainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4602• Oval flangeStainless steel, mat. no. 1.4404/316L• Seal diaphragmStainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819Measuring cell fillingSilicone oil or inert filling liquid (maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))Process connectionConnection shank G½B to EN 837-1, female thread ½ - 14 NPT or oval flange (PN 160 (MAWP 3220 psi a)) to DIN 19213 with mounting thread M10 or 7/ ₁₆ -20 UNi to IEC 61518/DIN EN 61518Material of mounting bracketSheet-steel, Mat. No. 1.030, chrome-plated• Stainless steel 304Sheet stainless steel, mat. no. 1.4404 (SS 304)• Stainless steel 316LSheet stainless steel, mat. no. 1.4301 (SS 304)Power supply U _H HARTPower supply U _H NoForminal voltage on transmitter10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Bus voltage• Not EX-• Not EX-• Not EX-• Not EX-• With intrinsically-safe operation Current consumption-• Basic current (max.)-• Start-up current ≤ basic current-• Max. current in event of fault-• Max. current in event of fault-	Enclosure material		Low-copper die-cast aluminum, GD-AISi 12 or stainless steel precision casting, mat. no. 1.4408	
• Oval flangeStainless steel, mat. no. 1.4404/316L• Seal diaphragmStainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819Measuring cell fillingSilicone oil or inert filling liquid (maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))Process connectionConnection shark G/3c to EN 837-1, female thread ½ - 14 NPT or oval flange (PN 160 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or 7_{16}^{-20} UNF to IEC 61518/DIN EN 61518Material of mounting bracket-• SteelSheet-steel, Mat. No. 1.0330, chrome-plated• SteelSheet-steel, Mat. No. 1.4301 (SS 304)• Stainless steel 304Sheet stainless steel, mat. no. 1.4404 (SS 316L)• Power supply U_{H} HARTPower supply U_{H} Ito S 45 V DC 10.5 30 V DC in intrinsically-safe mode• Not EX-• Not EX-• Not EX-• Not EX-• Not EX-• Stainless current (max.)-• Stainles current (max.)-• Stainles current (max.)-• Max. current in event of fault-	Wetted parts materials			
• Seal diaphragm Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819 Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F)) Process connection Connection shank G½B to EN 837-1, female thread ½-14 NPT or oval flange (PN 160 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or 7/ ₁₆ °20 UNI to IEC 61518/DIN EN 61518 Material of mounting bracket - • Steel Sheet-steel, Mat. No. 1.0330, chrome-plated • Stainless steel 304 Sheet stainless steel, mat. no. 1.4404 (SS 316L) Power supply U _H HART Power supply U _H IA T Fower supply U _H IA T Power supply U _H Supplied through bus Separate supply voltage - Bus voltage - • Not Ex - • Not Ex - • Basic current (max.) - • Basic current (max.) - • Basic current (max.) - • Start-up current ≤ basic current - • Max. current in event of fault -	Connection shank	Stainless steel, mat. no. 1.4404/316L or Ha	Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4602	
Measuring cell filling Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F)) Process connection Connection shank G½B to EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or 7/ ₁₆ -20 UNI to EO (1518/DIN EN 61518) Material of mounting bracket Sheet-steel, Mat. No. 1.0330, chrome-plated • Steel Sheet-steel, Mat. No. 1.0330, chrome-plated • Stainless steel 304 Sheet stainless steel, mat. no. 1.4301 (SS 304) • Stainless steel 316L Sheet stainless steel, mat. no. 1.4404 (SS 316L) Power supply U _H HART Prover supply U _H No Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Power supply Supplied through bus Separate supply voltage - Bus voltage - • Not Ex - • Not Ex - • Stain- current (max.) - • Basic current (max.) - • Basic current (max.) - • Start-up current ≤ basic current - • Max. current in event of fault -	Oval flange	Stainless steel, mat. no. 1.4404/316L		
Image: Second	Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Ha	astelloy C276, mat. no. 2.4819	
(PN 160 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or 7/16-20 UNI Material of mounting bracket • Steel Sheet-steel, Mat. No. 1.0330, chrome-plated • Statiless steel 304 Sheet stainless steel, mat. no. 1.4301 (SS 304) • Stainless steel 316L Sheet stainless steel, mat. no. 1.4404 (SS 316L) Power supply U _H HART Terminal voltage on transmitter 10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode Power supply voltage Supplied through bus Separate supply voltage - Bus voltage - • Not Ex - • Not Ex - • Statr-up current (max.) - • Basic current (max.) - • Statr-up current i nevent of fault -	Measuring cell filling	(maximum value with oxygen measuremen	nt pressure 100 bar (1450 psi) at 60 °C	
• SteelSheet-steel, Mat. No. 1.0330, chrome-platd• Stainless steel 304Sheet stainless steel, mat. no. 1.4301 (SS 304)• Stainless steel 316LSheet stainless steel, mat. no. 1.4404 (SS 316L)Power supply U _H HARTTerminal voltage on transmitter10.5 45 V DC 10.5 30 V DC in intrinsically-safe modePower supplySeparate supply voltagePower supply voltage-Bus voltage-• Not Ex-• Not Ex-• Not Ex-• Stainless current (max.)-• Start-up current ≤ basic current-• Max. current in event of fault-	Process connection	(PN 160 (MAWP 2320 psi a)) to DIN 19213	(PN 160 (MAWP 2320 psi a)) to DIN 19213 with mounting thread M10 or $\frac{7}{16}$ -20 UNF	
Stainless steel 304Sheet stainless steel, mat. no. 1.4301 (SS 304)Stainless steel 316LSheet stainless steel, mat. no. 1.4301 (SS 316L)Power supply U _H HARTPROFIBUS PA/FOUNDATION FieldburTerminal voltage on transmitter10.5 45 V DC 10.5 30 V DC in intrinsically-safe model-Power supply-Supplied through busSeparate supply voltage-Supplied through busBus voltage• Not Ex-9 32 V• With intrinsically-safe operation-9 32 VCurrent consumption-12.5 mA• Basic current (max.)-12.5 mA• Max. current in event of fault-15.5 mA	Material of mounting bracket			
Stainless steel 316LSheet stainless steel, mat. no. 1.4404 (SS 31-L)Power supply U _H HARTPROFIBUS PA/FOUNDATION FieldburTerminal voltage on transmitter10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode-Power supplySeparate supply voltageSupplied through busSeparate supply voltage-Supplied through busBus voltage-No• Not Ex-9 32 V• With intrinsically-safe operation-9 24 VCurrent consumption-12.5 mA• Start-up current ≤ basic current-Yes• Max. current in event of fault-15.5 mA	• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plate	Sheet-steel, Mat. No. 1.0330, chrome-plated	
Power supply U _H HARTPROFIBUS PA/FOUNDATION FieldbuTerminal voltage on transmitter10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode-Power supplySupplied through busSupplied through busSeparate supply voltage-Supplied through busBus voltage-9 32 V• Not Ex-9 32 V• With intrinsically-safe operation-9 24 VCurrent consumption-12.5 mA• Start-up current ≤ basic current-Yes• Max. current in event of fault-15.5 mA	Stainless steel 304	Sheet stainless steel, mat. no. 1.4301 (SS	Sheet stainless steel, mat. no. 1.4301 (SS 304)	
Terminal voltage on transmitter10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode-Power supply-Supplied through busSeparate supply voltage-NoBus voltage• Not Ex-9 32 V• With intrinsically-safe operation-9 24 VCurrent consumption• Basic current (max.)-12.5 mA• Max. current in event of fault-Yes	Stainless steel 316L	Sheet stainless steel, mat. no. 1.4404 (SS	316L)	
NotesSupplied through busPower supply-Supplied through busSeparate supply voltage-NoBus voltage• Not Ex-9 32 V• With intrinsically-safe operation-9 24 VCurrent consumption• Basic current (max.)-12.5 mA• Start-up current ≤ basic current-Yes• Max. current in event of fault-15.5 mA	Power supply $U_{ m H}$	HART	PROFIBUS PA/FOUNDATION Fieldbu	
Separate supply voltage-NoBus voltage• Not Ex-9 32 V• With intrinsically-safe operation-9 24 VCurrent consumption• Basic current (max.)-12.5 mA• Start-up current ≤ basic current-Yes• Max. current in event of fault-15.5 mA	Terminal voltage on transmitter		-	
Bus voltage <th< td=""><td>Power supply</td><td></td><td>Supplied through bus</td></th<>	Power supply		Supplied through bus	
Not Ex-9 32 V• With intrinsically-safe operation-9 24 V• With intrinsically-safe operation• Basic current (max.)-12.5 mA• Start-up current ≤ basic current-Yes• Max. current in event of fault-15.5 mA	Separate supply voltage	-	No	
With intrinsically-safe operation- Added equation- 24 VCurrent consumption- Added equation- 25 mA• Basic current (max.)- Added equation12.5 mA• Start-up current ≤ basic current- Added equationYes• Max. current in event of fault- Added equation15.5 mA	Bus voltage			
Current consumption• Basic current (max.)-12.5 mA• Start-up current ≤ basic current-Yes• Max. current in event of fault-15.5 mA	• Not Ex	-	9 32 V	
• Basic current (max.)-12.5 mA• Start-up current ≤ basic current-Yes• Max. current in event of fault-15.5 mA	With intrinsically-safe operation	-	9 24 V	
• Start-up current ≤ basic current - Yes • Max. current in event of fault - 15.5 mA	Current consumption			
Max. current in event of fault - 15.5 mA	Basic current (max.)	-	12.5 mA	
Max. current in event of fault - 15.5 mA	 Start-up current ≤ basic current 	_	Yes	
Fault disconnection electronics (FDE) available - Yes	Max. current in event of fault	-	15.5 mA	
	Fault disconnection electronics (FDE) available	_	Yes	

Pressure transmitters

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for absolute pressure (from gauge pressure series)

Certificates and approvals	HART	PROFIBUS PA/ FOUNDATION Fieldbus		
Classification according to PED 2014/68/EU		For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)		
Explosion protection				
Intrinsic safety "i"	PTB 13 ATEX 2007 X			
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +70 °C (-40 +158 °F) temperature class T5; -40 +60 °C (-40 +140 °F) temperature class T6			
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $l_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW; $R_{\rm i}$ = 300 Ω	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	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$		
 Explosion-proof "d" 	PTB 99 ATEX 1160			
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	Ex II 1/2 G Ex d IIC T4/T6 Gb		
- Permissible ambient temperature		-40 +85 °C (-40 +185 °F) temperature class T4; -40 +60 °C (-40 +140 °F) temperature class T6		
- Connection	To circuits with values: $U_{\rm H}$ = 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 Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)			
- Max. surface temperature	120 °C (248 °F)			
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $l_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW, $R_{\rm i}$ = 300 Ω	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	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$		
 Dust explosion protection for zone 21/22 	PTB 01 ATEX 2055			
- Marking	Ex II 2 D Ex tb IIIC T120°C Db			
- Connection	To circuits with values: $U_{\rm H}$ = 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	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc			
- Connection (Ex nA)	$U_{\rm m} = 45 \text{ V}$	U _m = 32 V		
- Connection (Ex ic)	To circuits with values: <i>U</i> _i = 45 V	FISCO supply unit ic: $U_0 = 17.5$ V, $I_0 = 570$ mA Linear barrier: $U_0 = 32$ V, $I_0 = 132$ mA, $P_0 = 1$ W		
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$		
 Explosion protection acc. to FM 	Certificate of Compliance 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	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 ABCD T4T6; CL II, DIV 2, GP FG; CL III		

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

HART communication		FOUNDATION Fieldbus	
HART	230 1100 Ω	communication	
Protocol	HART Version 5.x	Function blocks	3 function blocks analog input, 1 function block PID
Software for computer	SIMATIC PDM	 Analog input 	T MICTOR DIOCK T ID
PROFIBUS PA communication		- Adaptation to customer-specif-	Yes, linearly rising or falling
Simultaneous communication with master class 2 (max.)	4	ic process variables	characteristic 0 100 s
The address can be set using	Configuration tool or local opera- tion (standard setting address	 Electrical damping, adjustable Simulation function 	Output/input (can be locked within the device with a bridge)
Cyclic data usage	126)	- Failure mode	parameterizable (last good
Output byte	5 (one measured value) or		value, substitute value, incorrect value)
Input byte	10 (two measured values) 0, 1, or 2 (register operating	- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit
	mode and reset function for metering)	- Square-rooted characteristic	respectively Yes
Internal preprocessing		for flow measurement	
Device profile	PROFIBUS PA Profile for Pro- cess Control Devices Version	• PID	Standard FOUNDATION Fieldbus function block
	3.0, class B	 Physical block 	1 resource block
Function blocks	2	Transducer blocks	1 transducer block Pressure with
Analog input			calibration, 1 transducer block LCD
 Adaptation to customer-specif- ic process variables 	Yes, linearly rising or falling characteristic	Pressure transducer block	
- Electrical damping, adjustable	0 to 100 s	 Can be calibrated by applying two pressures 	Yes
- Simulation function	Input /Output	- Monitoring of sensor limits	Yes
- Failure mode	parameterizable (last good value, substitute value, incorrect value)	 Simulation function: Measured pressure value, sensor tem- 	Constant value or over parame- terizable ramp function
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively	perature and electronics tem- perature	
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			
 Can be calibrated by applying two pressures 	Yes		
- Monitoring of sensor limits	Yes		
 Specification of a container characteristic with 	Max. 30 nodes		
 Square-rooted characteristic for flow measurement 	Yes		
 Gradual volume suppression and implementation point of square-root extraction 	Parameterizable		
 Simulation function for mea- sured pressure value and sen- sor temperature 	Constant value or over parame- terizable ramp function		

Pressure transmitters

		for absolute pressure (from gauge pressure series)
Selection and Ordering data	Article No.	Selection and Ordering data Article No.
Pressure transmitters for absolute pressure from gauge pressure series SITRANS P DS III with HART	7 M F 4 2 3 3 -	Pressure transmitters for absolute pressure from gauge pressure series SITRANS P DS III with HART 7 M F 4 2 3 3 -
Click on the Article No. for the online configu- ration in the PIA Life Cycle Portal.		Electrical connection/cable entry • Screwed gland M20x1.5 B
Measuring cell filling Measuring cell cleaning Silicone oil normal Inert liquid ¹⁾ grease-free to cleanliness level 2	1 3	Screwed gland ½-14 NPT C Device plug Han 7D (plastic enclosure) incl. mating connector ¹⁴ Device plugs M12 (stainless steel) ^{15) 16} F
Measuring span (min max.) 8.34 250 mbar a (0.13 3.63 psi a) 43.34 1300 mbar a (0.63 18.86 psi a) 0.17 5 bar a (2.43 72.5 psi a) 1 30 bar a (14.6 435 psi a) 5.34 160 bar a ²⁾ (77.4 2 321 psi a) 13.34 400 bar a ²⁾ (338.43 10 153 psi a)	D F G H L N	Display 0 • Without display 0 • Without visible display (display concealed, setting: mA) 1 • With visible display (setting: mA) 6 • with customer-specific display (setting as specified, Order code "Y21" or "Y22" required) 7 Power supply units see Chap. 7 "Supplementary Components". A quick-start guide is included in the scope of delivery of the device.
Wetted parts materials Seal diaphragm Process connection Stainless steel Stainless steel Hastelloy Stainless steel Hastelloy Hastelloy Version for diaphragm seals in conjunction with process connector "female thread ½-14 NPT" (recommended version) ³⁾ ⁴⁾ ⁵⁾ ⁶⁾ ⁷⁾ Version for diaphragm seals in conjunction with process connector "G½B connection shank" ³⁾ ⁴⁾ ⁵⁾ ⁶⁾ ⁷⁾ Process connector Connection shank G½B to EN 837-1 Female thread ½-14 NPT Stainless steel oval flange with process connection (Oval flange has no female thread) - Mounting thread 7/16 ⁻ 20 UNF to IEC 61518/DIN EN 61518 - Mounting thread M10 to DIN 19213 - Mounting thread M12 to DIN 19213 - Male thread ½ -14 NPT Non-wetted parts materials - Enclosure made of die-cast aluminium - Enclosure stainless steel precision casting ⁸) Version • Standard version, German plate inscription, setting for pressure unit: bar • International version, English plate inscription, setting for pressure unit: bar • Chinese version, English plate inscription, sett	A B C Y 1 Y 0 1 2 3 4 5 6 0 3 4 5 6 1 2 3 4 5 6 1 2 3 4 5 6 1 2 3 3 4 5 6 2 3 3 4 5 6 2 3 4 5 6 7 1 2 3 4 5 6 7 1 2 3 4 5 6 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7	 For oxygen application, add Order code E10. Available soon Version 7MF4233-1DY only up to max. measuring span 200 mbar a (80 inH₂O a). When also ordering the quality test certificate (factory calibration) according to IEC 60770-2 for transmitters with mounted diaphragm seals: Order this certificate only together with the remote seals. If the inspection certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals. The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF423, and 7MF4900-1B The standard measuring cell filling for configurations with remote seals (Y) is silicone oil. Not in conjunction with Electrical connection "device plug Han 7D". Without cable gland, with blanking plug. Only in connection acc. to FM/CSA: suitable for installations according to NEC 500/505. Only in connection with Ex apporval A, B or E. Only in connection with Ex apporval A, B, E or F. M12 delivered without cable socket
 (Ex ia + Ex d)⁽¹⁰⁾ "Ex nA/ic (Zone 2)⁽¹¹⁾ "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)⁽¹⁰⁾¹² FM + CSA intrinsic safe (is)¹³⁾ FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D⁽¹⁰⁾¹²⁾¹³ With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)⁽⁹⁾¹³) 	E R F S NC	

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Select
Pressu from g
SITRA
SITRA

for absolute pressure (from gauge pressure series) tion and Ordering data Article No. ure transmitters for absolute pressure

from gauge pressure		
SITRANS P DS III with P	ROFIBUS PA (PA)	7 M F 4 2 3 4 -
SITRANS P DS III with F	OUNDATION Fieldbus (FF)	7 M F 4 2 3 5 -
Click on the Article N ration in the PIA Life	No. for the online configu- Cycle Portal.	
Measuring cell filling	Measuring cell cleaning	
Silicone oil	normal	1
Inert liquid ¹⁾	grease-free to cleanliness level 2	3
Nominal measuring ra	•	
250 mbar a	(3.63 psi a)	D
1300 mbar a	(18.86 psi a)	F
5 bar a	(72.5 psi a)	G
30 bar a	(435 psi a)	н
160 bar a ²⁾	(2 321 psi a)	L
400 bar a ²⁾	(5 802 psi a)	M
700 bar a ²⁾	(10 153 psi a)	N
Wetted parts materials Seal diaphragm	Process connection	
Stainless steel	Stainless steel	Α
Hastelloy	Stainless steel	B
Hastelloy	Hastelloy	C
	seals in conjunction with	Y 1
process connector "fem	ale thread 1/2-14 NPT"	
process connector "fem (recommended versio	n) ^{3) 4) 5) 6) 7)}	
Version for diaphragm s		Y 0
with process connector "G1/2B connection shank	<pre>~** 3) 4) 5) 6) 7)</pre>	
Process connection	()))))))))))))))))))	
Connection shank G ¹ /2		
 Connection shark G/2 Female thread ½-14 N 		0
	inge with process connec-	
tion (Oval flange has i		
- Mounting thread 7/10		2
IEC 61518/DIN EN 6	š1518	
- Mounting thread M1		3
 Mounting thread M1 		4
 Male thread M20 x 1.5 	5	5
 Male thread ½ -14 NF 	Ϋ́Τ	6
Non-wetted parts mate	erials	
 Enclosure made of die 	e-cast aluminium	0
 Enclosure stainless st 	eel precision casting	3
Version		
Standard version, Ger	man plate inscription,	1
setting for pressure un		
	English plate inscription,	2
setting for pressure un		
Chinese version, Engli		3
setting for pressure un	It: Pascal D with compact operating	
instructions in various E		
	.o languagoo.	

Selection and Ordering data Article No. Pressure transmitters for absolute pressure from gauge pressure series 7 M F 4 2 3 4 - SITRANS P DS III with PROFIBUS PA (PA) 7 M F 4 2 3 4 - SITRANS P DS III with FOUNDATION Fieldbus (FF) 7 M F 4 2 3 5 - Explosion protection 7 M F 4 2 3 5 - • None • • With ATEX, Type of protection: • • "Intrinsic safety (Ex ia)" B • "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)*9) D • "Intrinsic safety, explosion-proof enclosure" (Ex ia + Ex d)*9) E • "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)*9)*11) F • FM + CSA intrinsic safe (is)*2) F • FM + CSA, Type of protection: • • "Intrinsic safe and Explosion Proof (is + xp)*8)*12) NC With FM + CSA, Type of protection: • • "Intrinsic Safe and Explosion Proof (is + xp)*8)*12) B Electrical connection/cable entry • • Screwed gland M20 x 1.5 B • Operation leaded with to total M2T •	
from gauge pressure series 7 M F 4 2 3 4 - SITRANS P DS III with PROFIBUS PA (PA) 7 M F 4 2 3 5 - SITRANS P DS III with FOUNDATION Fieldbus (FF) 7 M F 4 2 3 5 - Explosion protection 7 M F 4 2 3 5 - • None • • With ATEX, Type of protection: • - "Intrinsic safety (Ex a)" B - "Laptonion-proof (Ex d)*8) D - "Intrinsic safety and flameproof enclosure" P (Ex na + Ex d)*9) E - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)*9)*11 F • FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D9*11/12) • With FM + CSA, Type of protection: - "Intrinsic Safe and Explosion Proof (is + xp)*8/12) Electrical connection/cable entry • Screwed gland M20 x 1.5	
SITRANS P DS III with FOUNDATION Fieldbus (FF) 7 M F 4 2 3 5 - Explosion protection • • None • • With ATEX, Type of protection: • • "Intrinsic safety (Ex ia)" B • "Explosion-proof (Ex d)*8) D • "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)*9) B • "Intrinsic safety, explosion-proof enclosure" (Ex ia + Ex d)*9) E • "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)*9)*11) E • FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D)*1112 F • FM + CSA, Type of protection: • "Intrinsic Safe and Explosion Proof (is + xp)*8)*12) F Electrical connection/cable entry • C • Screwed gland M20 x 1.5 B	
Explosion protection • None • With ATEX, Type of protection: - "Intrinsic safety (Ex ia)" - "Explosion-proof (Ex d)*8) - "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)*9) - "Intrinsic safety, explosion-proof enclosure" - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)*9***********************************	
Explosion protection None With ATEX, Type of protection: - "Intrinsic safety (Ex ia)" B "Explosion-proof (Ex d)" ⁸) - "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)" ⁹) - "Ex nA/ic (Zone 2)" ¹⁰) - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)" ⁹) ¹¹ FM + CSA intrinsic safe (is) ¹²) FM + CSA, (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D ⁹) ¹¹ With FM + CSA, Type of protection: - "Intrinsic Safe and Explosion Proof (is + xp)" ⁸) ¹² Electrical connection/cable entry Screwed gland M20 x 1.5	
 None With ATEX, Type of protection: "Intrinsic safety (Ex ia)" "Explosion-proof (Ex d)"⁸) "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"⁹) "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"⁹ 11) FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D⁹ 11)²) With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)"⁸)¹²) Electrical connection/cable entry Screwed gland M20 x 1.5 	
 With ATEX, Type of protection: "Intrinsic safety (Ex ia)" "Explosion-proof (Ex d)*⁸) "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)*⁹) "Ex nA/ic (Zone 2)" ¹⁰) "Ex nA/ic (Zone 2)" ¹⁰) "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"⁹ ¹¹) FM + CSA intrinsic safe (is)¹²) FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D⁹)¹¹)¹² With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)"⁸)¹² Electrical connection/cable entry Screwed gland M20 x 1.5 	
 "Intrinsic safety (Ex ia)" "Explosion-proof (Ex d)"⁸) "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"⁹) "Ex nA/ic (Zone 2)" ¹⁰) "Ex nA/ic (Zone 2)" ¹⁰) "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"⁹ ¹¹) FM + CSA intrinsic safe (is)¹²) FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D⁹)¹¹)¹² With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)"⁸)¹² Electrical connection/cable entry Screwed gland M20 x 1.5 	
 "Explosion-proof (Ex d)*⁸) "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)*⁹) "Ex nA/ic (Zone 2)" ¹⁰) "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)*⁹) ¹¹) FM + CSA intrinsic safe (is)¹²) FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D⁹)¹¹)¹² With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)*⁸)¹² Electrical connection/cable entry Screwed gland M20 x 1.5 	
 "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"⁹) "Ex nA/ic (Zone 2)" ¹⁰) "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"⁹) ¹¹) FM + CSA intrinsic safe (is)¹²) FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D⁹)¹¹)¹²) With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)"⁸)¹² Electrical connection/cable entry Screwed gland M20 x 1.5 	
(Ex ia + Ex d) ^{ng)} E - "Ex nA/ic (Zone 2)" ¹⁰) E - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)" ⁹) ¹¹) F • FM + CSA intrinsic safe (is) ¹²) F • FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D) ⁹) ¹¹ S • With FM + CSA, Type of protection: - "Intrinsic Safe and Explosion Proof (is + xp)" ⁸) ¹² Electrical connection/cable entry • Screwed gland M20 x 1.5	
 "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)^{*9) 11}) FM + CSA intrinsic safe (is)¹²) FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D⁹⁾¹¹⁾¹²) With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)^{*8)12}) Electrical connection/cable entry Screwed gland M20 x 1.5 B 	
dust explosion protection (Ex ia + Ex d + Zone 1D/2D)*9) 11) FM + CSA intrinsic safe (is) ¹²) FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D ⁹⁾¹¹⁾¹² With FM + CSA, Type of protection: - "Intrinsic Safe and Explosion Proof (is + xp)*8)12) Electrical connection/cable entry • Screwed gland M20 x 1.5	
 FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D⁽⁹⁾¹¹⁾¹² With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)^{*8)12} Electrical connection/cable entry Screwed gland M20 x 1.5 B 	
 With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)*⁸⁾¹² Electrical connection/cable entry Screwed gland M20 x 1.5 B 	
- "Intrinsic Safe and Explosion Proof (is + xp)" ⁸⁾¹² Electrical connection/cable entry • Screwed gland M20 x 1.5	
(is + xp)* ⁽⁸⁾¹²⁾ Electrical connection/cable entry • Screwed gland M20 x 1.5	
Screwed gland M20 x 1.5	
3	
Screwed gland 1/2-14 NPT	
Device plugs M12 (stainless steel) ^{13) 14) F}	
Display	
Without display	0
Without visible display	1
(display concealed, setting: bar)	
 With visible display (setting: bar) 	6
• with customer-specific display	7
(setting as specified, Order code "Y21" or "Y22" required)	
A quick-start guide is included in the scope of delivery of the device).
¹⁾ For oxygen application, add Order code E10.	
²⁾ Available soon	
³⁾ Version 7MF4233-1DY only up to max. measuring span 200 mbar a	
(2.9 psi a).	
⁴⁾ When also ordering the quality test certificate (factory calibration) acc ind to IEC 60770.2 for transmittars with mounted disphragm scale;	
ing to IEC 60770-2 for transmitters with mounted diaphragm seals: Order this certificate only together with the remote seals.	or
The measuring accuracy of the total combination is certified here.	or
5) If the inspection certificate 3.1 is ordered for the transmitter with mour diaphragm seals this certificate must also be ordered with the respect	or
remote seals. ⁵⁾ The diaphragm seal is to be specified with a separate order number a	nte

- The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF423.-.Y.-... and 7MF4900-1...-.B
- 7) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- ⁸⁾ Without cable gland, with blanking plug.
- ⁹⁾ With enclosed cable gland Ex ia and blanking plug.
- ¹⁰⁾ Configurations with device plugs Han and M12 are only available in Ex ic. ¹¹⁾Only in connection with IP66.
- 12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- ¹³⁾ Only in connection with Ex approval A, B, E or F.
- 14) M12 delivered without cable socket.

