Transmitters for general requirements

SITRANS P DS III Technical description

Overview



SITRANS P DS III pressure transmitters are digital pressure transmitters featuring extensive user-friendliness and high accuracy. The parameterization is performed using control keys or via HART communication, 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
- Small long-term drift
- Wetted parts made of high-grade materials (e.g. stainless steel, Hastelloy, gold, Monel, tantalum)

- Infinitely adjustable span from 0.01 bar to 700 bar (0.15 psi to 10153 psi) for DS III with HART interface
- Nominal measuring range from 1 bar to 700 bar (14.5 psi to 10153 psi) for DS III with PROFIBUS PA and FOUNDATION Fieldbus interface
- · High measuring accuracy
- Parameterization over control keys and HART communication, PROFIBUS PA communication 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 operated locally over 3 control buttons or programmed externally over HART communication or over PROFIBUS PA or FOUNDATION Fieldbus interface.

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Pressure transmitter for gauge pressure

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

Span (infinitely adjustable)

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

Nominal measuring range

for DS III PA and FF: 1 bar to 700 bar (14.5 psi to 10153 psi)

Pressure transmitters for absolute pressure

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

Span (infinitely adjustable)

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

Nominal measuring range

for DS III PA and FF: 250 mbar a ... 100 bar a (3.6 ... 1450 psi)

There are two series:

- · Gauge pressure series
- Differential pressure series

Pressure transmitters for differential pressure and flow

Measured variables:

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

Span (infinitely adjustable)

for DS III HART: 1 mbar ... 30 bar (0.0145 ... 435 psi)

Nominal measuring range

for DS III PA and FF: 20 mbar ... 30 bar (0.29 ... 435 psi)

Pressure transmitters for level

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

Span (infinitely adjustable)

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

Nominal measuring range

for DS III PA and FF: 250 mbar ... 5 bar (3.63 ... 72.5 psi)

Nominal diameter of the mounting flange

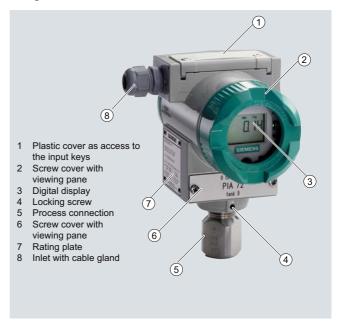
- DN 80 or DN 100
- 3 inch or 4 inch

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

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

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

Design



Front view

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

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

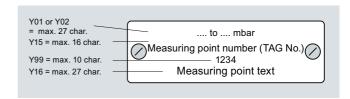
The approval label is located on the opposite side.

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

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

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

Example for an attached measuring point label

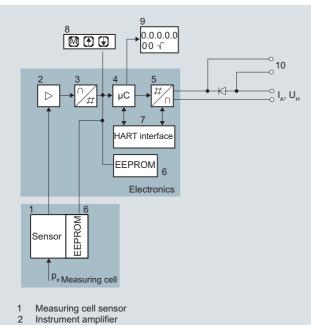


Transmitters for general requirements

SITRANS P DS III Technical description

Function

Operation of electronics with HART communication



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

Function diagram of electronics

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

The diode circuit (10) protects against incorrect polarity.

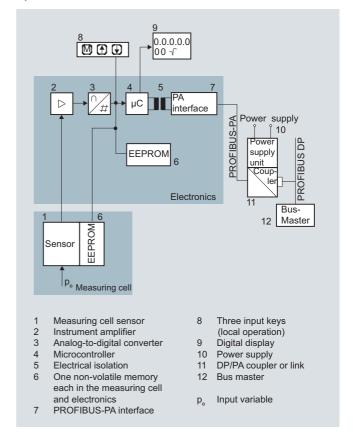
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

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

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

The pressure transmitters with spans \leq 63 bar measure the input pressure compared to atmosphere, transmitters with spans \geq 160 bar compared to vacuum.

Operation of electronics with PROFIBUS PA communication



Function diagram of electronics

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

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

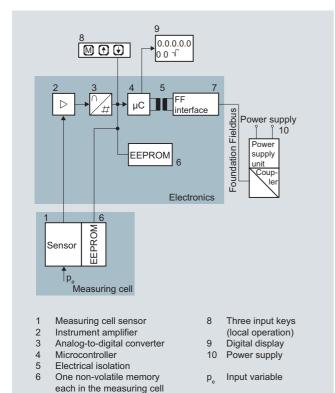
Using the three input buttons (8) you can parameterize the pressure transmitter directly at the measuring point. The input buttons can also be used to control the view of the results, the error messages and the operating modes on the digital display (9).

The results with status values and diagnostic values are transferred by cyclic data transmission on the PROFIBUS PA. Parameterization data and error messages are transferred by acyclic data transmission. Special software such as SIMATIC PDM is required for this.

Transmitters for general requirements

SITRANS P DS III
Technical description

Operation of electronics with FOUNDATION Fieldbus communication



Function diagram of electronics

FF interface

7

and 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).

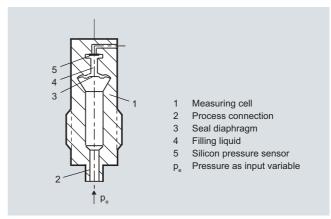
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced 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 digital display (9).

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

Mode of operation of the measuring cells

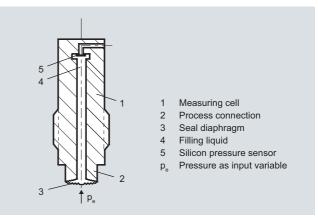
Measuring cell for gauge pressure



Measuring cell for gauge pressure, function diagram

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

Measuring cell for gauge pressure with front-flush diaphragm



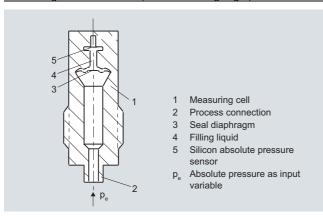
Measuring cell for gauge pressure, with front-flush diaphragm for paper industry, function diagram

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

Transmitters for general requirements

SITRANS P DS III Technical description

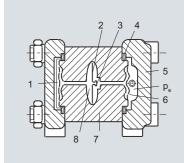
Measuring cell for absolute pressure from gauge pressure series



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

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

Measuring cell for absolute pressure from differential pressure series



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

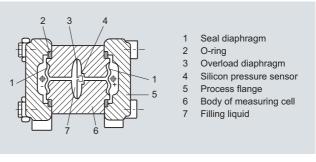
Measuring cell for absolute pressure from differential pressure series, function diagram

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

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

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

Measuring cell for differential pressure and flow



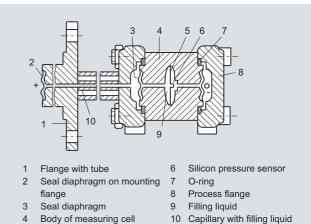
Measuring cell for differential pressure and flow, function diagram

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

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

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

Measuring cell for level



Measuring cell for level, function diagram

Overload diaphragm

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

of mounting flange

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

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

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

Transmitters for general requirements

SITRANS P DS III
Technical description

Parameterization DS III

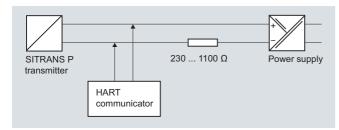
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

Parameterization using the input buttons (local operation)

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

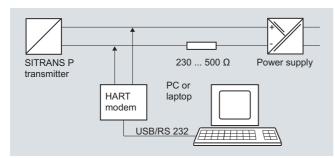
Parameterization using HART communication

Parameterization using HART communication is performed with a HART communicator or a PC.



Communication between a HART communicator and a pressure transmitter

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



HART communication between a PC communicator and a pressure transmitter

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

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

Adjustable parameters, DS III HART

Input keys (DS III HART)	HART communication
Х	Х
X	Χ
X	Χ
Х	Х
X	X
X	X
X	X
X	X
X	x ¹⁾
X	X
x ²⁾	x ²⁾
	X
	X
	X
	(DS III HART) X X X X X X X X X X

¹⁾ Cancel apart from write protection

Diagnostic functions for DS III HART

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

Available physical units of display for DS III HART

Table style: Technical specifications 2

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	Pa, MPa, kPa, bar, mbar, torr, atm, psi, g/cm², kg/cm², inH 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	$\rm m^3/d,m^3/h,m^3/s,l/min,l/s,ft^3/d,ft^3/min,ft^3/s,US$ gallon/min, US gallon/s
Mass flow	t/d, t/h, t/min, kg/d, kg/h, kg/min, kg/s, g/d, g/h, g/min, g/s, lb/d, lb/h, lb/min, lb/s, LTon/d, LTon/h, STon/d, STon/h, STon/min
Temperature	K, °C, °F, °R
Miscellaneous	%, mA

Parameterization through PROFIBUS PA interface

Fully digital communication through PROFIBUS PA, profile 3.0, is particularly user-friendly. The PROFIBUS puts the DS III PA is in connection with 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 FF 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 PA and FF

Adjustable parameters for Do III FA and FF					
Parameters	Input keys	PROFIBUS PA and FOUNDATION Field-bus interface			
Electrical damping	X	X			
Zero adjustment (correction of position)	X	×			
Buttons and/or function disabling	X	X			
Source of measured-value display	X	X			
Physical dimension of display	X	X			
Position of decimal point	X	X			
Bus address	X	X			
Adjustment of characteristic	X	X			
Input of characteristic		X			
Freely-programmable LCD		X			
Diagnostics functions		X			

²⁾ Only differential pressure

Pressure Measurement Transmitters for general requirements

SITRANS P DS III **Technical description**

Diagnostic functions for DS III PA and FF

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

Physical dimensions available for the display

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	MPa, kPa, Pa, bar, mbar, torr, atm, psi, g/cm², kg/cm², mmH $_2$ O, mmH $_2$ O (4 °C), inH $_2$ O, inH $_2$ O (4 °C), ftH $_2$ O (20 °C), mmHg, inHg
Level (height data)	m, cm, mm, ft, in, yd
Volume	m ³ , dm ³ , hl, yd ³ , ft ³ , in ³ , US gallon, Imp. gallon, bushel, barrel, barrel liquid
volume flow	m³/s, m³/min, m³/h, m³/d, l/s, l/min, l/h, l/d, Ml/d, ft³/s, ft³/min, ft³/h, ft³/d, US gallon/s, US gallon/min, US gallon/h, US gallon/d, bbl/s, bbl/min, bbl/h, bbl/d
Mass flow	g/s, g/min, g/h, g/d, kg/s, kg/min, kg/h, kg/d, t/s, t/min, t/h, /t/d, lb/s, lb/min, lb/h, lb/d, STon/s, STon/min, STon/h, STon/d, LTon/s, LTon/min, LTon/h, LTon/d
Total mass flow	t, kg, g, lb, oz, LTon, STon
Temperature	K, °C, °F, °R
Miscellaneous	%

Pressure Measurement Transmitters for general requirements

SITRANS P DS III for gauge pressure

Technical specifications

SITRANS P, DS III series for gauge pressure						
	HART		PROFIBUS PA and F	OUNDATION Fieldbus		
Input						
Measured variable	Gauge pressure					
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure		
	0.01 1 bar g (0.15 14.5 psi g)	6 bar g (87 psi g)	1 bar g (14.5 psi g)	6 bar g (87 psi g)		
	0.04 4 bar g (0.58 58 psi g)	10 bar g (145 psi g)	4 bar g (58 psi g)	10 bar g (145 psi g)		
	0.16 16 bar g (2.32 232 psi g)	32 bar g (464 psi g)	16 bar g (232 psi g)	32 bar g (464 psi g)		
	0.6 63 bar g (9.14 914 psi g)	100 bar g (1450 psi g)	63 bar g (914 psi g)	100 bar g (1450 psi g)		
	1.6 160 bar g (23.2 2320 psi g)	250 bar g (3626 psi g)	160 bar g (2320 psi g)	250 bar g (3626 psi g)		
	4.0 400 bar g (58 5802 psi g)	600 bar g (8700 psi g)	400 bar g (5802 psi g)	600 bar g (8700 psi g)		
	7.0 700 bar g (102 10153 psi g)	800 bar g (11603 psi g)	700 bar g (10153 psi g)	800 bar g (11603 psi g)		
Lower measuring limit		00 1	(0.405)			
• Measuring cell with silicone oil filling			a (0.435 psi a)			
• Measuring cell with inert filling liquid	100.0/ of many amon		a (0.435 psi a)	100 har a (1710 hai a))		
Upper measuring limit	100 % of max. spar	i (for oxygen version and	d inert filling liquid; max.	120 bar g (1740 psi g))		
Dutput Dutput signal	4 20 mA	Digital PROFIBUS PA and FOU bus signal		and FOUNDATION Field		
Lower limit (infinitely adjustable)	3.55 mA, factory prese	t to 3.84 mA	-	Ü		
Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA					
Load						
Without HART communication	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{V})/0.03$ $U_{\rm H}$: Power supply in V	23 A in Ω,	-			
With HART communication	$R_{\rm B}$ = 230 500 Ω (SII) $R_{\rm B}$ = 230 1100 Ω (H		-			
Physical bus	-		IEC 61158-2			
Protection against polarity reversal	Protected against short	suppl	ersal. Each connection a y voltage.	gainst the other with ma		
Measuring accuracy			EN 60770-1			
Reference conditions All error data refer always refer to the set span)	ing, room te	tic, start-of-scale value (mperature 25 °C (77 °F)	bar, stainless steel seal) r: Span ratio (r = max. s	diaphragm, silicone oil s span / set span)		
Error in measurement and fixed-point setting including hysteresis and repeatability) Linear characteristic			≤ 0.075 %			
- r ≤ 10	$\leq (0.0029 \cdot r + 0.071)$ %	6	\$ 0.075 %			
- 1 ≤ 10 - 10 < r ≤ 30	$\leq (0.0029 \cdot 1 + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$					
- 30 < r ≤ 100	$\leq (0.0043 \cdot r + 0.07 \cdot r)$ $\leq (0.005 \cdot r + 0.05) \%$					
ong-term drift (temperature change ± 30 °C ± 54 °F))	_ (0.000 1 1 0.00) /0					
1- to 4-bar measuring cell	≤ (0.25 · r) % per 5 yea	ars	≤ 0.25 ·) % per 5 yea	rs		
16- to 400-bar measuring cell	≤ (0.125 · r) % per 5 ye		≤ 0.125 ·) % per 5 ye	ars		
nfluence of ambient temperature						
• at -10 +60 °C (14 140 °F)	\leq (0.08 · r + 0.1)% (at 700 bar: \leq (0.1 · r +	0.2)%	≤ 0,3 %			
at -4010 °C and +60 +85 °C (-40 +14 °F and 140 185 °F)	\leq (0.1 · r + 0.15) %/10	K	≤ 0.25 %/10 K			
Measured Value Resolution	-		3 · 10 ⁻⁵ of nominal me	asuring range		

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

SITRANS P, DS III series for gauge pressure	HADT	DDOCIDUS DA and COUNDATION Fieldhus
Date de a sudition a	HART	PROFIBUS PA and FOUNDATION Fieldbus
Rated conditions		205
Degree of protection (to EN 60529)	II.	P65
Temperature of medium		
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)	
Measuring cell with inert filling liquid		C (-4 +212 °F)
• In conjunction with dust explosion protection	-20 +60 °C (-4 +140 °F)	
Ambient conditions		
Ambient temperature		
- Digital indicator	-30 +85 °C	(-22 +185 °F)
Storage temperature	-50 +85 °C	(-58 +185 °F)
Climatic class		
- Condensation		idity 0 100 %
	Condensation permissible,	suitable for use in the tropics
Electromagnetic Compatibility		
- Emitted interference and interference immunity	Acc. to EN 61326	and NAMUR NE 21
Design		
Weight (without options)	≈ 1.5 kg	g (≈ 3.3 lb)
Enclosure material	Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.44	
Wetted parts materials		
Connection shank	Stainless steel, mat. no. 1.4404/3	16L or Hastelloy C4, mat. no. 2.4610
Oval flange	Stainless steel, m	at. no. 1.4404/316L
Seal diaphragm	Stainless steel, mat. no. 1.4404/316	6L or Hastelloy C276, mat. no. 2.4819
Measuring cell filling		ue with oxigen measurement pressure 120 bar g t 60 °C (140 °F))
Process connection		1, female thread $\frac{1}{2}$ -14 NPT or oval flange mounting thread M10 or $\frac{7}{16}$ -20 UNF to EN 61518
Material of mounting bracket		
Steel	Sheet-steel, Mat. No.	1.0330, chrome-plated
Stainless steel	Sheet stainless steel, r	mat. no. 1.4301 (SS 304)
Power supply $m{U}_{H}$		Supplied through bus
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-
Separate 24 V power supply necessary	-	No
Bus voltage		
• Not Ex	-	9 32 V
With intrinsically-safe operation	-	9 24 V
Current consumption		
Basic current (max.)	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
Max. current in event of fault	-	15.5 mA
		Yes

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

SITRANS P, DS III series for gauge pressure				
	HART	PROFIBUS PA and FOUNDATION Fieldbus		
Certificates and approvals				
Classification according to PED 97/23/EC	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article paragraph 3 (sound engineering practice)			
Explosion protection				
• Intrinsic safety "i"	PTB 99 A	ATEX 2122		
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6		
- Permissible ambient temperature	-40 +70 °C (-40 +15	5 °F) temperature class T4; 8 °F) temperature class T5; :0 °F) temperature class T6		
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW; $P_{\rm i}=300$ Ω	FISCO supply unit: $U_0 = 17.5 \text{ V, } I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V, } I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$		
• Explosion-proof "d"	PTB 99 A	ATEX 1160		
- Marking	Ex II 1/2 G E	Ex d IIC T4/T6		
- Permissible ambient temperature		5 °F) temperature class T4; 10 °F) temperature class T6		
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC		
• Dust explosion protection for zone 20	PTB 01 A	ATEX 2055		
- Marking		² 65 T 120 °C P65 T 120 °C		
- Permissible ambient temperature	-40 +85 °C	(-40 +185 °F)		
- Max. surface temperature	120 °C	(248 °F)		
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=$ 30 V, $I_{\rm i}=$ 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: $U_0 = 24 \text{ V, } I_0 = 250 \text{ mA, } P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$		
• Dust explosion protection for zone 21/22	PTB 01 A	ATEX 2055		
- Marking	Ex II 2 D IF	P65 T 120 °C		
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W		
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned		
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	-		
• Explosion protection acc. to FM	Certificate of Con	mpliance 3008490		
- Identification (XP/DIP) or (IS); (NI)		EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; CL I, CL II, DIV 2, GP FG; CL III		
• Explosion protection to CSA	Certificate of Co	mpliance 1153651		
- Identification (XP/DIP) or (IS)		FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD V 2, GP FG; CL III		

Transmitters for general requirements

SITRANS P DS III for gauge pressure

HART communication	
HART communication	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local opera- tion (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measured value) or 10 (two measured values)
Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
Analog input	
 Adaptation to customer-specific process variables 	Yes, linearly rising or falling characteristic
- Electrical damping T_{63} , adjustable	0 100 s
- Simulation function	Input /Output
- Failure mode	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively
Physical block	1
Transducer blocks	2
Pressure transducer block	
- 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-	Constant value or over parameterizable ramp function

FOUNDATION Fieldbus communication

Function blocks

- Analog input
- Adaptation to customer-specific process variables
- Electrical damping T₆₃, adjustable
- Simulation function
- Failure mode
- Limit monitoring
- Square-rooted characteristic for flow measurement
- PID
- Physical block

Transducer blocks

- Pressure transducer block
 - Can be calibrated by applying two pressures
 - Monitoring of sensor limits
- Simulation function: Measured pressure value, sensor temperature and electronics temperature