Pressure transmitters

SITRANS P DS III

1

for absolute pressure (from gauge pressure series)									
Order	code			Selection and Ordering data	Order	code			
	HART	PA	FF	Further designs		HART	PA	FF	
				Add "-Z" to Article No. and specify Order code.					
				CRN approval Canada (Canadian Registration Number)	E22 ⁶⁾	1	~	1	
				Dual seal	E24	✓	✓	✓	
A01 A02	4	1	1	Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)	E25 ⁷⁾	1	1	~	
A02 A03	√	~	✓	"Flameproof" explosion protection according to INMETRO (Brazil)	E26 ⁷⁾	~	~	~	

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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 Stainless steel 304	A01 A02	√ √	✓ ✓	✓ ✓
Stainless steel 316L	A02	√	¥.	1
Device plugs ¹⁾				
• Han 7D (metal)	A30	✓		
Han 8D (instead of Han 7D)	A31	√ √		
AngledHan 8D (metal)	A32 A33	↓		
Cable sockets for device plugs M12	A50	1	1	1
(metal (CuZn))	700		·	
Rating plate inscription (instead of Ger-				
man) • English	B11	1	~	1
French	B12	1	~	1
• Spanish	B13	✓	✓	1
• Italian	B14	1	1	1
• Cyrillic (russian)	B16	√ √	√ √	1 1
English rating plate Pressure units in inH ₂ 0 and/or psi	B21	~	~	~
Quality test certificate, 5-point	C11	✓	~	~
factory calibration (IEC 60770-2) ²⁾				
Inspection certificate ³⁾ Acc. to EN 10204-3.1	C12	1	1	~
Factory certificate	C14	1	✓	~
Acc. to EN 10204-2.2				
Inspection certificate (EN 10204-3.1)	C15	✓	✓	1
PMI test of parts in contact with medium				
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL confor-	C20	~		
mity declaration	aa (4)			
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 ⁴⁾		•	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL confor- mity declaration	C23	*		
PED for Russia with initial calibration mark	C99	✓	✓	~
Setting of the upper saturation limit of the output signal to 22.0 mA	D05	1		
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)	D07	~	✓	~
Degree of protection IP66/IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	~	✓	~
Supplied with oval flange	D37	✓	✓	1
(1 item), PTFE packing and screws in thread of oval flange				
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	D59	✓	1	~
Use in or on zone 1D/2D ⁵)	E01	~	~	~
(only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia) and IP65)				
Oxygen application	E10	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	1	~	1

Selection and Ordering data

Add "-Z" to Article No. and specify Order code.				
CRN approval Canada	E22 ⁶⁾	1	~	~
(Canadian Registration Number) Dual seal	E24	1	1	1
	E25 ⁷⁾	· ·		
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)	E23"	•	·	•
"Flameproof" explosion protection according to INMETRO (Brazil)	E26 ⁷⁾	~	~	~
(only for transmitter 7MF4D)				
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28 ⁷⁾	~	~	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4B)	E45 ⁷⁾	1	~	1
Ex Approval IEC Ex (Ex d)	E46 ⁷⁾	~	1	1
(only for transmitter 7MF4D)	240			
Explosion-proof "Intrinsic safety" to	E55 ⁷⁾	✓	1	✓
NEPSI (China) (only for transmitter 7MF4B)				
Explosion protection "Explosion-proof"	E56 ⁷⁾	1	1	
to NEPSI (China)	L30.7	•	•	•
(only for transmitter 7MF4D)				
Explosion-proof "Zone 2" to NEPSI	E57 ⁷⁾	✓	✓	✓
(China) (only for transmitter 7MF4E)				
Ex protection "Ex ia", "Ex d" and "Zone	E58 ⁷⁾	~	1	1
2" to NEPSI (China) (only for transmitter 7MF4R)				
"Intrinsic safety" and "Explosion-proof"	E70 ⁷⁾	~	1	1
explosion protection acc. to Kosha (Korea)				
(only for transmitter 7MF4[B, D]Z + E11)				
Ex-protection Ex ia according to EAC Ex (Russia)	E80	~	~	~
Ex-protection Ex d according to EAC Ex (Russia)	E81	~	~	~
Ex-protection Ex nA/ic (Zone 2) according		1	1	1
to EAC Ex (Russia)	E82	v		
to EAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E82 E83	✓ ✓	√	*
to EAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D		•	• •	✓ ✓
to EAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) Two coats of lacquer on enclosure and cover (PU on epoxy) Transient protector 6 kV (lightning protect.)	E83	 ✓ 		-
to EAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) Two coats of lacquer on enclosure and cover (PU on epoxy)	E83 G10	✓ ✓	✓	✓
to EAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) Two coats of lacquer on enclosure and cover (PU on epoxy) Transient protector 6 kV (lightning protect.) Oval flange NAM (ASTAVA) Marine approvals	E83 G10 J01 J06	* * * *	✓ ✓ ✓	✓ ✓ ✓
to EAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) Two coats of lacquer on enclosure and cover (PU on epoxy) Transient protector 6 kV (lightning protect.) Oval flange NAM (ASTAVA) Marine approvals • Det Norske Veritas	E83 G10 J01	· · ·	✓ ✓	✓ ✓
to EAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) Two coats of lacquer on enclosure and cover (PU on epoxy) Transient protector 6 kV (lightning protect.) Oval flange NAM (ASTAVA) Marine approvals • Det Norske Veritas Germanischer Lloyd (DNV-GL)	E83 G10 J01 J06	* * * *	✓ ✓ ✓	✓ ✓ ✓
to ÉAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) Two coats of lacquer on enclosure and cover (PU on epoxy) Transient protector 6 kV (lightning protect.) Oval flange NAM (ASTAVA) Marine approvals • Det Norske Veritas Germanischer Lloyd (DNV-GL) • Lloyds Register (LR)	E83 G10 J01 J06 S10	* * * *	✓ ✓ ✓	✓ ✓ ✓
to ÉAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) Two coats of lacquer on enclosure and cover (PU on epoxy) Transient protector 6 kV (lightning protect.) Oval flange NAM (ASTAVA) Marine approvals • Det Norske Veritas Germanischer Lloyd (DNV-GL) • Lloyds Register (LR) • French marine classification society Bureau Veritas (BV)	E83 G10 J01 J06 S10 S11 S12	* * * *	✓ ✓ ✓	* * * * *
to ÈAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) Two coats of lacquer on enclosure and cover (PU on epoxy) Transient protector 6 kV (lightning protect.) Oval flange NAM (ASTAVA) Marine approvals • Det Norske Veritas Germanischer Lloyd (DNV-GL) • Lloyds Register (LR) • French marine classification society Bureau Veritas (BV) • American Bureau of Shipping (ABS)	E83 G10 J01 J06 S10 S11 S12 S14	* * * *	✓ ✓ ✓	* * * * * *
to ÉAC Ex (Russia) Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia) Two coats of lacquer on enclosure and cover (PU on epoxy) Transient protector 6 kV (lightning protect.) Oval flange NAM (ASTAVA) Marine approvals • Det Norske Veritas Germanischer Lloyd (DNV-GL) • Lloyds Register (LR) • French marine classification society Bureau Veritas (BV)	E83 G10 J01 J06 S10 S11 S12	* * * *	✓ ✓ ✓	* * * *

ing to IEC 60770-2 for transmitters with mounted diaphragm seals: Order this certificate only together with the remote seals.

The measuring accuracy of the total combination is certified here.

³⁾ If the inspection certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.

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

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

6) Cannot be ordered with remote seal.

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

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for absolute pressure (from gauge pressure series)

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	-	

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar a, bar a, kPa _{abs} , MPa _{abs} , psi a ²⁾	Y01	1	√ 1)	
Stainless steel tag plate and entry in device variable (measuring point description) Max. 16 characters, specify in plain text:	Y15	1	~	~
Y15: Measuring point text (entry in device variable)	Y16	*	1	~
Max. 27 characters, specify in plain text: Y16:				
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	1		
Setting of pressure indication in pres- sure 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 ₂ O ^{*)} , inH ₂ O ^{*)} , ftH ₂ O ^{*)} , mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units ³⁾	Y22 + Y01	1		
Specify in plain text: Y22: up to l/min, m ³ /h, m, USgpm, (specification of measuring range in pres- sure units "Y01" is essential, unit with max. 5 characters)	101			
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		1	*
Damping adjustment in seconds (0 100 s)	Y30	1	~	1
Eactory mounting of valve manifolds, see acc	opportion			

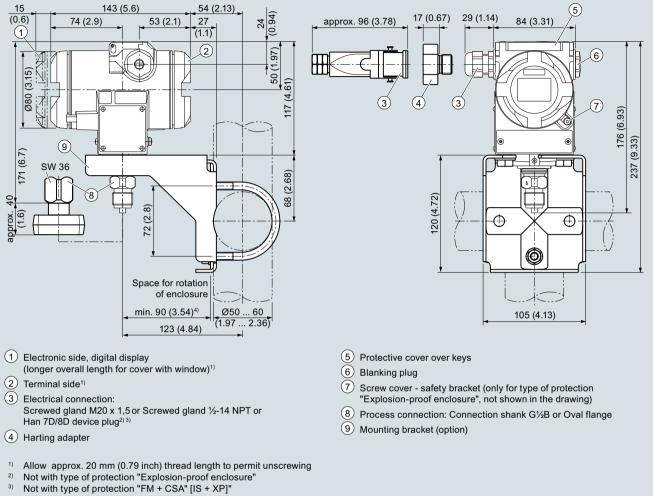
Factory mounting of valve manifolds, see accessories.

Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and D05 can be factory preset \checkmark = available

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

for absolute pressure (from gauge pressure series)

Dimensional drawings



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⁴⁾ Minimum distance for rotating

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

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Pressure Measurement

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for absolute pressure (from differential pressure series)

Technical specifications

SITRANS P, DS III for absolute pressure (from the differen	tial pressure series)			
Input				
Measured variable	Absolute pressure			
Measuring span (infinitely adjustable) or nominal measuring range, max. operating pressure (in accordance with 97/23/EC Pressure Equipment Directive) and max. test pres-	HART	PROFIBUS PA/ FOUNDATION Fieldbus		
sure (pursuant to DIN 16086)	Measuring span	Nominal measur- ing range	Max. operating pressure MAWP (PS)	
	8.34 250 mbar a 0.834 25 kPa a 3 100 inH ₂ O a	250 mbar a 25 kPa a 100 inH ₂ O a	32 bar a 3.2 MPa a 464 psi a	
	43.34 1300 mbar a 4.33 130 kPa a 17 525 inH ₂ O a	1300 mbar a 130 kPa a 525 inH ₂ O a	32 bar a 3.2 MPa a 464 psi a	
	170 5000 mbar a 17 500 kPa a 2.43 72.5 psi a	5000 mbar a 500 kPa a 72.5 psi a	32 bar a 3.2 MPa a 464 psi a	
	1 30 bar a 0.1 3 MPa a 14.6 435 psi a	30 bar a 3 MPa a 435 psi a	160 bar a 16 MPa a 2320 psi a	
	5.3 100 bar a 0.5 10 MPa a 76.9 1450 psi a	100 bar a 10 MPa a 1450 psi a	160 bar a 16 MPa a 2320 psi a	
Lower measuring limit				
 Measuring cell with silicone oil filling 	0 mbar a/0 kPa a/0 psi a			
 Measuring cell with inert filling liquid 				
- for temperature of medium -20 °C < 9 \leq +60 °C (-4 °F < 9 \leq +140 °F)	30 mbar a/3 kPa a/0.44 psi a			
 for temperature of medium 60 °C < 9 ≤ +100 °C (max. 85 °C for measuring cell 30 bar) (140 °F < 9 ≤ +212 °F (max. 185 °F for measuring cell 435 psi)) 	30 mbar a + 20 mbar a · (9 - 60 °C)/°C 3 kPa a + 2 kPa a · (9 - 60 °C)/°C 0.44 psi a + 0.29 psi a · (9 - 140 °F)/°F			
Upper measuring limit	100 % of max. measuring span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/temperature of medium)			
Lower range value	Between the measuring	g limits (fully adjustat	ble)	
Output	HART		PROFIBUS PA/ FOUNDATION Fieldbus	
Output signal	4 20 mA		Digital PROFIBUS PA and FOUNDATION Fieldbus signal	
 Lower limit (infinitely adjustable) 	3.55 mA, factory prese	t to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory preset t ally set to 22.0 mA	o 20.5 mA or option-	-	
Load				
Without HART	$R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V	3 A in Ω,	-	
With HART	$R_{\rm B} = 230 \dots 500 \ \Omega \ ({\rm SIN} R_{\rm B} = 230 \dots 1100 \ \Omega \ ({\rm H})$		-	
Physical bus	-		IEC 61158-2	
Protection against polarity reversal	Protected against shor Each connection again			
Electrical damping (step width 0.1 s)	Set to 2 s (0 100 s)			

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for absolute pressure (from differential pressure series)

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

Measuring accuracy Acc. to IEC 60770-1 Reference conditions • Increasing characteristic (All error data refer always refer to the set span) Lower range value 0 bar/kPa/psi Stainless steel seal diaphragm Silicone oil filling Room temperature 25 °C (77 °F) Measuring span ratio r (spread, Turn-Down) r = max. measuring span/set measuring span or nominal measuring range Error in measurement at limit setting incl. hysteresis and reproducibility Linear characteristic - r ≤ 10 ≤ 0.1 % - 10 < r ≤ 30 ≤ 0.2 % Influence of ambient temperature (in percent per 28 °C (50 °F)) • 250 mbar a/25 kPa a/3.6 psi a $\leq (0.15 \cdot r + 0.1) \%$ • 1300 mbar a/130 kPa a/18.8 psi a $\leq (0.08 \cdot r + 0.16) \%$ 5 bar a/500 kPa a/72.5 psi a 30 bar a/3000 kPa a/435 psi a 100 bar a/10 MPa a/1450 psi a Long-term stability \leq (0.25 · r) % in 5 years (temperature change ± 30 °C (± 54 °F)) Effect of mounting position (in pressure per change in angle) ≤ 0.7 mbar/0.07 kPa/0.010 psi per 10° inclination (zero point correction is possible with position error compensation) 0.005 % per 1 V Effect of auxiliary power supply (in percent per change in voltage) Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus 3 · 10⁻⁵ of nominal measuring range **Operating conditions** Degree of protection according to EN 60529 IP66 (optional IP66/IP68) according to NEMA 250 Type 4X Temperature of medium · Measuring cell with silicone oil filling -40 ... +100 °C (-40 ... +212 °F) · Measuring cell with inert filling liquid -20 ... +100 °C (-4 ... +212 °F) · In conjunction with dust explosion protection -20 ... +60 °C (-4 ... +140 °F) Ambient conditions • Ambient temperature -40 ... +85 °C (-40 ... +185 °F) - Transmitter - Display readable -30 ... +85 °C (-22 ... +185 °F) Storage temperature -50 ... +85 °C (-58 ... +185 °F) Climatic class Relative humidity 0 ... 100 % - Condensation Condensation permissible, suitable for use in the tropics Electromagnetic Compatibility

- Emitted interference and interference immunity

Acc. to IEC 61326 and NAMUR NE 21

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for absolute pressure (from differential pressure	e series)			
SITRANS P, DS III for absolute pressure (from the differer	ntial pressure series)			
Design				
Weight (without options)	≈ 4.5 kg (≈ 9.9 (lb)			
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 no. 1.4408	or stainless steel precision casting, mat.		
Wetted parts materials				
Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Has no. 2.4360, tantalum or gold	stelloy C276, mat. no. 2.4819, Monel, mat.		
Process flanges and sealing screw	Stainless steel, mat. no. 1.4408, Hastelloy C4, mat. no. 2.4602 or Monel, mat. no. 2.4360			
• O-Ring	FPM (Viton) or optionally: PTFE, FEP, FEPM	and NBR		
Measuring cell filling	Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))			
Process connection	$^{7}\!$			
Material of mounting bracket				
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plated			
Stainless steel 304	Sheet stainless steel, mat. no. 1.4301 (SS 304)			
Stainless steel 316L	Sheet stainless steel, mat. no. 1.4404 (SS 3	316L)		
Power supply $m{\textit{U}}_{ec}$	HART	PROFIBUS PA/FOUNDATION Fieldbus		
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-		
Power supply		Supplied through bus		
Separate supply voltage		No		
Bus voltage				
• Not Ex	-	9 32 V		
With intrinsically-safe operation	-	9 24 V		
Current consumption				
Basic current (max.)	-	12.5 mA		
 Start-up current ≤ basic current 	-	Yes		
 Max. current in event of fault 	-	15.5 mA		

Pressure transmitters

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for absolute pressure (from differential pressure series)

SITRANS P, DS III for absolute pressure (from the	• •	
Certificates and approvals	HART	PROFIBUS PA/ FOUNDATION Field- bus
Classification according to PED 2014/68/EU	For gases of fluid group 1 and liquids of article 4, paragraph 3 (sound engineerin	fluid group 1; complies with requirements of g practice)
Explosion protection		
Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatu -40 +70 °C (-40 +158 °F) temperatu -40 +60 °C (-40 +140 °F) temperatu	ire class T5;
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $l_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW; $R_{\rm i}$ = 300 Ω	FISCO supply unit: $U_0 = 17.5$ V, $I_0 = 380$ mA, $P_0 = 5.32$ W Linear barrier: $U_0 = 24$ V, $I_0 = 250$ mA, $P_0 = 1.2$ W
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatu -40 +60 °C (-40 +140 °F) temperatu	
- Connection	To circuits with values: _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 Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)	
- Max. surface temperature	120 °C (248 °F)	
- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}, \ l_i = 100 \text{ mA},$ $P_i = 750 \text{ mW}, \ P_i = 300 \Omega$	FISCO supply unit: $U_0 = 17.5$ V, $I_0 = 380$ mA, $P_0 = 5.32$ W Linear barrier: $U_0 = 24$ V, $I_0 = 250$ mA, $P_0 = 1.2$ W
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$
Dust explosion protection for zone 21/22	PTB 01 ATEX 2055	
- Marking	Ex II 2 D Ex tb IIIC T120°C Db	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H} = 9 \dots 32 \text{ V DC}; P_{\rm max} = 1 \text{ W}$
 Type of protection "n" (zone 2) 	PTB 13 ATEX 2007 X	
- Marking	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc	
- Connection (Ex nA)	$U_{\rm m}$ = 45 V	<i>U</i> _m = 32 V
- Connection (Ex ic)	To circuits with values: $U_{\rm i}$ = 45 V	FISCO supply unit ic: $U_0 = 17.5$ V, $I_0 = 570$ mA Linear barrier: $U_0 = 32$ V, $I_0 = 132$ mA, $P_0 = 1$ W
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \mu\text{H}, C_{\rm i} = 1.1 \text{nF}$
Explosion protection acc. to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)		1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC L II, DIV 2, GP FG; CL III
Explosion protection to CSA	Certificate of Compliance 1153651	

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- Identification (XP/DIP) or (IS)

CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4...T6; CL I, DIV 2, GP ABCD T4...T6; CL II, DIV 2, GP FG; CL III

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

HART communication	000 1100 0	FOUNDATION Fieldbus communication	
HART	230 1100 Ω	Function blocks	3 function blocks analog input
Protocol	HART Version 5.x		1 function block PID
Software for computer	SIMATIC PDM	 Analog input 	
PROFIBUS PA communication Simultaneous communication with	4	 Adaptation to customer-specif- ic process variables 	Yes, linearly rising or falling characteristic
master class 2 (max.)		- Electrical damping, adjustable	0 to 100 s
The address can be set using	Configuration tool or local opera- tion (standard setting address 126)	- Simulation function	Output/input (can be locked within the device with a bridge
Cyclic data usage	,	- Failure mode	parameterizable (last good
Output byte	5 (one measured value) or 10 (two measured values)		value, substitute value, incorre value)
Input byte	0, 1, or 2 (register operating mode and reset function for	- Limit monitoring	Yes, one upper and lower warr ing limit and one alarm limit respectively
Internal preprocessing	metering)	 Square-rooted characteristic for flow measurement 	Yes
Device profile	PROFIBUS PA Profile for Pro- cess Control Devices Version	• PID	Standard FOUNDATION Field- bus function block
	3.0, class B	 Physical block 	1 resource block
Function blocks Analog input 	2	Transducer blocks	1 transducer block Pressure wi calibration, 1 transducer block
 Adaptation to customer-specif- ic process variables 	Yes, linearly rising or falling characteristic	Pressure transducer block	LCD
- Electrical damping, adjustable	0 100 s	- Can be calibrated by applying	Yes
- Simulation function	Input /Output	two pressures	100
- Failure mode	parameterizable (last good	- Monitoring of sensor limits	Yes
	value, substitute value, incorrect value)	 Simulation function: Measured pressure value, sensor tem- perature and electronics tem- 	Constant value or over parame terizable ramp function
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively	perature	
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 			
 Can be calibrated by applying two pressures 	Yes		
- Monitoring of sensor limits	Yes		
 Specification of a container characteristic with 	Max. 30 nodes		
 Square-rooted characteristic for flow measurement 	Yes		
 Gradual volume suppression and implementation point of square-root extraction 	Parameterizable		
- Simulation function for mea- sured pressure value and sen- sor temperature	Constant value or over parame- terizable ramp function		

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Pressure Measurement

Pressure transmitters

RANS P DS III	
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		for absolute pressure (from differential pressure series)
Selection and Ordering data	Article No.	Selection and Ordering data Article No.
Pressure transmitters for absolute pressure from differential pressure series, SITRANS P DS III with HART	7 M F 4 3 3 3 -	Pressure transmitters for absolute pressure from differential pressure series, SITRANS P DS III with HART
Click on the Article No. for the online configuration in the PIA Life Cycle Portal.		Electrical connection/cable entry
Measuring cell filling Measuring cell		• Screwed gland M20 x 1.5 B • Screwed gland ½-14 NPT C
cleaning Silicone oil normal	1	Device plug Han 7D (plastic enclosure) incl. D mating connector ¹⁴⁾
Inert liquid ¹⁾ grease-free to cleanliness level 2	3	Device plugs M12 (stainless steel) ^{15) 16)} Display
Measuring span (min max.)		• Without display 0
8.34 250 mbar a (0.13 3.63 psi a) 43.34 1300 mbar a (0.63 18.86 psi a)	D	Without visible display [1] (display concealed, setting: mA)
0.17 5 bar a (2.43 72.5 psi a)	G	With visible display (setting: mA)
1 30 bar a (14.6 435 psi a)	н	with customer-specific display
5.3 100 bar a (76.9 1450 psi a)	KE	(setting as specified, Order code "Y21" or "Y22" required)
Wetted parts materials Seal diaphragm Parts of measuring cell		Power supply units see Chap. 7 "Supplementary Components".
Stainless steel Stainless steel	- A	Included in delivery of the device:
Hastelloy Stainless steel	В	 Quick-start guide Sealing plug(s) or sealing screw(s) for the process flanges(s)
Hastelloy Hastelloy	c	
Tantalum Tantalum Monel Monel	E	 For oxygen applications, add Order code E10. Version 7MF4333-1DY only up to max. measuring span 200 mbar a
Gold Gold	ï	(2.9 psi a).
Version for diaphragm seal ^{2) 3) 4) 5) 6)}	Y	³⁾ When also ordering the quality test certificate (factory calibration) according to IEC 60770-2 for transmitters with mounted diaphragm seals:
 Sealing screw opposite process connection Mounting thread ⁷/₁₆-20 UNF to IEC 61518/DIN EN 61518 Mounting thread M10 to DIN 19213 (only for replacement requirement) Vent on side of process flange ⁷) Mounting thread ⁷/₁₆-20 UNF to IEC 61518/DIN EN 61518 Mounting thread M10 to DIN 19213 (only for replacement requirement) 	2 0 6 4	 4) If the inspection certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals. 5) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF433Y and 7MF4900-1B 6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil. 7) Not for measuring span "5.3 100 bar a (76.9 1450 psi a)". Position of the top vent valve in the process flange (see dimensional drawing). 8) Not in conjunction with Electrical connection "device plug Han 7D". 9) Without cable gland, with blanking plug
Non-wetted parts materials		¹⁰⁾ With enclosed cable gland Ex ia and blanking plug
process flange screws Electronics enclosure	_	 ¹¹⁾ Configurations with device plugs Han and M12 are only available in Ex ic. ¹²⁾ Only in connection with IP66.
Stainless steel Die-cast aluminum Stainless steel Stainless steel precisio casting ⁸⁾	n 3	 ¹³⁾ Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505. ¹⁴⁾ Only in connection with Ex apporval A, B or E.
Version		¹⁵⁾ Only in connection with Ex approval A, B, E or F.
 Standard version, German plate inscription, setting for pressure unit: bar 	1	¹⁶⁾ M12 delivered without cable socket.
 International version, English plate inscription, setting for pressure unit: bar 	2	
Chinese version, English plate inscription, setting for pressure unit: Pascal	3	
All versions include DVD with compact operatin instructions in various EU languages.	g	
Explosion protection		
NoneWith ATEX, Type of protection:	A	
- "Intrinsic safety (Ex ia)"	в	
- "Explosion-proof (Ex d)" ⁹⁾	D	
 "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)" ¹⁰⁾ 	Р	
- "Ex nA/ic (Zone 2)" ¹¹⁾	E	
 "Intrinsic safety, explosion-proof enclosure an dust explosion protection (Ex ia+ Ex d + Zone 1D/2D)^{*10)12)} EM + CSA intrinsic acts (ia)¹³ 		
 FM + CSA intrinsic safe (is)¹³⁾ FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + 	F	
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D ¹⁰) ¹²) ¹³		
 With FM + CSA, Type of protection: 		
- "Intrinsic Safe and Explosion Proof	NC	

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for absolute pressure (from differential pressure series)

Selection and Orderin	a data	Article N	0	Sele	ction and Ordering	data	Article No.
Pressure transmitter f	•	AILICIE N	0.			r absolute pressure	Article No.
from differential press					differential pressu		
SITRANS P DS III with F	PROFIBUS PA (PA)	7 M F 4 3	34 -	SITR	ANS P DS III with PR	OFIBUS PA (PA)	7 M F 4 3 3 4 -
SITRANS P DS III with F	OUNDATION Fieldbus (FF)	7 M F 4 3		SITR	ANS P DS III with FO	UNDATION Fieldbus (FF)	7 M F 4 3 3 5 -
Click on the Article N ration in the PIA Life	No. for the online configu- Cycle Portal.			Flec	trical connection/ca	able entry	
Measuring cell filling	Measuring cell				rewed gland M20 x 1	•	В
Silicone oil	cleaning normal	1			ewed gland 1/2-14 N		c
Inert liquid ¹⁾	grease-free to cleanliness level 2	3		• De Disp	vice plugs M12 (stain	nless steel) ^{13/14/}	F
Nominal measuring ra				• Wit	hout display		0
250 mbar a	(3.63 psi a)	D			hout visible display splay concealed, set	tting: bar)	1
1300 mbar a 5 bar a	(18.86 psi a) (72.5 psi a)	F G			h visible display (set	0 /	6
30 bar a	(435 psi a)	H		• Wit	h customer-specific	display (setting as	7
100 bar a	(1450 psi a)	KE			ecified, Order code "	. ,	
Wetted parts materials Seal diaphragm	s Parts of measuring cell			• Qu	ded in delivery of the ick-start guide	e device: ng screw(s) for the proces	s flanges(s)
Stainless steel	Stainless steel Stainless steel	AB			01 01 /	o () .	s hanges(s)
Hastelloy Hastelloy	Hastelloy	C		¹⁷ Fo 2) Ve	or oxygen application, ersion 7MF4334-1DY	add Order code E10. . only up to max. measuring	span 200 mbar a (80
Tantalum	Tantalum	E		in	H ₂ O a).		
Monel	Monel	Н		³⁾ W	hen also ordering the a to IEC 60770-2 for tr	quality test certificate (factor ransmitters with mounted dia	aphragen seals:
Gold Version as diaphragm s	Gold	L Y		0	rder this certificate on	ly together with the remote s	eals.
Process connection		- '		4) If	the inspection certification	ey of the total combination is ate 3.1.is ordered for the tra	nsmitter with mounted
	PT with flange connection				aphragm seals this ce mote seals.	ertificate must also be ordere	ed with the respective
Sealing screw opposi						o be specified with a separa	ate order number and
 Mounting thread ⁷/₁, IEC 61518/DIN EN 6 	₆ -20 UNF to 31518	2		m	ust be included wiht the MF433Y and 7N	he transmitter order number	, for example
- Mounting thread M1	0 to DIN 19213	0		6) Th	ne standard measuring	g cell filling for configuration:	s with remote seals (Y)
(only for replacement	. ,				silicone oil.	ng range 100 bar a (1450 ps	ia) Position of the ton
 Vent on side of proces Mounting thread ⁷/₄ 		6		Ve	ent valve in the proces	s flange (see dimensional d	rawing).
 Mounting thread ⁷/₁, IEC 61518/DIN EN 6 	51518	Ŭ		8) W	ithout cable gland, with	th blanking plug and Ex ia and blanking plug	
- Mounting thread M1		4		10) C	onfigurations with dev	ice plugs Han and M12 are	only available in Ex ic.
(only for replacement Non-wetted parts mate	, ,				nly in connection with		
process flange screws				N	EC 500/505.	c. to FM/CSA: suitable for ins	stallations according to
Stainless steel	Die-cast aluminum	2			Only in connection wi 12 delivered without c	ith Ex approval A, B, E or F.	
Stainless steel	Stainless steel precision casting	3		. 141			
Version	odoling	-					
 Standard version, Ger 			1				
 setting for pressure up International version 	nit: bar English plate inscription,		2				
setting for pressure u			2				
Chinese version, Engli			3				
setting for pressure un All versions include DV	It: Pascal D with compact operating						
instructions in various E							
Explosion protection							
NoneWith ATEX, Type of pr	ratection.		A				
 With ATEX, Type of pr "Intrinsic safety (Ex i 			в				
- "Explosion-proof (Ex			D				
- "Intrinsic safety and	flameproof enclosure"		Р				
(Ex ia + Ex d) ^{" 9)} - "Ex nA/ic (Zone 2)" ¹⁽	0)		Е				
	losion-proof enclosure and		R				
dust explosion prote Zone 1D/2D) ^{"9) 11)}	ection (Ex ia + Ex d +						
• FM + CSA intrinsic sa	fe (is) ¹²⁾		F				
• FM + CSA (is + ep) + Zone 1D/2D ⁹⁾¹¹⁾¹²⁾	Ex ia + Ex d (ATEX) +		S				
• With FM + CSA, Type							
	(plosion Proof (is + xp)" ⁸⁾¹²)		NC				

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Pressure Measurement

Pressure transmitters

SITRANS P DS III

Selection and Ordering data	Order	code		
<i>Further designs</i> 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 • Stainless steel 304 • Stainless steel 316L	A01 A02 A03	* *	✓ ✓ ✓	* * *
O-rings for process flanges (instead of FPM (Viton)) • PTFE (Teflon) • FEP (with silicone core, approved for food) • FFPM (Kalrez, for measured medium tem- peratures -15 100 °C (5 212 °F)) • NBR (Buna N)	A20 A21 A22 A23	* * *	* * * *	* * *
Device plugs ¹⁾ • Han 7D (metal) • Han 8D (instead of Han 7D) • Angled • Han 8D (metal)	A30 A31 A32 A33	****		
Sealing screw ¼-18 NPT, with vent valve in mat. of process flanges	A40	1	•	~
Cable sockets for device plugs M12 (metal (CuZn))	A50	~	~	~
Rating plate inscription (instead of German) • English • French • Spanish • Italian • Cyrillic (russian)	B11 B12 B13 B14 B16	* * * *	* * * *	* * * * *
English rating plate Pressure units in inH ₂ 0 and/or psi	B21	~	~	~
Quality test certificate, 5-point factory calibration (IEC 60770-2) ²⁾	C11	1	✓	~
Inspection certificate ³⁾ Acc. to EN 10204-3.1	C12	~	~	~
Factory certificate Acc. to EN 10204-2.2	C14	1	~	~
Inspection certificate (EN 10204-3.1) PMI test of parts in contact with medium	C15	~	~	1
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL confor- mity declaration	C20	1		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 ⁴⁾		~	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL confor- mity declaration	C23	*		
PED for Russia with initial calibration mark	C00	1	1	1

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

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for absolute pressure (from differential pressure series)

Selection and Ordering data	Order	aada		
Selection and Ordering data Further designs	Order	CODE HART	PA	FF
Add "-Z" to Article No. and specify Order code.		IIAIII	14	••
Use in or on zone 1D/2D ⁵⁾	E01	1	~	~
(only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia)" and IP66)				
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	1	~	~
CRN approval Canada (Canadian Registration Number)	E22 ⁶⁾	~	✓	~
Dual seal	E24	✓	1	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)	E25 ⁷⁾	*	•	*
"Flameproof" explosion protection accord- ing to INMETRO (Brazil)	E26 ⁷⁾	✓	✓	~
(only for transmitter 7MF4D)				
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28 ⁷⁾	*	1	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4B)	E45 ⁷⁾	*	✓	~
Ex Approval IEC Ex (Ex d)	E46 ⁷⁾	~	~	~
(only for transmitter 7MF4D) Explosion-proof "Intrinsic safety"	E55 ⁷⁾			
to NEPSI (China) (only for transmitter 7MF4B)	E00.4	•	•	•
Explosion protection "Explosion-proof" to	E56 ⁷⁾	1	~	1
NEPSI (China) (only for transmitter 7MF4D)	LUU	·	·	·
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57 ⁷⁾	~	~	~
Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)	E58 ⁷⁾	✓	✓	~
(only for transmitter 7MF4				
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)	E70 ⁷⁾	*	✓	~
(only for transmitter 7MF4[B, D]Z + E11)				
Ex-protection Ex ia according to EAC Ex (Russia)	E80	1	~	~
Ex-protection Ex d according to EAC Ex (Russia)	E81	*	✓	~
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82	*	✓	~
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83	1	1	~
Two coats of lacquer on enclosure and cover (PU on epoxy)	G10	1	~	*
Interchanging of process connection side	H01	1	✓	✓
Vent on side for gas measurements	H02	1	1	~
Stainless steel process flanges for vertical differential pressure lines (not together with K01, K02 and K04) ⁸⁾	H03	*	1	~

Selection and Ordering data	Order	code		
<i>Further designs</i> Add "- Z " to Article No. and specify Order code.		HART	PA	FF
Transient protector 6 kV (lightning protection)	J01	1	1	1
Chambered graphite gasket for process flange	J02	~	1	~
Chambered PTFE graphite gasket	J03	1	✓	✓
EPDM O-rings for process flange with approval (WRC/WRAS)	J05	1	~	~
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display) ⁹⁾	J08	~	1	1
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display) ⁹⁾	J09	~	1	*
 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	* * *	↓ ↓ ↓	* * *
Marine approvals • Det Norske Veritas Germanischer Lloyd (DNV-GL) • Lloyds Register (LR) • French marine classification society Bureau Veritas (BV) • American Bureau of Shipping (ABS) • Russian Maritime Register (RMR) • Korean Register of Shipping (KR)	S10 S11 S12 S14 S16 S17	* * * * * *	✓ ✓ ✓ ✓ ✓	* * * *

²⁾ When also ordering the quality test certificate (factory calibration) according to IEC 60770-2 for transmitters with mounted diaphragm seals: Order this certificate only together with the remote seals. The measuring accuracy of the total combination is certified here.

³⁾ If the inspection certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.

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

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

6) Cannot be ordered with remote seal.

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

⁸⁾ Not suitable for connection of remote seals.

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

Pressure transmitters for applications with advanced requirements (Advanced) 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 Specify in plain text (max. 5 characters): Y01: up to mbar a, bar a, kPa _{abs} , MPa _{abs} , psi a ²⁾	Y01	1	√ 1)	
Stainless steel tag plate and entry in device variable (measuring point description)	Y15	1	~	~
Max. 16 characters, specify in plain text: Y15:				
Measuring point text (entry in device vari- able)	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 ₂ O ^{*)} , inH ₂ O ^{*)} , ftH ₂ O ^{*)} , mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units ³⁾	Y22 + Y01	~		
Specify in plain text: Y22: up to l/min, m ³ /h, m, USgpm, (specification of measuring range in pressure units "Y01 " is essential, unit with max. 5 char- acters)				
Preset bus address possible between 1 and 126	Y25		~	~
Specify in plain text: Y25:				
Damping adjustment in seconds (0 100 s)	Y30	1	1	1

Factory mounting of valve manifolds, see accessories.

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

✓ = available

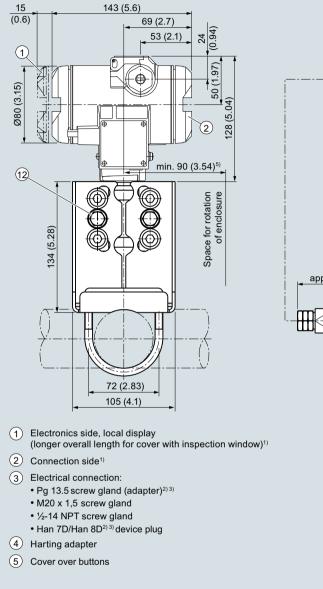
- ¹⁾ Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.
- Only absolute pressure units selectable. Negative pressure values not permitted.
- ³⁾ Preset values can only be changed over SIMATIC PDM.

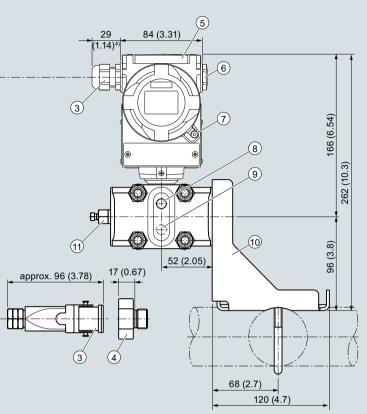
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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for absolute pressure (from differential pressure series)

Dimensional drawings





- 6 Blanking plug
- Safety catch (only for "flameproof enclosure" type of protection; not shown in the drawing)
- 8 Lateral ventilation for liquid measurement (Standard)
- (9) Lateral ventilation for gas measurement (order option H02)
- (10) Mounting bracket (optional)
- (1) Sealing plug with valve (optional)
- (12) Process connection: 1/4-18 NPT (IEC 61518)
- ¹⁾ In addition, allow approx. 20 mm (0.79 inch) for the thread length
- ²⁾ Not with "flameproof enclosure" type of protection
- ³⁾ Not for type of protection "FM + CSA" [is + XP]"
- ⁴⁾ For Pg 13.5 with adapter, approx. 45 mm (1.77 inch)
- ⁵⁾ 92 mm (3.62 inch) minimum distance for rotating with indicator

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

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and flow

Technical specifications

SITRANS P, DS III for differential pressure and flow

Input

Measured variable

Measuring span (infinitely adjustable) or nominal measuring range and maximum operating pressure (pursuant to 2014/68/EU Pressure Equipment Directive) Differential pressure and flow

Differential pressure	and flow	
HART	PROFIBUS PA/ FOUNDATION Fieldbus	
Measuring span	Nominal measuring range	Max. operating pressure MAWP (PS)
1 20 mbar 0.1 2 kPa 0.4 8 inH ₂ O	20 mbar 2 kPa 8 inH ₂ O	32 bar 3.2 MPa 464 psi
1 60 mbar 0.1 6 kPa 0.4 24 inH ₂ O	60 mbar 6 kPa 24.1 inH ₂ O	160 bar 16 MPa 2320 psi
2.5 250 mbar 0.2 25 kPa 1 100 inH ₂ O	250 mbar 25 kPa 100 inH ₂ O	
6 600 mbar 0.660 kPa 2.4 240 inH ₂ O	600 mbar 60 kPa 240 inH ₂ O	
16 1600 mbar 1.6160 kPa 6.4 642 inH ₂ O	1600 mbar 160 kPa 642 inH ₂ O	
50 5000 mbar 5500 kPa 20 2000 inH ₂ O	5000 mbar 500 kPa 2000 inH ₂ O	
0.3 30 bar 0.03 3 MPa 4.35 435 psi	30 bar 3 MPa 435 psi	
2.5 250 mbar 0.2 25 kPa 1 100 inH ₂ O	250 mbar 25 kPa 100 inH ₂ O	420 bar 42 MPa 6091 psi
6 600 mbar 0.660 kPa 2.4 240 inH ₂ O	600 mbar 60 kPa 240 inH ₂ O	(500 bar/50 MPa/7250 psi can be ordered optionally with Order Code D56)
16 1600 mbar 1.6160 kPa 6.4 642 inH ₂ O	1600 mbar 160 kPa 642 inH ₂ O	
50 5000 mbar 5500 kPa 20 2000 inH ₂ O	5000 mbar 500 kPa 2000 inH ₂ O	
0.3 30 bar 0.03 3 MPa 4.35 435 psi	30 bar 3 MPa 435 psi	

Lower measuring limit

• Measuring cell with silicone oil filling

Measuring cell with inert filling liquid

- for temperature of medium -20 °C < $\vartheta \le +60$ °C (-4 °F < $\vartheta \le +140$ °F)
- for temperature of medium $60 \ ^\circ C < 9 \le +100 \ ^\circ C$ (max. 85 $^\circ C$ for measuring cell 30 bar) (140 $^\circ F < 9 \le +212 \ ^\circ F$ (max. 185 $^\circ F$ for measuring cell 435 psi))

Upper measuring limit

Lower range value

-100 % of max. measuring span (-33 % with measuring cell 30 bar/3 MPa/435 psi) or 30 mbar a/3 kPa a/0.44 psi a

-100 % of max. measuring span (-33 % with measuring cell 30 bar/3 MPa/435 psi) or 30 mbar a/3 kPa a/0.44 psi a

30 mbar a + 20 mbar a · (9 - 60 °C)/°C 3 kPa a + 2 kPa a · (9 - 60 °C)/°C 0.44 psi a + 0.29 psi a · (9 - 140 °F)/°F

100 % of max. measuring span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/temperature of medium) Between the measuring limits (fully adjustable)

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and flow

SITRANS P, DS III for differential pressure and flow Output	HART		PROFIBUS PA/FOUNDATION Fieldbus		
•					
Output signal	4 20 mA		Digital PROFIBUS PA and FOUNDATION Fieldbus signal		
 Lower limit (infinitely adjustable) 	3.55 mA, factory	preset to 3.84 mA	-		
 Upper limit (infinitely adjustable) 	23 mA, factory p optionally set to code D05)	reset to 20.5 mA or 22.0 mA (with order	-		
Load					
Without HART	$R_{\rm B} \leq (U_{\rm H} - 10.5)$ $U_{\rm H}$: Power supp	/)/0.023 A in Ω, ly in V	-		
With HART	$R_{\rm B} = 230 \dots 500$ $R_{\rm B} = 230 \dots 1100$ tor)	Ω (SIMATIC PDM) or Ω (HART Communica-	-		
Physical bus	-		IEC 61158-2		
Protection against polarity reversal	Protected agains other with max.		ity reversal. Each connection against the		
Electrical damping (step width 0.1 s)	Set to 2 s (0 1	00 s)			
Measuring accuracy	Acc. to IEC 6077	· ·			
Reference conditions (All error data refer always refer to the set span)	 Lower range va Stainless steel Silicone oil fillir 	 Increasing characteristic Lower range value 0 bar/kPa/psi Stainless steel seal diaphragm Silicone oil filling Room temperature 25 °C (77 °F) 			
Measuring span ratio r (spread, Turn-Down)	r = max. measu	ring span/set measuring	span or nominal measuring range		
Error in measurement at limit setting incl. hysteresis and reproducibility					
Linear characteristic					
- 20 mbar/2 kPa/0.29 psi	r ≤ 5 : 5 < r ≤ 10 : 10 < r ≤ 20 :	≤ 0.075 % ≤ (0.0029 · r + 0.07 ≤ (0.0045 · r + 0.07			
- 60 mbar/6 kPa/0.87 psi	r ≤ 5 : 5 < r ≤ 60 :	≤ 0.075 % ≤ (0.005 · r + 0.05)	%		
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi	r ≤ 5 : 5 < r ≤ 100 :	≤ 0.065 % ≤ (0.004 · r + 0.045)) %		
 Square-rooted characteristic (flow > 50 %) 					
- 20 mbar/2 kPa/0.29 psi	r ≤ 5 : 5 < r ≤ 10 : 10 < r ≤ 20 :	≤ 0.075 % ≤ (0.0029 · r + 0.07 ≤ (0.0045 · r + 0.07			
- 60 mbar/6 kPa/0.87 psi	r ≤ 5 : 5 < r ≤ 60 :	≤ 0.075 % ≤ (0.005 · r + 0.05)	%		
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi	r ≤ 5 : 5 < r ≤ 100 :	≤ 0.065 % ≤ (0.004 · r + 0.045)			
• Square-rooted characteristic (flow > 25 50 %)					
- 20 mbar/2 kPa/0.29 psi	r ≤ 5 : 5 < r ≤ 10 : 10 < r ≤ 20 :	≤ 0.15 % ≤ (0.0058 · r + 0.14 ≤ (0.009 · r + 0.142			
- 60 mbar/6 kPa/0.87 psi	r ≤ 5 : 5 < r ≤ 60 :	≤ 0.015 % ≤ (0.01 · r + 0.1) %			
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi	r ≤ 5 : 5 < r ≤ 100 :	≤ 0.13 % ≤ (0.008 · r + 0.09)	%		

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and flow

SITRANS P, DS III for differential pressure and flow				
Measuring accuracy (continued)	Acc. IEC 60770-1			
Influence of ambient temperature (in percent per 28 °C (50 °F))				
• 20 mbar/2 kPa/0.29 psi	$\leq (0.15 \cdot r + 0.1) \%$			
• 60 mbar/6 kPa/0.87 psi	$\leq (0.075 \cdot r + 0.1) \%$			
 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi 	≤ (0.025 · r + 0.125) %			
Influence of static pressure				
on the lower range value				
- 20 mbar/2 kPa/0.29 psi	≤ (0.15 · r) % per 32 bar (zero offset is possible with position error adjustment)			
- 60 mbar/6 kPa/0.87 psi 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi	≤ (0.1 · r) % per 70 bar (zero offset is possible with position error adjustment)			
- 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi	≤ (0.2 · r) % per 70 bar (zero offset is possible with position error adjustment)			
 on the measuring span 				
- 20 mbar/2 kPa/0.29 psi	≤ 0.2 % per 32 bar			
- 60 mbar/6 kPa/0.87 psi 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 30 bar/3 MPa/435 psi	≤ 0.14 % per 70 bar			
Long-term stability (temperature change ± 30 °C (± 54 °F))	Static pressure max. 70 bar/7 MPa/ 1015 psi			
• 20 mbar/2 kPa/0.29 psi	≤ (0.2 · r) % per year			
• 60 mbar/6 kPa/0.87 psi 30 bar/3 MPa/435 psi	≤ (0.25 · r) % in 5 years			
 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi 	≤ (0.125 · r) % in 5 years			
Effect of mounting position (in pressure per change in angle)	\leq 0.7 mbar/0.07 kPa/0.028 inH ₂ O per 10° inclination (zero offset is possible with position error adjustment)			
Effect of auxiliary power supply (in percent per change in voltage)	0.005 % per 1 V			
Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus	3 · 10 ⁻⁵ of nominal measuring range			

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

SITRANS P, DS III for differential pressure and flow		
Operating conditions		
Degree of protection		
according to EN 60529	IP66 (optional IP66/IP68)	
according to NEMA 250	Туре 4Х	
Temperature of medium		
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F) -20 +1 with 30 bar measuring cell	00 °C (-4 +212 °F)
 Measuring cell with inert filling liquid 	-20 +100 °C (-4 +212 °F)	
 Measuring cell with Neobee fill fluid (FDA-compliant) 	-10 +100 °C (+14 +212 °F)	
 In conjunction with dust explosion protection 	-20 +60 °C (-4 +140 °F)	
Ambient conditions		
 Ambient temperature (silicone oil and inert oil) 		
- Transmitter	-40 +85 °C (-40 +185 °F) -20 +85 °C (-4 +185 °F) with 30 bar	measuring cell
- Display readable	-30 +85 °C (-22 +185 °F)	
Ambient temperature (Neobee fill fluid)		
- Transmitter	-10 +85 °C (+14 +185 °F)	
Storage temperature	-50 +85 °C (-58 +185 °F)	
Climatic class		
- Condensation	Relative humidity 0 100 % Condensation permissible, suitable for u	se in the tropics
Electromagnetic Compatibility		
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21	
Design		
Weight (without options)	Die-cast aluminum: \approx 4.5 kg (\approx 9.9 lb) Stainless steel precision casting: \approx 7.1 kg	g (≈ 15.6 lb)
Enclosure material	Low-copper die-cast aluminum, GD-AlSi no. 1.4408	12 or stainless steel precision casting, mat.
Wetted parts materials		
Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or I mat. no. 2.4360, tantalum or gold	
 Process flanges and sealing screw 	Stainless steel, mat. no. 1.4408, Hastello mat. no. 2.4360	
• O-Ring	FPM (Viton) or optionally: PTFE, FEP, FEF	
Measuring cell filling	100 bar (1450 psi) at 60 °C (140 °F))	n value with oxygen measurement pressure
Process connection	Female thread ¹ / ₄ -18 NPT and flange con DIN 19213 or ⁷ / ₁₆ -20 UNF to IEC 61518/I	nection with mounting thread M10 to DIN EN 61518
Material of mounting bracket		
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-pla	
Stainless steel 304	Sheet stainless steel, mat. no. 1.4301 (S	,
Stainless steel 316L	Sheet stainless steel, mat. no. 1.4404 (S	,
Power supply $U_{\rm H}$	HART	PROFIBUS PA/ FOUNDATION Fieldbus
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	
Power supply	-	Supplied through bus
Separate supply voltage	-	No
Bus voltage		
• Not Ex	-	9 32 V
With intrinsically-safe operation	-	9 24 V

_

12.5 mA Yes

15.5 mA

Yes

Fault disconnection electronics (FDE) available

Current consumptionBasic current (max.)