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Yes

Standard FF function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Yes

Constant value or over parameterizable ramp function

sor temperature

Transmitters for general requirements

SITRANS P DS III for gauge pressure

	g data		Orc				
Pressure transmitter for gauge pressure, SITRANS P DS III HART						3 3	
	· -						
Measuring cell filling	Measuring cell clean- ing						
Silicone oil	normal	▶	1				
nert liquid ¹⁾	Grease-free		3				
Measuring span							
).01 1 bar g	(0.15 14.5 psi g)	▶	В				
).04 4 bar g	(0.58 58 psi g)	▶	С				
).16 16 bar g	(2.32 232 psi g)	▶	D				
).63 63 bar g	(9.14 914 psi g)		E				
.6 160 bar g	(23.2 2320 psi g)	•	F				
I.0 400 bar g	(58.0 5802 psi g)	▶	G				
'.0 700 bar g	(102.010153 psi g)	▶	J				
Vetted parts materials	3						
Seal diaphragm	Process connection	_					
Stainless steel	Stainless steel	•		A			
Hastelloy	Stainless steel			В			
lastelloy	Hastelloy			С			
ersion as diaphragm s	eal ²⁾³⁾			Y			
Process connection							
Connection shank G1/2	⊵B to EN 837-1	▶		0	١		
Female thread ½-14 N	IPT			1			
Stainless steel oval fla	inge						
- Mounting thread ⁷ / ₁₆	9			2			
- Mounting thread M1				3			
- Mounting thread M1				4			
Male thread M20 x 1.5				5			
O	5			5 6			
Male thread M20 x 1.5	5 T						
Male thread M20 x 1.5 Male thread ½ -14 NP	5 T erials	•					
Male thread M20 x 1.5 Male thread ½ -14 NP Non-wetted parts mate	5 T erials cast aluminium	•					
• Male thread M20 x 1.5 • Male thread ½ -14 NP • Non-wetted parts mate • Housing made of die- • Housing stainless stee	5 T erials cast aluminium	•			0		
Male thread M20 x 1.5 Male thread ½ -14 NP Mon-wetted parts mate Housing made of die-Housing stainless stee Mersion	5 T erials cast aluminium	•			0	1	
Male thread M20 x 1.5 Male thread ½ -14 NP Mon-wetted parts mate Housing made of die- Housing stainless stee Housing stainless stee /ersion Standard versions International version, I	T prials cast aluminium of precision casting ⁴⁾ English label inscriptions	>			0	1 2	
Male thread M20 x 1.5 Male thread ½ -14 NP Mon-wetted parts mater Housing made of die-Housing stainless steem Standard versions International version, I documentation in 5 larger	T prials cast aluminium of precision casting ⁴⁾ English label inscriptions	>			0		
Male thread M20 x 1.5 Male thread ½ -14 NP Mon-wetted parts mate Housing made of die-Housing stainless stee Mersion Standard versions International version, I documentation in 5 lares	T prials cast aluminium of precision casting ⁴⁾ English label inscriptions	>			0	2	Δ.
Male thread M20 x 1.5 Male thread ½ -14 NP Mon-wetted parts mate Housing made of die-Housing stainless stee Mersion Standard versions International version, Independent of the Moumentation in 5 large Explosion protection None	English label inscriptions	>			0	2	A
Male thread M20 x 1.5 Male thread M20 x 1.5 Male thread 1½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Housing stainless stee Fried Standard versions International version, I documentation in 5 lar Explosion protection None With ATEX, Type of pro	orials cast aluminium of precision casting ⁴⁾ English label inscriptions nguages on CD	>			0	2	A B
Male thread M20 x 1.5 Male thread ½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Mersion Standard versions International version, I documentation in 5 lar Explosion protection None With ATEX, Type of pro- "Intrinsic safety (EEx	orials cast aluminium el precision casting ⁴⁾ English label inscriptions nguages on CD	▶			0	2	В
Male thread M20 x 1.5 Male thread ½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Housing stainless stee Housing stainless stee International version, I documentation in 5 lar Explosion protection None With ATEX, Type of pro- "Intrinsic safety (EEx - "Explosion-proof (EE	English label inscriptions nguages on CD	>			0	2	B D
Male thread M20 x 1.5 Male thread M20 x 1.5 Male thread ½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Housing stainless stee International version, I documentation in 5 lar Explosion protection None With ATEX, Type of proceed "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and	English label inscriptions nguages on CD	>			0	2	В
Male thread M20 x 1.5 Male thread M20 x 1.5 Male thread ½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Housin	English label inscriptions nguages on CD	, >			0	2	B D P
Male thread M20 x 1.5 Male thread M20 x 1.5 Male thread ½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee With ATEX, Type of proposition With ATEX, Type of proposition With ATEX, Type of proposition Housing stafety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)" - "Ex nA/nL (Zone 2)"	erials cast aluminium el precision casting ⁴⁾ English label inscriptions nguages on CD otection: ia)" ixd)" ⁵ flameproof enclosure"				0	2	B D P
Male thread M20 x 1.5 Male thread 1½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Housing stainless stee International version, I documentation in 5 lar Explosion protection None With ATEX, Type of properties "Intrinsic safety (EEx "Intrinsic safety and (EEx ia + EEx d)"6) "Ex nA/nL (Zone 2)" "Intrinsic safety explored	English label inscriptions nguages on CD ptection: (ia)" flameproof enclosure and cast aluminium el precision casting ⁴⁾ English label inscriptions nguages on CD				0	2	B D P
Male thread M20 x 1.5 Male thread ½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Fraid Housing stainless stee Wersion None With ATEX, Type of pro- "Intrinsic safety (EEx "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)"6 - "Ex nA/nL (Zone 2)" - "Intrinsic safety, explosion prote dust explosion prote Zone 1D/2D)"6)	erials cast aluminium el precision casting ⁴) English label inscriptions nguages on CD etection: (ia)" (ixd)" flameproof enclosure" osion-proof enclosure and ection (EEx ia + EEx d +				0	2	B D P
Male thread M20 x 1.5 Male thread M20 x 1.5 Male thread ½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Mersion Standard versions International version, I documentation in 5 lar Explosion protection None With ATEX, Type of proceeding in the proceeding of the proceeding of the proceeding in the proceeding of	erials cast aluminium el precision casting ⁴) English label inscriptions nguages on CD etection: (ia)" (ixd)" flameproof enclosure" osion-proof enclosure and ection (EEx ia + EEx d +	d▶			0	2	B D P
Male thread M20 x 1.5 Male thread 1½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Fraid Standard versions International version, I documentation in 5 lan House Housing protection None With ATEX, Type of protection None With ATEX, Type of protection Intrinsic safety (EEx "Explosion-proof (EEx "Intrinsic safety and (EEx ia + EEx d)"6) "Ex nA/nL (Zone 2)" "Intrinsic safety, expludust explosion protection Zone 1D/2D)"6) With FM + CSA, Type "Intrinsic Safe und E	English label inscriptions inguages on CD Detection: Eia)" Exid)"5) flameproof enclosure" osion-proof enclosure and and the EEx d + of protection: explosion Proof (is + xp)"5	d▶			0	2	B D P E R
Male thread M20 x 1.5 Male thread M20 x 1.5 Male thread ½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Mersion Standard versions International version, I documentation in 5 lar Explosion protection None With ATEX, Type of proceeding in the proceeding of the proceeding of the proceeding in the proceeding of	erials cast aluminium el precision casting ⁴) English label inscriptions nguages on CD etection: (a)" (b) flameproof enclosure and (content of protection: (xp) (xp) (xp) (xp) (xp) (xp) (xp) (xp)	d▶			0	2	B D P E R
Male thread M20 x 1.5 Male thread 1½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Fraid Housing stainless stee With ATEX, Type of pro- "Intrinsic safety (EEx "Explosion-proof (EE "Explosion-proof (EE "Intrinsic safety and (EEx ia + EEx d)"6 - "Ex nA/nL (Zone 2)" "Intrinsic safety, explodust explosion prote Zone 1D/2D)"6 With FM + CSA, Type - "Intrinsic Safe und E	erials cast aluminium el precision casting ⁴) English label inscriptions nguages on CD etection: cia)" cixd)"5) flameproof enclosure" osion-proof enclosure and cition (EEx ia + EEx d + of protection: xplosion Proof (is + xp)"5 (cable entry 5 (adapter) ⁷)	d▶			0	2	B D D P E R
Male thread M20 x 1.5 Male thread ½ -14 NP Mon-wetted parts mate Housing made of die- Housing stainless stee /ersion Standard versions International version, I documentation in 5 lai Explosion protection None With ATEX, Type of pro- "Intrinsic safety (EEx "Explosion-proof (EE "Explosion-proof (EE "Intrinsic safety and (EEx ia + EEx d)"6) "Ex nA/nL (Zone 2)" "Intrinsic safety, explodust explosion prote Zone 1D/2D)"6) With FM + CSA, Type "Intrinsic Safe und E Electrical connection of Screwed gland Pg 13 Screwed gland M20 x	erials cast aluminium el precision casting ⁴) English label inscriptions nguages on CD etection: (a)" (ixd)" (b) flameproof enclosure and (ction) (EEx ia + EEx d + (ction) (EEx ia + (ction) (d ▶			0	2	B D D P E E R
Male thread M20 x 1.5 Male thread ½ -14 NP Mon-wetted parts mate Housing made of die- Housing stainless stee /ersion Standard versions International version, I documentation in 5 lan Explosion protection None With ATEX, Type of proceum of the composition of	erials cast aluminium el precision casting ⁴) English label inscriptions inguages on CD etection: (ia)" (ixd)" ⁵) flameproof enclosure and ection (EEx ia + EEx d + of protection: xplosion Proof (is + xp)" ⁵ (cable entry 1.5 (adapter) ⁷) 1.5 NPT	d ▶			0	2	B D D P E R R
Male thread M20 x 1.5 Male thread 1½ -14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Formal Standard versions International version, I documentation in 5 lar Explosion protection None With ATEX, Type of pro- "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)"6 - "Ex nA/nL (Zone 2)" - "Intrinsic safety, explodust explosion protection protection With FM + CSA, Type - "Intrinsic Safe und E Electrical connection procession of the connection protection of the connection of the conn	erials cast aluminium el precision casting ⁴) English label inscriptions inguages on CD etection: (ia)" (ixd)" ⁵) flameproof enclosure and ection (EEx ia + EEx d + of protection: xplosion Proof (is + xp)" ⁵ (cable entry 1.5 (adapter) ⁷) 1.5 NPT	d ▶			0	2	B D P E R R

Selection and Ordering data	Order No.	
Pressure transmitter for gauge pressure,	7MF4033-	
SITRANS P DS III HART		
Display		П
Without indicator		0
 Without visible digital indicator (digital indicator concealed, setting: mA) 		1
 With visible digital indicator, setting: mA 		6
 with customer-specific digital indicator (setting as specified, Order Code "Y21" or "Y22" re- quired) 		7

Available ex stock

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

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

- CD-ROM with detailed documentation
- 1) For oxygen application, add Order code E10.
- 2) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the <u>total</u> combination is certified here.
- 3) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- $^{\rm 4)}$ Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 5) Without cable gland, with blanking plug
- $^{6)}$ With enclosed cable gland EEx ia and blanking plug
- $^{7)}\,$ Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 8) M12 delivered without cable socket

Transmitters for general requirements

SITRANS P DS III for gauge pressure

Selection and Orderin		Order	No.
Pressure transmitter f			
SITRANS P DS III PA (PROFIBUS PA)	7 M F 4	4034-
SITRANS P DS III FF (FOUNDATION Fieldbus)		7 M F 4	4035-
Measuring cell filling	Measuring cell clean- ing		
Silicone oil	normal	1	
Inert liquid ¹⁾	Grease-free	3	
Nominal measuring ra	•		
1 bar g	(14.5 psi g)	B C	
4 bar g 16 bar g	(58 psi g)	D	
63 bar g	(232 psi g) (914 psi g)	E	
160 bar g	(2320 psi g)	F	
400 bar g	(5802 psi g)	G	
700 bar g	(10153 psi g)	J	
Wetted parts materials	3		
Seal diaphragm	Process connection		
Stainless steel	Stainless steel	A	
Hastelloy	Stainless steel	В	
Hastelloy	Hastelloy	С	
Version as diaphragm s	eal ²⁾³⁾	Y	
Process connection			
• Connection shank G1/2			D
• Female thread ½-14 N		-	1
• Stainless steel oval flange			2
- Mounting thread ⁷ / ₁₆ -20 UNF to EN 61518 - Mounting thread M10 to DIN 19213			3
- Mounting thread M12 to DIN 19213			4
Male thread M20 x 1.5			5
• Male thread ½ -14 NPT			6
Non-wetted parts mate	erials		
Housing made of die-cast aluminium			0
 Housing stainless stee 	el precision casting		3
Version			
 Standard versions 			1
 International version, documentation in 5 la 	English label inscriptions,		2
	nguages on CD	_	
Explosion protection None			Α
	ootion:		
With ATEX, Type of prot "Intrinsic safety (EEx ia)			В
"Explosion-proof (EExd)			D
"Intrinsic safety and flar			Р
(EEx ia + EEx d)"5)	neproor enclosure		E
"Ex nA/nL (Zone 2)"			R
"Intrinsic safety, explosi dust explosion protection 1D/2D)" (not for DS III	on (EEx ia + EExd + Zone		ĸ
ווו פט וטו וטו אי (וטבוטו) יי (וטבוטו			
	f protection:		
With FM + CSA, Type o "Intrinsic Safe und Expl	·		NC
With FM + CSA, Type o	osion Proof (is + xp)" ⁵⁾		NC
With FM + CSA, Type o "Intrinsic Safe und Expl	osion Proof (is + xp)" ⁵⁾ / cable entry	_	N C B
With FM + CSA, Type o "Intrinsic Safe und Expl Electrical connection,	osion Proof (is + xp) ^{v5)} / cable entry 1.5 NPT		

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

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

- 1) For oxygen application, add Order code E10.
- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the <u>total</u> combination is certified here.
- 3) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 4) Without cable gland, with blanking plug.
- 5) With enclosed cable gland EEx ia and blanking plug.
- 6) M12 delivered without cable socket

Pressure Measurement Transmitters for general requirements

SITRANS P DS III for gauge pressure

	Order code				
Selection and Ordering data Further designs		HART	PA	FF	
Add "-Z" to Order No. and specify Order Code.				••	
Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:					
• Steel	A01	1	✓	1	
Stainless steel	A02	1	1	1	
plug					
• Han 7D (metal, gray)	A30	1			
Han 8U (instead of Han 7D)	A31	✓			
• Angled	A32	✓			
Han 8D (metal, gray)	A33	~			
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓	
Rating plate inscription (instead of German)					
• English	B11	√	✓	1	
• French	B12	1	1	1	
SpanishItalian	B13 B14	1	1	1	
	B21	1	1	1	
English rating plate Pressure units in inH ₂ 0 and/or psi	DZ I	•	•	•	
Quality inspection certificate (factory cali-	C11	✓	✓	✓	
bration) to EC 60770-2 ¹⁾ Inspection certificate ²⁾	C12			./	
Acc. to EN 10204-3.1	CIZ	•	•	•	
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓	
"Functional safety (SIL2)" certificate	C20	1			
PROFIsafe certificate and protocol	C21		1		
"Functional safety (SIL2/3)" certificate	C23	1			
Setting of upper limit of output signal to	D05	✓			
22.0 mA Manufacturer's declaration acc. to NACE	D07	1	1	_	
Degree of protection IP68	D12	1	✓	✓	
(only for M20x1.5 and ½-14 NPT)					
Supplied with oval flange (1 item), PTFE packing and screws in thread of oval flange	D37	•	•	•	
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	✓	✓	✓	
Oxygen application (In the case of oxygen measurement and inert liquid max. 120 bar G (1740 psi G) at 60°C	E10	✓	✓	✓	
(140 °F))					
Explosion-proof "Intrinsic safety" to INMETRO (Brazil)	E25	✓	✓	✓	
Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B)		1	✓	✓	
Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)	E45	*		4	
Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D)	E45 E46	* *	✓	4 4	
Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D) Explosion-proof "Intrinsic safety" to NEPSI (China)	E45 E46	* * * * *	<td>* * * *</td>	* * * *	
Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to	E45 E46	* * * * * * *	<td>* * * * * *</td>	* * * * * *	
Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B)	E45 E46 E55	* * * * * *		* * * * * *	
Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B) Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China)	E45 E46 E55	* * * * * * * * * *	4 4 4 4 4 4	* * * * * * * * * * * * * * * * * * *	

Selection and Ordering data	Order code				
Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text.		HART	PA	FF	
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	✓			
Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓	
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓	
Entry of HART address (TAG)	Y17	✓			
Max. 8 characters, specify in plain text: Y17:					
Setting of pressure indication in pressure units Specify in plain text (standard setting: bar):	Y21	✓	✓	✓	
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	Y22 +	✓			
non-pressure units ³) 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)	Y01				
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓		

Factory mounting of valve manifolds, see accessories.

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

✓ = available

ordering example

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

B line: A01 + Y01 + Y21

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

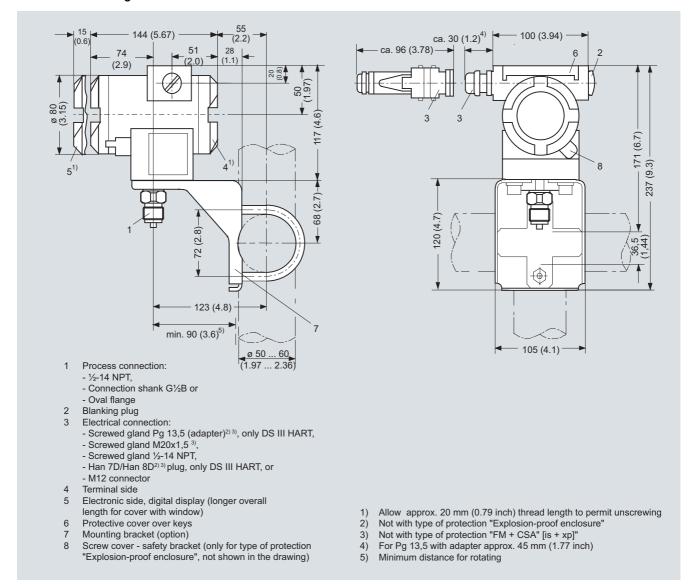
C line: Y21: bar (psi)