Start-up current ≤ basic currentMax. current in event of fault

Pressure transmitters

for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and flow

SITRANS P, DS III for differential pressure and flow		
Certificates and approvals	HART	PROFIBUS PA/ FOUNDATION Fieldbus
Classification according to PED 2014/68/EU	 PN 32/160 (MAWP 464/2320 psi) for ga group 1; complies with requirements of practice) 	ses of fluid group 1 and liquids of fluid article 4, paragraph 3 (sound engineering
	 PN 420 (MAWP 6092) for gases of fluid complies with basic safety requirement assigned to category III, conformity eva- 	s of Article 4, paragraph 1 (appendix 1);
Explosion protection		
Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatu -40 +70 °C (-40 +158 °F) temperatu -40 +60 °C (-40 +140 °F) temperatu	re class T5;
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $l_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW; $R_{\rm i}$ = 300 Ω	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	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatu -40 +60 °C (-40 +140 °F) temperatu	re 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 Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)	
- Max. surface temperature	120 °C (248 °F)	
- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}, l_i = 100 \text{ mA},$ $P_i = 750 \text{ mW}, R_i = 300 \Omega$	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	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$
Dust explosion protection for zone 21/22	PTB 01 ATEX 2055	
- Marking	Ex II 2 D Ex tb IIIC T120°C Db	
- Connection	To circuits with values: $U_{\rm H}$ = 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	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc	
- Connection (Ex nA)	$U_{\rm m}$ = 45 V	U _m = 32 V
- Connection (Ex ic)	To circuits with values: $U_{\rm i} = 45 \ {\rm V}$	FISCO supply unit ic: $U_{o} = 17.5 \text{ V}, I_{o} = 570 \text{ mA}$ Linear barrier:
- Effective internal inductance/capacitance		$U_{\rm o} = 32 \text{ V}, I_{\rm o} = 132 \text{ mA}, P_{\rm o} = 1 \text{ W}$ $L_{\rm i} = 7 \mu\text{H}, C_{\rm i} = 1.1 \text{ nF}$
	$L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$ Certificate of Compliance 3008490	$L_{i} = 7 \mu n, C_{i} = 1.1 n^{-1}$
 Explosion protection acc. to FM Identification (XP/DIP) or (IS); (NI) 	CL I, DIV 1, GP ABCD T4T6; CL II, DIV T4T6; CL I, DIV 2, GP ABCD T4T6; CL	
Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV DIV 2, GP ABCD T4T6; CL II, DIV 2, GF	

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and	flow		
HART communication		FOUNDATION Fieldbus	
HART	230 1100 Ω	communication	
Protocol	HART Version 5.x	Function blocks	3 function blocks analog input, 1 function block PID
Software for PC	SIMATIC PDM	 Analog input 	
PROFIBUS PA communication		- Adaptation to customer-	Yes, linearly rising or falling
Simultaneous communication with master class 2 (max.)	4	 specific process variables Electrical damping, adjustable 	characteristic 0 100 s
The address can be set using	Configuration tool or local opera- tion (standard setting	- Simulation function	Output/input (can be locked within the device with a bridge)
Cyclic data usage	address 126)	- Failure mode	parameterizable (last good value, substitute value, incorrect
Output byte	5 (one measured value) or 10 (two measured values)	- Limit monitoring	value) Yes, one upper and lower warn-
Input byte	0, 1, or 2 (register operating mode and reset function for metering)	Ū.	ing limit and one alarm limit respectively
Internal preprocessing	meteringy	 Square-rooted characteristic for flow measurement 	Yes
Device profile	PROFIBUS PA Profile for Pro- cess Control Devices Version	• PID	Standard FOUNDATION Field- bus function block
	3.0, class B	 Physical block 	1 resource block
Function blocks Analog input 	2	Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block
 Adaptation to customer-specif- ic process variables 	Yes, linearly rising or falling characteristic	Pressure transducer block	LCD
- Electrical damping, adjustable	0 100 s	- Can be calibrated by applying	Yes
- Simulation function	Input /Output	two pressures	
- Failure mode	parameterizable (last good value, substitute value, incorrect value)	 Monitoring of sensor limits Simulation function: Measured pressure value, sensor tem- 	Yes Constant value or over parame- terizable ramp function
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively	perature and electronics tem- perature	
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 			
 Can be calibrated by applying two pressures 	Yes		
- Monitoring of sensor limits	Yes		
 Specification of a container characteristic with 	Max. 30 nodes		
 Square-rooted characteristic for flow measurement 	Yes		
 Gradual volume suppression and implementation point of square-root extraction 	Parameterizable		

- Simulation function for measured pressure value and sen-sor temperature

Constant value or over parameterizable ramp function

Pressure transmitters

for differential pressure and flow

Selection and Ordering data	Article No.	Selection and Ordering data Article No.
SITRANS P DS III with HART pressure trans- mitters for differential pressure and flow, PN 32/160 (MAWP 464/2320 psi)	7 M F 4 4 3 3 -	SITRANS P DS III with HART pressure trans- mitters for differential pressure and flow, PN 32/160 (MAWP 464/2320 psi)
Click on the Article No. for the online configu- ration in the PIA Life Cycle Portal.		Explosion protection • None A
Measuring cell filling Measuring cell cleaning Silicone oil normal Inert liquid ¹⁾ grease-free to cleanliness level 2 FDA compliant fill fluid ²⁾ • Neobee oil • Neobee oil normal Measuring span (min max.) PN 32 (MAWP 464 psi) 1 20 mbar ³⁾ (0.4 8 inH ₂ O) PN 160 (MAWP 2320 psi) 1 60 mbar (0.4 24 inH ₂ O) 2.5 250 mbar (1.004 100.4 inH ₂ O) 6 600 mbar (2.4 240 inH ₂ O)	1 3 4 B C D E	 Note Note With ATEX, Type of protection: "Intrinsic safety (Ex ia)" "Explosion-proof (Ex d)"¹⁰) "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)"¹¹) "Ex nA/ic (Zone 2)"¹²) "Ex nA/ic (Zone 2)"¹²) "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)"¹¹)¹³ FM + CSA intrinsic safe (is)¹⁴) FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D¹¹)¹³)¹⁴ With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof (is + xp)"¹⁰)¹⁴
161600 mbar $(6.4 \dots 642 \text{ inH}_2\text{O})$ 505000 mbar $(20 \dots 2000 \text{ inH}_2\text{O})$ 0.330 bar $(4.35 \dots 435 \text{ psi})$ Wetted parts materials(stainless steel process flanges)Seal diaphragmParts of measuring cellStainless steelHastelloyStainless steelHastelloyHastelloyTantalum ⁴⁾ TantalumMonel ⁴⁾ Gold	F G H B C E H L	Electrical connection/cable entry • Screwed gland M20 x 1.5 • Screwed gland ½-14 NPT • Device plug Han 7D (plastic enclosure) incl. mating connector ¹⁵⁾¹⁶⁾ • Device plugs M12 (stainless steel) ¹⁷⁾¹⁸⁾ Display • Without display • Without display (display concealed, setting: mA) • With visible display (setting: mA) • with customer-specific display (setting as specified, Order code "Y21" or "Y22"
Version for diaphragm seal ^{5) 6) 7) 8) Process connection Female thread ¼-18 NPT with flange connection • Sealing screw opposite process connection • Mounting thread ⁷/₁₆-20 UNF to IEC 61518/DIN EN 61518 • Mounting thread M10 to DIN 19213 (only for replacement requirement) • Vent on side of process flange ³⁾ • Mounting thread ⁷/₁₆-20 UNF to IEC 61518/DIN EN 61518 • Mounting thread M10 to DIN 19213 (only for replacement requirement) Non-wetted parts materials process flange screws Electronics enclosure Stainless steel Die-cast aluminum Stainless steel precision casting⁹⁾}	2 0 6 4 2 3	 required) Power supply units see Chap. 7 "Supplementary Components". Included in delivery of the device: Quick-start guide Sealing plug(s) or sealing screw(s) for the process flanges(s) ¹⁾ For oxygen application, add Order code E10. ²⁾ Available for measuring ranges 250 mbar 5 bar. ³⁾ Not suitable for connection of remote seal. Position of the top vent va the process flange (see dimensional drawing). ⁴⁾ Not in conjunction with max. measuring span 20 and 60 mbar (8.03 and 24.09 inH₂O)) ⁵⁾ When also ordering the quality test certificate (factory calibration) acc ing to IEC 60770-2 for transmitters with mounted diaphragm seals: Order this certificate only together with the remote seals. The measuring accuracy of the total combination is certified here. ⁶⁾ If the inspection certificate 3.1 is ordered for the transmitter with mound diaphragm seals this certificate must also be ordered with the respect remote seals.
Version • Standard version, German plate inscription, setting for pressure unit: bar • International version, English plate inscription, setting for pressure unit: bar • Chinese version, English plate inscription, setting for pressure unit: Pascal All versions include DVD with compact operat- ng instructions in various EU languages.	1 2 3	 ⁷⁾ The diaphragm seal is to be specified with a separate order number must be included with the transmitter order number, for example 7MF443Y and 7MF4900-1B ⁸⁾ The standard measuring cell filling for configurations with remote sea is silicone oil. ⁹⁾ Not in conjunction with Electrical connection "device plug Han 7D". ¹⁰⁾Without cable gland, with blanking plug ¹¹⁾With enclosed cable gland Ex ia and blanking plug ¹²⁾Configurations with device plugs Han and M12 are only available in E ¹³⁾Only in connection with IP66.

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

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and flow

Selection and Order	ing data	Article No.	Selection and Ordering data	Article No.
	rs for differential pressure		Pressure transmitters for differential pressure	
	(MAWP 464/2320 psi)		and flow PN 32/160 (MAWP 464/2320 psi)	
SITRANS P DS III with		7 M F 4 4 3 4 -	SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 4 3 4 -
	FOUNDATION Fieldbus (FF)	7 M F 4 4 3 5 -	SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 4 3 5 -
Click on the Article ration in the PIA Li	e No. for the online configu- fe Cycle Portal.		Fundación unataction	
Measuring cell filling	g Measuring cell		Explosion protection None	А
Ciliaana ail	cleaning		With ATEX, Type of protection:	
Silicone oil Inert liquid ¹⁾	normal grease-free to	1 3	- "Intrinsic safety (Ex ia)"	В
	čleanliness level 2		 "Explosion-proof (Ex d)"⁹⁾ "Intrinsic safety and flameproof enclosure" 	D
 FDA compliant fill flui Neobee oil 			(Ex ia + Ex d) ^{#10)}	
	normal	_ 4	- "Ex nA/ic (Zone 2)" ¹¹⁾	E
Nominal measuring PN 32 (MAWP 464 ps	•		 "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + 	n
20 mbar ³⁾	, (8.03 inH ₂ O)	В	Zone $1D/2D$) ^{#10})12)	_
PN 160 (MAWP 2320	psi)		 FM + CSA intrinsic safe (is)¹³⁾ FM + CSA (is + ep) + Fx ia + Fx d (ATEX)+ 	F
60 mbar	(24 inH ₂ O)	C	• FM + CSA (is + ep) + Ex ia + Ex d (ATEX)+ Zone 1D/2D ¹⁰⁾¹²⁾¹³⁾	
250 mbar 600 mbar	(100 inH ₂ O) (240 inH ₂ O)	DE	With FM + CSA, Type of protection: "Intrinsic Safe and Explosion Proof	
1600 mbar	(642 inH ₂ O)	F	$(is + xp)^{(9)13)}$	NC
5 bar	(2000 inH ₂ O)	G	Electrical connection/cable entry	
30 bar	(435 psi)	_ Н	• Screwed gland M20 x 1.5	В
Wetted parts materia (stainless steel proce			 Screwed gland ½-14 NPT Device plugs M12 (stainless steel)^{14) 15)} 	C
Seal diaphragm	Parts of measuring cell		Display	. '
Stainless steel	Stainless steel	A	Without display	0
Hastelloy	Stainless steel	В	Without visible display	1
Hastelloy Tantalum ⁴⁾	Hastelloy Tantalum	C	(display concealed, setting: bar)With visible display (setting: bar)	6
Monel ⁴⁾	Monel	H	With customer-specific display	7
Gold ⁴⁾	Gold	L	(setting as specified, Order code "Y21" required)	
Version as diaphragm		Y	Included in delivery of the device:	
Process connection			Sealing plug(s) or sealing screw(s) for the process	s flanges(s)
	NPT with flange connection site process connection		¹⁾ For oxygen application, add Order code E10.	
- Mounting thread ⁷ IEC 61518/DIN EN		2	 Available for measuring ranges 250 mbar 5 bar. Not suitable for connection of remote seal. Position of 	
- Mounting thread N		0	the process flange (see dimensional drawing).	or the top vent valve in
(only for replacem	ent requirement)	Ŭ	⁴⁾ Not in conjunction with max. measuring span 20 and (8.03 and 24.09 inH ₂ O))	l 60 mbar
Venting on side of p	process flanges ³⁾		5) When the manufacture's certificate (calibration certif	
 Mounting thread ⁷ IEC 61518/DIN EN 	V 61518	6	ordered for transmitters with diaphragm seals accord is recommended only to order this certificate exclusion	ding to IEC 60770-2, it ively with the dia-
- Mounting thread N		4	phragm seals. The measuring accuracy of the total content of t	
(only for replacem	, ,	-	6) If the inspection certificate 3.1. is ordered for the tran	
Non-wetted parts ma process flange screw	aterials vs Electronics enclosure		diaphragm seals this certificate must also be ordere remote seals.	
Stainless steel	Die-cast aluminum	2	7) The diaphragm seal is to be specified with a separa must be included wiht the transmitter order number,	te order number and
Stainless steel	Stainless steel precision	3	7MF443Y and 7MF4900-1B	
Vereien	casting		 The standard measuring cell filling for configurations is silicone oil. 	with remote seals (Y)
VersionStandard versions		1	⁹⁾ Without cable gland, with blanking plug.	
 International version 	n, English label inscriptions,	2	¹⁰⁾ With enclosed cable gland Ex ia and blanking plug. ¹¹⁾ Configurations with device plugs Han and M12 are of the second	only available in Ex ic.
documentation in 5 (no Order code sele			¹²⁾ Only in connection with IP66.	
Version		-	¹³⁾ Explosion protection acc. to FM/CSA: suitable for inst NEC 500/505.	allations according to
Standard version, G	German plate inscription,	1	14) Only in connection with Ex approval A, B, E or F.	
setting for pressure			¹⁵⁾ M12 delivered without cable socket	
 International version setting for pressure 	n, English plate inscription, unit: bar	2		
Chinese version, Eng	glish plate inscription,	3		
setting for pressure u All versions include D	Unit: Pascal IVD with compact operating			
instructions in various				

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Pressure Measurement

Pressure transmitters

SITRANS P DS III

for differential pressure and flow

Selection and Ordering data	Order	code			Selection and Ordering data	Order	code		
<i>Further designs</i> Add " -Z " to Article No. and specify Order code.		HART	PA	FF	Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	
Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut,					Setting of the upper saturation limit of the output signal to 22.0 mA	D05	1		
2 x U-washer) made of:			,	,	Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)	D07	1	~	
SteelStainless steel 304	A01 A02	*	√ √	√ √	(only together with seal diaphragm made of Hastelloy and stainless steel)				
Stainless steel 316L	A03	~	✓	~	Degree of protection IP66/IP68	D12	1	✓	
O-rings for process flanges (instead of FPM (Viton))					(only for M20 x 1.5 and $\frac{1}{2}$ -14 NPT)	DOA	,	,	
• PTFE (Teflon)	A20	1	1	1	Process flange screws made of Monel (max. nominal pressure PN20)	D34	v	~	
 FEP (with silicone core, approved for food) FFPM (Kalrez, for measured medium tem- 	A21 A22	*	✓ ✓	✓ ✓	Supplied with oval flange set	D37	~	✓	
peratures -15 100 °C (5 212 °F)) • NBR (Buna N)	A23	1	1	1	(2 items), PTFE packings and screws in thread of process flanges				
Device plugs ¹)	A23	•	•	•	Capri cable gland 4F CrNi and clamping	D59	~	✓	
• Han 7D (metal)	A30	1			device (848699 + 810634) included	Fed	1	~	
Han 8D (instead of Han 7D)	A31	√ √			Use in or on zone 1D/2D ⁵⁾ (only together with type of protection	E01	~	•	
• Angled • Han 8D (metal)	A32 A33	*			"Intrinsic safety" (transmitter 7MF4B Ex ia)"and IP66)				
Sealing screws (2 units) 1/4-18 NPT, with vent valve in mat. of process	A40	1	✓	~	Overfilling safety device for flammable	E08	~		
flanges					and non-flammable liquids (max. PN 32 (MAWP 464 psi), basic device				
Cable sockets for device plugs M12 (metal (CuZn))	A50	1	~	1	(Ex ia)", to WHG and VbF, not together with measuring cell filling "inert liquid")				
Rating plate inscription (instead of German)					Oxygen application	E10	1	1	
English	B11	1	1	~	(In the case of oxygen measurement and				
• French	B12	✓	✓	✓	inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))				
• Spanish	B13	1	1	1		F 4 4	1	~	
Italian Curillia (massion)	B14	*	√ √	✓ ✓	Export approval Korea	E11			
Cyrillic (russian) English rating plate	B16 B21	¥	* ~	↓	CRN approval Canada (Canadian Registration Number)	E22 ⁶⁾	~	~	
Pressure units in inH ₂ O and/or psi	DZI	•	•	•	Dual seal	E24	1	✓	
Quality test certificate, 5-point factory calibration (IEC 60770-2) ²⁾	C11	1	✓	✓	Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25 ⁷⁾	~	~	
Inspection certificate ³⁾ to EN 10204-3.1	C12	~	~	~	(only for transmitter 7MF4B)				
Factory certificate to EN 10204-2.2	C14	~	✓	~	"Flameproof" explosion protection according to INMETRO (Brazil)	E26 ⁷⁾	1	~	
Inspection certificate (EN 10204-3.1) PMI test of parts in contact with medium	C15	1	~	~	(only for transmitter 7MF4D)				
Functional safety (SIL2)	C20	~			Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28 ⁷⁾	~	~	
Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL					(only for transmitter 7MF4P)				
conformity declaration	CO1 (4)		~		Ex Approval IEC Ex (Ex ia)	E45 ⁷⁾	1	~	
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 ⁴⁾		v		(only for transmitter 7MF4B) Ex Approval IEC Ex (Ex d)	E46 ⁷⁾	1	~	
Functional safety (SIL2/3) Devices suitable for use according to	C23	1			(only for transmitter 7MF4D)				
IEC 61508 and IEC 61511. Includes SIL conformity declaration					Explosion-proof "Intrinsic safety" to NEPSI (China)	E55 ⁷⁾	~	~	
PED for Russia with initial calibration mark	C99	*	✓	~	(only for transmitter 7MF4B) Explosion protection "Explosion-proof"	E56 ⁷⁾	1	1	
					to NEPSI (China) (only for transmitter 7MF4D)	L30.7		•	
						`			

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E57⁷⁾

E58⁷⁾

E70⁷⁾

~

Explosion-proof "Zone 2" to NEPSI (China)

(only for transmitter 7MF4...-.......E...) Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)

(only for transmitter 7MF4...-.......R..)

(only for transmitter 7MF4...-....-.[B, D]..-Z + E11)

"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and flow

Oslastian and Ordening data	Onder			
Selection and Ordering data	Order			
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF
Ex-protection Ex ia according to EAC Ex (Russia)	E80	1	1	~
Ex-protection Ex d according to EAC Ex (Russia)	E81	1	~	~
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82	~	~	~
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83	~	~	~
Two coats of lacquer on enclosure and cover (PU on epoxy)	G10	1	1	~
Interchanging of process connection side	H01	√	✓	✓
Vent on side for gas measurements	H02	✓	✓	✓
Stainless steel process flanges for vertical differential pressure lines (not together with K01, K02 and K04 ⁸⁾	H03	~	1	*
Transient protector 6 kV (lightning protection)	J01	1	1	~
Chambered graphite gasket for process flange	J02	1	✓	~
Chambered PTFE graphite gasket	J03	✓	✓	~
EPDM O-rings for process flange with approval (WRC/WRAS)	J05	~	~	~
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display ⁹⁾	J08	1	1	*
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display) ⁹⁾	J09	~	1	*
Process flange				
Hastelloy	K01	1	1	1
• Monel	K02	✓	✓	✓
 Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F), for ½-14 NPT inner process con- nection on the side in the middle of the process flange, vent valve not possible 	K04	~	~	•
Marine approvals				
Det Norske Veritas Germanischer Lloyd (DNV-GL)	S10	~	~	~
Lloyds Register (LR)	S11	1	1	~
 French marine classification society Bureau Veritas (BV) 	S12	1	~	~
American Bureau of Shipping (ABS)	S14	✓	1	1
Russian Maritime Register (RMR) Kerean Register of Shipping (KR)	S16 S17	4	1	1
 Korean Register of Shipping (KR) Factory mounting of valve manifolds, see acc 		•	•	

Factory mounting of valve manifolds, see accessories.