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

Transmitters for general requirements

SITRANS P DS III for gauge pressure

Dimensional drawings



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

Technical specifications

3 3	te pressure, with front- HART	naon alapinagin	PROFIBUS PA and FO	UNDATION Fieldhire	
Input of gauge pressure, with front-flush dia-	MAKI		PROFIBUS PA and FO	JUNDATION Fleidbus	
ohragm					
Measured variable		Gauge press	ure, front-flush		
Spans (infinitely adjustable) or nominal measur- ng range and max. permissible test pressure	Span	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure	
	0.01 1 bar g (0.15 14.5 psi g)	6 bar g (87 psi g)	1 bar g (14.5 psi g)	6 bar g (87 psi g)	
	0.04 4 bar g (0.58 58 psi g)	10 bar g (145 psi g)	4 bar g (58 psi g)	10 bar g (145 psi g)	
	0.16 16 bar g (2.32 232 psi g)	32 bar g (464 psi g)	16 bar g (232 psi g)	32 bar g (464 psi g)	
	0.6 63 bar g (9.14 914 psi g)	100 bar g (1450 psi g)	63 bar g (914 psi g)	100 bar g (1450 psi g)	
ower measuring limit		-100 mbar g	(-1.45 psi g)		
Jpper measuring limit	100 % of max. span		100 % of the max. nom	inal measuring range	
nput of absolute pressure, with front-flush diaphragm					
Measured variable			sure, front-flush		
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure	
	43 1300 mbar a (0.62 18.9 psi a)	10 bar a (145 psi a)	1300 mbar a (18.9 psi a)	10 bar a (145 psi a)	
	0.16 5 bar a (2.32 72.5 psi a)	30 bar a (435 psi a)	5 bar a (72.5 psi a)	30 bar a (435 psi a)	
	1 30 bar a (14.5 435 psi a)	100 bar a (1450 psi a)	30 bar a (435 psi a)	100 bar a (1450 psi a)	
ower measuring limit		0 bar a	(0 psi a)		
Jpper measuring limit Dutput	100 % of max. span		100 % of the max. nominal measuring rang		
Dutput signal	4 20 mA		Digital PROFIBUS PA a bus signal	nd FOUNDATION Field	
Lower limit (infinitely adjustable)	3.55 mA, factory preset	to 3.84 mA	-		
Upper limit (infinitely adjustable)	23 mA, factory preset to set to 22.0 mA	20.5 mA or optionally			
oad					
Without HART communication	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V		-		
With HART communication	$R_{\rm B}$ = 230 500 Ω (SIN $R_{\rm B}$ = 230 1100 Ω (HA		-		
Physical bus	-		IEC 61158-2		
Protection against polarity reversal	Protected against short	-circuit and polarity rever supply	sal. Each connection ag voltage.	ainst the other with ma	
Measuring accuracy			N 60770-1		
Reference conditions All error data refer always refer to the set span)	Increasing characteristi	c, start-of-scale value 0 k ing, room temperature 2 (r = max. sp			
Frror in measurement and fixed-point setting including hysteresis and repeatability)					
	Gauge pressure, front-flush	Absolute pressure, front-flush	Gauge pressure, front-flush	Absolute pressure, front-flush	
Linear characteristic			≤ 0.075 %	≤ 0.2 %	
- r≤10	≤ (0.0029 · r + 0.071) %	≤ 0.2 %			
- 10 < r ≤ 30	≤ (0.0045 · r + 0.071) %	≤ 0.4 %			
- 30 < r ≤ 100	$\leq (0.005 \cdot r + 0.05) \%$				
_ong-term drift (temperature change ± 30 °C ± 54 °F))	≤ (0.25 · r) % per 5 years		≤ 0.25 % per 5 years		

SITRANS P DS III series for gauge and absolu	•	lush diaphragm		
	HART		PROFIBUS PA and	FOUNDATION Fieldbus
Influence of ambient temperature				
• at -10 +60 °C (14 140 °F)	\leq (0.1 · r + 0.2) %	\leq (0.2 · r + 0.3) %	≤ 0.3 %	≤ 0.5 %
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	≤ (0.1 · r + 0.15) %/10 K	≤ (0.2 · r + 0.3) %/10 K	≤ 0.25 %/10 K	≤ 0.5 %/10 K
nfluence of mounting position		0.1 mbar g (0.00145 p	si g) per 10° inclinat	ion
Measured Value Resolution	-		3 · 10 ⁻⁵ of nominal i	measuring range
nfluence of the medium temperature (only with ront-flush diaphragm)				
Temperature difference between medium temperature and ambient temperature		3 mbar/10 K	(0.04 psi/10 K)	
Rated conditions				
Installation conditions				
Ambient temperature	Observe t	he temperature class in	areas subject to exp	losion hazard.
Measuring cell with silicone oil		-40 +85 °C ((-40 +185 °F)	
 Measuring cell with Neobee oil (with front-flush diaphragm) 		-10 +85 °C	(14 +185 °F)	
 Measuring cell with inert liquid (not with front- flush diaphragm) 		-20 +85 °C	(-4 +185 °F)	
Digital display		-30 +85 °C ((-22 +185 °F)	
• Storage temperature	(in	-50 +85 °C (the case of Neobee: -2	(-58 +185 °F) 0 +85 °C (-4 +1	85/°F))
Climatic class				
- Condensation	Con	Relative humindensation permissible,	dity 0 100 % suitable for use in the	e tropics
Degree of protection (to EN 60529)	IP65, IP68, NEMA	4X, enclosure cleaning,	resistant to lyes, ste	am to 150 ° C (302 °F)
Electromagnetic Compatibility				
- Emitted interference and interference immunity		Acc. to EN 61326	and NAMUR NE 21	
Medium conditions				
Temperature of medium				
• Measuring cell with silicone oil		-40 +100 °C	(-40 +212 °F)	
 Measuring cell with silicone oil (with front-flush diaphragm) 		-40 +150 °C	(-40 +302 °F)	
 Measuring cell with Neobee oil (with front-flush diaphragm) 		-10 +150 °C	C (14 302 °F)	
 Measuring cell with silicone oil, with tempera- ture decoupler (only with front-flush dia- phragm) 		-40 +200 °C	(-40 +392 °F)	
 Measuring cell with inert liquid 		-20 +100 °C	(-4 +212 °F)	
Measuring cell with high-temperature oil		-10 +250 °C	C (14 482 °F)	
Design				
Weight (without options)		≈ 1.5 kg	(≈ 3.3 lb)	
Enclosure material	Low-copper die-cast al	uminum, GD-AISi12 or s	tainless steel precis	on casting, mat. no. 1.44
Wetted parts materials		Stainless steel, ma	at. no. 1.4404/316L	
Measuring cell filling		Silicone oil or i	nert filling liquid	
Process connection		•Flanges as p	er EN and ASME	
		•F&B and pharr	naceutical flanges	
Surface quality touched-by-media	R _a -valu	ues ≤ 0.8 μm (32 μ-inch)	/welds R _{a)} ≤ 1.6 µm	(64 μ-inch)
		s according to 3A; R _a -va	,	-inch)/welds R _a) ≤ 0,8 μm

	te pressure, with front-flush diaphragm HART	PROFIBUS PA and FOUNDATION Fieldbus
Power supply //	IIANI	Supplied through bus
Power supply <i>U</i> _H Terminal voltage on transmitter	10.5 45 V DC	-
	10.5 30 V DC in intrinsically-safe mode	
Separate 24 V power supply necessary	-	No
Bus voltage		
Not Ex	-	9 32 V
 With intrinsically-safe operation 	-	9 24 V
Current consumption		
Basic current (max.)	-	12.5 mA
 Start-up current ≤ basic current 	-	Yes
Max. current in event of fault		15.5 mA
Fault disconnection electronics (FDE) available	-	Yes
Certificates and approvals		
Classification according to PED 97/23/EC		group 1; complies with requirements of article lengineering practice)
Explosion protection		
• Intrinsic safety "i"		ATEX 2122
- Marking		x ia/ib IIB/IIC T6
- Permissible ambient temperature	-40 +70 °C (-40 +15	35 °F) temperature class T4; 88 °F) temperature class T5; 40 °F) temperature class T6
- Connection	To certified intrinsically-safe circuits with peak	FISCO supply unit:
	values: $U_i = 30 \text{ V}, I_i = 100 \text{ mA},$	$U_0 = 17.5 \text{ V}, I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$ Linear barrier:
	$P_{\rm i} = 750 {\rm mW}; R_{\rm i} = 300 \Omega$	$U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu\text{H}, C_i = 1.1 \text{nF}$
Explosion-proof "d"	PTB 99	ATEX 1160
- Marking	Ex II 1/2 G E	EEx d IIC T4/T6
- Permissible ambient temperature		35 °F) temperature class T4; 40 °F) temperature class T6
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC
Dust explosion protection for zone 20	PTB 01	ATEX 2055
- Marking		P65 T 120 °C IP65 T 120 °C
- Permissible ambient temperature	-40 +85 °C	(-40 +185 °F)
- Max. surface temperature	120 °C	C (248 °F)
- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}, I_i = 100 \text{ mA},$	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier:
	$P_{i} = 750 \text{ mW}, R_{i} = 300 \Omega$	$U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \mu \text{H}, C_{\rm i} = 1.1 \text{nF}$
• Dust explosion protection for zone 21/22		ATEX 2055
- Marking		P65 T 120 °C
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{H} = 9 32 \text{ V DC}$; $P_{max} = 1.2 \text{ W}$
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	-
Explosion protection acc. to FM		empliance 3008490
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 2, GP ABCD T4	GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; T6; CL II, DIV 2, GP FG; CL III
Explosion protection to CSA	Certificate of Co	mpliance 1153651
	OLI DIVI OD ADODITA TO OLI DIVI OD D	FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP AB

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

Hygiene version			
In the case of SITRANS P DSIII w	vith 7MF413x front-flush diaphra	gm, selected connections comply w	rith the requirements of EHEDG
HART communication		FOUNDATION Fieldbus	
HART communication	230 1100 Ω	communication	
Protocol	HART Version 5.x	Function blocks	3 function blocks analog input, 1 function block PID
Software for computer	SIMATIC PDM	Analog input	
PROFIBUS PA communication		- Adaptation to customer-specif-	Yes, linearly rising or falling
Simultaneous communication with master class 2 (max.)	4	ic process variables - Electrical damping T ₆₃ , adjust-	characteristic 0 100 s
The address can be set using	Configuration tool or local	able	0 100 3
	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
Output byte	5 (one measured value) or 10 (two measured values)		value, substitute value, incorrect value)
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)	- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively
Internal preprocessing		 Square-rooted characteristic for flow measurement 	Yes
Device profile	PROFIBUS PA Profile for Process Control Devices Version	• PID	Standard FF function block
	3.0, Class B	 Physical block 	1 resource block
Function blocks	2	Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block
Analog input			LCD
 Adaptation to customer-specific process variables 	Yes, linearly rising or falling characteristic	Pressure transducer block	
 Electrical damping T₆₃, 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 value, substitute value, incorrect value)	 Simulation function: Measured pressure value, sensor temper- ature and electronics tempera- ture 	Constant value or over parameterizable ramp function
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively	ture	
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output		
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)		
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively		

• Physical block

Transducer blocks

two pressures

• Pressure transducer block - Can be calibrated by applying

- Monitoring of sensor limits

- Specification of a container

- Square-rooted characteristic for flow measurement

- Gradual volume suppression

and implementation point of square-root extraction - Simulation function for mea-

sured pressure value and sen-

characteristic with

sor temperature

2

Yes

Yes

Yes

Max. 30 nodes

Parameterizable

Constant value or over parame-

terizable ramp function

Pressure Measurement Transmitters for general requirements

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

Selection and Orderin	•	Ord	er No	Э.	
		7 M I	F 4 1	3 3 -	
pressure, front-flush (SITRANS P DS III HAF	ларпгадт, ₹Т				
Measuring cell filling	Measuring cell clean-				
Silicone oil	normal	1			
Inert liquid	Grease-free	3			
FDA compliant fill fluid					
Neobee oil	normal	4			
Measuring span 0,01 1 bar g 0,04 4 bar g 0,16 16 bar g 0,63 63 bar g	(0.15 14.5 psi g) (0.58 58 psi g) (2.32 232 psi g) (9.14 914 psi g)	B C D			
13 1300 mbar a ¹⁾ 0,05 5 bar a ¹⁾ 0,3 30 bar a ¹⁾	(0.19 18.9 psi a) ¹⁾ (0.7 72.5 psi a) ¹⁾ (4.35 435 psi a) ¹⁾	S T U			
Wetted parts material					
Seal diaphragm	Connection shank				
Stainless steel Hastelloy ²⁾	Stainless steel Stainless steel		A 3		
Process connection • Flange version with Or	der Code M, N, R or Q		7		
Non-wetted parts mat		_			
 Housing made of die- Housing stainless ste 	cast aluminium		0		
Version		-			
	English label inscriptions,			1 2	
documentation in 5 la	nguages on CD	_			
Explosion protection					
• None				Α	
 With ATEX, Type of pr "Intrinsic safety (EEx 				В	
- "Explosion-proof (El				D	
- "Intrinsic safety, exp	losion-proof enclosure and ection (EEx ia+ EEx d +			R	
 With FM + CSA, Type 	of protection:				
	Explosion Proof (is $+ xp)^{(3)}$			NC	;
Electrical connection	/ cable entry				
• Inner thread M20 x 1.	•			E	3
 Female thread ½-14 N 				C	
 M12 connectors (met 	al) ^o			F	
Display					l.
Without indicator	1 P 1				0
 Without visible digital (digital indicator cond 					1
 with visible digital ind 	ication, setting: mA				6
 with customer-specifi (setting as specified, required) 	c digital indication Order Code "Y21" or "Y22"				7
Davida avada ku valta aaa	Chan Q "Cumplementer Co				

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

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

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

Transmitters for general requirements

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

Selection and Ordering		Orde	r No	·.			
Pressure transmitter P pressure, front-flush d	for gauge and absolute						
SITRANS P DS III PA (F	PROFIBUS PA)	F)	7 M F	41:	3 4	-	
SITRANS P DS III FF (F	OUNDATION Fieldbus)	F)	7 M F	41:	3 5	-	
Measuring cell filling	Measuring cell clean-						
Silicone oil	normal		1				
Inert liquid	Grease-free		3				
FDA compliant fill fluid Neobee oil	normal		4				
Nominal measuring ra		٢					
1 bar g	(14.5 psi g)		В				
4 bar g	(58 psi g)		С				
16 bar g	(232 psi g)		D				
63 bar g	(914 psi g)		E				
1300 mbar a ¹⁾	(18.9 psi a) ¹⁾		N O				
5 bar a ¹⁾	(72.5 psi a) ¹⁾		T				
30 bar a ¹⁾	(435 psi a) ¹⁾		U				
Wetted parts materials	}						
Seal diaphragm	Connection shank						
Stainless steel	Stainless steel		A				
Hastelloy ²⁾	Stainless steel	_	В				
Process connection	rder Code M, N, R or			7			
Q	der Code M, N, n of			'			
Non-wetted parts mate	erials	7					
Housing made of die-				0			
Housing stainless stee	el precision casting			3			
Version							
Standard versions					1		
 International version, to documentation in 5 lar 	English label inscriptions, nauages on CD				2		
Explosion protection	.99	٢					
None						Α	
• With ATEX, Type of pro							
- "Intrinsic safety (EEx						В	
- "Explosion-proof (EE						D R	
dust explosion prote	osion-proof enclosure and ction (EEx ia+ EEx d +					n	
	ction (EEx ia+ EEx d +						
With FM + CSA, Type Wathing in Cofe and Figure 1.							
(Available soon)	xplosion Proof (is + xp)"3)					NC	
Electrical connection /	cable entry	_					
• Screwed gland M20 x	1.5					В	
• Screwed gland ½-14 i						С	
 Han 7D plug (plastic h connector ⁵⁾ 	nousing) incl. mating					D	
M12 connectors (meta)	al) ⁶⁾					F	
Display	,	-					
Without indicator							0
 Without visible digital 		>					1
(digital indicator conc	- ·						
With visible digital dispWith customer-specification							6 7
	ode "Y21" required)						

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

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

- CD-ROM with detailed documentation

election and Ordering data	Order	code		
urther designs dd "- Z " to Order No. and pecify Order Code.		HART	PA	FF
lug				
Angled	A32	1		
Han 8D (metal, gray)	A33		,	
cable sockets for M12 connectors (metal)	A50	✓	✓	✓
lating plate inscription nstead of German)				
English	B11	✓.	V	✓.
French	B12	1	1	1
Spanish Italian	B13 B14	1	✓	1
		1	· /	1
inglish rating plate ressure units in inH ₂ 0 and/or psi	B21	•	•	•
Quality inspection certificate (factory cali- ration) to IEC 60770-2	C11	1	✓	√
nspection certificate acc. to EN 10204-3.1	C12	✓	✓	✓
actory certificate acc. to EN 10204-2.2	C14	✓	✓	✓
ROFIsafe certificate and protocol	C21		1	
Functional safety (SIL2/3)" certificate	C23	1		
x Approval IEC Ex (EEx ia)	E45	1	_	1
only for transmitter 7MF4B)	L40	•	•	•
x Approval IEC Ex (EEx id) only for transmitter 7MF4D)	E46	✓	✓	✓
wo coats of lacquer on casing and cover PU on epoxy)	G10	✓	✓	✓
anges to EN 1092-1, Form b1				
DN 25, PN 40 ¹⁾	M11	1	✓	✓
DN 25, PN 100 ¹⁾	M21	1	✓,	✓,
DN 40, PN 40	M13	1	1	1
DN 40, PN 100 DN 50, PN 16	M23 M04	1	√	√
DN 50, PN 40	M14	1	1	1
DN 80, PN 16	M06	1	1	1
DN 80, PN 40	M16	✓	✓	✓
langes to ASME B16.5				
Stainless steel flange 1" class 150 ¹⁾	M40	✓	✓	✓
Stainless steel flange 11/2" class 150	M41	1	✓	✓
Stainless steel flange 2" class 150	M42	1	✓	✓
Stainless steel flange 3" class 150	M43	✓.	V	✓
Stainless steel flange 4" class 150	M44	✓	1	1
Stainless steel flange 1" class 300 ¹⁾	M45	√	1	1
Stainless steel flange 1½" class 300	M46	1	1	1
Stainless steel flange 2" class 300	M47	1	1	1
Stainless steel flange 3" class 300	M48	√	1	1
Stainless steel flange 4" class 300	M49	✓	✓	✓
hreaded connector to DIN 3852-2, orm A, thread to ISO 228				
G ¾"-A, front-flush ²⁾	R01	1	✓	1
G 1"-A, front-flush ²⁾	R02	1	1	1
G 2"-A, front-flush ²⁾	R04	1	1	1
ank connection ³⁾				
ealing is included in delivery TG 52/50, PN 40	R10	1	✓	1

With ho	III IIG		de i II	ag.,
Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Sanitary process connection according DIN 11851 (Dairy connection)				
• DN 50, PN 25	N04	1	1	1
• DN 80, PN 25	N06	✓	1	✓
Tri-Clamp connection according				
DIN 32676/ISO 2852 • DN 50/2", PN 16	N14	1	./	./
• DN 65/3", PN 10	N14 N15	1	1	√
Varivent connection				
Certified to EHEDGType N = 68 for Varivent housing	N28	1	1	1
DN 40 125 und 1½" 6", PN 40	.,			
Temperature decoupler up to 200 °C ⁴⁾ for version with front-flush diaphragm	P00	1	1	1
Temperature decoupler up to 250 °C	P10	✓	✓	✓
Measuring cell filling: High-temperature oil, only in conjunction with measuring cell filling silicone oil				
Bio-Control sanitary process connection				
Certified to EHEDGDN 50, PN 16	Q53	1	✓	1
• DN 65, PN 16	Q54	✓	✓	✓
Sanitary process connection to DRD				
• 65 mm, PN 40	M32	✓	✓	✓
SMS socket with union nut • 2"	M67	1	1	1
• 2½"	M68	1	1	1
• 3"	M69	✓	✓	✓
SMS threaded socket				
• 2" • 21/2"	M73 M74	1	1	1
• 3"	M75	1	1	1
IDF socket with union nut ISO 2853				
• 2"	M82	√	1	✓.
• 2½" • 3"	M83 M84	1	1	1
IDF threaded socket ISO 2853	IVIOT	Ť	•	Ť
• 2"	M92	✓	✓	1
• 2½"	M93	V	✓.	1
• 3"	M94	√	✓	✓
Sanitary process connection to NEUMO Bio-Connect screw connection				
Certified to EHEDG	005		,	,
DN 50, PN 16DN 65, PN 16	Q05 Q06	1	1	1
• DN 80, PN 16	Q07	1	✓	1
• DN 100, PN 16	Q08	✓	1	1
• DN 2", PN 16	Q13	✓	✓	✓
• DN 2½", PN 16	Q14	✓	✓	1
• DN 3", PN 16	Q15	√	1	√
DN 4", PN 16 Sanitary process connection to NEUMO Bio-Connect flange connection	Q16	•	•	V
Certified to EHEDĞ				
DN 50, PN 16DN 65, PN 16	Q23 Q24	1	1	1
• DN 80, PN 16	Q24 Q25	✓	∀	∀
• DN 100, PN 16	Q26	1	✓	1
• DN 2", PN 16	Q31	✓	✓	✓
• DN 2½", PN 16	Q32	1	1	1
DN 3", PN 16DN 4", PN 16	Q33 Q34	√	1	√
- DIV 4 , I IV IU	G34			•

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

Selection and Ordering data	Order code				
Further designs		HART	PA	FF	
Add "-Z" to Order No. and specify Order Code.					
Sanitary process connection to NEUMO Bio-Connect clamp connection Certified to EHEDG					
• DN 50, PN 16	Q39	1	1	1	
• DN 65, PN 10	Q40	✓	✓	✓	
• DN 80, PN 10	Q41	✓	✓	✓	
• DN 100, PN 10	Q42	✓	✓	√	
• DN 2½", PN 16	Q48	√	1	✓,	
• DN 3", PN 10	Q49	1	1	1	
• DN 4", PN 10	Q50	•	•	•	
Sanitary process connection to NEUMO Bio-Connect S flange connection Certified to EHEDG					
• DN 50, PN 16	Q63	✓	✓	✓	
• DN 65, PN 10	Q64	✓	✓	✓	
• DN 80, PN 10	Q65	✓	✓	✓	
• DN 100, PN 10	Q66	✓	1	1	
• DN 2", PN 16	Q72	1	1	√	
 DN 2½", PN 10 DN 3", PN 10 	Q73 Q74	✓	✓	V	
• DN 4", PN 10	Q74 Q75	1	*	*	
Aseptic threaded socket to DIN 11864-1					
Form A					
• DN 50, PN 25	N33	✓.	✓.	✓.	
• DN 65, PN 25	N34	√	1	1	
• DN 80, PN 25	N35	1	√	1	
• DN 100, PN 25	N36	,	•	•	
Aseptic flange with notch to DIN 11864-2 Form A					
• DN 50, PN 16	N43	✓	✓	✓	
• DN 65, PN 16	N44	✓	✓	✓	
• DN 80, PN 16	N45	✓	✓	✓	
• DN 100, PN 16	N46	✓	✓	✓	
Aseptic flange with groove to DIN 11864-2 Form A					
• DN 50, PN 16	N43 + P11	✓	✓	✓	
• DN 65, PN 16	N44 + P11	✓	✓	✓	
• DN 80, PN 16	N45 + P11	✓	✓	✓	
• DN 100, PN 16	N46 + P11	✓	✓	1	
Aseptic clamp with groove to DIN 11864-3 FormA					
• DN 50, PN 25	N53	✓	1	1	
• DN 65, PN 25	N54	✓	✓	✓	
• DN 80, PN 16	N55	✓.	✓.	V	
• DN 100, PN 16	N56	✓	✓	V	

¹⁾ Special seal in Viton included in the scope of delivery.