- ✓ = available
- 1) Device plug Han IP65
- ²⁾ When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the <u>total</u> combination is certified here.
- 3) If the inspection certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- ⁴⁾ Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H
- Option does not contain gas explosion protection; only dust explosion protection: Use in or at Zone 1D/2D.
- 6) Cannot be ordered with remote seal.
- ⁷⁾ When the additional ex option is selected, the ATEX marking on the device is omitted. Only the Ex option selected via the Z option is marked.
- ⁸⁾ Not suitable for connection of remote seal.
- 9) Blanking plug is standard configuration. Order option A40 if a vent valve is required instead of a blanking plug.

Selection and Ordering data	Order	code		
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	Y01	1	√ 1)	
(max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	101		• ·	
 in the case of square rooted characteristic 	Y02	~		
(max. 5 characters): Y02: 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 char., specify in plain text: Y16:				
Entry of HART address (TAG)	Y17	~		
Max. 8 char., specify in plain text: Y17:				
Setting of pressure indicator in pressure units	Y21	~	~	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi,				
Note: The following pressure units can be selected:				
bar, mbar, mm H_2O^{*} , in H_2O^{*}), ft H_2O^{*}),				
mmHG, inHG, psł, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indicator in non-	Y22 ³⁾	✓		
pressure units²⁾ Specify in plain text:	+ Y01 or			
Y22: up to I/min, m ³ /h, m, USgpm,	Y02			
(specification of measuring range in pres- sure units "Y01" or "Y02" is essential, unit with max. 5 characters)				
Preset bus address	Y25		✓	~
possible between 1 and 126 Specify in plain text: Y25:				
Damping adjustment in seconds (0 100 s)	Y30	~	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.

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")

Pressure transmitters

for differential pressure and flow

Selection and Ordering SITRANS P DS III with I	HART pressure trans-	Article N 7 M F 4 5		Selection and Ordering data SITRANS P DS III with HART pressure trans-	Article No. 7MF4533-	
mitters for differential p PN 420 (MAWP 6092 ps				mitters for differential pressure and flow, PN 420 (MAWP 6092 psi)		
Click on the Article No ration in the PIA Life O				Electrical connection/cable entry • Screwed gland M20x1.5	F	в
Measuring cell filling	Measuring cell		_	Screwed gland 1/2-14 NPT		С
Silicone oil	cleaning normal	1		 Device plug Han 7D (plastic enclosure) incl. mating connector¹³⁾¹⁴⁾ 	D	D
Inert liquid ¹⁾	grease-free to cleanliness level 2	3		Device plugs M12 (stainless steel) ^{15) 16)}	F	F
Measuring span (min				DisplayWithout display		
.	(1.004 100 inH ₂ O)	D		Without display Without visible display		
	(2.4 240 inH ₂ O)	E		(display concealed, setting: mA)		
	(6.4 642 inH ₂ O)	F		 With visible display (setting: mA) 		
	(20 2000 inH ₂ O)	G		with customer-specific display (aptting an appecified Order and "V21" or "V22"	n	
	(4.35 435 psi)	н		(setting as specified, Order code "Y21" or "Y22 required)		
Wetted parts materials	(1)			Power supply units see Chap. 7 "Supplementary	Components"	
(stainless steel process t	langes) Parts of measuring cell				•	
1 0				Scope of delivery: Pressure transmitter as ordere extra ordering item)	d (Instruction Manu	Ua
	Stainless steel	A		3 ,		
	Stainless steel	В		1) For oxygen application, add Order code E10.		_
Gold ²⁾ Version for diaphragm se	Gold	L		 ²⁾ Not in conjunction with max. measuring span 600 ³⁾ When the manufacture's certificate (calibration control of the manufacture) 		
	5ai - / · / - / 0/	- 1		ordered for transmitters with diaphragm seals acc	cording to IEC 60770	′0·
Process connection	F with flongs consection			is recommended only to order this certificate exc	lusively with the dia-	a-
Female thread ¼-18 NPT • Sealing screw opposite				phragm seals. The measuring accuracy of the tota here.	al combination is cert	rti
 Mounting thread ⁷/₁₆- 		3		 4) If the inspection certificate 3.1 is ordered for the 	transmitter with mou	ur
IEC 61518/DIN EN 61	1518	J		diaphragm seals this certificate must also be ord		
- Mounting thread M12	2 to DIN 19213	1		remote seals. ⁵⁾ The diaphragm seal is to be specified with a sep	arato ordor numbor	r ~
(only for replacement				must be included with the transmitter order numb		C
 Venting on side of proc 	cess flanges, location of			7MF453Y and 7MF4900-1B	· · ·	
sional drawing)	cess flanges (see dimen-			⁶⁾ The standard measuring cell filling for configurati is silicone oil.	ons with remote seal	als
- Mounting thread ⁷ / ₁₆ IEC 61518/DIN EN 6	-20 UNF to	7		 Not in conjunction with Electrical connection "dev 	/ice plug Han 7D".	
IEC 61518/DIN EN 6	1518			⁸⁾ Without cable gland, with blanking plug		
- Mounting thread M12		5		⁹⁾ With enclosed cable gland Ex ia and blanking pl ¹⁰⁾ Configurations with device plugs Han and M12 a		-
(only for replacement		_		11 Only in connection with IP66.		E,
Non-wetted parts mate process flange screws				¹²⁾ Explosion protection acc. to FM/CSA: suitable for NEC 500/505.	installations accordin	lin
Stainless steel	Die-cast aluminum	2		¹³⁾ Only in connection with Ex approval A, B or E.		2
	Stainless steel precision	3		¹⁴⁾ Permissible only for crimp-contact of conductor of ¹⁵⁾ Only in connection with Ex approval A, B, E or F.	pross-section 1 mm ²	2
	casting ⁷⁾			¹⁶⁾ M12 delivered without cable socket.		
Version						
 Standard version, Gerr 			1			
 setting for pressure uni International version, E 			2			
 International version, E setting for pressure uni 	it: bar		2			
 Chinese version, Englis 			3			
setting for pressure unit	Pascal					
	with compact operating					
instructions in various El	u languages.					
Explosion protection						
None Mith ATEX. Type of pro	teation		A			
 With ATEX, Type of pro "Intrinsic safety (Ex ia) 			в			
- "Explosion-proof (Ex la						
	,		D			
 "Intrinsic safety and f (Ex ia + Ex d)"⁹⁾ 	iameproot enclosure"		Р			
- "Ex nA/ic (Zone 2)" ¹⁰⁾	1		Е			
,	sion-proof enclosure and		R			
dust explosion protect						
Zone 1D/2D)" ⁹⁾¹¹⁾						
• FM + CSA intrinsic safe	e (is) ¹²⁾		F			
• FM + CSA (is + ep) + E Zone 1D/2D ⁹⁾¹¹⁾¹²⁾	=x ia + Ex d (ATEX) +		S			
• With FM + CSA, Type of						
 "Intrinsic safety and e (is + xp)" ⁸⁾¹²⁾, max P 	explosion-proof		NC			

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and flow

	ssure and now				
Selection and Orderin	g data	Article N	lo.	Selection and Ordering data	Article No.
Pressure transmitters and flow, PN 420 (MA)	for differential pressure WP 6092 psi)			Pressure transmitters for differential pressure and flow, PN 420 (MAWP 6092 psi)	
SITRANS P DS III with F	PROFIBUS PA (PA)	7 M F 4 5	34-	SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 5 3 4 -
SITRANS P DS III with F	OUNDATION Fieldbus (FF)	7 M F 4 5	35-	SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 5 3 5 -
Click on the Article I ration in the PIA Life	No. for the online configu-				
Measuring cell filling Silicone oil Inert liquid ¹⁾	Measuring cell cleaning normal grease-free to cleanliness level 2	1 3		Explosion protection • None • With ATEX, Type of protection: - "Intrinsic safety (Ex ia)" - "Explosion-proof (Ex d)" ⁷⁾	A B D
Nominal measuring ra 250 mbar 600 mbar 1600 mbar 5 bar 30 bar		D E F G H		 "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)⁽⁸⁾ "Ex nA/ic (Zone 2)" ⁹⁾ "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia + Ex d + Zone 1D/2D)⁽⁸⁾ ¹⁰⁾ FM + CSA intrinsic safe (is)¹¹⁾ FM + CSA intrinsic safe (is)¹¹⁾ 	P E R
Wetted parts materials (stainless steel process Seal diaphragm Stainless steel		A		 FM + CSA (is + ep) + Ex ia + Ex d (ATEX)+ Zone 1D/2D⁹⁾¹⁰⁾¹¹⁾ With FM + CSA, Type of protection: "Intrinsic safety and explosion-proof (is + xp)"⁷⁾¹¹, max PN 360 	S NC
Hastelloy Gold ²⁾ Version for diaphragm	Stainless steel Gold seal ^{3) 4) 5) 6)}	B L Y		Electrical connection/cable entry Screwed gland M20 x 1.5 Screwed gland ½-14 NPT Device plugs M12 (stainless steel) ^{12) 13)} 	B C F
 Sealing screw oppositions Mounting thread ⁷/₁ IEC 61518/DIN EN 6 Mounting thread M1 (only for replacement Venting on side of procession 	₆ -20 UNF to 61518 12 to DIN 19213 nt requirement) pocess flanges, location of	3 1		 Display Without (display hidden) Without visible display (display concealed, setting: bar) With visible display (setting: bar) With customer-specific display (setting as specified, Order code "Y21" required) 	- 0 1 6 7
vent valve at top of pr sional drawing). - Mounting thread ⁷ / ₁ IEC 61518/DIN EN 6 - Mounting thread M1 (only for replacement	61518 I2 to DIN 19213	7 5		Included in delivery of the device: • Quick-start guide • Sealing plug(s) or sealing screw(s) for the proces ¹⁾ For oxygen application, add Order code E10. ²⁾ Not in conjunction with max. measuring span 600 m	bar (240.9 inH ₂ O)
setting for pressure u	Electronics enclosure Die-cast aluminum Stainless steel precision casting rman plate inscription, nit: bar English plate inscription,	- 2 3	1 2	 ³⁾ When the manufacture's certificate (calibration certificate ordered for transmitters with diaphragm seals accorris recommended only to order this certificate exclus phragm seals. The measuring accuracy of the total chere. ⁴⁾ If the inspection certificate 3.1.is ordered for the transdiaphragm seals this certificate must also be ordere remote seals. ⁵⁾ The diaphragm seal is to be specified with a separamust be included with the transmitter order number, 7MF453	ding to IEC 60770-2 ively with the dia- ombination is certifi nsmitter with mount ad with the respectiv te order number an for example

setting for pressure unit: bar · Chinese version, English plate inscription, setting for pressure unit: Pascal

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

- 7) Without cable gland, with blanking plug.
- ⁸⁾ With enclosed cable gland Ex ia and blanking plug.
- ⁹⁾ Configurations with device plugs Han and M12 are only available in Ex ic. ¹⁰⁾ Only in connection with IP66.
- ¹¹⁾ Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- ¹²⁾ Only in connection with Ex approval A, B, E or F.
- 13) M12 delivered without cable socket

Pressure transmitters

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for differential	pressure and flow

	oraci	r 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 pracket, 2 x nut, 2 x U-washer) made of:				
Steel	A01	1	✓	1
Stainless steel 304	A02	1	✓	✓
Stainless steel 316L	A03	✓	✓	1
)-rings for process flanges				
instead of FPM (Viton))				
PTFE (Teflon)	A20	1	✓	✓
FEP (with silicone core, approved for food)	A21	√	✓.	√
FFPM (Kalrez, for measured medium tempera-	A22	✓	✓	1
tures -15 100 °C (5 212 °F)) NBR (Buna N)	A23	1	1	1
	A23		•	,
Device plugs ¹⁾	A30	~		
Han 7D (metal) Han 8D (instead of Han 7D)	A30 A31	¥		
Angled	A32	1		
Han 8D (metal)	A33	1		
ealing screws (2 units)	A40	1	1	1
4-18 NPT, with valve in mat. of process flanges				
Cable sockets for device plugs M12	A50	1	1	1
metal (CuZn))	1.00		-	
Rating plate inscription (instead of German)				
English	B11	1	✓	✓
French	B12	1	✓	✓
Spanish	B13	√	✓.	✓
Italian	B14	1	1	1
Cyrillic (russian)	B16	√	√	√
inglish rating plate	B21	1	~	1
Pressure units in inH ₂ O and/or psi				
Quality test certificate, 5-point actory calibration (IEC 60770-2)	C11	1	~	~
	010	1		~
nspection certificate Acc. to EN 10204-3.1	C12	v	v	v
	C14	1	~	1
actory certificate Acc. to EN 10204-2.2	014	v	v	v
nspection certificate (EN 10204-3.1)	C15	1	~	1
PMI test of parts in contact with medium	015	•	•	•
Functional safety (SIL2)	C20	1		
Devices suitable for use according to	020			
EC 61508 and IEC 61511. Includes SIL confor-				
nity declaration				
unctional safety (PROFIsafe)	C21 ²		~	
Certificate and PROFIsafe protocol				
Functional safety (SIL2/3) Devices suitable for use according to	C23	~		
EC 61508 and IEC 61511. Includes SIL confor-				
nity declaration				
5				

Selection and Ordering data	Order	code		
Setting of the upper saturation limit of the	D05	€000C		
output signal to 22.0\ mA	200			
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)	D07	1	~	*
(only together with seal diaphragm made of Hastelloy and stainless steel)				
Degree of protection IP66/IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	~	~	~
Nominal pressure rating PN 500 (MAWP 7250 psi)	D56	✓		
(intervention of the second s				
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	D59	~	~	~
Use in or on zone 1D/2D ⁴⁾	E01	✓	✓	✓
(only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia)"and IP66)				
Export approval Korea	E11	✓	✓	✓
CRN approval Canada (Canadian Registration Number)	E22 ⁵⁾	1	1	*
Dual seal	E24	~	1	~
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25 ⁶⁾	✓	✓	*
(only for transmitter 7MF4B)				
"Flameproof" explosion protection accord- ing to INMETRO (Brazil) (only for transmitter 7MF4D)	E26 ⁶⁾	1	✓	*
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28 ⁶⁾	~	~	
(only for transmitter 7MF4P)				
Ex Approval IEC Ex (Ex ia)	E45 ⁶⁾	✓	✓	✓
(only for transmitter 7MF4B)				
Ex Approval IEC Ex (Ex d)	E46 ⁶⁾	~	~	✓
(only for transmitter 7MF4D) Explosion-proof "Intrinsic safety"	E55 ⁶⁾	~	1	~
to NEPSI (China)				
(only for transmitter 7MF4B) Ex prot. "Explosion-proof" to NEPSI (China)	E56 ⁶⁾	1	1	1
(only for transmitter 7MF4	230.7			
Explosion-proof "Zone 2" to NEPSI (China)	E57 ⁶⁾	1	~	✓
(only for transmitter 7MF4E)				
Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)	E58 ⁶⁾	~	~	~
(only for transmitter 7MF4R)		,	,	
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)	E70 ⁶⁾	~	~	•
(only for transmitter 7MF4[B, D]Z + E11)				
Ex-protection Ex ia acc. to EAC Ex (Russia)	E80	~	~	~
Ex-protection Ex d acc. to EAC Ex (Russia)	E81	~		~
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82	~	~	*
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83	1	1	1

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and flow

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Two coats of lacquer on enclosure and cover (PU on epoxy)	G10	1	1	1
Interchanging of process connection side	H01	✓	✓	1
Stainless steel process flanges for vertical differential pressure lines	H03	~	~	~
Transient protector 6 kV (lightning protection)	J01	✓	✓	1
Chambered graphite gasket for process flange	J02	✓	✓	✓
EPDM O-rings for process flange with approval (WRC/WRAS)	J05	~	~	1
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display)^{7)}	308	1	1	~
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display) ⁷⁾	J09	1	1	~
Marine approvals				
Det Norske Veritas Germanischer Lloyd (DNV-GL)	S10	~	~	~
Lloyds Register (LR)	S11	~	1	~
 French marine classification society Bureau Veritas (BV) 	S12	~	~	1
American Bureau of Shipping (ABS)	S14	✓	1	~
Russian Maritime Register (RMR)	S16	1	1	1
 Korean Register of Shipping (KR) 	S17	~	~	~

1) Device plug Han IP65

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

³⁾ Tested according to IEC 61010. Only for media of the group of fluids 2 in accordance with PED permissible. Not for use with dangerous media suitable.

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

5) Cannot be ordered with remote seal.

- ⁶⁾ When the additional ex option is selected, the ATEX marking on the device is omitted. Only the Ex option selected via the Z option is marked.
- Blanking plug is standard configuration. Order option A40 if a vent valve is required instead of a blanking plug.

Selection and Ordering data	Order	code		
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: up to mbar, bar, kPa, MPa, psi 	Y01	~	√ 1)	
 in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi 	Y02	1		
Stainless steel tag plate and entry in device variable (measuring point descrip- tion)	Y15	1	~	~
Max. 16 characters, specify in plain text: Y15:				
Measuring point text (entry in device vari- able)	Y16	~	1	~
Max. 27 char., specify in plain text: Y16:				
Entry of HART address (TAG) Max. 8 char., specify in plain text: Y17:	Y17	~		
Setting of pressure indication in pressure 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 $H_2O^{(7)}$, in $H_2O^{(7)}$, ft $H_2O^{(7)}$, mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in	Y22 +	✓		
non-pressure units ²⁾ Specify in plain text: Y22: up to l/min, m ³ /h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters)	Y01 or Y02			
Preset bus address	Y25		✓	✓
possible between 1 and 126 Specify in plain text: Y25:				
Damping adjustment in seconds (0 100 s)	Y30	~	1	1

Factory mounting of valve manifolds, see accessories.

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

✓ = available

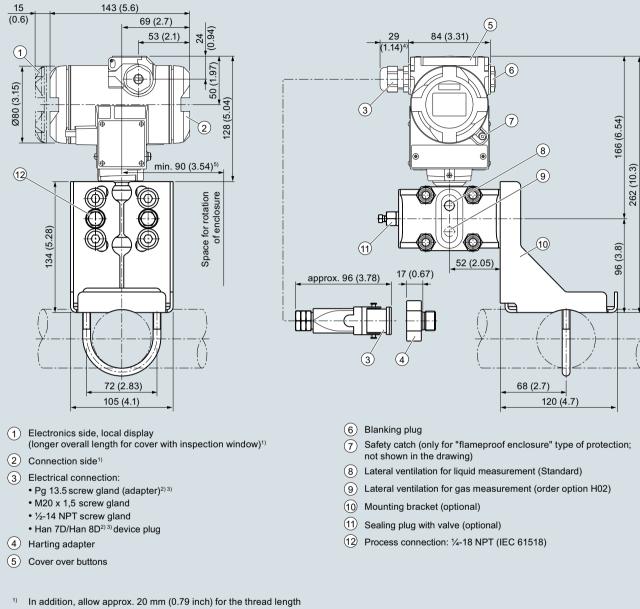
1) Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices

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

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and flow

Dimensional drawings



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- ²⁾ Not with "flameproof enclosure" type of protection
- ³⁾ Not for type of protection "FM + CSA" [is + XP]"
- ⁴⁾ For Pg 13.5 with adapter, approx. 45 mm (1.77 inch)
- ⁵⁾ 92 mm (3.62 inch) minimum distance for rotating with indicator

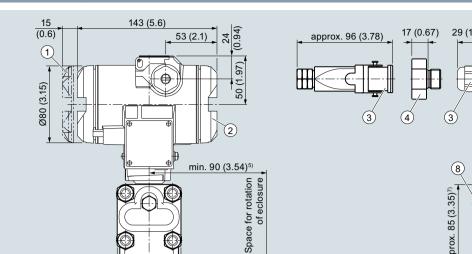
SITRANS P DS III pressure transmitters for differential pressure and flow, dimensions in mm (inch)

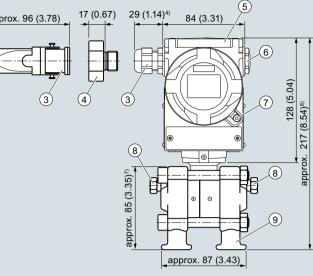
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Pressure Measurement

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for differential pressure and flow





(1) Electronics side, local display (longer overall length for cover with inspection window)¹⁾

60 (2.36)⁶⁾ 65 (2.56)

- 2 Connection side¹⁾
- (3) Electrical connection:
 - Pg 13.5 screw gland (adapter)^{2) 3)}
 - M20 x 1,5 screw gland
 - 1/2-14 NPT screw gland
 - Han 7D/Han 8D^{2) 3)} device plug
- (4) Harting adapter

- 5 Cover over buttons
- 6 Blanking plug
- Safety catch (only for "flameproof enclosure" type of protection; (7)not shown in the drawing)
- 8 Sealing plug with valve (optional)
- (9) Process connection: 1/4-18 NPT (IEC 61518)
- ¹⁾ In addition, allow approx. 20 mm (0.79 inch) for the thread length
- ²⁾ Not with "flameproof enclosure" type of protection
- ³⁾ Not for type of protection "FM + CSA" [is + XP]"
- ⁴⁾ For Pg 13.5 with adapter, approx. 45 mm (1.77 inch) ⁵⁾ 92 mm (3.62 inch) minimum distance for rotating with indicator
- ⁶⁾ 74 mm (2.9 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)
- 7)
- 91 mm (3.6 inch) for PN \ge 420 (MAWP \ge 6092 psi) 219 mm (8.6 inch) for PN \ge 420 (MAWP \ge 6092 psi) 8)

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



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

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Level		
HART re	PROFIBUS PA/ FOUNDATION Fieldbus	
Measuring span	Nominal measuring range	Max. operating pressure MAWP (PS)
25 250 mbar 2.5 25 kPa 10 100 inH ₂ O	250 mbar 25 kPa 100 inH ₂ O	See "Mounting flange"
25 600 mbar 2.560 kPa 10 240 inH ₂ O	600 mbar 60 kPa 240 inH ₂ O	
53 1600 mbar 5.3160 kPa 21 640 inH ₂ O	1600 mbar 160 kPa 642 inH ₂ O	
160 5000 mbar 16500 kPa 2.32 72.5 psi	5000 mbar 500 kPa 72.5 psi	
		1
		ar a/3 kPa a/0.44 psi a
	-100 % of max. measuring span or 30 mbar a/3 kPa a/0.44 psi a depending on mounting flange	
100 % of max. mea	asuring span	
Between the meas	uring limits (fully adjust	able)
HART		PROFIBUS PA/FOUNDATION Fieldbus
4 20 mA		Digital PROFIBUS PA and FOUNDATION Fieldbus signal
3.55 mA, factory p	reset to 3.84 mA	-
		-
$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/U_{\rm H}$: Power supply i	0.023 A in Ω, n V	-
		-
-		IEC 61158-2
Protected against short-circuit and polarity reversal. Each connection against the other with max. supply voltage.		
Set to 2 s (0 100 s)		
	HART Measuring span 25 250 mbar 25 25 kPa 10 100 inH ₂ O 25 60 mbar 2.5 60 kPa 10 240 inH ₂ O 23 600 mbar 2.5 60 kPa 10 240 inH ₂ O 53 160 kPa 21 640 inH ₂ O 160 5000 mbar 160 500 kPa 2.32 72.5 psi -100 % of max. mea depending on mou 100 % of max. mea Between the meas Between the meas Between the meas 3.55 mA, factory pre optionally set to 22 $R_B \leq (U_H - 10.5 V)/U_H: Power supply it R_B = 230 \dots 500 \Omega R_B = 230 \dots 1100 \Omega or)$	HARTPROFIBUS PA/ FOUNDATION FieldbusMeasuring spanNominal measuring range25 250 mbar250 mbar25 25 kPa250 mbar25 25 kPa250 mbar25 25 kPa100 inH2010 100 inH20100 inH2025 600 mbar600 mbar2.5 60 kPa60 kPa10 240 inH20240 inH2053 160 kPa160 kPa21 640 inH20642 inH20160 5000 mbar5000 mbar160 5000 kPa5000 mbar160 500 kPa5000 mbar160 500 kPa12.5 psi-100 % of max. measuring span or 30 mb depending on mounting flange-100 % of max. measuring spanBetween the measuring spanBetween the measuring limits (fully adjustHART4 20 mA3.55 mA, factory preset to 3.84 mA23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA $P_{B} \leq (U_{H} - 10.5 V)/0.023 A in \Omega,U_{H}: Power supply in VP_{B} = 230 500 \Omega (SIMATIC PDM) orR_{B} = 230 500 \Omega (SIMATIC PDM) orR_{B} = 230 1100 \Omega (HART Communica-tor)-Protected against short-circuit and polaritEach connection against the other with material polarit$

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for level

SITRANS P DS III for level				
Measuring accuracy	Acc. to IEC 607	Acc. to IEC 60770-1		
Reference conditions	 Lower range v Stainless stee Silicone oil filli 	 Increasing characteristic Lower range value 0 bar/kPa/psi Stainless steel seal diaphragm Silicone oil filling Room temperature 25 °C (77 °F) 		
Measuring span ratio r (spread, Turn-Down)	r = max. measu	r = max. measuring span/set measuring span or nominal measuring range		
Error in measurement at limit setting incl. hysteresis and reproducibility				
Linear characteristic				
- 250 mbar/25 kPa/3.6 psi	r ≤ 5 : 5 < r ≤ 10 :	≤ 0.125 % ≤ (0.007 · r + 0.09) %		
- 600 mbar/60 kPa/8.7 psi	r ≤ 5 : 5 < r ≤ 25 :	≤ 0.125 % ≤ (0.007 · r + 0.09) %		
- 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi	r ≤ 5 : 5 < r ≤ 30 :	≤ 0.125 % ≤ (0.007 · r + 0.09) %		
Influence of ambient temperature (in percent per 28 °C (50 °F))				
• 250 mbar/25 kPa/3.6 psi	$\leq (0.4 \cdot r + 0.16)$) %		
• 600 mbar/60 kPa/8.7 psi	$\leq (0.24 \cdot r + 0.10)$	6) %		
• 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi	$\leq (0.2 \cdot r + 0.16)$) %		
Influence of static pressure				
 on the lower range value 				
- 250 mbar/25 kPa/3.6 psi	≤ (0.3 · r) % per	nominal pressure		
- 600 mbar/60 kPa/8.7 psi	≤ (0.15 · r) % pe	er nominal pressure		
- 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi	≤ (0.1 · r) % per	nominal pressure		
 on the measuring span 	≤ (0.1 · r) % per	\leq (0.1 · r) % per nominal pressure		
Long-term stability (temperature change ± 30 °C (± 54 °F))		\leq (0.25 · r)% in 5 years static pressure max. 70 bar/7 MPa/1015 psi		
Effect of mounting position	Depending on f	Depending on filling liquid of mounting flange		
Effect of auxiliary power supply (in percent per change in voltage)	0.005 % per 1 V	0.005 % per 1 V		
Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus	3 · 10 ⁻⁵ of nomir	3 · 10 ⁻⁵ of nominal measuring range		
Operating conditions				
Degree of protection				
 according to EN 60529 	IP66 (optional IF	P66/IP68)		
according to NEMA 250	Type 4X			
Temperature of medium	ture to max. per	Note: Always take into account assignment of max. permissible operating temperature to max. permissible operating pressure of the respective flange connection!		
Measuring cell with silicone oil filling		-40 +100 ¹⁾ °C (-40 +212 ¹⁾ °F)		
- High-pressure side	$p_{abs} < 1 \text{ bar: } -4$	p _{abs} ≥ 1 bar: -40 +175 °C (-40 +347 °F) p _{abs} < 1 bar: -40 +80 °C (-40 +176 °F)		
- Low-pressure side		-40 +100 °C (-40 +212 °F) -20 +60 °C (-4 +140 °F) in conjunction with dust explosion protection		
Ambient conditions				
Ambient temperature	40 05 00 (
- Transmitter		-40 +85 °C (-40 +185 °F)		
 - Display readable Storage temperature 	•	-30 +85 °C (-22 +185 °F) -50 +85 °C (-58 +185 °F)		
Storage temperature Climatic class	-30 +85 -C (-	JU TIOJ F)		
- Condensation	Relative humidit	Relative humidity 0 100 %, condensation permissible, suitable for use in the trop-		
Electromagnetic Compatibility				
- Emitted interference and interference immunity	Acc. to IEC 613	Acc. to IEC 61326 and NAMUR NE 21		

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for level

SITRANS P DS III for level		
Design		
Weight (without options)		
 To EN (pressure transmitter with mounting flange, without tube) 	≈ 11 13 kg (≈ 24.2 28.7 (lb)	
 To ASME (pressure transmitter with mounting flange, without tube) 	≈ 11 18 kg (≈ 24.2 39.7 lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi1 mat. no. 1.4408	2 or stainless steel precision casting,
Wetted parts materials		
High-pressure side		
• Seal diaphragm of mounting flange	 Stainless steel, WNr. 1.4404/316L coated with PFA coated with PTFE coated with ECTFE gold plated Monel 400, mat. no. 2.4360 Hastelloy C276, mat. no 2.4619 Hastelloy C27, mat. no. 2.4602 Hastelloy C22, mat. no. 2.4602 Tantalum Titanium, mat. no. 3.7035 Nickel 201 Duplex 2205, mat. no. 1.4462 	
Measuring cell filling	Silicone oil	
Process connection		
High-pressure side	Flange to EN and ASME	
Low-pressure side	Female thread 1 /4-18 NPT and flange control DIN 19213 or 7 / ₁₆ -20 UNF to IEC 61518/E	
Power supply U_{H}	HART	PROFIBUS PA/FOUNDATION Fieldbus
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-
Power supply		Supplied through bus
Separate supply voltage	_	No
Bus voltage		
• Not Ex		9 32 V
With intrinsically-safe operation		9 24 V
Current consumption		5 27 V
		10.5
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 transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for level

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lor level		
SITRANS P DS III for level		
Certificates and approvals	HART	PROFIBUS PA/ FOUNDATION Fieldbus
Classification according to PED 2014/68/EU	For gases of fluid group 1 and liquids of article 4, paragraph 3 (sound engineering)	fluid group 1; complies with requirements of ng practice)
Explosion protection		
Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatu -40 +70 °C (-40 +158 °F) temperatu -40 +60 °C (-40 +140 °F) temperatu	ure class T5;
- 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 Ω	$U_{\rm o}$ = 17.5 V, $l_{\rm o}$ = 380 mA, $P_{\rm o}$ = 5.32 W Linear barrier: $U_{\rm o}$ = 24 V, $l_{\rm o}$ = 250 mA, $P_{\rm o}$ = 1.2 W
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$
 Explosion-proof "d" 	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperate -40 +60 °C (-40 +140 °F) temperate	
- 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 Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)	
- Max. surface temperature	120 °C (248 °F)	
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $l_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW, $R_{\rm i}$ = 300 Ω	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	$L_{\rm i} = 0.4$ mH, $C_{\rm i} = 6$ nF	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$
 Dust explosion protection for zone 21/22 	PTB 01 ATEX 2055	
- Marking	Ex II 2 D Ex tb IIIC T120°C Db	
- Connection	To circuits with values: $U_{\rm H}$ = 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	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gb/Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gb/Gc	
- Connection (Ex nA)	$U_{\rm m} = 45 \text{ V}$	<i>U</i> _m = 32 V
- Connection (Ex ic)	To circuits with values: <i>U</i> _i = 45 V	FISCO supply unit ic: $U_0 = 17.5$ V, $I_0 = 570$ mA Linear barrier: $U_0 = 32$ V, $I_0 = 132$ mA, $P_0 = 1$ W
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$
 Explosion protection acc. to FM 	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV T4T6; CL I, DIV 2, GP ABCD T4T6; C	/ 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC 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 DIV 2, GP ABCD T4T6; CL II, DIV 2, G	/ 1, GP EFG; CL III; Ex ia IIC T4T6; CL I, P FG; CL III

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

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Pressure transmitters

for level

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HART communication INART 230 1100 0 HART Vesion 5.x Software for computer Softw				for level
Protocol HART Version 5.x Standard for computer Standard for computer <thstandard computer<="" for="" th=""> <thstandard co<="" for="" th=""><th></th><th></th><th></th><th></th></thstandard></thstandard>				
Printicized Printicized 1 function block PID Procession Simal for computer 1 function block PID Procession Adaptation to custome-specify address 120 Analog input Adaptation to custome-specify address 120 No. 100 s Cycle data usage 6 one measured value) or 10 (two measured value) incorrec- value) or 10 (two measured value) or 10 (two measured value) incorrec- value) or 10 (two measured value) or 10 (two measured value) or 10 (two measured) (two measured value) or 10 (two measured)				3 function blocks analog input.
PROFIBUS PA communication Simulance uses communication with masker class 2 (max) 4 Simulanceus communication with masker class 2 (max) 4 Cyclic data usage Configuration tool or local ophration (standard setting address 126)				
Sensitivation communication with master class 2 (max.) 4 - Adaptation 10 classifier spective is processing - Adaptation 10 classifier spective is processing - Betrified damping, adjustable of matobiolistic processing - Betrified damping, adjustable of matobiolistic process of control Devices Version 30, is a 2 (register operating mode and reset function for motoring) - Betrified damping, adjustable of matobiolistic process of control Devices Version 30, is a 2 (register operating motoring) - Ininit monitoring Ves. - Betrified damping, adjustable of flow measurement is process of control Devices Version 30, is a 2 (register operating motoring) - Ininit monitoring Ves. - Signater of COUNDATION Field- bus function block - Fination blocks 2 - Profield Sectoring Devices Version 30, class 2 - Profield Sectoring Devices Version 30, class 2 - Signater of COUNDATION Field- bus function block - Ves. - Finature mode Ves. - Signater of advices of counting function of counting advices of counting function of counting advices of counting ad		SIMATIC PDM	 Analog input 	
The address can be set using Configuration tool or looal operation (sinardard setting address 178) - Sinulation function - Unit function function Cyclic data usage 5 (one measured value) or 10 (two measured value) - Failure mode - Failure mode - Sinulation function Libraria function 0, 1, or 2 (register operating mode and reset function for metaing) - Sinulation function - Sinulation function Device profile PAOFIGUE SPA Profile for Process Control Devices version 3.0, class B - Unit monitoring Yes Function blocks 2 - Analog input - Sinulation function - Pressure transducer block 1 transducer block - Limit monitoring Yes, linearly rising or failing in proprocess value) - Sinulation function - Pressure transducer block 1 transducer block - Electrical damping, adjustation function - Manita diameter site - Pressure transducer block 1 transducer block - Limit monitoring Yes, one upper and lower warning firmit and one alarm limit respectively - Suparterosted by applying two pressures - Weasure transducer block - Limit monitoring Yes, one upper and lower warning firmit and one alarm limit respectively - Suparterosted by applying two pressures - Weasure transducer block - Failure mode - Monitoring of ensear limits - Suparterosted by applying transducer bl	Simultaneous communication with	4	 Adaptation to customer-specif- ic process variables 	
Cyclic data usage - Sinuation (action to content value) or 10 (two measured value) 0 , 1, or 2 (register operating metering) - Failure mode Yes, one upper and lower wam- trespectively Internal proprocessing PRO-FIBUS PA Profile for Pro- cess Cortrol Devices Version 3.0. class B - Failure mode Yes Function blocks 2 - Final class biock 1 resource block Function blocks 2 - Final class biock 1 resource block - Analogi input - Contant value or over parameterizable (last good value, substitut value), incorrect value) - Final class biock 1 resource block - Simulation function Input/Output parameterizable (last good value, substitut value), incorrect value) - Simulation function Yes - Failure mode Yes, one upper and lower warming limit and one alarm limit register output incorrect value) - Simulation function Yes - Failure mode 1 - Contant value or over parameterizable (last function or egister output) parameterizable (last function or a containe) - Nominal pressure - Pressure transducer blocks 2 - Pressure transducer block -	. ,		- Electrical damping, adjustable	0 100 s
Cyclic data usage S (one measured value) or 10 (two measured value) or metering) - Limit monitoring Yes, on upper and twore warn- respectively Internal preprocessing PROFIBUS PA Profile for Pro- cees Control Devices Version 3.0, class B - Profile Control Devices Version	The address can be set using	operation (standard setting	- Simulation function	
• Output byte 6 (nor measured value) or 10 (two measured value) or mode and result unction for metasured value) or mode and result unction for measurement - Limit monitoring Yes, one upper and lower varming initial and one alarm limit respectively. Device profile PROFIBUS PA Profile for Proccess Control Devices Variable 3.0, class 0.30, c	Cyclic data usage		- Failure mode	
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Internal preprocessing PROFIBUS PA Profile to Pro- cess Control Devices Version 3.0, class B Standard FOUNDATION Field- bus function block Standard FOUNDATION Field- bus function block Pinction blocks 2 Prosile to Pro- cess Control Devices Version 3.0, class B Prosile to Pro- cess Control Devices Version 3.0, class B Prosile to Pro- cess Control Devices Version 3.0, class B I resource block • Analog input Ves, insarly rising or falling characteristic Prossure transducer block I transducer block • Electrical damping, adjustable 0 100 s Pressure transducer block Ves • Electrical damping, adjustable 0 100 s Pressure transducer block Ves • Failure mode parameterizable (last good value, substitute value, incorrect value) • Ontioning of sensor limits Yes • Register (totalizer) Can be reset, preset, optional direction of counting, simulation function of register output incorrect value) Nominal diameter value Nominal diameter value • Limit monitoring One upper and lower warning limit and one alarm limit respec- tively Nominal adiameter value Nominal diameter value • Limit monitoring One upper and lower warning limit and one alarm limit respec- tively Nominal diameter value Nominal diameter value • Limit monitoring One upper and lower warning limit and one alarm limit respec- tively Ves Sinch class 150, class 300 <	Input byte	0, 1, or 2 (register operating mode and reset function for	- Limit monitoring	ing limit and one alarm limit
Control protition Cess Control Devices Version 3.0, class B Dus function block Function blocks 2 Analog input Transducer block - Adaptation to customer-specif- ic process variables Ves, linearly rising of falling characteristic Physical block Transducer block - Electrical damping, adjustable 0 100 s Input/Output Pressure transducer block Ves - Electrical damping, adjustable 0 100 s Input/Output Pressure transducer block Ves - Electrical damping, adjustable 0 100 s Input/Output Pressure transducer block Ves - Failure mode parameterizable (dist good value), substitutivalue, incorrect value) Ves Constant value or over parame- terizable ramp function - Failure mode parameterizable (dist good value), substitutivalue, incorrect value) Ves Constant value or over parame- terizable ramp function - Failure mode parameterizable (sumuation function of counting, simulation function of counting, simulation function of easiter output Nominal diameter Nominal pressure - Can be reset, preset, optional function of easiter output - DN 80 PN 40 - DN 80 PN 40 - DN 100 PN 40 - DN 100 PN 40<	Internal preprocessing	metering)		Yes
Function blocks 2 Instant block Instant block • Analog input - Transducer blocks Instant block • Adaptation to customer-specific process variables O 100 s Instant blocks Instant blocks • Electrical damping, adjustable O 100 s Input/Output Pressure transducer block Can be calibrated by applying two pressures Yes • Failure mode parameterizable (last good value, substitute value, incorrect value) Monitoring of sensor limits Yes • Register (totalizer) Can be reset, preset, optional dimeter incorrect value) One aiam limit respectively Nominal gressure Nominal pressure • Failure mode parameterizable (summation with incorrect value) One upper and lower warning limit and one alarm limit respectively Nominal diameter Nominal pressure • Failure mode parameterizable (summation with incorrect value) One upper and lower warning limit and one alarm limit respectively Nominal diameter Nominal pressure • Limit monitoring One upper and lower warning limit and one alarm limit respectively ONe oppeties Olass 150, class 300 • Physical block 1 Section of a container Class 150, class 300 I inch • Adaptation of a contalare tip ware	Device profile		• PID	
• Analog input • Aralog input • Canaba calibrated by applying init and one alarm limit respectively • Pressure transducer block • Can be calibrated by applying init and one alarm limit respectively • Ves • Eactrication of uccoments and input (output) • Simulation function • Input/Output • Can be calibrated by applying init and one alarm limit respectively • Simulation function • Ves • Limit monitoring • Can be reset, preset, optional direction of ocuming, simulation function of register output • Simulation function of register output • Nominal diameter • Nominal pressure • Failure mode parameterizable (summation with lineorect value) • Nominal diameter • Nominal diameter • Nominal pressure • Failure mode parameterizable (summation with lineorect value) • Nominal diameter • Nominal pressure • Limit monitoring One upper and lower warning limit and one alarm limit respectively • Nominal diameter • Nominal pressure • Failure mode parameterizable (summation with lineorect value) • Nominal diameter • Nominal pressure • Limit monitoring One upper and lower warning limit and one alarm limit respectively • Nominal set one value • Acc. to EN 1092-1 • DN 80 • Physical block 1 • Samulation function of acast so 0 • Input/Outpu		3.0, class B	Physical block	1 resource block
- Adaptation to customer-specific process variables Yes, linearly rising or falling characteristic - Can be calibrated by applying two pressures in the second value, substitute value, incorrect value) Yes - Simulation function Input/Output - Can be calibrated by applying two pressures in the second value, substitute value, incorrect value) Yes Yes - Limit monitoring Input/Output - Simulation function Yes Constant value or over parameterizable (last good value, continuous summation, summation with last good value, continuous summation with last good value, continuous two pressures Nominal diameter Nominal pressure • Physical block<	Function blocks	2	Transducer blocks	
 Adaptation to customer-specific process variables Electrical damping, adjustable Simulation function Failure mode Limit monitoring Limit monitoring Register (totalizer) Can be reset, preset, optional direction of register output Failure mode Failure mode Ves, one upper and lower warning limit and one alarm limit respectively Failure mode Failure mode Ves, one upper and lower warning limit and one alarm limit respectively Failure mode Failure mode Failure mode Failure mode Failure mode Ves, pressure state (summation of register output incorrect value) Failure mode Failure mode Failure mode Failure mode Failure mode Failure mode Ves (summation summation with incorrect value) One upper and lower warning limit and one alarm limit respectively Physical block Can be calibrated by applying the suppression and lower warning timit and one alarm limit respectively Physical block Can be calibrated by applying the suppression and lower warning timit and one alarm limit respectively Pressure transducer block Can be calibrated by applying the suppression and lower warning the respectively Pressure transducer block Specification of a container data suppression and lower warning the pressure suppression and mplementation point of square-rooted characteristic with Square-rooted characteristic super suppression and mplementation point of square-rooted straction suppression and mplementation point of square-rooted stracteristic respectively Parameterizable and function Smulation of a container suppression and mplementation point of	 Analog input 			
Limit contraction functionIn the contraction functionIn the contraction functionIn the contraction functionIt was a contraction func				205
 Simulation function Input/Output Failure mode Limit monitoring Limit monitoring Register (totalizer) Can be reset, preset, optional direction of counting, simulation function of register output Failure mode Can be reset, preset, optional direction of counting, simulation function function function of register output Failure mode Limit monitoring Can be reset, preset, optional direction of counting, simulation function of register output Failure mode Failure mode Limit monitoring Can be reset, preset, optional direction of counting, simulation function function function of register output Failure mode Limit monitoring One upper and lower warning fimit and one alarm limit respectively Physical block Can be calibrated by applying two pressures Monitoring of sensor limits Specification of a container characteristic with Square-root extraction Constant value or over parameterizable Square-root extraction Constant value or over parameterizable Constant value or over parameterizable Square-root extraction Constant value or over parameterizable Constant value or over parameterizable Constant value or over parameterizable Square-root extraction Constant value or over parameterizable 	- Electrical damping, adjustable	0 100 s		Yes
- Failure mode parameterizable (last good value, substitue value, incorrect value) - Simulation function: Measured pressure value, sensor temperature and electronics temperature and electronics temperature Constant value or over parameterizable ramp function - Limit monitoring Yes, one upper and lower warning limit and one alarm limit respectively Mounting flange Nominal pressure - Failure mode parameterizable (summation with last good value, continuous summation, summation with last good value, continuous summation, summation with last good value, excitively Nominal diameter Nominal pressure - Limit monitoring One upper and lower warning limit and one alarm limit respectively Nominal diameter Nominal pressure - Limit monitoring One upper and lower warning limit and one alarm limit respectively Nominal diameter Nominal pressure - Limit monitoring One upper and lower warning limit and one alarm limit respectively - Sinch class 150, class 300 - Physical block 1 - Sinch class 150, class 300 - 4 inch - Can be calibrated by applying two pressures Yes Max. 30 nodes - 4 inch - Square-rooted characteristic with Yes - Constant value or over parameterizable - 4 inch - Gradual volume suppression and implementation point of square-root extraction - Constant value or	- Simulation function	Input/Output	·	Yes
- 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 Nominal diameter Nominal pressure • Failure mode parameterizable (summation with incorrect value) - DN 80 PN 40 • Limit monitoring One upper and lower warning limit and one alarm limit respectively - DN 80 PN 40 • Limit monitoring One upper and lower warning limit and one alarm limit respectively - DN 80 PN 40 • Physical block 1 - and lower warning limit and one alarm limit respectively - 3 inch class 150, class 300 • Pressure transducer blocks 1 - Another class 150, class 300 - 4 inch - 4 inch • Sepecification of a container characteristic with Yes - 4 inch - 4 inch - 4 inch • Square-roote characteristic with Yes - 4 inch - 4 inch - 4 inch - 4 inch • Square-roote characteristic with Yes - 4 inch - 4 inch - 4 inch - 4 inch • Gradual volume suppression and implementation point of square-root extraction Yes - 4 inch - 4 inch - 4 inch - 4 inch	- Failure mode	value, substitute value, incorrect	 Simulation function: Measured pressure value, sensor tem- 	Constant value or over parame-
Register (totalizer)Can be reset, preset, optional direction of counting, simulation function of register outputNominal diameterNominal pressure- Failure modeparameterizable (summation with last good value, continuous summation, summation with incorrect value)- DN 80PN 40- Limit monitoringOne upper and lower warning limit and one alarm limit respec- tively- 3 inchclass 150, class 300• Physical block1Transducer blocks2• Pressure transducer block2• Noninong of sensor limitsYes• Specification of a container characteristic with of rof w measurementMax. 30 nodes• Square-rooted characteristic square-root extraction square-root extractionParameterizable• Gradual volume suppression and implementation point of square-root extractionParameterizable• Simulation function for mea- sured pressure and used and supplycingParameterizable• Simulation function for mea- sured pressure supressionConstant value or over parame- terizable ramp function	- Limit monitoring	ing limit and one alarm limit	perature	
Acc. to EN 1092-1 - Failure mode- Acc. to EN 1092-1 - DN 80- Acc. to EN 1092-1 - DN 80- Failure modeparameterizable (summation with last good value, continuous summation, summation with incorrect value)- DN 80PN 40- Limit monitoringOne upper and lower warning limit and one alarm limit respec- tively- 3 inchclass 150, class 300- Physical block1Transducer blocks2- Can be calibrated by applying two pressuresYes- Specification of a container characteristic withYes- Specification of a container square-roote characteristicYes- Gradual volume suppression and implementation point of square-root extractionParameterizable constant value or over parame- stred pressure value and as en- pressure root extraction- Simulation function function functionConstant value or over parame- stred pressure value and sen Simulation function functionConstant value or over parame- stred pressure value and sen-			•••	
- Failure modeparameterizable (summation with last good value, continuous summation, summation with incorrect value)- DN 80PN 40- Limit monitoringOne upper and lower warning limit and one alarm limit respec- tively- 3 inchclass 150, class 300• Physical block1- 4 inchclass 150, class 300• Physical block1- 2 monostrate dively• Pressure transducer blocks2- 3 inchclass 150, class 300• Con be calibrated by applying two pressuresYes- 4 inch- 4 inch• Specification of a container characteristic withMax. 30 nodes- 4 inch- 4 inch• Square-rooted characteristic of flow measurementYes- 4 inch- 4 inch• Simulation function for meas- sured pressure value and sensorParameterizable- 4 inch- 4 inch• Canabe calibrated by applying two pressuresYes- 4 inch- 4 inch- 4 inch• Specification of a container characteristic of flow measurementYes- 4 inch- 4 inch• Simulation function for mea- sured pressure value and sensorParameterizable- 4 inch- 4 inch• Simulation function for mea- sured pressure value and sensorParameterizable- 4 inch- 4 inch• Simulation function for mea- sured pressure value and sensorParameterizable- 4 inch- 4 inch• Constant value or over parame- terizable ramp function- 5 inch characteristic- 4 inch- 4 inch• Simulation function for mea- sured pressure value and sensor <td>Register (totalizer)</td> <td>direction of counting, simulation</td> <td></td> <td>Nominal pressure</td>	Register (totalizer)	direction of counting, simulation		Nominal pressure
 - Limit monitoring - Dive upper and lower warning limit and one alarm limit respectively - 3 inch - 3 inch - 3 inch - 4 inch - 2 - 4 inch - 2	- Failure mode		- DN 80	PN 40
- Limit monitoringOne upper and lower warning limit and one alarm limit respec- tively- 3 inchclass 150, class 300• Physical block1Transducer blocks2• Pressure transducer block2• Can be calibrated by applying two pressuresYes• Monitoring of sensor limitsYes• Specification of a container characteristic withMax. 30 nodes• Square-rooted characteristic for flow measurementYes• Gradual volume suppression and implementation point of square-root extractionParameterizable constant value or over parame- sured pressure value and sensor• Simulation function for mea- sured pressure value and sensorConstant value or over parame- terizable ramp function		with last good value, continuous summation, summation with		PN16, PN40
Imit and one alarm limit respectively- 4 inchclass 150, class 300• Physical block1Transducer blocks2• Pressure transducer block Can be calibrated by applying two pressuresYes• Monitoring of sensor limitsYes• Specification of a container characteristic withMax. 30 nodes• Square-rooted characteristic for flow measurementYes• Gradual volume suppression and implementation point of square-root extraction square-root extractionParameterizable• Simulation function for mea- sured pressure value and sen- terizable ramp functionConstant value or over parame- terizable ramp function	Limit monitoring	,	- 3 inch	class 150, class 300
Transducer blocks2• Pressure transducer block-• Can be calibrated by applying two pressuresYes• Monitoring of sensor limitsYes• Specification of a container characteristic withMax. 30 nodes• Square-rooted characteristic for flow measurementYes• Gradual volume suppression and implementation point of square-root extractionParameterizable• Simulation function for mea- sured pressure value and sen.Constant value or over parame- terizable ramp function	- Limit monitoring	limit and one alarm limit respec-	- 4 inch	class 150, class 300
• Pressure transducer blockYes- Can be calibrated by applying two pressuresYes- Monitoring of sensor limitsYes- Specification of a container characteristic withMax. 30 nodes- Square-rooted characteristic for flow measurementYes- Gradual volume suppression and implementation point of square-root extractionParameterizable- Simulation function for mea- sured pressure value and senConstant value or over parame- terizable ramp function	 Physical block 	1		
Can be calibrated by applying two pressuresYesMonitoring of sensor limitsYesMonitoring of sensor limitsYesSpecification of a container characteristic withMax. 30 nodesSquare-rooted characteristic for flow measurementYesGradual volume suppression and implementation point of square-root extractionParameterizableSimulation function for mea- sured pressure value and sen-Constant value or over parame- terizable ramp function	Transducer blocks	2		
two pressuresYes- Monitoring of sensor limitsYes- Specification of a container characteristic withMax. 30 nodes- Square-rooted characteristic for flow measurementYes- Gradual volume suppression and implementation point of square-root extractionParameterizable- Simulation function for mea- sured pressure value and sen-Constant value or over parame- terizable ramp function	Pressure transducer block			
Specification of a container characteristic withMax. 30 nodesSquare-rooted characteristic for flow measurementYesGradual volume suppression and implementation point of square-root extractionParameterizableSimulation function for mea- sured pressure value and sen-Constant value or over parame- terizable ramp function		Yes		
characteristic with Square-rooted characteristic for flow measurement Yes - Gradual volume suppression and implementation point of square-root extraction Parameterizable - Simulation function for measure value and sensure d pressure value and sensure terizable ramp function Constant value or over parameterizable	- Monitoring of sensor limits	Yes		
for flow measurement - - Gradual volume suppression and implementation point of square-root extraction Parameterizable - Simulation function for mea- sured pressure value and sen- Constant value or over parame- terizable ramp function		Max. 30 nodes		
and implementation point of square-root extraction - Simulation function for mea- sured pressure value and sen- Constant value or over parame- terizable ramp function		Yes		
sured pressure value and sen- terizable ramp function	and implementation point of	Parameterizable		
	sured pressure value and sen-			

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Article No.