Selection and Ordering data	Order code			
Additional data		HART	PA	FF
Please add "-Z" to Order No. and specify Order code(s) and plain text.				
Measuring range to be set	Y01	✓		
Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi				
Stainless steel tag plate (measuring point description)	Y15	✓	✓	✓
Max. 16 characters, specify in plain text: Y15:				
Measuring point text	Y16	1	1	✓
Max. 27 characters, specify in plain text: Y16:				
Entry of HART address (TAG)	Y17	✓		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indicator in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi,				
Note: The following pressure units can be selected:				
bar, mbar, mm H 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				
Preset bus address	Y25		✓	
possible between 1 and 126				
Specify in plain text: Y25:				

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

✓ = available

ordering example

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

B line: A22 + Y01 + Y21 Y01: 1 ... 10 bar (14.5 ... 145 psi) C line:

C line: Y21: bar (psi)

²⁾ Lower measuring limit -100 mbar g (1.45 psi g).

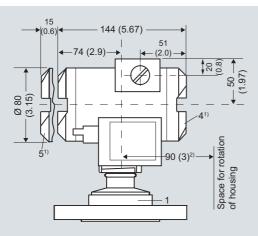
³⁾ The weldable socket can be ordered under accessories.

⁴⁾ The maximum permissible temperatures of the medium depend on the respective cell fillings.

Transmitters for general requirements

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

Dimensional drawings



- 1 Process connection: see flange tables
- 2 Blanking plug
- 3 Electrical connection:
- Screwed gland M20x1,5,
- Screwed gland 1/2-14 NPT or
- M12 connector
- 4 Terminal side
- 5 Electronics side, digital display (longer overall length for cover with window)
- 6 Protective cover over keys
- 7 Screw cover safety bracket (only for explosion-proof enclosure, not shown in the drawing)

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

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

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

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

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

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

Flanges as per EN and ASME

Flange to EN

EN 1092-1

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

Flanges to ASME

ASME B16.5

DN	Class	ØD	H ₂
1"	150	110 mm (4.3")	Approx.
1"	300	125 mm (4.9")	52 mm (2")
11/2"	150	130 mm (5.1")	
11/2"	300	155 mm (6.1")	
2"	150	150 mm (5.9")	
2"	300	165 mm (6.5")	
3"	150	190 mm (7.5")	
3"	300	210 mm (8.1")	
4"	150	230 mm (9.1")	
4"	300	255 mm (10.0")	
	1" 1" 1½" 1½" 2" 2" 3" 3" 4"	1" 150 1" 300 1½" 150 1½" 300 2" 150 2" 300 3" 150 3" 300 4" 150	1" 150 110 mm (4.3") 1" 300 125 mm (4.9") 1½" 150 130 mm (5.1") 1½" 300 155 mm (6.1") 2" 150 150 mm (5.9") 2" 300 165 mm (6.5") 3" 150 190 mm (7.5") 3" 300 210 mm (8.1") 4" 150 230 mm (9.1")

F&B and pharmaceutical flanges

Connections to DIN

DIN 11851 (milk p	ipe union)			
	DN	PN	ØD	H ₂
	50	25	92 mm (3.6")	Approx. 52 mm (2")
T D	80	25	127 mm (5.0")	52 mm (2")

TriClamp to DIN 32676				
. =====================================	DN	PN	ØD	H ₂
	50	16	64 mm (2.5")	Approx. 52 mm (2")
	65	16	91 mm (3.6")	52 mm (2")
				
D				

Other connections

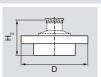
Varivent connection				
	DN	PN	ØD	H ₂
	40 125	40	84 mm (3.3")	Approx. 52 mm (2")

Biocontrol connecti	on			
	DN	PN	ØD	H ₂
	50	16	90 mm (3.5")	Approx.
Ĭ,	65	16	120 mm (4.7")	52 mm (2")
D				

Transmitters for general requirements SITRANS P DS III for gauge/absolute pressure,

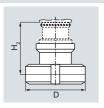
with front-flush diaphragm

Sanitary process connection to DRD



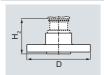
DN	PN	ØD	H ₂
65	40	105 mm (4.1")	Approx. 52 mm (2")

Sanitary process screw connection to NEUMO Bio-Connect



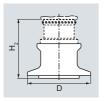
DN	PN	ØD	H ₂
50	16	82 mm (3.2")	Approx.
65	16	105 mm (4.1")	52 mm (2")
80	16	115 mm (4.5")	
100	16	145 mm (5.7")	
2"	16	82 mm (3.2")	
2½"	16	105 mm (4.1")	
3"	16	105 mm (4.1")	
4"	16	145 mm (5.7")	

Sanitary process connection to NEUMO Bio-Connect flange connection



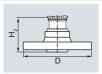
DN	PN	ØD	H ₂
50	16	110 mm (4.3")	Approx.
65	16	140 mm (5.5")	52 mm (2")
80	16	150 mm (5.9")	
100	16	175 mm (6.9")	
2"	16	100 mm (3.9")	
21/2"	16	110 mm (4.3")	
3"	16	140 mm (5.5")	
4"	16	175 mm (6.9")	

Sanitary process connection to NEUMO Bio-Connect clamp connection



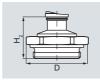
DN	PN	ØD	H ₂
50	16	77.4 mm (3.0")	Approx.
65	10	90.9 mm (3.6")	52 mm (2")
80	10	106 mm (4.2")	
100	10	119 mm (4.7")	
2"	16	64 mm (2.5")	
2½"	16	77.4 mm (3.0")	
3"	10	90.9 mm (3.6")	
4"	10	779 mm (4.7")	

Sanitary process connection to NEUMO Bio-Connect S flange connection



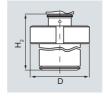
DN	PN	ØD	H ₂
50	16	125 mm (4.9")	Approx.
65	10	145 mm (5.7")	52 mm (2")
80	10	155 mm (6.1")	
100	10	180 mm (7.1")	
2"	16	125 mm (4.9")	
21/2"	10	135 mm (5.3")	
3"	10	145 mm (5.7")	
4"	10	180 mm (7.1")	

Threaded connection G3/4", G1" and G2" acc. to DIN 3852



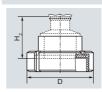
DN	PN	ØD	H ₂
3/4"	63	37 mm (1.5")	Approx. 45 mm (1.8")
1"	63	48 mm (1.9")	approx. 47 mm (1.9")
2"	63	78 mm (3.1")	Approx. 52 mm (2")

Tank connection TG 52/50 and TG52/150



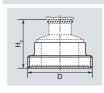
DN	PN	ØD	H ₂
25	40	63 mm (2.5")	Approx. 63 mm (2.5")
25	40	63 mm (2.5")	approx. 170 mm (6.7")

SMS socket with union nut



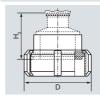
"	u.			
	DN	PN	ØD	H ₂
	2"	25	84 mm (3.3")	Approx.
	21/2"	25	100 mm (3.9")	52 mm (2.1")
	3"	25	114 mm (4.5")	,

SMS threaded socket



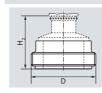
DN	PN	ØD	H ₂
2"	25	70 x 1/6 mm	Approx.
21/2"	25	85 x 1/6 mm	52 mm (2.1")
3"	25	98 x 1/6 mm	
	2" 2½"	2" 25 2½" 25	2" 25 70 x 1/6 mm 2½" 25 85 x 1/6 mm

IDF socket with union nut



DN	PN	ØD	H ₂
2"	25	77 mm (3")	Approx.
21/2"	25	91 mm (3.6")	52 mm (2.1")
3"	25	106 mm (4.2")	,

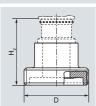
IDF threaded socket



DN	PN	ØD	H ₂
2"	25	64 mm (2.5")	Approx.
21/2"	25	77.5 mm (3.1")	52 mm (2.1")
3"	25	91 mm (3.6")	,

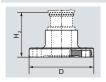
Transmitters for general requirements
SITRANS P DS III for gauge/absolute pressure,
with front-flush diaphragm

Aseptic threaded socket to DIN 11864-1 Form A



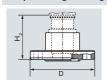
DN	PN	ØD	H ₂
50	25	94	Approx. 52 mm
65	25	113	52 mm (2.1")
80	25	133	,
100	25	159	

Aseptic flange with notch to DIN 11864-2 Form A



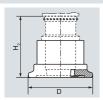
DN	PN	ØD	H ₂
50	16	78 x 1/6"	Approx.
65	16	95 x 1/6"	52 mm (2.1")
80	16	110 x 1/4"	,
100	16	130 x 1/4"	

Aseptic flange with groove to DIN 11864-2 Form A



DN	PN	∅D	H ₂
50	16	94	Approx. 52 mm
65	16	113	(2.1")
80	16	133	,
100	16	159	

Aseptic clamp with groove to DIN 11864-3 Form A



DN	PN	ØD	H ₂
50	25	77,5	Approx. 52 mm
65	25	91	(2.1")
80	16	106	
100	16	130	

Pressure Measurement
Transmitters for general requirements
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)				
	HART		PROFIBUS PA and FOUNDATION Fieldbus	
Input				
Measured variable	Absolute pressure			
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure
	8,3 250 mbar a (0.12 3.6 psi a)	6 bar a (87 psi a)	250 mbar a (3.6 psi a)	6 bar a (87 psi a)
	43 1300 mbar a (0.62 18.9 psi a)	10 bar a (145 psi a)	1300 mbar a (18.9 psi a)	10 bar a (145 psi a)
	160 5000 mbar a (2.32 72.5 psi a)	30 bar a (435 psi a)	5 bar a (72.5 psi a)	30 bar a (435 psi a)
	1 30 bar a (14.5 435 psi a)	100 bar a (1450 psi a)	30 bar a (435 psi a)	100 bar a (1450 psi a)
Lower measuring limit		'		
Measuring cell with silicone oil filling		0 mbar	a (0 psi a)	
Upper measuring limit		100 % of	max. span	
Output				
Output signal	4 20 mA		Digital PROFIBUS PA and FOUNDATION Fieldbus signal	
 Lower limit (infinitely adjustable) 	3.55 mA, factory preset	to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory preset to set to 22.0 mA	20.5 mA or optionally	-	
Load				
Without HART communication	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V	23 A in Ω,	-	
With HART communication	$R_{\rm B}$ = 230 500 Ω (SIM $R_{\rm B}$ = 230 1100 Ω (HA		-	
Physical bus	-		IEC 61158-2	
Protection against polarity reversal	Protected against shor		rsal. Each connection ag voltage.	gainst the other with max.
Measuring accuracy		Acc. to E	N 60770-1	
Reference conditions (All error data refer always refer to the set span)	Increasing characterist	ing, room temperature 2	bar, stainless steel seal c 25 °C (77 °F)) r: Span rati an / set span)	liaphragm, silicone oil fill- o
Error in measurement and fixed-point setting (including hysteresis and repeatability)				
Linear characteristic			≤ 0.1 %	
- r ≤ 10	≤ 0.1 %			
- 10 < r ≤ 30	≤ 0.2 %			
Long-term drift (temperature change \pm 30 °C (\pm 54 °F))	≤ (0.1 · r) %/year		≤ 0.1 %/year	
Influence of ambient temperature				
• at -10 +60 °C (14 140 °F)	\leq (0.1 · r + 0.2) %		≤ 0.3 %	
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	≤ (0.1 · r + 0.15) %/10 K		≤ 0.25 %/10 K	
Measured Value Resolution	-		$3\cdot 10^{-5}$ of nominal measuring range	

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

SITRANS P DS III series for absolute pressure (from the gauge pressure series)			
	HART PROFIBUS PA and FOUNDATION Fieldbus		
Rated conditions			
Degree of protection (to EN 60529)	IP65		
Temperature of medium			
Measuring cell with silicone oil filling	-40 +100 °C	C (-40 +212 °F)	
Measuring cell with inert filling liquid	-20 +100 °C	C (-4 +212 °F)	
• In conjunction with dust explosion protection	-20 +60 °C	C (-4 +140 °F)	
Ambient conditions			
Ambient temperature			
- Digital indicator	-30 +85 °C	: (-22 +185 °F)	
Storage temperature	-50 +85 °C	: (-58 +185 °F)	
Climatic class			
- Condensation	Relative hum	nidity 0 100 %	
		, suitable for use in the tropics	
Electromagnetic Compatibility			
- Emitted interference and interference immunity	- Acc. to EN 61326 and NAMUR NE 21		
Design			
Weight (without options)	≈ 1.5 kg	g (≈ 3.3 lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi 12 or stainless steel precision casting, mat. no. 1.4408		
Wetted parts materials			
Connection shank	Stainless steel, mat. no. 1.4404/316L or Hastelloy C4, mat. no. 2.4610		
Oval flange	Stainless steel, m	nat. no. 1.4404/316L	
Seal diaphragm	Stainless steel, mat. no. 1.4404/31	6L or Hastelloy C276, mat. no. 2.4819	
Measuring cell filling		ue with oxigen measurement pressure 120 bar a) at 60 °C (140 °F))	
Process connection		female thread $\frac{1}{2}$ -14 NPT or oval flange mounting thread M10 or $^7/_{16}\text{-}20$ UNF to EN 61518	
Material of mounting bracket			
• Steel	Sheet-steel, Mat. No.	. 1.0330, chrome-plated	
Stainless steel	Sheet stainless steel,	mat. no. 1.4301 (SS 304)	
Power supply U_{H}		Supplied through bus	
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-	
Separate 24 V power supply necessary	-	No	
Bus voltage			
• Not Ex	-	9 32 V	
With intrinsically-safe operation	-	9 24 V	
Current consumption			
Basic current (max.)	-	12.5 mA	
• Start-up current ≤ basic current	-	Yes	
Max. current in event of fault	-	15.5 mA	
Fault disconnection electronics (FDE) available	-	Yes	
` '			

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

	HART	PROFIBUS PA and FOUNDATION Fieldbus	
Certificates and approvals			
Classification according to PED 97/23/EC	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)		
Explosion protection			
Intrinsic safety "i"	PTB 99 A	ATEX 2122	
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6	
- Permissible ambient temperature	-40 +70 °C (-40 +15	15°F) temperature class T4; 18°F) temperature class T5; 10°F) temperature class T6	
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW; $P_{\rm i}=300$ 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	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu\text{H}, C_i = 1.1 \text{nF}$	
Explosion-proof "d"	' '	ATEX 1160	
- Marking		EEx d IIC T4/T6	
Permissible ambient temperature	, -	35 °F) temperature class T4;	
·	-40 +60 °C (-40 +14	40 °F) temperature class T6	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC	
Dust explosion protection for zone 20		ATEX 2055	
- Marking		P65 T 120 °C IP65 T 120 °C	
- Permissible ambient temperature	-40 +85 °C	(-40 +185 °F)	
- Max. surface temperature	120 °C	C (248 °F)	
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $R_{\rm i}=300$ 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	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$	
Dust explosion protection for zone 21/22	PTB 01 /	ATEX 2055	
- Marking	Ex II 2 D If	P65 T 120 °C	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W	
Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned	
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	-	
Explosion protection acc. to FM	Certificate of Co	mpliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; CL I, DIV 2, GP ABCD T4T6; CL II, DIV 2, GP FG; CL III		
Explosion protection to CSA	Certificate of Co	mpliance 1153651	
- Identification (XP/DIP) or (IS)	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		

Transmitters for general requirements

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

HART communication	
HART communication	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local opera tion (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measured value) or 10 (two measured values)
Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
Analog input	
 Adaptation to customer-specific process variables 	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 to 100 s
- Simulation function	Input /Output
- Failure mode	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively
Physical block	1
Transducer blocks	2
Pressure transducer block	
 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 parameterizable ramp function

sor temperature

FOUNDATION Fieldbus communication

Function blocks

- Analog input
 - Adaptation to customer-specific process variables
- Electrical damping T₆₃, adjustable
- Simulation function
- Failure mode
- Limit monitoring
- Square-rooted characteristic for flow measurement
- PID
- Physical block

Transducer blocks

- Pressure transducer block
- Can be calibrated by applying two pressures
- Monitoring of sensor limits
- Simulation function: Measured pressure value, sensor temperature and electronics temperature

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Standard FF function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block