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7MF4633-

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for level

Selection and Ordering data Pressure transmitter for level, SITRANS P DS III with HART ↗ Click on the Article No. for the online configuration in the PIA Life Cycle Portal. Measuring cell filling Measuring cell cleaning Silicone oil normal Measuring span (min. ... max.) (10 ... 100 inH₂O) 25 ... 250 mbar 25 ... 600 mbar (10 ... 240 inH₂O) 53 ... 1600 mbar $(21 \dots 642 \text{ in H}_{2}^{-}\text{O})$ 0.16 ... 5 bar (64.3 ... 2000 inH₂O) Process connection of low-pressure side Female thread 1/4-18 NPT with flange connection Mounting thread ⁷/₁₆-20 UNF to IEC 61518/DIN EN 61518 Mounting thread M10 to DIN 19213 (only for replacement requirement) Non-wetted parts materials process flange screws Electronics enclosure Stainless steel Die-cast aluminum Stainless steel precision Stainless steel casting1) Version Standard version, German plate inscription, setting for pressure unit: bar) · International version, English plate inscription, setting for pressure unit: bar Chinese version, English plate inscription, setting for pressure unit: Pascal All versions include DVD with compact operating instructions in various EU languages. **Explosion protection** None • With ATEX, Type of protection: - "Intrinsic safety (Ex ia)" - "Explosion-proof (Ex d)"2) "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)⁽³⁾ - "Ex nA/ic (Zone 2)" 4) - "Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia+ Ex d + Zone 1D/2D)^{*3)5)} FM + CSA intrinsic safe (is)⁶⁾ • FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D³⁾⁵⁾⁶⁾ • With FM + CSA, Type of protection: - "Intrinsic Safe and Explosion Proof (is + xp)"1)6) Electrical connection/cable entry Screwed gland M20x1.5 Screwed gland ½-14 NPT Device plug Han 7D (plastic enclosure) incl.

Screwed gland ½-14 NPT Device plug Han 7D (plastic enclosure) mating connector⁷) Device plugs M12 (stainless steel) ^{8) 9)} **Display**Without display Without visible display (display concealed, setting: mA)

- With visible display (setting mA)
- With customer-specific display (setting as 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:	Y01
C line:	Y01: 80 to 143 mbar (1.16 to 2.1 psi)
Item line 2:	7MF4912-3GE01

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

Included in delivery of the device:

Quick-start guide

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

Pressure transmitters

for level

Selection and Orde	ring data	Ar	tic	le l	N	0.		_	_
Pressure transmitte	-			-					
SITRANS P DS III wit	h PROFIBUS PA (PA)	71	ИF	4	6 :	3 4	4 -		
SITRANS P DS III wit	7 M F 4 6 3 5 -								
↗ Click on the Articl ration in the PIA L	1	Y			- 1				
Nominal measuring	range								
250 mbar	(100 inH ₂ O)		D						
600 mbar 1600 mbar	(240 inH ₂ O)		E F						
5 bar	(642 inH ₂ O) (2000 inH ₂ O)		G						
	n of low-pressure side	-							
	NPT with flange connection								
 Mounting thread ⁷/ 	₁₆ -20 UNF to			2					
IEC 61518/DIN EN • Mounting thread M				0					
(only for replacem				U					
Non-wetted parts m	aterials								
process flange screw	vs Electronics enclosure								
Stainless steel	Die-cast aluminum			1	2				
Stainless steel	Stainless steel precision casting			1	3				
Version									
 Standard version, (setting for pressure 	German plate inscription,					1	1		
0	n, English plate inscription,					2	2		
setting for pressure									
 Chinese version, En setting for pressure 	glish plate inscription, unit: Pascal					3	3		
All versions include I instructions in variou	DVD with compact operating s EU languages.								
Explosion protection	n								
NoneWith ATEX, Type of	protoction:						A		
- "Intrinsic safety (E							в		
- "Explosion-proof	,						D		
(Ex ia + Ex d)" ²⁾	nd flameproof enclosure"						Ρ		
- "Ex nA/ic (Zone 2							E		
 Intrinsic safety, e. dust explosion pr Zone 1D/2D)⁽²⁾⁴⁾ 	xplosion-proof enclosure and otection (Ex ia + Ex d +						R		
 FM + CSA intrinsic 	safe (is) ⁵⁾						F		
Zone 1D/2D ²⁾⁴⁾⁵⁾) + Ex ia + Ex d (ATEX) +						s		
 With FM + CSA, Ty "Intrinsic Safe and 	pe of protection: HExplosion Proof (is + xp)" ¹⁾⁵⁾						N	с	
Electrical connection	on/cable entry								
Screwed gland M2								B	
 Screwed gland ¹/₂- Device plugs M12 								C F	
Display • Without display									0
 Without visible disp 	blay								1
(display concealed	, setting: bar)								
With visible display With customer spo									6 7
 with customer-spe specified, Order co 	cific display (setting as ode "Y21" required)								'

Ordering information

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

ordering example

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

Included in delivery of the device:

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

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Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for level

Selection and Ordering data	Order	codo			
Selection and Ordering data Further designs	Order	HART	D٨	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	1	✓	✓	
• FEP (with silicone core, approved for food)	A21 A22	√ √	√ √	4	
 FFPM (Kalrez, for measured medium tem- peratures -15 100 °C (5 212 °F)) 	AZZ	v	v	v	
• NBR (Buna N)	A23	✓	1	✓	
Device plugs ¹⁾					
• Han 7D (metal)	A30	✓			
Han 8D (instead of Han 7D)	A31	1			
AngledHan 8D (metal)	A32 A33	4			
· · · · ·	A00	•			
Sealing screw ¼-18 NPT, with vent valve in mat. of process	A40	1	1	1	
flanges					
Cable sockets for device plugs M12	A50	1	~	1	
(metal (CuZn))					
Rating plate inscription					
(instead of German) • English	B11	~	~	~	
French	B12		· •	1	
• Spanish	B13	√ √	✓	~	
• Italian	B14	1	✓.	1	
• Cyrillic (russian)	B16	~	~	~	
English rating plate	B21	1	~	~	
Pressure units in inH ₂ 0 and/or psi					
Quality test certificate, 5-point factory calibration (IEC 60770-2)	C11	1	~	~	
Inspection certificate	C12	1	~	1	
Acc. to EN 10204-3.1					
Factory certificate	C14	✓	✓	~	
Acc. to EN 10204-2.2					
Inspection certificate (EN 10204-3.1)	C15	✓	✓	✓	
PMI test of parts in contact with medium					
Functional safety (SIL2) Devices suitable for use according to IEC	C20	~			
61508 and IEC 61511. Includes SIL confor-					
mity declaration					
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 ²⁾		~		
Functional safety (SIL2/3)	C23	1			
Devices suitable for use according to IEC	010				
61508 and IEC 61511. Includes SIL confor- mity declaration					
PED for Russia with initial calibration mark	C00	1	~	1	
Setting of the upper saturation limit of the	D05	-	•	•	
output signal to 22.0 mA	D05	•			
Degree of protection IP66/IP68	D12	1	~	~	
(only for M20x1.5 and ½-14 NPT)					
Supplied with oval flange	D37	1	1	~	
(1 item), PTFE packing and screws in thread of process flange					
Capri cable gland 4F CrNi and clamping	D59	1	1	1	
device (848699 + 810634) included	039		•	•	

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Use on zone 1D / 2D ³⁾	E01	✓	✓	✓
(only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia)"and IP66)				
Overfilling safety device for flammable and	E08	✓		
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")				
Export approval Korea	E11	✓	✓	1
Dual seal	E24	~	✓	1
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25 ⁴⁾	1	~	~
(only for transmitter 7MF4B)				
"Flameproof" explosion protection accord- ing to INMETRO (Brazil) (only for transmitter 7MF4D)	E26 ⁴⁾	~	~	~
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28 ⁴⁾	~	✓	
(only for transmitter 7MF4P)				
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4B)	E45 ⁴⁾	~	~	~
Ex Approval IEC Ex (Ex d)	E46 ⁴⁾	~	✓	~
(only for transmitter 7MF4	E55 ⁴⁾	,	,	,
Explosion-proof "Intrinsic safety" to NEPSI (China)	E05*/	v	¥	¥
(only for transmitter 7MF4B)	====(1)	,	,	,
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56 ⁴⁾	v	•	•
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57 ⁴⁾	~	~	*
Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)	E58 ⁴⁾	~	•	*
(only for transmitter 7MF4				
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4[B, D]Z + E11)	E70 ⁴⁾	~	1	1
Ex-protection Ex ia according to EAC Ex (Russia)	E80	~	✓	~
Ex-protection Ex d according to EAC Ex (Russia)	E81	~	~	1
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82	~	~	*
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83	1	~	~
Two coats of lacquer on enclosure and cover (PU on epoxy)	G10	~	*	1
Replacement of process connection side	H01	1	1	1

Pressure transmitters

SITRANS P DS III

for level

for applications with advanced requirements (Advanced)

1

Selection and Ordering data	Order code						
Further designs		HART	PA	FF			
Add "-Z" to Article No. and specify Order code.							
Transient protector 6 kV (lightning protec- tion)	J01	1	1	~			
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display) ⁵⁾	J08	~	1	~			
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display) ⁵⁾	J09	1	1	~			

1) Device plug Han IP65

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

Selection and Ordering data	Order	code		
Additional data	oruer	HART	PΔ	FF
Please add "-2" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	1	√ 1)	
Stainless steel tag plate and entry in device variable (measuring point description)	Y15	1	1	~
Max. 16 characters, specify in plain text: Y15:				
Measuring point text (entry in device vari- able)	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 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_2O^{*}), in H_2O^{*}), ft H_2O^{*}), mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or % ^{*)} ref. temperature 20 °C				
Setting of pressure indicator in non-pressure units ²⁾	Y22 ³⁾ + Y01	~		
Specify in plain text: Y22: up to I/min, m ³ /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	~	~	~
Only Y01, Y15, Y16, Y17, Y21, Y22, Y25 and [D05 can	be fac	tory p	reset

✓ = 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.

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

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Pressure Measurement

Selection and Ordering data

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Article No.

Order code

JOA J 0 B JOC JOD JOE

J6A J 6 B J 6 C J 6 D **J6E** J 6 F J 6 G J 6 H

J 7 A J 7 B J7C J 7 D J 1 Y

K 1 Y

1

for level

Selection	n and Ordering data	Articl	e N
Mounting	g flange	7 M F	49
	nounted on the SITRANS P pressure er (converter part) for level, for DS III	3	
↗ Click d	on the Article No. for the online configu- in the PIA Life Cycle Portal.		
	ion to EN 1092-1	_	
Nominal	diameter Nominal pressure		
DN 25	PN 10/16/25/40	z	
	PN 63/100/160	Z	
DN 40	PN 10/16/25/40	Z	
	PN 63/100 PN 160	Z	
DN 50	PN 10/16/25/40	Â	
DIV 00	PN 100	В	
DN 80	PN 10/16/25/40	D	
DN 100	PN 10/16	G	
DIV 100	PN 25/40	н	
Connoot	ion to ASME B16.5		
	diameter Nominal pressure		
1 inch	class 150	z	
	class 300	Z	
	class 400/600	z	
417 1	class 900/1500	Z	
1½ inch	class 150 class 300	Z	
	class 400/600	z	
	class 900/1500	z	
2 inch	class 150	L	
	class 300	М	
	class 400/600	Ν	
O in th	class 900/1500	P	
3 inch	class 150 class 300	Q	
4 inch	class 150	Ť	
	class 300	U	
Flange a	cc. to JIS		
Nominal	diameter Nominal pressure		
JIS DN 5		Z	
JIS DN 8	20 K 316L 0 10 K 316L	Z	
112 DIV 0	20 K 316L	z	
Other ver	rsion, add Order code and plain text:		
	diameter:; Nominal press.:	z	
•	parts materials		
	ss steel 316L	A	
	ed with PFA ed with PTFE	D	0
	ed with ECTFE ¹⁾	F	
	400, mat. no. 2.4360	G	
	by C276, mat. no. 2.4819	J	
	by C4, mat. no. 2.4602	U	
	by C22, mat. no. 2.4602		0
Tantalui		к	
	n, mat. no. 3.7035 (max. 150 °C (302 °F))		0
	201 (max. 260 °C (500 °F)) 2205, mat. no. 1.4462	G	-
•	2205, mat. no. 1.4462, incl. main body	R	
 Stainles 	ss steel 316L, gold plated,	S	0
	ss approx. 25 μm		
Tube lenwithout	-		0
Other ver	rsion: add Order code and plain text:	z	8
material of	of parts in contact with medium:,		

Selection and Ordering data	Artio	cle	Nc)rd od		
Mounting flange	7 M	F 4	19	12			
Directly mounted on the SITRAI transmitter (converter part) for I series	3			1		•	
Customer-specific tubus leng	th						
Specify customer-specific lengt Order Code	th with Y44, see						
Wetted parts materials: Stainles Range	ss steel without foil Standard length						
20 50 mm (0.79 1.97") 51 100 mm (2.01 3.94") 101 150 mm (3.98 5.91") 151 200 mm (5.94 7.87") 201 250 mm (7.91 9.84")	50 mm (1.97°) 100 mm (3.94°) 150 mm (5.91°) 200 mm (7.87°) 250 mm (9.84°)		A 1 A 2 A 3 A 4 A 5	2 3 1			
Wetted parts materials: Stainle with ECTFE							
Range	Standard length						
20 50 mm (0.79 1.97") 51 100 mm (2.01 3.94") 101 150 mm (3.98 5.91") 151 200 mm (5.94 7.87") 201 250 mm (7.91 9.84") • Wetted parts materials: Stainles	50 mm (1.97") 100 mm (3.94") 150 mm (5.91") 200 mm (7.87") 250 mm (9.84") ss steel coated with		F 1 F 2 F 3 F 4 F 5	2 3 4			
PFA Range	Standard length						
20 50 mm (0.79 1.97")	50 mm (1.97")		D 1				
51 100 mm (2.01 3.94") 101 150 mm (3.98 5.91") 151 200 mm (5.94 7.87") 201 250 mm (7.91 9.84")	100 mm (3.94") 150 mm (5.91") 200 mm (7.87") 250 mm (9.84")			2 3 1			
Wetted parts materials: Monel	400						
Range	Standard length						
20 50 mm (0.79 1.97") 51 100 mm (2.01 3.94") 101 150 mm (3.98 5.91") 151 200 mm (5.94 7.87")	50 mm (1.97") 100 mm (3.94") 150 mm (5.91") 200 mm (7.87")		G 1 G 2 G 3 G 4	2			
Wetted parts materials: Hastell Range	oy C276 Standard length						
20 50 mm (0.79 1.97") 51 100 mm (2.01 3.94") 101 150 mm (3.98 5.91") 151 200 mm (5.94 7.87")	50 mm (1.97") 100 mm (3.94") 150 mm (5.91") 200 mm (7.87")		J 1 J 2 J 3 J 4	2			
Wetted parts materials: Tantalu Range	im Standard length						
nange 20 50 mm (0.79 1.97") 51 100 mm (2.01 3.94") 101 150 mm (3.98 5.91") 151 200 mm (5.94 7.87")	50 mm (1.97") 100 mm (3.94") 150 mm (5.91") 200 mm (7.87")		K 1 K 2 K 3	2			
Filling liquid • Silicone oil M5 • Silicone oil M50 • High-temperature oil • Halocarbon oil (for O ₂ -measu • Food oil (FDA-listed)	rement) ²⁾			1 2 3 4 7			
Other version, add Order code and plain text: filling liquid:				9	М	11	Ŷ
¹⁾ For vacuum on request							

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

tubus length:

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Pressure Measurement

Pressure transmitters

for applications with advanced requirements (Advanced) SITRANS P DS III

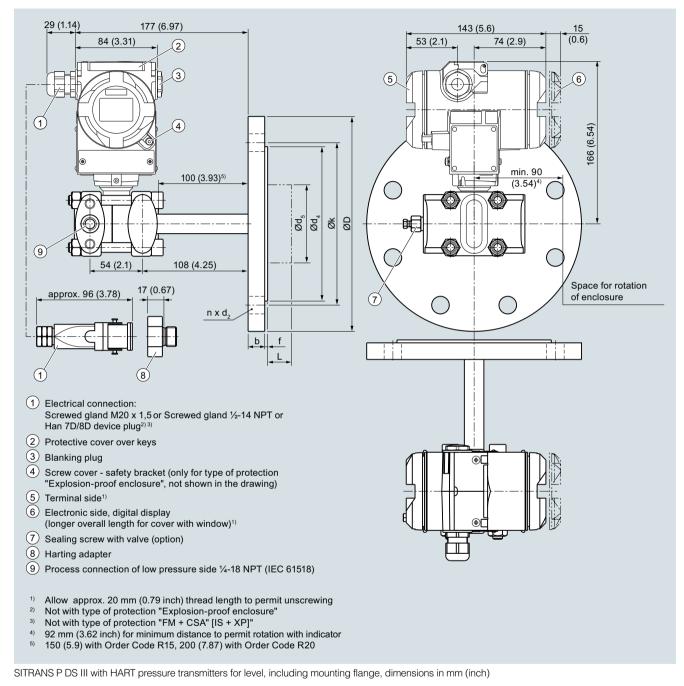
1

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Customer-specific tubus length Select range, enter desired length in plain text	¥44	1	1	1
(No entry = standard length)	A 01			
Spark arrester For mounting on zone 0 (incl. documentation)	A01	•	•	•
Remote seal nameplate attached out of stainless steel, contains Arti- cle No. and order number of the remote seal supplier	B20	1	•	~
Oil- and grease-free cleaned version	C10	✓	✓	✓
Oil- and grease-free cleaned and packed ver- sion, not for oxygen application, only in con- junction with halocarbon oil fill fluid, certified by certificate acc. to EN 10204-2.2				
Quality test certificate, 5-point factory calibration (IEC 60770-2)	C11	1	~	~
Inspection certificate Acc. to EN 10204-3.1	C12	1	~	~
2.2 Certificate of FDA approval of fill oil	C17	1	1	1
Only in conjunction with filling liquid "Food oil" (FDA listed)"	017	·	•	•
"Functional safety (SIL2)" certificate to IEC 61508	C20	~	~	
(only for conjunction with the Order code "C20" in the case of SITRANS P DS III transmitter)				
"Functional safety (SIL2/3)" certificate to IEC 61508	C23	1	~	
(only for conjunction with the Order code "C23" in the case of SITRANS P DS III transmitter)				
Certification acc. to NACE MR-0175	D07	✓	✓	✓
Includes inspection certificate 3.1 acc. to EN 10204 (only for wetted parts made of stainless steel 1.4404/316L and Hastelloy C276)				
Certification acc. to NACE MR-0103 Includes inspection certificate 3.1 acc. to EN 10204 (only for wetted parts made of stainless steel 1.4404/316L and Hastelloy C276)	D08	1	~	1
Oil- and grease-free cleaned version	E10	✓	1	✓
Oil- and grease-free cleaned and packed ver- sion, <u>only for oxygen application</u> , only inert fill fluid may be used. Max. temperature: 60 °C (140 °F), max. pressure 50 bar (725 psi), only in connection with halocarbon oil, certified by certificate acc. to EN 10204-2.2				
Epoxy painting Not possible with negative pressure service Color: transparent, coverage: front and rear of the remote seal, capillary(ies) or connecting tube, process connection of the transmitter. With transmitters 7MF40 and 7MF42, only possible with process connection G1/2B according to EN 837-1.	E15	V	•	•

	0111			0
			for	level
Selection and Ordering data	Order			
Further designs		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
One sided-mounting, sealing surface below	H20			
Sealing surface smooth, form B2 or RFSF	J11	1	1	1
(Stainless steel diaphragm)	511	•		•
previously DIN 2501, form E				
Sealing surface groove, EN 1092-1, form D	J14	1	1	1
instead of sealing surface B1 (only for wetted	514	•	•	•
parts made of stainless steel 316L)				
Sealing surface with spring according to				
EN 1092-1, form F, (previously DIN 2512,				
form F) in stainless steel 316L				
DN 25	J30	√	√	✓
DN 40	J31	1	1	1
DN 50	J32	1	1	1
DN 80	J33 J34	✓ ✓	√ √	√ √
DN 100 DN 125	J34 J35	*	*	×
	000	•	•	•
Sealing surface with male face according to EN 1092-1, form E (previously DIN 2512,				
form V13) in stainless steel 316L				
DN 25	J40	✓	1	1
DN 40	J41	✓	✓	✓
DN 50	J42	✓	✓	1
DN 80	J43	~	✓	✓
DN 100	J44	✓	✓	✓
DN 125	J45	~	1	1
Sealing surface with female face according				
to EN 1092-1, form F (previously DIN 2512,				
form R13) in stainless steel 316L	150	1		1
DN 25 DN 40	J50 J51	<i>√</i>	√ √	¥.
DN 50	J52	¥	1	¥
DN 80	J53		1	
DN 100	J54	1	1	1
DN 125	J55	✓	✓	1
Sealing surface B1 or	J12	1	1	1
ASME B16.5 RF 125 250 AA	0.2		-	
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)				
	104	,		,
Sealing surface RJF (groove, previously RTJ) ASME B16.5	J24	V	V	V
instead of sealing surface ASME B16.5 RF				
125 250 AA (only for wetted parts made of				
stainless steel 316Ĺ)				
Elongated pipe, 150 mm instead of 100 mm,	R15	✓	✓	✓
max. medium temperature 250 °C, observe				
the maximum permissible media temperature				
of the filling liquid.				
Elongated pipe, 200 mm instead of 100 mm,	R20	~	1	1
max. medium temperature 300 °C, observe the maximum permissible media temperature				
of the filling liquid.				
Negative pressure service				
for use in the low-pressure measuring range for	V04	1	1	1
transmitter for level				
Note: suffix "Y01" required with pressure trans-				
mitter				
Extended negative pressure service				
for use in the low-pressure measuring range for	V54	1	1	1
transmitter for level				
Note: suffix "Y01" required with pressure trans- mitter				
\checkmark = available				

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

for level

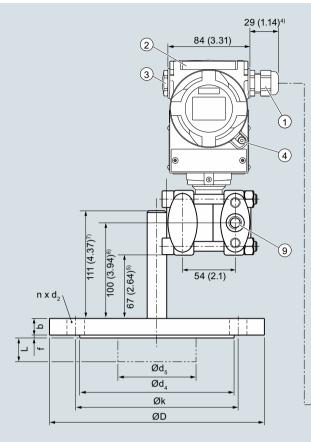


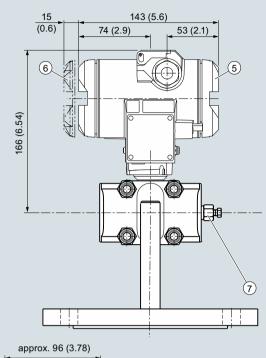
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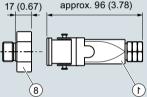
Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

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for level







- Electrical connection: Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/8D device plug^{2) 3)}
- 2 Protective cover over keys
- 3 Blanking plug
- (4) Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- 5 Terminal side¹⁾
- 6 Electronic side, digital display
- (longer overall length for cover with window)¹⁾
- 7 Sealing screw with valve (option)
- 8 Harting adapter
- 9 Process connection of low pressure side ¼-18 NPT (IEC 61518)
- ¹⁾ Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- ²⁾ Not with type of protection "Explosion-proof enclosure"
- ³⁾ Not with type of protection "FM + CSA" [IS + XP]"
- ⁴⁾ For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
- $^{5)}$ 117 (4.61) with Order Code R15, 167 (6.57) with Order Code R20
- $^{\rm 6)}$ $\,$ 150 (5.19) with Order Code R15, 200 (7.87) with Order Code R20 $\,$
- 7) 161 (6.34) with Order Code R15, 211 (8.31) with Order Code R20

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

for level

Connection to EN 1092-1

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

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Connection to ASME B16.5

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

d: Internal diameter of gasket to DIN 2690

 $d_{\ensuremath{\mathsf{M}}}$: Effective diaphragm diameter

¹⁾ 59 mm = 2.32 inch with tube length L=0. ²⁾ 89 mm = $3\frac{1}{2}$ inch with tube length L=0.

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Pressure Measurement

Pressure transmitters

for applications with advanced requirements (Advanced) SITRANS P DS III

Accessories/Spare Parts

Selection and Ord	ering data	Article No.	Selection and Orde	ring data	Arti	cle No.
Replacement measuring cell for pressure for SITRANS P DS III		7 M F 4 9 9 0 -	Replacement measuring cell for absolute pressure for SITRANS P DS III (from the pressure series)			F 4 9 9 2 -
Click on the Artic tion in the PIA Li	cle No. for the online configura- ife Cycle Portal.		Click on the Article No. for the online configura- tion in the PIA Life Cycle Portal.			
Measuring cell filli Silicone oil Inert liquid Measured span (m 8.3 250 mbar 0.01 1 bar 0.04 4 bar	ing Measuring cell cleaning Normal grease-free to cleanliness level 2 hin max.) (0.12 3.6 psi) (0.15 14.5 psi) (0.6 58 psi)	1 3 A B C	Measuring cell fillir Silicone oil Inert liquid Measured span (mi 8.3 250 mbar a 43 1300 mbar a 0.16 5 bar a	ng Measuring cell cleaning Normal grease-free to cleanliness level 2 n max.) (0.12 3.63 psi a) (0.62 18.86 psi a) (2.32 72.5 psi a)	1 3 D F G	
0.16 16 bar 0.63 63 bar 1.6 160 bar 4.0 400 bar 7.0 700 bar Wetted parts mate	(2.32 232 psi) (9.14 914 psi) (23.2 2 320 psi) (58.0 5 802 psi) (102.0 10 153 psi)	D E G J	1 30 bar a Wetted parts mater Seal diaphragm Stainless steel Hastelloy Hastelloy	(14.5 435 psi a)		A B C
Seal diaphragm Stainless steel Hastelloy Hastelloy	Process connection Stainless steel Stainless steel Hastelloy	A B C	Process connectio • Connection shank • Female thread ½-1 • Oval flange made	G½B to EN 837-1 4 NPT		0 1
 Process connection Connection shank Female thread ½- Oval flange made 	 G½B to EN 837-1 14 NPT e of stainless steel, 	0	max. measuring sp - Mounting thread IEC 61518/DIN E - Mounting thread	ban 160 bar (2320 psi) ⁷ / ₁₆ -20 UNF to N 61518		2 3
- Mounting thread IEC 61518/DIN I	span 160 bar (2320 psi) d ⁷ / ₁₆ -20 UNF to EN 61518 d M10 to DIN 19213	2 3	Order code.	rticle No. and specify		ler code
Further designs Please add "-Z" to A Order code.	Article No. and specify	Order code	Inspection certifica to EN 10204-3.1	te	C12	2
Inspection certific to EN 10204-3.1	ate	C12				

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Accessories/Spare Parts

Selection and Order	ing data	Article No.
Replacement measu	ring cell for absolute pres-	7MF4993-
sure (from the differ	ential pressure series) for	- 0 D C 0
	HART, DS III with PROFIBUS	
tion in the PIA Life	,	
	Measuring cell cleaning	
Silicone oil	Normal	1
Inert liquid	grease-free to cleanliness level 2	3
<u> </u>		_
Measured span (min	,	
8.3 250 mbar a	(0.12 3.63 psi a)	D
43 1300 mbar a	(0.62 18.86 psi a)	F
0.16 5 bar a 1 30 bar a	(2.32 72.5 psi a)	н
5.3 100 bar a	(14.5 435 psi a) (76.9 1450 psi a)	KE
Wetted parts materia		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	В
Hastelloy	Hastelloy	С
Tantalum	Tantalum	E
Monel	Monel	H
Gold	Gold	L
Process connection		
Female thread 1/4-18 N	NPT with flange connection	
0 11	site process connection	
- Mounting thread N		0
 Mounting thread ⁷ IEC 61518/DIN EN 	/ ₁₆ -20 UNF to	2
 Vent on side of proc Mounting thread M 	0	4
- Mounting thread 7		6
IEC 61518/DIN EN	61518	v
Non-wetted parts ma	aterials	
 Stainless steel proce 		2
Further designs		Order code
Please add "-Z" to Art	icle No. and specify	Order code
Order code.		
O-rings for process	flanges	
(instead of FPM (Vitor	-	
PTFE (Teflon)		A20
• FEP (with silicone co	ore, approved for food)	A21
• FFPM (Kalrez, for me	easured medium temperatures	A22
-15 100 °C (5 2	12 °F))	
 NBR (Buna N) 		A23
Inspection certificate	e	C12
to EN 10204-3.1		
Process connection	G½B	D16
Remote seal flanges		D20
(not together with K01		
Vent on side for gas	, ,	H02
¥		.102
Process flanges		KOO
without	mada of	К00
• with process flange	maue U	K01
- Hastelloy - Monel		K01 K02
 Monei Stainless steel with 	PVDE insort	K02 K04
max. PN 10 (MAW		1.04
	of medium 90 °C (194 °F)	
For ½-14 NPT inne	er process connection on the	
	of the process flange, vent	
valve not possible		

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

Selection and Orde	*	Article No.
pressure and PN 32 SITRANS P DS III wi	uring cell for differential 2/160 (MAWP 464/2320 psi) for th HART, DS III with PROFIBUS OUNDATION Fieldbus series	7 M F 4 9 9 4 -
Click on the Artic tion in the PIA Life	le No. for the online configura- e Cycle Portal.	
Measuring cell fillir Silicone oil	ng Measuring cell cleaning Normal	1
Inert liquid	grease-free to cleanliness level 2	3
Measured span (mi	n max.)	
<u>PN 32 (MAWP 464 p</u> 1 20 mbar ¹⁾	(0.4 8 inH ₂ O)	в
PN 160 (MAWP 2320		
1 60 mbar 2.5 250 mbar	(0.4 24 inH ₂ O) (1 100 inH₂O)	C
6 600 mbar	(2.4 240 inH ₂ O)	E
16 1600 mbar	(6.4 642 inH ₂ O)	F
50 5000 mbar	(20 2000 inH ₂ O)	G
0.3 30 bar	(4.35 435 psi)	н
Wetted parts mater (stainless steel proc		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy Hastelloy	Stainless steel Hastelloy	B C
Tantalum ²⁾	Tantalum	Ĕ
Monel ²⁾	Monel	н
Gold ²⁾ Process connection	Gold	_ L
Sealing screw opp Mounting thread Mounting thread IEC 61518/DIN E Vent on side of pro Mounting thread IEC 61518/DIN E Non-wetted parts n	⁷ / ₁₆ -20 UNF to IN 61518 poess flange M10 to DIN 19213 ⁷ / ₁₆ -20 UNF to IN 61518 materials	0 2 4 6
Stainless steel proce	ess flange screws	2 Order code
Please add "-Z" to Art	ticle No. and specify Order code.	
O-rings for process (instead of FPM (Vite	•	
PTFE (Teflon)	,)	A20
	core, approved for food)	A21
-15 100 °C (5	neasured medium temperatures 212 °F))	A22
• NBR (Buna N)		A23
to EN 10204-3.1	ite	C12
Remote seal flange (not together with K0		D20
Vent on side for ga		H02
Stainless steel prod differential pressur (not together with K0		H03
Process flanges		
without	o modo of	K00
 with process flang Hastelloy 	e maue ui	K01
- Monel		K02
	ith PVDF insert, max. PN 10	K04
90 °C (194 °F). Fe	max. temperature of medium or 1/2-14 NPT inner process con- de in the middle of the process e not possible	
J , A A		

1) Not suitable for connection of remote seal

²⁾ Only together with max. measuring span 250, 1600, 5000 and 30000 mbar (100 inH₂O, 642 inH₂O, 2000 inH₂O and 435 psi).

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Accessories/Spare Parts

1

Selection and Orderin	ng data	Article No.
Replacement measur pressure and PN 420 SITRANS P DS III with PA and DS III with FOL	7 M F 4 9 9 5 -	
Click on the Article tion in the PIA Life C	No. for the online configura- Cycle Portal.	
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 ₂ O) (2.4 240 inH ₂ O) (6.4 642 inH ₂ O) (20 2000 inH ₂ O) (4.35 435 psi)	D E F G
Wetted parts material		- 11
(stainless steel proces	o ,	
Seal diaphragm Stainless steel Hastelloy Gold ¹⁾	Parts of measuring cell Stainless steel Stainless steel Gold	A B L
Process connection		-
 Mounting thread M Mounting thread ⁷/- IEC 61518/DIN EN Vent on side of proce Mounting thread M Mounting thread ⁷/- IEC 61518/DIN EN 	₁₆ -20 UNF to 61518 ess flange 12 to DIN 19213 ₁₆ -20 UNF to 61518	1 3 5 7
 Non-wetted parts mat Stainless steel proce 		2
Further designs		Order code
Please add "-Z" to Artic code.	cle No. and specify Order	
O-rings for process fil (instead of FPM (Viton) • PTFE (Teflon) • FEP (with silicone co • FFPM (Kalrez, for mea -15 100 °C (5 21 • NBR (Buna N))) re, approved for food) asured medium temperatures	A20 A21 A22 A23
Inspection certificate to EN 10204-3.1		C12
	ss flanges for vertical	H03
differential pressure		

 $^{1)}$ Not together with max. measuring span 600 mbar (240 inH_2O)

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Accessories/Spare Parts

1

Fieldbus.

• without window

• with window

Selection and Ordering data	Article No.	Selection and Ordering data	Article No.
Spare parts/Accessories		Digital indicator	7MF4997-1BR
Mounting bracket and fastening parts		Including mounting material for SITRANS P DS III with HART, DS III with PROFIBUS PA and	
for pressure transmitters		DS III with FOUNDATION Fieldbus	
SITRANS P DS III with HART, DS III with		Measuring point label	
PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF403C.)		 without inscription (5 units) 	7MF4997-1CA
For absolute pressure transmitters		 Printed (1 unit) 	7MF4997-1CB-Z
SITRANS P DS III with HART, DS III with		Data according to Y01 or Y02, Y15, Y16 and Y99 (see "Pressure transmitters")	Y:
PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF423C.)		· · · · · · · · · · · · · · · · · · ·	
made of steel	7MF4997-1AB	Mounting screws	
made of stainless steel 304/1.4301	7MF4997-1AH	For measuring point label, grounding and con-	7MF4997-1CD
 made of stainless steel 316L/1.4404 	7MF4997-1AP	nection terminals or for display (50 units)	
Mounting bracket and fastening parts		Sealing screws	
for pressure transmitters		(1 set = 2 units) for process flange	
SITRANS P DS III with HART, DS III with		made of stainless steel	7MF4997-1CG
PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF403A.,B.,D. andF.)		 made of Hastelloy 	7MF4997-1CH
For absolute pressure transmitters		Sealing screws with vent valve	
SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION		Complete (1 set = 2 units)	
Fieldbus 7MF423A.,B.,D. andF.)		 made of stainless steel 	7MF4997-1CP
made of steel	7MF4997-1AC	made of Hastelloy	7MF4997-1CQ
 made of stainless steel 304/1.4301 	7MF4997-1AJ	Application electronics	
 made of stainless steel 316L/1.4404 	7MF4997-1AQ	for SITRANS P DS III with HART	7MF4997-1DK
Mounting and fastening brackets		 for SITRANS P DS III with PROFIBUS PA for SITRANS P DS III with FOUNDATION 	7MF4997-1DL 7MF4997-1DM
For differential pressure transmitters with		Fieldbus	/WF4997-1DW
flange thread M10 SITRANS P DS III with HART, DS III with		Connection board	
PROFIBUS PA and DS III with FOUNDATION		• for SITRANS P DS III	7MF4997-1DN
Fieldbus (7MF433 and 7MF443)		• for SITRANS P DS III PROFIBUS PA and	7MF4997-1DP
made of steel	7MF4997-1AD	FOUNDATION Fieldbus	
made of stainless steel 304/1.4301	7MF4997-1AK	O-rings for process flanges made of:	
 made of stainless steel 316L/1.4404 	7MF4997-1AR	• FPM (Viton)	7MF4997-2DA
Mounting and fastening brackets		PTFE (Teflon)	7MF4997-2DB
For differential pressure transmitters with flange thread M12		• FEP (with silicone core, approved for food)	7MF4997-2DC
SITRANS P DS III with HART, DS III with		• FFPM (Kalrez)	7MF4997-2DD
PROFIBUS PA and DS III with FOUNDATION		• NBR (Buna N)	7MF4997-2DE
Fieldbus (7MF453)	71454007 145	Sealing ring for process connection	see "Fittings"
 made of steel made of stainless steel 304/1.4301 	7MF4997-1AE 7MF4997-1AL	Weldable sockets for PMC connection	
made of stainless steel 316L/1.4404	7MF4997-1AS	PMC Style Standard: Thread 11/2"	7MF4997-2HA
Mounting and fastening brackets		PMC Style Minibolt: front-flush 1"	7MF4997-2HB
For differential and absolute pressure transmit-		Gaskets for PMC connection	
ters with flange thread 7/16 -20 UNF		(packing unit = 5 units)PTFE seal for PMC Style Standard:	7MF4997-2HC
SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION		Thread 11/2"	7101 4557 2110
Fieldbus		 Gasket made of Viton for PMC Style Minibolt: 	7MF4997-2HD
(7MF433, 7MF443 and 7MF453)		front-flush 1"	
 made of steel 	7MF4997-1AF	Weldable socket for TG52/50 and TG52/150	
made of stainless steel 304/1.4301	7MF4997-1AM	connection	7MF4997-2HE
 made of stainless steel 316L/1.4404 	7MF4997-1AT	 TG52/50 connection TG52/150 connection 	7MF4997-2HE 7MF4997-2HF
Cover			
Made of die-cast aluminum, including gasket,		Seals for TG 52/50 and TG 52/150 made of silicone (FDA compliant)	7MF4997-2HG
for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION		Seals for flange connection with front-flush	
Fieldbus.		diaphragm	
Compatible for Ex and non-Ex transmitters		M;aterial FKM (Viton); temperature range:	
without window	7MF4997-1BB	-20 +200 °C (-4 +392 °F), 10 units	71454007 01111
• with window	7MF4997-1BE	 DN 25, PN 40 (M11) 1", class 150 (M40) 	7MF4997-2HH 7MF4997-2HK
Cover			100 4 337-211X

7MF4997-1BC

7MF4997-1BF

Made of stainless steel, including gasket, for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION

Compatible for Ex and non-Ex transmitters

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Accessories/Spare Parts

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

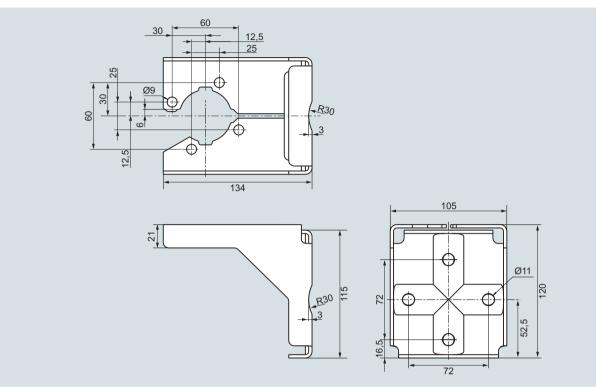
Power supply units see Chap. 7 "Supplementary Components".

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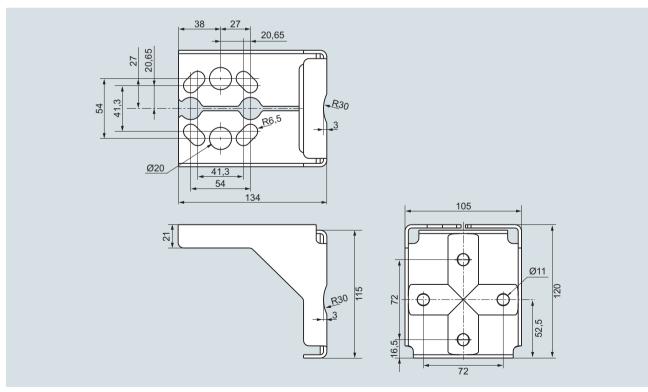
Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Accessories/Spare Parts

Dimensional drawings



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



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

Pressure transmitters

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 PTFE gaskets between the 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.

Selection and Ordering data

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

and a com	Add "- Z " to the Article No. of the transmitter and add order codes.	Order code
PHE 2	SITRANS P DSIII 7MF4032, 7MF4232, 7MF4033, 7MF4233, 7MF4034, 7MF4234	T05
	With process connection oval flange with PTFE gasket and steel mounting screws.	
	Delivery including high-presure test certi- fied by factory certificate according to EN 10204-2.2	
	Additional versions:	
	Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	A02
	Inspection certificate according to EN 10204-3.1 supplied for transmitters and mounted valve manifold	C12
	With manufacturer declaration according to NACE, MR-0175	D07

The 7MF9411-5BA and 7MF9411-5CA valve manifolds are sealed with PTFE gaskets between the transmitter and the valve manifold.

The complete unit is checked for leaks under pressure after assembly (air pressure 6 bar (87 psi)) and certified with a factory certificate according to EN 10204 - 2.2.

All valve manifolds should preferably be secured with the corresponding 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 inspection certificate 3.1 according to EN 10204 after choosing the option "Factory mounting of valve manifolds", a separate certificate is provided for the transmitter and for the valve manifold.

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

Las Som	Add "-Z" to the Article No. of the transmitter and add order codes.	Order code
HIR &	SITRANS P DSIII 7MF4032, 7MF4232, 7MF4033, 7MF4233, 7MF4034, 7MF4234	T06
	With process connection oval flange with PTFE gasket and stainless steel mounting screws.	
	Delivery including high-presure test certi- fied by factory certificate according to EN 10204-2.2	
	Additional versions:	
	Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	A02
	Inspection certificate according to EN 10204-3.1 supplied for transmitters and mounted valve manifold	C12
	With manufacturer declaration according to NACE, MR-0175	D07

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Factory-mounting of valve manifolds on transmitters

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



24	Add -Z to the Article No. of the transmitter and add Order codes	Order code
6	SITRANS P DSIII 7MF4031, 7MF4231	т03
	With process connection female thread ½-14 NPT in-sealed with PTFE sealing tape	
	Delivery incl. high-pressure test certified by factory certificate according to EN 10204-2.2	
	Further designs:	
	Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	A02
	Inspection certificate according to EN 10204-3.1 supplied for transmitters and mounted valve manifold	C12
	With manufacturer declaration according to NACE, MR-0175	D07
-		

7MF9011-4EA

valve manifold on relative and absolute pressure transmitters



· · · · · · · · · · · · · · · · · · ·	
Add -Z to the Article No. of the transmitter and add Order codes	Order code
SITRANS P DSIII 7MF4030, 7MF4230	T02
with process connection collar G1/2 A to EN 837-1 with gasket made of PTFE between valve manifold and transmitter	
Alternative sealing material:	
• Soft iron	A70
 Stainless steel, Mat. No. 14571 copper 	A71 A72
	AIZ
Delivery incl. high-pressure test certified by factory certificate according to EN 10204-2.2	
Further designs:	
Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	A02
Inspection certificate according to EN 10204-3.1 supplied for transmitters and mounted valve manifold	C12
With manufacturer declaration according to NACE, MR-0175	D07

7MF9411-5BA

valve manifold on absolute and differential pressure transmitters

For my	Add -Z to the Article No. of the transmitter and add Order codes	Order code
C. Martin	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 factory certificate according 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
	Inspection certificate according to EN 10204-3.1 supplied for transmitters and mounted valve manifold	C12
	With manufacturer declaration according to NACE, MR-0175	D07

7MF9411-5CA

valve manifold on differential pressure transmitters

	-	
A C	Add -Z 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 factory certificate according 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
	Inspection certificate according to EN 10204-3.1 supplied for transmitters and mounted valve manifold	C12
	With manufacturer declaration according to NACE, MR-0175	D07

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

Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

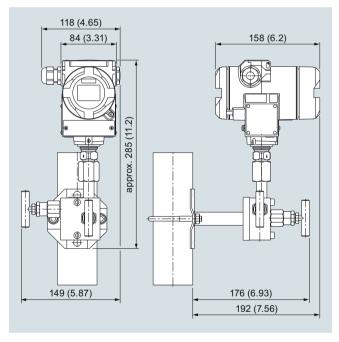
Factory-mounting of valve manifolds on transmitters

Dimensional drawings

Valve manifolds mounted on SITRANS P DS III



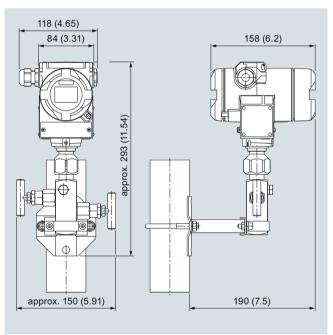
7MF9011-4EA valve manifold with mounted gauge pressure and absolute pressure transmitters



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



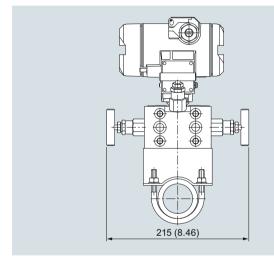
7MF9011-4FA valve manifold with mounted gauge pressure and absolute pressure transmitters, dimensions in mm (inch)

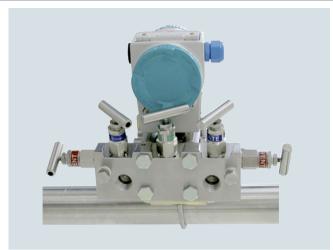
Pressure transmitters for applications with advanced requirements (Advanced) SITRANS P DS III

Factory-mounting of valve manifolds on transmitters

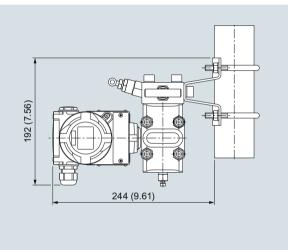


7MF9411-5BA valve manifold with mounted differential pressure transmitter

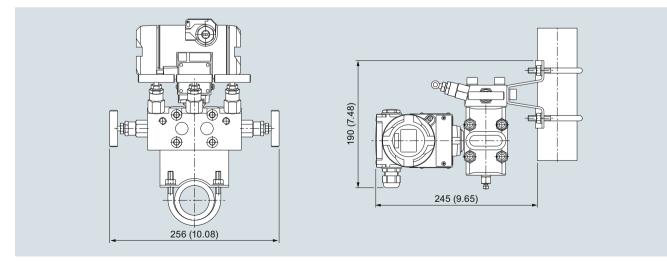




7MF9411-5CA valve manifold with mounted differential pressure transmitter



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



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