Yes

Constant value or over parameterizable ramp function

Transmitters for general requirements

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

	ing data		Orde	r No.	
	rs for absolute pressure , SITRANS P DS III HART	F)	7MF		3 -
Measuring cell filling	g Measuring cell clean- ing				
Silicone oil	normal		1		
Inert liquid ¹⁾	Grease-free		3		
Measuring span					
8.3 250 mbar a	(0.12 3.63 psi a)		D		
43 1300 mbar a	(0.62 18.9 psi a)		F		
0.16 5 bar a	(2.32 72.5 psi a)		G		
1 30 bar a	(14.5 435 psi a)		Н		
Wetted parts materia					
Seal diaphragm	Process connection	_			
Stainless steel	Stainless steel	F)	Α		
Hastelloy	Stainless steel	F)	В		
Hastelloy Version for diaphragn	Hastelloy	F)	C		
	I Sedi /-/ /		Y		
Process connection • Connection shank G	21/4D to EN 927 1			0	
 Connection snank 6 Female thread ½-14 				1	
 Stainless steel oval 				'	
	/ ₁₆ -20 UNF to EN 61518			2	
- Mounting thread N	.0			3	
- Mounting thread N	/12 to DIN 19213			4	
 Male thread M20 x 	1.5			5	
 Male thread ½ -14 N 	NPT			6	
				6	
Non-wetted parts ma • Housing made of di	aterials e-cast aluminium			0	
Non-wetted parts ma • Housing made of di	aterials				
Non-wetted parts ma • Housing made of di • Housing stainless st Version	aterials e-cast aluminium			0	
Non-wetted parts ma • Housing made of di • Housing stainless st Version • Standard versions	aterials e-cast aluminium teel precision casting ⁵⁾			0	1
Non-wetted parts ma • Housing made of di • Housing stainless st Version • Standard versions • International versior	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions	,		0	1 2
Non-wetted parts made of di Housing made of di Housing stainless st Version Standard versions International versior documentation in 5	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD	,		0	
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD	,		0	2
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection None	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD	,		0	
Non-wetted parts ma • Housing made of di • Housing stainless st Version • Standard versions • International versior documentation in 5 Explosion protection • None • With ATEX, Type of	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD n protection:	,		0	2 A
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection None With ATEX, Type of Intrinsic safety (E	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD n protection: Ex ia)"	,		0	2
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection None With ATEX, Type of "Intrinsic safety (E "Explosion-proof (I "Intrinsic safety an	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD n protection: Ex ia)" EEx d)" ⁶⁾ Id flameproof enclosure"	,		0	2 A B
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection None With ATEX, Type of "Intrinsic safety (E "Explosion-proof (I "Intrinsic safety an (EEx ia + EEx d)"	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD n protection: Ex ia)" EEx d)" ⁶⁾ d flameproof enclosure"	,		0	A B D P
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection None With ATEX, Type of Internation safety (Early in the safety (Early in the safety and (Eex ia + Eex d)" Intrinsic safety and (Eex ia + Eex	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD n protection: Ex ia)" EEx d)" ⁶⁾ d flameproof enclosure")"			0	A B D P
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection None With ATEX, Type of large intrinsic safety (E - "Explosion-proof (I - "Intrinsic safety an (EEx ia + EEx d)" "Ex nA/nL (Zone 2 - "Intrinsic safety an	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD protection: Ex ia) d flameproof enclosure) n			0	A B D P
Version Standard versions International version documentation in 5 Explosion protection None With ATEX, Type of labeled and la	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD protection: Ex ia) d flameproof enclosure) n			0	A B D P
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International version documentation in 5 Explosion protection None With ATEX, Type of large interinsic safety (E - "Explosion-proof (I - "Intrinsic safety an (EEx ia + EEx d)" - "Ex nA/nL (Zone 2 - "Intrinsic safety, ex dust explosion pro Zone 1D/2D)"	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD protection: Ex ia)" EEx d)*6) d flameproof enclosure")" plosion-proof enclosure and tection (EEx ia+ EEx d)+			0	A B D P
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection None With ATEX, Type of labeled and (EEx ia + EEx d)*7 "Ex nA/nL (Zone 2 - "Intrinsic safety, ex dust explosion prozone 1D/2D)*7 With FM + CSA, Type With FM + CSA, Type	aterials e-cast aluminium teel precision casting ⁵) n, English label inscriptions languages on CD n protection: Ex ia)" EEx d)*6 d flameproof enclosure*)" plosion-proof enclosure anotection (EEx ia+ EEx d +	d		0	A B D P
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International version documentation in 5 Explosion protection With ATEX, Type of labeled and labeled and left and	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD n protection: Ex ia)" EEx d)" ⁶⁾ Id flameproof enclosure")" plosion-proof enclosure anotection (EEx ia+ EEx d + Decision Proof (is + xp)" ⁶ pe of protection: Explosion Proof (is + xp)" ⁶	d		0	A B D P E R
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International version documentation in 5 Explosion protection None With ATEX, Type of labeled and left in the standard version for the standard version for the standard version for the standard version in 5 Explosion protection "Explosion-proof (II "Intrinsic safety and (EEx ia + EEx d)" (Ex ia + EX d)" (Ex ia + EEx d)" (Ex ia + Ex ia + EEx d)" (Ex ia + EEx d)" (Ex ia + EEx d)" (Ex ia + EEx ia + EE	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD n protection: Ex ia)" EEx d)*6) d flameproof enclosure")" plosion-proof enclosure and tection (EEx ia+ EEx d + ibe of protection: Explosion Proof (is + xp)*6 n / cable entry	d		0	A B D P E R
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International version documentation in 5 Explosion protection None With ATEX, Type of Intrinsic safety (E - "Explosion-proof (I - "Intrinsic safety and (EEx ia + EEx d)" - "Ex nA/nL (Zone 2 - "Intrinsic safety, ex dust explosion pro Zone 1D/2D)" - With FM + CSA, Type - "Intrinsic Safe und Electrical connection Screwed gland Pg	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD protection: Ex ia)" EEx d)*6) d flameproof enclosure")" plosion-proof enclosure and encoure and encoure tection (EEx ia+ EEx d + incomplete tection) Explosion Proof (is + xp)*6 n / cable entry 13.58)	d		0	A B D P E R
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection None With ATEX, Type of Intrinsic safety (E "Explosion-proof (I "Intrinsic safety an (EEx ia + EEx d)" "Ex nA/nL (Zone 2 "Intrinsic safety, ex dust explosion proceed to the safety, ex dust explosion proceed to the safety, ex dust explosion proceed to the safety of the saf	aterials e-cast aluminium teel precision casting ⁵) n, English label inscriptions languages on CD n protection: Ex ia)" EEx d)" ⁶) d flameproof enclosure")" plosion-proof enclosure anotection (EEx ia+ EEx d + be of protection: Explosion Proof (is + xp)" ⁶ n / cable entry 13.5 ⁸) bx1.5 4 NPT	d		0	A B D P E R
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection None With ATEX, Type of I - "Intrinsic safety (E - "Explosion-proof (I - "Intrinsic safety an (EEx ia + EEx d)" - "Ex nA/nL (Zone 2 - "Intrinsic safety, ex dust explosion protection (I - "Intrinsic safety and I - "Intrinsic safe und I - "	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD protection: Ex ia)" EEx d)*6) d flameproof enclosure")" plosion-proof enclosure anotection (EEx ia+ EEx d + be of protection: Explosion Proof (is + xp)*6 n / cable entry 13.58) bx1.5	d		0	A B D P E R
Non-wetted parts ma Housing made of di Housing stainless st Version Standard versions International versior documentation in 5 Explosion protection None With ATEX, Type of Intrinsic safety (E - "Explosion-proof (I - "Intrinsic safety an (EEx ia + EEx d)" - "Ex nA/nL (Zone 2 - "Intrinsic safety, ex dust explosion proceed to the safety, ex dust explosion proceed to the safety, ex dust explosion proceed to the safety of the safety o	aterials e-cast aluminium teel precision casting ⁵⁾ n, English label inscriptions languages on CD protection: Ex ia)" EEx d)" old flameproof enclosure anotection (EEx ia+ EEx d + be of protection: Explosion-proof (is + xp)" on / cable entry 13.58) bx1.5 4 NPT c housing) incl. mating	d		0	A B D P E R

Selection and Ordering data Order No.		
	7MF4233-	
aus series pressure, SITRANS P DS III HART		
Display		
Without indicator	0	
 Without visible digital indicator(digital indicator concealed, setting: mA) 	1	
With visible digital indicator	6	
 with customer-specific digital indicator (setting as specified, Order Code "Y21" or "Y22" re- quired) 	7	

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

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- 1) For oxygen application, add Order code E10.
- ²⁾ Version 7MF4233-1DY... only up to max. span 200 mbar a (2.9 psi a).
- 3) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here. If the acceptance test certificate 3.1. is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 4) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 6) Without cable gland, with blanking plug.
- 7) With enclosed cable gland EEx ia and blanking plug.
- 8) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- ⁹⁾ M12 delivered without cable socket
- F) Subject to export regulations AL: 91999, ECCN: N.

Pressure Measurement Transmitters for general requirements

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

Selection and Orderin	<u> </u>		Orde	er N	10.		
	(from the gauge pres-						
sure series)	DDOFIDUO DA						
SITRANS P DS III PA (•		7 M F				
SITRANS P DS III FF (FOUNDATION Fieldbus)	F)	7 M F	4 :	2 3	5 -	•
				н	-		4
Measuring cell filling	Measuring cell clean-						
Silicone oil	ing normal		1				
Inert liquid ¹⁾	Grease-free		3				
Nominal measuring ra		_					
250 mbar a	(3.63 psi a)		D				
1300 mbar a	(18.9 psi a)		F				
5 bar a	(72.5 psi a)		G				
30 bar a	(435 psi a)		Н				
Wetted parts materials	S						
Seal diaphragm	Process connection						
Stainless steel	Stainless steel	_ F)	A	١			
Hastelloy	Stainless steel	F)	E	3			
Hastelloy	Hastelloy	F)	C	;			
Version as diaphragm s	seal ^{2) 3) 4)}		١	1			
Process connection							
 Connection shank G¹/ 				0			
Female thread ½-14 N				1			
 Stainless steel oval flag 							
- Mounting thread ⁷ / ₁₆ -20 UNF to EN 61518				2			
- Mounting thread M1	0 to DIN 19213			3			
	0 to DIN 19213 12 to DIN 19213						
Mounting thread M1Mounting thread M1	10 to DIN 19213 12 to DIN 19213 5			3 4			
- Mounting thread M1 - Mounting thread M1 • Male thread M20 x 1.4 • Male thread ½ -14 NF	10 to DIN 19213 12 to DIN 19213 5 PT			3 4 5			
 Mounting thread M1 Mounting thread M1 Male thread M20 x 1. 	10 to DIN 19213 12 to DIN 19213 5 PT erials			3 4 5 6	0		
- Mounting thread M1 - Mounting thread M1 • Male thread M20 x 1.8 • Male thread ½ -14 NF Non-wetted parts mate	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium			3 4 5 6	0		
 Mounting thread M1 Mounting thread M1 Male thread M20 x 1.3 Male thread ½ -14 NF Non-wetted parts mate Housing made of die- 	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium			3 4 5 6			
- Mounting thread M1 - Mounting thread M1 • Male thread M20 x 1.3 • Male thread ½ -14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting			3 4 5 6		1	
- Mounting thread M1 - Mounting thread M1 - Male thread M20 x 1.3 - Male thread ½ -14 NF Non-wetted parts mat - Housing made of die Housing stainless ste Version - Standard versions - International version,	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions			3 4 5 6		1 2	
- Mounting thread M1 - Mounting thread M1 - Male thread M20 x 1.3 • Male thread ½ -14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions			3 4 5 6		-	
- Mounting thread M1 - Mounting thread M1 - Male thread M20 x 1.3 • Male thread ½ -14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions	,		3 4 5 6		2	
- Mounting thread M1 - Mounting thread M1 - Male thread M20 x 1.3 • Male thread ½ -14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD	,		3 4 5 6		-	4
- Mounting thread M1 - Mounting thread M1 - Male thread M20 x 1.3 - Male thread ½ -14 NF Non-wetted parts mat - Housing made of die Housing stainless ste Version - Standard versions - International version, documentation in 5 la Explosion protection - None - With ATEX, Type of pr	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD	,		3 4 5 6		2	
- Mounting thread M1 - Mounting thread M1 - Male thread M20 x 1.3 - Male thread ½ -14 NF Non-wetted parts mat - Housing made of die Housing stainless ste Version - Standard versions - International version, documentation in 5 la Explosion protection - None - With ATEX, Type of pr - "Intrinsic safety (EEx	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD	,		3 4 5 6		2	3
- Mounting thread M1 - Mounting thread M1 - Mounting thread M2 x 1.3 • Male thread M2 - 14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None • With ATEX, Type of pr - "Intrinsic safety (EE) - "Explosion-proof (EE - "Intrinsic safety and	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD			3 4 5 6		2 /	3
- Mounting thread M1 - Mounting thread M1 - Mounting thread M2 x 1.3 • Male thread M2 x 1.3 • Male thread ½ -14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None • With ATEX, Type of pr - "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)" 6)	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD rotection: (x ia)" Ex d)"5)	,		3 4 5 6		2 A E C F	3
- Mounting thread M1 - Mounting thread M1 - Mounting thread M2 x 1.3 • Male thread M2 x 1.3 • Male thread ½ -14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None • With ATEX, Type of pr - "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)"6) - "Ex nA/nL"	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD rotection: (ia)" (ix) (ix) (ix) (ix) (ix) (ix) (ix) (ix)			3 4 5 6		2 4 E C F	3) >
- Mounting thread M1 - Mounting thread M1 - Mounting thread M2 x 1.3 • Male thread M2 - 14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None • With ATEX, Type of pr - "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)"6) - "Ex nA/nL" - "Intrinsic safety, expl	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD rotection: (ia)" Ex d)" flameproof enclosure"			3 4 5 6		2 A E C F	3) >
- Mounting thread M1 - Mounting thread M1 - Mounting thread M2 x 1.3 • Male thread M2 - 14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None • With ATEX, Type of pr - "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)"6) - "Ex nA/nL" - "Intrinsic safety, explosion profe	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD rotection: (ia)" Ex d)"5) flameproof enclosure" losion-proof enclosure and			3 4 5 6		2 4 E C F	3) >
- Mounting thread M1 - Mounting thread M1 - Mounting thread M2 x 1.3 • Male thread M2 - 14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None • With ATEX, Type of pr - "Intrinsic safety (EEx - "Explosion-proof (EEx ia + EEx d)"6) - "Ex nA/nL" - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"6) (not	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD rotection: (ia)" Ex d)"5) flameproof enclosure" losion-proof enclosure and ection (EEx ia + EEx d + for DS III FF)			3 4 5 6		2 4 E C F	3) >
- Mounting thread M1 - Mounting thread M1 - Mounting thread M2 x 1.3 • Male thread M2 x 1.3 • Male thread ½ -14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None • With ATEX, Type of pr - "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)"6) - "Ex nA/nL" - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"6) (not • With FM + CSA, Type	10 to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD rotection: (ia)" Ex d)"5) flameproof enclosure" losion-proof enclosure and ection (EEx ia + EEx d + for DS III FF)	t		3 4 5 6		2 E C F	3) >
- Mounting thread M1 - Mounting thread M1 - Mounting thread M2 x 1.3 • Male thread M2 x 1.3 • Male thread ½ -14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None • With ATEX, Type of pr - "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)"6) - "Ex nA/nL" - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"6) (not • With FM + CSA, Type	10 to DIN 19213 12 to DIN 19213 5 Erials -cast aluminium el precision casting English label inscriptions inguages on CD rotection: (ia)" Ex d)" (losion-proof enclosure" losion-proof enclosure and ection (EEx ia + EEx d + for DS III FF) of protection: Explosion Proof (is + xp)" Explosion Proof (is + xp)"	t		3 4 5 6		2 E C F	3) = R
- Mounting thread M1 - Mounting thread M1 - Mounting thread M2 × 1.4 • Male thread M2 × 1.4 • Male thread ½ -14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None • With ATEX, Type of pr - "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety (EEx - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" ⁶⁾ (not • With FM + CSA, Type - "Intrinsic Safe und E	10 to DIN 19213 12 to DIN 19213 5 27 erials -cast aluminium el precision casting English label inscriptions inguages on CD rotection: (x ia)" (Ex d)" (b) (c) (losion-proof enclosure and (ection (EEx ia + EEx d + for DS III FF) of protection: (Explosion Proof (is + xp)" (c) (cable entry	t		3 4 5 6		2 E C F	3) = R
- Mounting thread M1 - Mounting thread M1 - Mounting thread M2 x 1.3 • Male thread M2 - 14 NF Non-wetted parts mat • Housing made of die- • Housing stainless ste Version • Standard versions • International version, documentation in 5 la Explosion protection • None • With ATEX, Type of pr - "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)"6) - "Ex nA/nL" - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"6) (not • With FM + CSA, Type - "Intrinsic Safe und E	to to DIN 19213 12 to DIN 19213 5 PT erials -cast aluminium el precision casting English label inscriptions inguages on CD rotection: (ia)" Ex d)"5) flameproof enclosure" losion-proof enclosure and ection (EEx ia + EEx d + for DS III FF) of protection: explosion Proof (is + xp)"5 / cable entry (1.5 NPT	t		3 4 5 6		2 E C F	3 0 0 1 1 1 1 1

Selection and Ordering data	Order No.	
For absolute pressure (from the gauge pressure series)		
SITRANS P DS III PA (PROFIBUS PA)	7 M F 4 2 3 4 -	
SITRANS P DS III FF (FOUNDATION Fieldbus) F)	7 M F 4 2 3 5 -	
Display		
Without indicator		0
Without visible digital indicator (digital indicator and a setting up A)		1
(digital indicator concealed, setting: mA)		_
With visible digital indicator		6
 with customer-specific digital indicator (setting as specified, Order Code "Y21" or "Y22" required) 		7

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- 1) For oxygen application, add Order code E10.
- ²⁾ Version 7MF4233-1DY... only up to max. span 200 mbar a (2.9 psi a).
- 3) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 4) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) Without cable gland, with blanking plug.
- 6) With enclosed cable gland EEx ia and blanking plug.
- 7) M12 delivered without cable socket
- F) Subject to export regulations AL: 91999, ECCN: N.

Transmitters for general requirements

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

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:				
• Steel	A01	✓	1	✓
Stainless steel	A02	✓	✓	✓
plug	A30	1		
Han 7D (metal, gray)Han 8U (instead of Han 7D)	A30	V		
• Angled	A32	✓		
Han 8D (metal, gray)	A33	✓		
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription				
(instead of German) • English	B11	1	1	1
• French	B12	1	1	*
• Spanish	B13	✓	✓	✓
• Italian	B14	✓	✓	✓
English rating plate	B21	✓	✓	✓
Pressure units in inH ₂ 0 and/or psi				
Quality inspection certificate (factory calibration) to IEC 60770-2 ¹⁾	C11	✓	✓	✓
Inspection certificate ²⁾ Acc. to EN 10204-3.1	C12	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓
"Functional safety (SIL2)" certificate	C20	✓		
PROFIsafe certificate and protocol	C21		1	
"Functional safety (SIL2/3)" certificate	C23	✓		
Setting of upper limit of output signal to 22.0 mA	D05	1		
Manufacturer's declaration acc. to NACE	D07	✓	✓	✓
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
Supplied with oval flange (1 item), PTFE packing and screws in thread of oval flange	D37	✓	✓	✓
Use in or on zone 1D/2D	E01	✓	✓	✓
(only together with type of protection "Intrinsic safety (EEx ia)")				
Oxygen application (In the case of oxygen measurement and inert liquid max. 120 bar a (1740 psi a) at 60°C (140 °F))	E10	✓	✓	✓
Explosion-proof "Intrinsic safety" to INMETRO (Brazil)	E25	✓	✓	✓
(only for transmitter 7MF4B)				
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4	E45	✓	✓	✓
Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4D)	E46	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI	E55	1	✓	✓
(China) (only for transmitter 7MF4B)				
,				

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Explosion protection "Explosion-proof" to NEPSI (China)	E56	✓	✓	✓
(only for transmitter 7MF4D)				
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	1	✓
Additional data				
Please add "-Z" to Order No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	✓		
Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected:				
bar, mbar, mm H 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⁾ Specify in plain text: Y22: up to //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		✓	

Factory mounting of valve manifolds, see accessories.

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

✓ = available

When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

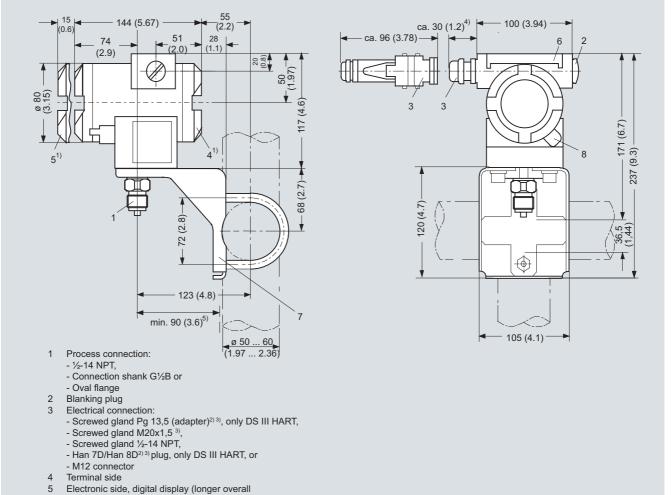
²⁾ If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.

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

Transmitters for general requirements

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

Dimensional drawings



- 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]" For Pg 13,5 with adapter approx. 45 mm (1.77 inch) 4)
- Minimum distance for rotating

"Explosion-proof enclosure", not shown in the drawing)

Screw cover - safety bracket (only for type of protection

length for cover with window)

Protective cover over keys

Mounting bracket (option)

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

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

Technical specifications

		re series)			
	HART		PROFIBUS PA and FOUNDATION Fieldbus		
Input					
Measured variable	Absolute pressure				
Spans (infinitely adjustable) or nominal measuring range and max. permissible operating pressure	Span (infinitely adjustable)	Maximum operating pressure	Nominal measuring range	Maximum operating pressure	
	8.3 250 mbar a (0.12 3.6 psi a)	32 bar a (464 psi a)	250 mbar a (3.6 psi a)	32 bar a (464 psi a)	
	43 1300 mbar a (0.62 18.9 psi a)	32 bar a (464 psi a)	1300 bar a (18.9 psi a)	32 bar a (464 psi a)	
	160 5000 mbar a (2.32 72.5 psi a)	32 bar a (464 psi a)	5 bar a (72.5 psi a)	32 bar a (464 psi a)	
	1 30 bar a (14.5 435 psi a)	160 bar a (2320 psi a)	30 bar a (435 psi a)	160 bar a (2320 psi a)	
	5.3 100 bar a (76.9 1450 psi a)	160 bar a (2320 psi a) (for connection thread M10 and 7/16-20 UNF in the process flanges)	100 bar a (1450 psi a)	160 bar a (2320 psi a) (for connection thread M10 and 7/16-20 UNF in the process flanges	
Lower measuring limit					
Measuring cell with silicone oil filling		0 mbar a	a (0 psi a)		
Upper measuring limit		100 % of	max. span		
Output					
Output signal	4 20 mA Digital PROFIBUS PA and FOUNDATION Fieldbus signal				
 Lower limit (infinitely adjustable) 	3.55 mA, factory preset to 3.84 mA				
Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA				
Load					
Without HART communication	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V	23 A in Ω,	-		
With HART communication	$R_{\rm B}$ = 230 500 Ω (SIMATIC PDM) or - $R_{\rm B}$ = 230 1100 Ω (HART Communicator)				
Physical bus	-		IEC 61158-2		
Protection against polarity reversal	Protected against short-circuit and polarity reversal. Each connection against the other with m supply voltage.				
Measuring accuracy	Acc. to EN 60770-1				
Reference conditions (All error data refer always refer to the set span)	Increasing characteristic, start-of-scale value 0 bar, stainless steel seal diaphragm, silicone oi ing, room temperature 25 °C (77 °F)) r: Span ratio (r = max. span / set span)				
Error in measurement and fixed-point setting (including hysteresis and repeatability)					
Linear characteristic			≤ 0.1 %		
- r ≤ 10	≤ 0.1 %				
- 10 < r ≤ 30	≤ 0.2 %				
Long-term drift (temperature change \pm 30 °C (\pm 54 °F))	≤ (0.1 · r) %/year		≤ 0.1 %/year		
Influence of ambient temperature					
• at -10 +60 °C (14 140 °F)	\leq (0.1 · r + 0.2) %		≤ 0.3 %		
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	≤ (0.1 · r + 0.15) %/10 k	<	≤ 0.25 %/10 K		
(

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

, (!! •!!!	solute pressure (from the differential pressure series) HART PROFIBUS PA and FOUNDATION Fieldbus		
Datad conditions	nani	PROFIBUS PA and FOUNDATION Fieldbus	
Rated conditions		Bos	
Degree of protection (to EN 60529)	l l	P65	
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			
- Digital indicator	-30 +85 °C	: (-22 +185 °F)	
Storage temperature	-50 +85 °C	(-58 +185 °F)	
Climatic class			
- Condensation	Relative hum	nidity 0 100 %	
	Condensation permissible	, suitable for use in the tropics	
Electromagnetic Compatibility			
- Emitted interference and interference immunity	Acc. to EN 61326	and NAMUR NE 21	
Design			
Weight (without options)	≈ 4.5 kg	g (≈ 9.9 (lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or	stainless steel precision casting, mat. no. 1.4408	
Wetted parts materials			
Seal diaphragm		oy C276, mat. no. 2.4819, Monel, mat. no. 2.4360 ım or gold	
 Process flanges and sealing screw 	Stainless steel, mat. no. 1.4408, Hastelloy	C4, mat. no. 2.4610 or Monel, mat. no. 2.4360	
O-Ring	FPM (Viton) or optionally	: PTFE, FEP, FEPM and NBR	
Measuring cell filling		ue with oxigen measurement pressure 120 bar a) at 60 °C (140 °F))	
Process connection	1/4-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/ ₁₆ -20 UN to EN 61518		
Material of mounting bracket			
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plated		
Stainless steel	Sheet stainless steel, mat. no. 1.4301 (SS 304)		
Power supply $oldsymbol{\mathit{U}}_{eta}$		Supplied through bus	
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-	
Separate 24 V power supply necessary	-	No	
Bus voltage			
• Not Ex	-	9 32 V	
With intrinsically-safe operation	-	9 24 V	
Current consumption			
Basic current (max.)	_	12.5 mA	
• Start-up current ≤ basic current		Yes	
Start up ouriont 2 busic current			
 Max. current in event of fault 	_	15.5 mA	

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

SITRANS P, DS III for absolute pressure (from	HART	PROFIBUS PA and FOUNDATION Fieldbus		
Contification and appropriate	MANI	PROFIDUS PA AIIU FUUNDATION FIEIDDUS		
Certificates and approvals				
Classification according to PED 97/23/EC	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 3 paragraph 3 (sound engineering practice)			
Explosion protection				
Intrinsic safety "i"		ATEX 2122		
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6		
- Permissible ambient temperature	-40 +70 °C (-40 +15	15 °F) temperature class T4; 18 °F) temperature class T5; 40 °F) temperature class T6		
- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$,	FISCO supply unit: $U_0 = 17.5 \text{ V}, I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$		
	$P_{\rm i} = 750 \text{ mW}; R_{\rm i} = 300 \Omega$	Linear barrier: $U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \mu \text{H}, C_{\rm i} = 1.1 \text{nF}$		
Explosion-proof "d"		ATEX 1160		
- Marking	Ex II 1/2 G E	Ex d IIC T4/T6		
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +60 °C (-40 +140 °F) temperature class T6			
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC		
Dust explosion protection for zone 20	PTB 01 A	ATEX 2055		
- Marking	Ex II 1 D IP65 T 120 °C Ex II 1/2 D IP65 T 120 °C			
- Permissible ambient temperature	-40 +85 °C	(-40 +185 °F)		
- Max. surface temperature	120 °C	C (248 °F)		
- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}$, $I_i = 100 \text{ mA}$,	FISCO supply unit: U_0 = 17.5 V, I_0 = 380 mA, P_0 = 5.32 W		
	$P_{i} = 30 \text{ W}, \ P_{i} = 100 \text{ H/A}, \ P_{i} = 750 \text{ mW}, \ P_{i} = 300 \Omega$	Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$		
Dust explosion protection for zone 21/22	PTB 01 A	ATEX 2055		
- Marking	Ex II 2 D If	P65 T 120 °C		
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W		
 Type of protection "n" (zone 2) 	TÜV 01 ATEX 1696 X	Planned		
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	-		
 Explosion protection acc. to FM 	Certificate of Co	mpliance 3008490		
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; CL I, DIV 2, GP ABCD T4T6; CL II, DIV 2, GP FG; CL III			
 Explosion protection to CSA 	Certificate of Co	mpliance 1153651		
- Identification (XP/DIP) or (IS)	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			

Transmitters for general requirements

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

HART communication	
HART communication	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local opera tion (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measured value) or 10 (two measured values)
Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
Analog input	
 Adaptation to customer-specific process variables 	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 100 s
- Simulation function	Input /Output
- Failure mode	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively
Physical block	1
Transducer blocks	2
Pressure transducer block	
 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 parameterizable ramp function

FOUNDATION Fieldbus communication

Function blocks

- Analog input
- Adaptation to customer-specific process variables
- Electrical damping T₆₃, adjustable
- Simulation function
- Failure mode
- Limit monitoring
- Square-rooted characteristic for flow measurement
- PID
- Physical block

Transducer blocks

- Pressure transducer block
- Can be calibrated by applying two pressures
- Monitoring of sensor limits
- Simulation function: Measured pressure value, sensor temperature and electronics temperature

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 to 100 s

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

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

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

Standard FF function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block

Yes

Constant value or over parameterizable ramp function

Transmitters for general requirements

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

Selection and Ordering	g data		Orde		
	from differential pressure series,		7 M F		3 3 - -
Measuring cell filling	Measuring cell clean-				
0111	ing				
Silicone oil Inert liquid ¹⁾	normal Grease-free		1		
Measuring span					
8.3 250 mbar a	(0.12 3.63 psi a)	E)	D		
43 1300 mbar a	(0.62 18.9 psi a)	E)	F		
0.16 5 bar a	(2.32 72.5 psi a)	E)	G		
1 30 bar a	(14.5 435 psi a)		Н		
5.3 100 bar a	(76.9 1450 psi a)		KE		
Wetted parts materials Seal diaphragm	Parts of measuring cell				
Stainless steel	Stainless steel	-	А		
Hastelloy	Stainless steel		В		
Hastelloy	Hastelloy		c		
Tantalum	Tantalum		Ē		
Monel	Monel	E)	Н		
Gold	Gold		L		
Version for diaphragm s	eal ²⁾³⁾⁴⁾		Υ		
Process connection					
	T with flange connection				
Sealing screw opposit					
- Mounting thread ⁷ / ₁₆				2	
 Mounting thread M10 (only for replacement 				0	
 Vent on side of proces 					
- Mounting thread ⁷ / ₁₆				6	
- Mounting thread M10				4	
(only for replacemen					
Non-wetted parts mate process flange screws					
Stainless steel	Die-cast aluminum	-		2	
Stainless steel	Stainless steel precision			2	
Statilless steel	casting ⁶⁾			J	
Version					
Standard versions					1
 International version, Education in 5 lar 	English label inscriptions,				2
	Iguages on OD				
Explosion protectionNone					Α
 With ATEX, Type of pro 	otection:				
- "Intrinsic safety (EEx					В
- "Explosion-proof (EE					D
- "Intrinsic safety and	flameproof enclosure"				P
(EEx ia + EEx d)" 8)					
- "Ex nA/nL (Zone 2)"	polon proof and	,			E
 Intrinsic safety, explosion prote 	osion-proof enclosure and ction (FEx ia+ FEx d +	ı			R
Zone 1D/2D) ^{#8)}	ction (EEx ia+ EEx d +				
• With FM + CSA, Type	of protection:				
	xplosion Proof (is + xp)" 7)			NC
Electrical connection /					
 Screwed gland Pg 13. 					A
 Screwed gland M20 x 					В
• Screwed gland ½-14 N	NPT				С
 Han 7D plug (plastic h connector⁹⁾ 	iousing) inci. mating				D
M12 connectors (meta)					F
2 33111001010 (111010	,				

Selection and Ordering data	Order No.	
	7MF4333-	
from differential pressure series, SITRANS P DS III HART		
Display		
Without indicator		0
 Without visible digital indicator(digital indicator concealed, setting: mA) 		1
With visible digital indicator		6
with customer-specific digital indicator (setting as specified, Order Code "Y21" or "Y22" required)		7

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

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen applications, add Order code E10.
- $^{2)}\,$ Version 7MF4333-1DY... only up to max. span 200 mbar a (2.9 psi a).
- 3) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 4) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) Not for span "5.3 ... 100 bar a (76.9 ... 1450 psi a)". Position of the top vent valve in the process flange (see dimensional drawing).
- 6) Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 7) Without cable gland, with blanking plug
- 8) With enclosed cable gland EEx ia and blanking plug
- 9) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 10)M12 delivered without cable socket
- E) Combinations of the versions marked with E) are subject to the export regulations AL: 2B230, ECCN: N.
- F) Subject to export regulations AL: 91999, ECCN: N.

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

Selection and Ordering data			Orde	r N	0.	
Pressure transmitter for differential press						
SITRANS P DS III PA (I	PROFIBUS PA)	F)	7 M F	4 3	3 4	-
SITRANS P DS III FF (F	FOUNDATION Fieldbus)	F)				
Measuring cell filling	Measuring cell clean-					
Silicone oil	normal		1			
Inert liquid ¹⁾	Grease-free		3			
Nominal measuring ra	nge					
250 mbar a	(3.63 psi a)	E)	D			
1300 mbar a	(18.9 psi a)	E)	F			
5 bar a	(72.5 psi a)	E)	G			
30 bar a	(435 psi a)		Н			
100 bar a	(1450 psi a)		ΚE			
Wetted parts materials Seal diaphragm	Parts of measuring cell					
Stainless steel	Stainless steel	-	А			
Hastelloy	Stainless steel		B			
Hastelloy	Hastelloy		c			
Tantalum	Tantalum		E			
Monel	Monel	E)	Н			
Gold	Gold	,	L			
Version as diaphragm s	eal ²⁾³⁾⁴⁾		Υ			
 Sealing screw opposit Mounting thread ⁷/₁₆ Mounting thread M1 (only for replacement 	s-20 UNF to EN 61518 0 to DIN 19213 nt requirement)			2		
 Vent on side of proces Mounting thread ⁷/₁₆ 	₃ -20 UNF to EN 61518			6		
- Mounting thread M1 (only for replacemen	nt requirement)			4		
Non-wetted parts mate						
process flange screws		_				
Stainless steel Stainless steel	Die-cast aluminum Stainless steel precision casting	ı		3		
Version						
 Standard versions International version, I documentation in 5 land 	English label inscriptions, nguages on CD				1	
Explosion protection						
• None						Α
With ATEX, Type of pro						
- "Intrinsic safety (EEx						В
- "Explosion-proof (EE						D P
 "Intrinsic safety and (EEx ia + EEx d)" ⁷⁾ 	nameproor enclosure"					7
- "Ex nA/nL (Zone 2)"						Е
- "Intrinsic safety, expl	osion-proof enclosure and ection (EEx ia + EEx d + for DS III FF)	k				R
• With FM + CSA, Type	of protection:	.,				
- "Intrinsic Safe und E	xplosion Proof (is + xp)" ⁶)				NC
Electrical connection	cable entry					
Screwed gland M20 x						В
• Screwed gland ½-14 l						C
M12 connectors (meta)	d1)⁻′					F

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

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- $^{2)}\,$ Version 7MF4334-1DY... only up to max. span 200 mbar a (2.9 psi a).
- 3) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 4) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) Not for nominal measuring range 100 bar a (1450 psi a). Position of the top vent valve in the process flange (see dimensional drawing).
- 6) Without cable gland, with blanking plug
- $^{7)}$ With enclosed cable gland EEx ia and blanking plug
- 8) M12 delivered without cable socket
- E) Combinations of the versions marked with E) are subject to the export regulations AL: 2B230, ECCN: N.
- F) Subject to export regulations AL: 91999, ECCN: N.

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

	0 1			
Selection and Ordering data	Order			
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:				
• Steel	A01	1	✓	1
• Stainless steel	A02	✓	✓	✓
O-rings for process flanges				
(instead of FPM (Viton))				
• PTFE (Teflon)	A20	✓	✓	✓
• FEP (with silicone core, approved for food)	A21	√	1	V
FFPM (Kalrez, compound 4079)NBR (Buna N)	A22 A23	1	1	1
. ,	AZS	v	•	•
• Han 7D (metal, gray)	A30	1		
• Han 8U (instead of Han 7D)	A31	1		
• Angled	A32	✓		
• Han 8D (metal, gray)	A33	✓		
Sealing screw	A40	✓	✓	✓
1/4-18 NPT, with valve in mat. of process flanges				
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription				
(instead of German)English	B11	1	1	1
• French	B12	1	1	1
Spanish	B13	✓	✓	✓
• Italian	B14	✓	✓	✓
English rating plate Pressure units in inH ₂ 0 and/or psi	B21	✓	✓	✓
Quality inspection certificate (factory calibration) to IEC 60770-2 ¹⁾	C11	✓	✓	✓
Inspection certificate ²⁾ Acc. to EN 10204-3.1	C12	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓
"Functional safety (SIL2)" certificate	C20	1		
PROFIsafe certificate and protocol	C21		1	
"Functional safety (SIL2/3)" certificate	C23	1		
Setting of upper limit of	D05	✓		
output signal to 22.0 mA				
Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)	D07	√	✓	✓
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
Supplied with oval flange (1 item), PTFE packing and screws in thread of process flange	D37	✓	✓	✓
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	✓	✓	✓
Oxygen application	E10	1	1	1
(In the case of oxygen measurement and inert liquid max. 120 bar a (1740 psi a) at 60°C (140 °F))				
Explosion-proof "Intrinsic safety" to INMETRO (Brazil)	E25	✓	✓	✓
(only for transmitter 7MF4B)				

Selection and Ordering data Order code				
Further designs Add "-Z" to Order No. and specify Order Code.		HART	PA	FF
Ex Approval IEC Ex (EEx id) (only for transmitter 7MF4	E46	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B)	E55	✓	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	1
Interchanging of process connection side	H01	✓	✓	✓
Vent on side for gas measurements	H02	✓	✓	✓
Process flange • Hastelloy • Monel • Stainless steel with PVDF insert max. PN 10 (MWP 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 ^{F)} K02 ^{F)} K04 ^{F)}	* * * *	✓ ✓	√ √ √

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 Order No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	✓		
Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H ₂ O*), inH ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or %				
*) ref. temperature 20 °C	V00 ·	,		
Setting of pressure indication in non-pressure units ³⁾ 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	Y25		✓	
possible between 1 and 126 Specify in plain text: Y25:				

Factory mounting of valve manifolds, see accessories.

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

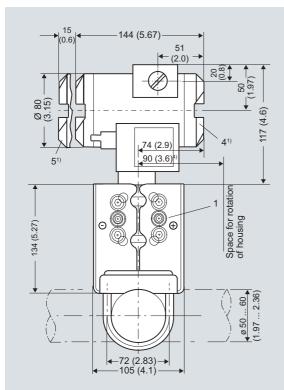
✓ = available

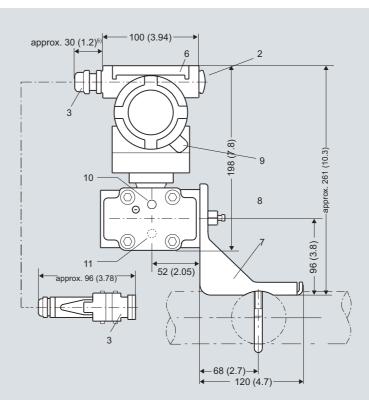
- 1) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.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

Transmitters for general requirements

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

Dimensional drawings





- Process connection: 1/4-18 NPT (EN 61518)
- Blanking plug
- Electrical connection:
 - Screwed gland Pg 13,5 (adapter)^{2) 3)}, only DS III HART,
 - Screwed gland M20x1,5 3
 - Screwed gland 1/2-14 NPT,
 - Han 7D/Han $8D^{2)\,3)}$ plug, only DS III HART, or
 - M12 connector
- Terminal side
- Electronics side, digital display (longer overall length for cover with window)
- Protective cover over keys
- Mounting bracket (option)
- Sealing screw with valve (option)
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)

 10 Lateral venting for liquid measurement (Standard)
- 11 Lateral venting for gas measurement (suffix H02)

- 1) Allow approx. 20 mm (0.79 inch) thread length to permit
- 2) Not with type of protection "explosion-proof enclosure"
- 3) Not with type of protection "FM + CSA [is + xp]"
- 92 mm (3.62 inch) for minimum distance to permit rotation 4) with indicator
- 5) 45 mm (1.8 inch) for Pg 13,5 with adapter

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

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

Technical specifications

SITRANS P, DS III for differential pressure and	d flow			
	HART		PROFIBUS PA and F	OUNDATION Fieldbus
nput				
Measured variable	Differential pressure an	1		1
Spans (infinitely adjustable) or nominal measuring range and max. permissible operating pressure	Span	Maximum operating pressure	Nominal measuring range	Maximum operating pressure
	1 20 mbar (0.4 8 inH ₂ O)	32 bar (464 psi)	20 mbar (8 inH ₂ O)	32 bar (464 psi)
	1 60 mbar (0.4 24 inH ₂ O)	160 bar (2320 psi)	60 mbar (24 inH ₂ O)	160 bar (2320 psi)
	2.5 250 mbar (1 100 inH ₂ O)		250 mbar (100 inH ₂ O)	
	6 600 mbar (2.4 240 inH ₂ O)		600 mbar (240 inH ₂ O)	
	16 1600 mbar (6.4 642 inH ₂ O)		1600 mbar (642 inH ₂ O)	
	50 5000 mbar (20 2000 inH ₂ O)		5 bar (2000 inH ₂ O)	
	0.3 30 bar (4.35 435 psi) 2.5 250 mbar	420 bar	30 bar (435 psi) 250 mbar	420 bar
	(1 100 inH ₂ O) 6 600 mbar	(6091 psi)	(100 inH ₂ O) 600 mbar	(6091 psi)
	(2.4 240 inH ₂ O) 16 1600 mbar		(240 inH ₂ O) 1600 mbar	
	(6.4 642 inH ₂ O)		(642 inH ₂ O)	
	50 5000 mbar (20 2000 inH ₂ O) 0.3 30 bar		5 bar (2000 inH ₂ O) 30 bar	
Posts	(4.35 435 psi)		(435 psi)	
ower measuring limit Measuring cell with silicone oil filling	100 % of may and	an (22 % with 20 har (4)	35 psi) measuring cell o	20 mbor a (0.44 poi))
Jpper measuring limit	·		d inert filling liquid; max.	
Output	100 % of max. span	(101 0xygeri version and	intert minig liquid, max.	100 bai g (2020 psi g))
Dutput signal	4 20 mA		Digital PROFIBUS PA FOUNDATION Fieldbo	
Lower limit (infinitely adjustable)	3.55 mA, factory preset	t to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory preset to set to 22.0 mA	o 20.5 mA or optionally	-	
oad Without HART communication	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{V})/0.02$	$23~ ext{A}$ in $\Omega_{ ext{,}}$	-	
With HART communication	$U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIM	MATIC PDM) or	_	
Physical bus	$R_{\rm B} = 230 \dots 1100 \Omega ({\rm Hz})$		IEC 61158-2	
Protection against polarity reversal	Protected against short		ersal. Each connection a y voltage.	gainst the other with ma
Measuring accuracy		Acc. to	EN 60770-1	
Reference conditions All error data refer always refer to the set span)	Increasing characterist ing, room ter	ic, start-of-scale value 0 mperature 25 °C (77 °F)	bar, stainless steel seal r: Span ratio (r = max. s	diaphragm, silicone oil t span / set span)
Error in measurement and fixed-point setting including hysteresis and repeatability)				
Linear characteristic	z (0.0000		≤ 0.075 %	
- r≤ 10 - 10 < r≤ 30	\leq (0.0029 · r + 0.071) % \leq (0.0045 · r + 0.071) %			
	$\leq (0.0043 \cdot 1 + 0.071) \%$ $\leq (0.005 \cdot r + 0.05) \%$			
- 30 < r ≤ 100	3 (0.000 · 1 + 0.00) /0			
- 30 < r ≤ 100	3 (0.000 1 + 0.00) %		≤ 0,1 %	
	≤ 0.1 % ≤ 0.2 %		≤ 0,1 %	

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

SITRANS P, DS III for differential pressure and flow					
orribate 1, 20 iii for amoreman procedure and	HART	PROFIBUS PA and FOUNDATION Fieldbus			
Square-rooted characteristic		≤ 0.2			
(flow > 25 50 %)					
- r≤10	≤ 0.2 %				
- 10 < r ≤ 30	≤ 0.4 %				
Long-term drift (temperature change \pm 30 °C (\pm 5 4 °F))	≤ (0.25 · r)% every 5 years static pressure max. 70 bar g (1015 psi g)	≤ 0.25 % every 5 years static pressure max. 70 bar g (1015 psi g)			
• 20 mbar (0.29 psi)-measuring cell	≤ (0.2 · r) per year	≤ 0.2 per year			
 250, 600, 1600 and 5000 mbar (0.29, 0.87, 2.32 and 7.25 psi) -measuring cell 	≤ (0.125 · r) per year	≤ 0.125 per year			
Influence of ambient temperature					
• at -10 +60 °C (14 140 °F)	\leq (0.08 · r + 0.1) %	≤ 0.3 %			
• at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	\leq (0.1 · r + 0.15)%/10 K (Twice the value with 20-mbar (0.29 psi) measuring cell)	≤ 0.25 %/10 K			
Influence of static pressure					
on the zero point (PKN)	≤ (0.15 · r)% per 70 bar (1015 psi)	≤ 0.15 % per 70 bar (1015 psi)			
- 20 mbar (0.29 psi)-measuring cell	≤ (0.15 · r)% per 32 bar (464 psi)	≤ 0.15 % per 32 bar (464 psi)			
on the span (PKS)	≤ 0.2 % per 70 bar (1015 psi)	-			
- 20 mbar (0.29 psi)-measuring cell	≤ 0.2 % per 32 bar (464 psi)	-			
Measured Value Resolution	-	3 · 10 ⁻⁵ of nominal measuring range			
Rated conditions					
Degree of protection (to EN 60529)	IP	65			
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					
- Digital indicator	-30 +85 °C (-22 +185 °F)			
Storage temperature	-50 +85 °C (-58 +185 °F)			
Climatic class					
- Condensation		dity 0 100 %			
Electromagnetic Compatibility	Condensation permissible, s	suitable for use in the tropics			
Emitted interference and interference immunity	Acc. to EN 61326 a	and NAMUR NE 21			
Design					
Weight (without options)	≈ 4.5 ka ((≈ 9.9 (lb)			
Enclosure material	<u> </u>	tainless steel precision casting, mat. no. 1.4408			
Wetted parts materials	3.7. 3.7. 3.7.	,			
Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Hastelloy tantalum	y C276, mat. no. 2.4819, Monel, mat. no. 2.4360, n or gold			
Measuring cell filling		e with oxigen measurement pressure 120 bar a)			
Process connection		on with mounting thread M10 to DIN 19213 or to EN 61518			
Material of mounting bracket					
• Steel	Sheet-steel, Mat. No.	1.0330, chrome-plated			
• Stainless steel	Sheet stainless steel, m	nat. no. 1.4301 (SS 304)			
Power supply $m{U}_{ ext{H}}$		Supplied through bus			
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-			
Separate 24 V power supply necessary	-	No			
Bus voltage					
• Not Ex	-	9 32 V			
 With intrinsically-safe operation 	-	9 24 V			

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

SITRANS P, DS III for differential pressure and	d flow		
	HART	PROFIBUS PA and FOUNDATION Fieldbus	
Current consumption			
Basic current (max.)	-	12.5 mA	
 Start-up current ≤ basic current 	-	Yes	
Max. current in event of fault	-	15.5 mA	
Fault disconnection electronics (FDE) available	-	Yes	
Certificates and approvals			
Classification according to PED 97/23/EC			
PN 32/160 (MWP 464/2320 psi)		group 1; complies with requirements of article 3, engineering practice)	
PN 420 (MWP 6092 psi)	Article 3, paragraph 1 (appendix 1); assigned to	oup 1; complies with basic safety requirements of o category III, conformity evaluation module H by JV Nord.	
Explosion protection			
• Intrinsic safety "i"	PTB 99 /	ATEX 2122	
- Marking	Ex II 1/2 G EE	x ia/ib IIB/IIC T6	
- Permissible ambient temperature	-40 +70 °C (-40 +15	5 °F) temperature class T4; 8 °F) temperature class T5; :0 °F) temperature class T6	
- Connection	To certified intrinsically-safe circuits with peak values:	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$	
	$U_{\rm i} = 30 \text{ V}, I_{\rm i} = 100 \text{ mA}, P_{\rm i} = 750 \text{ mW}; R_{\rm i} = 300 \Omega$	Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$	
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4$ mH, $C_{\rm i} = 6$ nF	$L_{i} = 7 \mu H, C_{i} = 1.1 \text{ nF}$	
• Explosion-proof "d"	PTB 99 ATEX 1160		
- Marking	Ex II 1/2 G EEx d IIC T4/T6		
- Permissible ambient temperature	-40 +85 °C (-40 +18 -40 +60 °C (-40 +14	5 °F) temperature class T4; .0 °F) temperature class T6	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC	
Dust explosion protection for zone 20	PTB 01 /	ATEX 2055	
- Marking		°65 T 120 °C P65 T 120 °C	
- Permissible ambient temperature	-40 +85 °C	(-40 +185 °F)	
- Max. surface temperature	120 °C	(248 °F)	
- Connection	To certified intrinsically-safe circuits with peak values:	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$	
	$U_{\rm i} = 30 \text{ V, } I_{\rm i} = 100 \text{ mA,}$ $P_{\rm i} = 750 \text{ mW, } R_{\rm i} = 300 \Omega$	Linear barrier: $U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$	
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$	
• Dust explosion protection for zone 21/22	PTB 01 /	ATEX 2055	
- Marking	Ex II 2 D IF	P65 T 120 °C	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W	
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned	
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	-	
• Explosion protection acc. to FM	Certificate of Co	mpliance 3008490	
- Identification (XP/DIP) or (IS); (NI)		GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; T6; CL II, DIV 2, GP FG; CL III	
Explosion protection to CSA	Certificate of Co	mpliance 1153651	
- Identification (XP/DIP) or (IS)		FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD V 2, GP FG; CL III	

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

ior differential pressure al	nd now	
HART communication		FOUNDATION Fieldbus
HART communication	230 1100 Ω	
Protocol	HART Version 5.x	Function blocks
PROFIBUS PA communication		 Analog input
Simultaneous communication with master class 2 (max.)	4	 Adaptation to customer- specific process variables
The address can be set using	Configuration tool or local operation (standard setting address 126)	 Electrical damping T₆₃, adjustable
Cyclic data usage	add1000 120)	- Simulation function
Output byte	5 (one measured value) or 10 (two measured values)	- Failure mode
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)	- Limit monitoring
Internal preprocessing		
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B	- Square-rooted characteristi for flow measurement
Function blocks	2.	• PID
Analog input	2	 Physical block
Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic	Transducer blocks
- Electrical damping T ₆₃ , adjust-	0 100 s	Pressure transducer block
able	o 100 o	- Can be calibrated by apply
- Simulation function	Input /Output	two pressures
- Failure mode	parameterizable (last good value, substitute value, incorrect value)	Monitoring of sensor limitsSimulation function: Measu
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively	pressure value, sensor tem ature and electronics tempo ture
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	

Constant value or over parame-

terizable ramp function

- stic
- lying
- ured nperpera-

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Standard FF function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block

Yes

Yes

Constant value or over parameterizable ramp function

square-root extraction Simulation function for mea-

sor temperature

sured pressure value and sen-

SITRANS P DS III for differential pressure and flow

OITDANO P PO III	ring data		Ord				
SITRANS P DS III HA for differential press	ART pressure transmitter sure and flow.	S	7 M F 4 4 3 3 -				
PN 32/160 (MWP 46							
Measuring cell fillin	g Measuring cell clean- ing						
Silicone oil	normal	•	1				
Inert liquid ¹⁾	Grease-free		3				
Measuring span							
PN 32 (MWP 464 psi							
1 20 mbar ²⁾	(0.4015 8.03 inH ₂ O)	•	В				
PN 160 (MWP 2320 p	osi)						
1 60 mbar	(0.4015 24.09 inH ₂ C		С				
2,5 250 mbar	(1.004 100.4 inH ₂ O)		D				
6 600 mbar	(2.409 240.9 inH ₂ O)		E				
16 1600 mbar	(6.424 642.4 inH ₂ O)		F				
50 5000 mbar	(20.08 2008 inH ₂ O)		G				
0,3 30 bar	(4.35 435 psi)		Н				
Wetted parts materi							
(stainless steel proce	- ·	ı					
Seal diaphragm	Parts of measuring cel	I —					
Stainless steel	Stainless steel			Α			
Hastelloy	Stainless steel			В			
Hastelloy Tantalum ³⁾	Hastelloy			C			
Tantalum ^{o)} Monel ³⁾	Tantalum			E			
Monei ^{s)} Gold ³⁾	Monel			H			
Gold ⁵⁷ Version for diaphragr	Gold			L Y			
Process connection				•			
Mounting thread I (only for replacenVent on side of pro-	nent requirement) cess flange ²⁾ 7 _{/16} -20 UNF to EN 61518 M10 to DIN 19213			2 0 6 4			
•							
•							
process flange screv Stainless steel	vs Electronics housing Die-cast aluminum	•			2		
process flange screv Stainless steel	vs Electronics housing Die-cast aluminum Stainless steel precision	 on			2 3		
process flange screv Stainless steel Stainless steel	vs Electronics housing Die-cast aluminum	 ⊳n					
process flange screv Stainless steel Stainless steel Version	vs Electronics housing Die-cast aluminum Stainless steel precision	on					
process flange screv Stainless steel Stainless steel Version Standard versions	Die-cast aluminum Stainless steel precisio casting ⁶⁾					1 2	
process flange screv Stainless steel Stainless steel Version Standard versions	vs Electronics housing Die-cast aluminum Stainless steel precision casting (a) n, English label inscriptions					1 2	
process flange screv Stainless steel Stainless steel Version Standard versions International versio documentation in 5	Die-cast aluminum Stainless steel precisio casting ⁶) n, English label inscriptions languages on CD						
process flange screv Stainless steel Stainless steel Version • Standard versions • International versio documentation in 5 Explosion protectio	Die-cast aluminum Stainless steel precisio casting ⁶) n, English label inscriptions languages on CD						
process flange screv Stainless steel Stainless steel Version • Standard versions • International versio documentation in 5 Explosion protectio • None • With ATEX, Type of	Die-cast aluminum Stainless steel precisio casting ⁶) n, English label inscriptions languages on CD n protection:					2	
process flange screv Stainless steel Stainless steel Version • Standard versions • International versio documentation in 5 Explosion protectio • None • With ATEX, Type of - "Intrinsic safety (E	Die-cast aluminum Stainless steel precisio casting ⁶) n, English label inscriptions languages on CD protection: Ex ia)"					2 A B	
documentation in 5 Explosion protectio None With ATEX, Type of Intrinsic safety (E Explosion-proof (Die-cast aluminum Stainless steel precisio casting ⁶) n, English label inscriptions languages on CD protection: EEx ia)" EEx d)" ⁷)					2 A B D	
process flange screv Stainless steel Stainless steel Version Standard versions International versio documentation in 5 Explosion protectio None With ATEX, Type of "Intrinsic safety (E "Explosion-proof ("Intrinsic safety ar	Die-cast aluminum Stainless steel precisio casting ⁶) n, English label inscriptions languages on CD protection: Ex ia)" EEx d)" ⁷⁾ nd flameproof enclosure"					2 A B	
process flange screv Stainless steel Stainless steel Stainless steel Version Standard versions International versio documentation in 5 Explosion protectio None With ATEX, Type of "Intrinsic safety (E "Explosion-proof ("Intrinsic safety ar (EEx ia + EEx d)"	Die-cast aluminum Stainless steel precisio casting ⁶) n, English label inscriptions languages on CD protection: Ex ia)" EEx d)" ⁷⁾ nd flameproof enclosure"					A B D P	
process flange screv Stainless steel Stainless steel Stainless steel Version • Standard versions • International versio documentation in 5 Explosion protectio • None • With ATEX, Type of - "Intrinsic safety (E - "Explosion-proof (- "Intrinsic safety are (EEx ia + EEx d)" - "Ex nA/nL (Zone 2)	Die-cast aluminum Stainless steel precisio casting ⁶) n, English label inscriptions languages on CD protection: Ex ia)" EEx d)" ⁷⁾ nd flameproof enclosure" (2)"	S, >				A B D P	
process flange screv Stainless steel Stainless steel Version Standard versions International version documentation in 5 Explosion protectio None With ATEX, Type of Intrinsic safety (E Explosion-proof (Intrinsic safety at (EEx ia + EEx d) ""Ex nA/nL (Zone 2 "Intrinsic safety, e:	Die-cast aluminum Stainless steel precisio casting ⁶) n, English label inscriptions languages on CD protection: Ex ia)" EEx d)" ⁷⁾ nd flameproof enclosure"	S, >				A B D P	
process flange screv Stainless steel Stainless steel Stainless steel Version Standard versions International version documentation in 5 Explosion protectio None With ATEX, Type of "Intrinsic safety (E "Explosion-proof ("Intrinsic safety ar (Eex ia + EEx d)" "Ex nA/nL (Zone 2 "Intrinsic safety, or zone 1D/2D)" With FM + CSA, Tyl With FM + CSA, Tyl	Die-cast aluminum Stainless steel precisio casting ⁶) n, English label inscriptions languages on CD protection: Ex ia)" EEx d)" ⁷) nd flameproof enclosure" splosion-proof enclosure ar otection (EEx ia + EEx d +	s, ▶				A B D P	

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

Available ex stock

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

- Brief instructions (Leporello)
 CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- $^{2)}$ Not suitable for connection of remote seal. Position of the top vent valve in the process flange (see dimensional drawing).
- $^{3)}$ Not in conjunction with max. span 20 and 60 mbar (8.03 und 24.09 inH $_2$ O))
- 4) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 5) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- ⁶⁾ Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 7) Without cable gland, with blanking plug
- 8) With enclosed cable gland EEx ia and blanking plug
- 9) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- $^{\rm 10)} \mbox{Permissible}$ only for crimp-contact of conductor cross-section 1 \mbox{mm}^2
- ¹¹⁾M12 delivered without cable socket

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

ior differential pr	essure and now			
Selection and Ordering	g data	Orde	er No	· · · · · · · · · · · · · · · · · · ·
I	for differential pressure	0.00	,,,,,,	
SITRANS P DS III PA (I	• •	7 M F	44:	3.4 -
•	•			-
SITRANS P DS III FF (F	FOUNDATION Fieldbus)		44:	3 5 - -
Measuring cell filling	Measuring cell			
	cleaning			
Silicone oil	normal	1		
Inert liquid ¹⁾	Grease-free	3		
Nominal measuring ra	nge			
PN 32 (MWP 464 psi)				
20 mbar ²⁾	(8.03 inH ₂ O)	В		
PN 160 (MWP 2320 psi)				
60 mbar	(24.09 inH ₂ O)	С		
250 mbar	(100.4 inH ₂ O)	D		
600 mbar	(240.9 inH ₂ O)	E		
1600 mbar	(642.4 inH ₂ O)	F		
5 bar	(2008 inH ₂ O)	G		
30 bar	(435 psi)	Н		
Wetted parts materials				
(stainless steel process	flanges)			
Seal diaphragm	Parts of measuring cell			
Stainless steel	Stainless steel	A		
Hastelloy	Stainless steel	E	3	
Hastelloy	Hastelloy	C	;	
Tantalum 3)	Tantalum	E		
Monel ³⁾	Monel	H	1	
Gold ³⁾	Gold	L		
Version as diaphragm s	eal ⁴⁾⁵⁾	١		
Process connection				
Female thread 1/4-18 NP	T with flange connection			
 Sealing screw opposit 	te process connection			
 Mounting thread ⁷/₁₆ 	₃ -20 UNF to EN 61518		2	
 Mounting thread M1 			0	
(only for replacemen				
• Venting on side of pro	cess flanges ² /			
- Mounting thread ⁷ / ₁₆			6	
 Mounting thread M1 (only for replacement 			4	
Non-wetted parts mate	erials			
process flange screws	Electronics housing			
Stainless steel	Die-cast aluminum		2	
Stainless steel	Stainless steel precision casting		3	
Version				
 Standard versions 				1
 International version, I documentation in 5 la 	English label inscriptions, > nguages on CD			2
Explosion protection				
• None				Α
• With ATEX, Type of pro				
- "Intrinsic safety (EEx				В
- "Explosion-proof (EE	(x d)"b)			D
- "Intrinsic safety and	flameproof enclosure"			P
(EEx ia + EEx d)" ⁷⁾	•			
 "Ex nA/nL (Zone 2)" 				E
- "Intrinsic safety, expl	osion-proof enclosure and			R
aust explosion prote	ction (EEx ia + EEx d + for DS III FF)			
• With FM + CSA, Type				
	xplosion Proof (is + xp)"6)			NO
	1			NC

Selection and Ordering data	Order No.	
Pressure transmitters for differential pressure and flow PN 32/160 (MWP 464/2320 psi)		
SITRANS P DS III PA (PROFIBUS PA)	7 M F 4 4 3 4 -	
SITRANS P DS III FF (FOUNDATION Fieldbus)	7 M F 4 4 3 5 -	
Electrical connection / cable entry		
 Screwed gland M20 x 1.5 	В	
 Screwed gland ½-14 NPT 	С	
M12 connectors (metal) ⁸⁾	F	
Display		
Without indicator	0	
 Without visible digital indicator(digital indicator concealed, setting: mA) 	1	
 With visible digital indication 	6	
 With customer-specific digital indication (setting as specified, Order Code "Y21" required) 	7	

Available ex stock

- Brief instructions (Leporello)
 CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- ²⁾ Not suitable for connection of remote seal. Position of the top vent valve in the process flange (see dimensional drawing).
- $^{3)}$ Not in conjunction with max. span 20 and 60 mbar (8.03 und 24.09 inH $_2$ O))
- 4) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified
- 5) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 6) Without cable gland, with blanking plug.
- 7) With enclosed cable gland EEx ia and blanking plug.
- 8) M12 delivered without cable socket

SITRANS P DS III for differential pressure and flow

Selection and Ordering data	Order					
Further designs		HART	PA	FF		
Add "-Z" to Order No. and						
specify Order Code.						
Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates,						
1 angle) made of:						
• Steel	A01	✓	✓	✓		
Stainless steel	A02	✓	✓	✓		
O-rings for process flanges						
(instead of FPM (Viton)) • PTFE (Teflon)	A20	./	./	./		
• FEP (with silicone core, approved for food)	A21	1	V	<i>'</i>		
• FFPM (Kalrez, compound 4079)	A22	1	1	1		
• NBR (Buna N)	A23	1	✓	✓		
plug						
Han 7D (metal, gray)	A30	✓				
Han 8U (instead of Han 7D)	A31	V				
• Angled	A32 A33	√				
Han 8D (metal, gray)		*	,	,		
Sealing screws (2 unit(s) 1/4-18 NPT, with valve in mat. of process	A40	V	•	•		
flanges						
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓		
Rating plate inscription						
(instead of German)						
• English	B11	V	V	✓,		
FrenchSpanish	B12 B13	1	√	1		
• Italian	B14	1	*	· /		
English rating plate	B21	1	1	1		
Pressure units in inH ₂ O and/or psi						
Quality inspection certificate (factory calibration) to IEC 60770-2 ¹⁾	C11	✓	1	✓		
Inspection certificate ²⁾ to EN 10204-3.1	C12	✓	✓	1		
Factory certificate to EN 10204-2.2	C14	1	1	1		
"Functional safety (SIL2)" certificate	C20	1				
PROFIsafe certificate and protocol	C21		1			
"Functional safety (SIL2/3)" certificate	C23	1				
Setting of upper limit of	D05	1				
output signal to 22.0 mA						
Manufacturer's declaration acc. to NACE	D07	✓	✓	✓		
(only together with seal diaphragm made of Hastelloy and stainless steel)						
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓		
Process flange screws made of Monel (max. nominal pressure PN20)	D34	✓	✓	✓		
Supplied with oval flange set (2 items), PTFE packings and screws in thread of process flanges	D37	✓	✓	✓		
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	✓	✓	✓		
TÜV approval to AD/TRD (only together with type of protection "Intrinsic safety (EEx ia)")	E06	1				

Selection and Ordering data	Order	code			
Further designs		HART	PA	FF	
Add "-Z" to Order No. and specify Order Code.					
Overfilling safety device for flammable and non-flammable liquids	E08	✓	✓	✓	
(max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)", to WHG and VbF, not together with measuring cell filling "inert liquid")					
Oxygen application	E10	✓	✓	✓	
(In the case of oxygen measurement and inert liquid max. 120 bar a (1740 psi a) at 60°C (140 °F))					
Explosion-proof "Intrinsic safety" to INMETRO (Brazil)	E25	✓	✓	✓	
(only for transmitter 7MF4					
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)	E45	✓	✓	✓	
Ex Approval IEC Ex (EEx id)	E46	1	1	1	
(only for transmitter 7MF4D)					
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	✓	✓	✓	
(only for transmitter 7MF4B)					
Explosion protection "Explosion-proof" to NEPSI (China)	E56	✓	✓	✓	
(only for transmitter 7MF4)					
Explosion-proof "Zone 2" to NEPSI (China)	E57	✓	✓	✓	
(only for transmitter 7MF4E)					
Two coats of lacquer on casing 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) ³⁾	H03	✓	✓	✓	
Process flange					
Hastelloy	K01	1	1	1	
• Monel	K02	✓	✓	1	
 Stainless steel with PVDF insert max. PN 10 (MWP 145 psi), max. temperature of medium 90 °C (194 °F) 	K04	√	✓	✓	

Factory mounting of valve manifolds, see accessories.

Supplementary electronics for 4-wire connection, see accessories.

- ✓ = available
- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the <u>total</u> combination is certified here.
- 2) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 3) Not suitable for connection of remote seal

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Ordering data	Order	code		
Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text.		HART	PA	FF
Measuring range to be set				
Specify in plain text: • in the case of linear characteristic curve (max. 5 characters):	Y01	✓		
Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters):	Y02	✓		
Y02: up to mbar, bar, kPa, MPa, psi				
Stainless steel tag plate (measuring point description)	Y15	✓	✓	✓
Max. 16 char., specify in plain text: Y15:				
Measuring point text Max. 27 char., specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG)	Y17	✓		
Max. 8 char., specify in plain text: Y17:				
Setting of pressure indicator in	Y21	✓	✓	✓
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 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 indicator in non-pressure units ¹⁾ Specify in plain text: Y22: up to //min, m ³ /h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters)	Y22 2) ₊ Y01 Or Y02			
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	

Factory mounting of valve manifolds, see accessories.

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

✓ = available

¹⁾ Preset values can only be changed over SIMATIC PDM.

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

SITRANS P DS III for differential pressure and flow

Selection and Orderin	-)rde	_	_			
	RT pressure transmitters	7	M F	: 4	5 3	3 3	-	
for differential pressu PN 420 (MWP 6092 ps		٠	н	H			٠	Н
Measuring cell filling	Measuring cell cleaning	Ī						
Silicone oil	normal	1						
Measuring span								
2.5 250 mbar	(1.004 100.4 inH ₂ O)		D					
6 600 mbar	(2.409 240.9 inH ₂ O)		Е					
16 1600 mbar	(6.424 642.4 inH ₂ O)		F					
50 5000 mbar	(20.08 2008 inH ₂ O)		G					
0.3 30 bar	(4.35 435 psi)		Н					
Wetted parts materials								
(stainless steel process								
Seal diaphragm	Parts of measuring cell							
Stainless steel	Stainless steel		F	٨				
Hastelloy	Stainless steel		E	3				
Gold ¹⁾	Gold		L					
Connection of remote s	eal possible on request							
Process connection								
	T with flange connection							
 Sealing screw opposi 								
	₆ -20 UNF to EN 61518	-		3				
- Mounting thread M1	2 to DIN 19213			1				
(only for replacement	'							
 Venting on side of pro 	ocess flanges, location of							
	ocess flanges (see dimen-							
sional drawing)	00 LINE to EN 01510			١,				
 Mounting thread 1/1/1 Mounting thread M1 	6-20 UNF to EN 61518			7 5				
(only for replacement				٦				
Non-wetted parts mate		-						
process flange screws								
Stainless steel	Die-cast aluminum				2			
Stainless steel					3			
Stall liess steel	Stainless steel precision casting ²⁾				3			
Version		-						
Standard versions						1		
	English label inscriptions,					2		
documentation in 5 la						-		
Explosion protection		-						
None							Α	
 With ATEX, Type of pr 	otection:						^	
- "Intrinsic safety (EE)							В	
- "Explosion-proof (EE								
	•						D P	
(EEx ia + EEx d)" ⁴⁾	flameproof enclosure"						_	
- "Ex nA/nL (Zone 2)"							Е	
	losion-proof enclosure and						R	
dust explosion prote	ection (EEx ia+ EEx d +							
Zone 1D/2D)"4)								
 With FM + CSA, Type 								
- "Intrinsic safety and	explosion-proof						N C	;
(is + xp)" 3), max PN		_						
Electrical connection	_;							
 Screwed gland Pg 13 							Α	
 Screwed gland M20x 							В	
 Corouged aland 1/- 1/1 	NPI						С	
 Screwed gland ½-14 Han 7D plug (plastic languages) 							D)
	housing) incl. mating						D F	

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

Available ex stock

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

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

- 1) Not in conjunction with max. span 600 mbar (240.9 inH₂O)
- 2) Not in conjunction with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 3) Without cable gland, with blanking plug
- 4) With enclosed cable gland EEx ia and blanking plug
- 5) Not in conjunction with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- $^{6)}_{-\!-\!-}$ Permissible only for crimp-contact of conductor cross-section 1 mm^2
- 7) M12 delivered without cable socket

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Selection and Orderin	g data	Ord	er N	١٥.		
Pressure transmitters and flow, PN 420 (MW	for differential pressure P 6092 psi)					
SITRANS P DS III PA (PROFIBUS PA)	7 M I	= 4	5 3	4 -	
SITRANS P DS III FF (I	FOUNDATION Fieldbus)	7 M I	= 4	53	5 -	
N!			Н			
Nominal measuring ra 250 mbar	(100.4 inH ₂ O)	D				
600 mbar	(240.9 inH ₂ O)	E				
1600 mbar	(642.4 inH ₂ O)	F				
5 bar	(2008 inH ₂ O)	G				
30 bar	(435 psi)	Н				
Wetted parts materials						
(stainless steel process						
Seal diaphragm	Parts of measuring cell					
Stainless steel	Stainless steel		4			
Hastelloy	Stainless steel	ı	3			
Gold 1)	Gold					
Connection of remote s	eal possible on request					
Process connection						
Female thread 1/4-18 NF	T with flange connection					
 Sealing screw opposit 						
	₃ -20 UNF to EN 61518		3			
- Mounting thread M1			1			
(only for replacemen						
	cess flanges, location of ocess flanges (see dimen-					
sional drawing).	occss hanges (see dimen-					
	₃ -20 UNF to EN 61518		7			
- Mounting thread M1	-		5			
(only for replacemen						
Non-wetted parts mate	erials					
Process flange screws	Electronics housing					
Stainless steel	Die-cast aluminum			2		
Stainless steel	Stainless steel precision			3		
	casting					
Version						
 Standard versions 					1	
	English label inscriptions,				2	
documentation in 5 la	nguages on CD					
Explosion protection						
None None None	otootion.				4	١
 With ATEX, Type of pre- "Intrinsic safety (EEx 	otection.				E	,
- "Explosion-proof (EE						
	flameproof enclosure"				Ē	
(EEx ia + EEx d)"3)	namepreer energeare					
- "Ex nA/nL (Zone 2)"					E	
- "Intrinsic safety, expl	osion-proof enclosure and				F	1
dust explosion prote	ection (EEx ia + EEx d + for DS III FF)					
• With FM + CSA, Type						
- "Intrinsic safety and	·				N	ıc
(is + xp) ²⁾ , max PN	360				ľ	. •
Electrical connection						
 Screwed gland M20 x 	•					В
• Screwed gland ½-14						C
• M12 connectors (meta	*)					F
· IVITZ COTITIECTORS (MET	ai) '					

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

Available ex stock

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

for differential pressure and flow

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and				
specify Order Code.				
Pressure transmitter with mounting bracket (2 shackles, 4 nuts, 4 U-plates, 1 angle) made of:				
• Steel	A01	1	1	1
Stainless steel	A02	✓	✓	✓
O-rings for process flanges (instead of FPM (Viton)) • PTFE (Teflon) • FEP (with silicone core, approved for food) • FFPM (Kalrez, compound 4079) • NBR (Buna N)	A20 A21 A22 A23	* * * * * * * * * * * * * * * * * * *	V V V	* * * * *
PlugHan 7D (metal, gray)Han 8U (instead of Han 7D)AngledHan 8D (metal, gray)	A30 A31 A32 A33	* * * * * * * * * * * * * * * * * * *	,	
Sealing screws (2 unit(s) 1/4-18 NPT, with valve in mat. of process flanges	A40	✓	~	√
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription (instead of German)				
• English	B11	✓	✓	✓
• French	B12	✓	✓	✓
Spanish	B13	✓	✓	1
• Italian	B14	✓	✓	✓
English rating plate	B21	✓	✓	✓
Pressure units in inH ₂ O and/or psi				
Quality inspection certificate (factory calibration) to IEC 60770-2	C11	✓	✓	✓
Inspection certificate Acc. to EN 10204-3.1	C12	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓
"Functional safety (SIL2)" certificate	C20	1		
PROFIsafe certificate and protocol	C21		1	
"Functional safety (SIL2/3)" certificate	C23	1		
Setting of upper limit of	D05	1		
output signal to 22.0 mA	200			
Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)	D07	✓	✓	✓
Degree of protection IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
Use in or on zone 1D/2D	E01	1	✓	✓
(only together with type of protection "Intrinsic safety (EEx ia)")			,	1
"Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil)	E25	✓	•	Ů
"Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety"	E25	✓	√	·

Selection and Ordering data Further designs Add "-Z" to Order No. and specify Order Code. Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4					
Add '-Z' to Order No. and specify Order Code. Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E) Two coats of lacquer on casing and cover (PU on epoxy) Interchanging of process connection side Stainless steel process flanges for vertical differential pressure lines Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text. • in the case of linear characteristic curve (max. 5 characters): vol	Selection and Ordering data	Order			
Specify Order Code. Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E) Two coats of lacquer on casing and cover (PU on epoxy) Interchanging of process connection side Stainless steel process flanges for vertical differential pressure lines Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text. Measuring range to be set Specify in plain text: in the case of square rooted characteristic curve (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:			HART	PA	FF
to NEPSI (China) (only for transmitter 7MF4B.) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4B.) Interchanging of process connection side (PU on epoxy) Interchanging of process connection side (PU on epoxy) Interchanging of process connection side (PU on epoxy) Interchanging of pressure lines Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text. Hease of linear characteristic curve (max. 5 characters): (Y01					
NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57	to NEPSI (China)	E55	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E) Two coats of lacquer on casing and cover (PU on epoxy) Interchanging of process connection side Stainless steel process flanges for vertical differential pressure lines Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text. Measuring range to be set Specify in plain text: • in the case of linear characteristic curve (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y16:	NEPSI (China)	E56	✓	✓	✓
(only for transmitter 7MF4E) Two coats of lacquer on casing and cover (PU on epoxy) Interchanging of process connection side Stainless steel process flanges for vertical differential pressure lines Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text. Measuring range to be set Specify in plain text: • in the case of linear characteristic curve (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15: Mesauring point text Max. 27 characters, specify in plain text: Y16: Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17: Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H ₂ O ¹ , inH ₂ O ¹ , inH ₂ O ¹ , mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², forr, ATM or % 1) ref. temperature 20 °C Setting of pressure indication in non-pressure units ') Specify in plain text: Y22: up to //min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:				,	,
Interchanging of process connection side H01		E57	•	V	•
Stainless steel process flanges for vertical differential pressure lines Additional data Please add *-Z* to Order No. and specify Order code(s) and plain text. Measuring range to be set Specify in plain text: • in the case of linear characteristic curve (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:		G10	✓	✓	✓
## Additional data Please add "-Z" to Order No. and specify Order code(s) and plain text. ## Measuring range to be set Specify in plain text: • in the case of linear characteristic curve (max. 5 characters): • Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): • Y02: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): • Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: • Y15: ## Measuring point text ## Max. 27 characters, specify in plain text: • Y16: ## Entry of HART address (TAG) ## Max. 8 characters, specify in plain text: • Y17: Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): • Y21: mbar, bar, kPa, MPa, psi, Note: Note: Note: Note: *# V21	Interchanging of process connection side	H01	✓	1	✓
Please add "-Z" to Order No. and specify Order code(s) and plain text. Measuring range to be set Specify in plain text: • in the case of linear characteristic curve (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15: Measuring point text Max. 27 characters, specify in plain text: Y16: Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H ₂ O ¹ , inH ₂ O ¹ , ftH ₂ O ¹ , mHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C Setting of pressure indication in non-pressure units¹ Specify in plain text: Y22: up to //min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:		H03	✓	✓	✓
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 • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:	Additional data				
Specify in plain text: • in the case of linear characteristic curve (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:					
 • in the case of linear characteristic curve (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:					
(max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi • in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:		V01	.,		
• in the case of square rooted characteristic (max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:		101	,		
(max. 5 characters): Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:	· · · · · · · · · · · · · · · · · · ·	V00	,		
Y02: up to mbar, bar, kPa, MPa, psi Stainless steel tag plate (measuring point description) Max. 16 characters, specify in plain text: Y15:		Y02	•		
(measuring point description) Max. 16 characters, specify in plain text: Y15: Measuring point text Max. 27 characters, specify in plain text: Y16: Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17: Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H₂O³¹, inH₂O³¹, ftH₂O³¹, mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C Setting of pressure indication in non-pressure units¹¹) Specify in plain text: Y22: up tol/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:					
Max. 16 characters, specify in plain text: Y15:		Y15	✓	✓	✓
Max. 27 characters, specify in plain text: Y16:	Max. 16 characters, specify in plain text:				
Max. 27 characters, specify in plain text: Y16:	Measuring point text	Y16	1	1	1
Max. 8 characters, specify in plain text: Y17:	Max. 27 characters, specify in plain text:				
Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H 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 1) Specify in plain text: Y22: up to l/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Entry of HART address (TAG)	Y17	1		
units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H₂0⁻¹, inH₂0⁻¹, ftH₂0⁻¹, mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *¹) ref. temperature 20 °C Setting of pressure indication in non-pressure units¹¹) Specify in plain text: Y22: up to l/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Max. 8 characters, specify in plain text: Y17:				
Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H₂O¹), inH₂O¹, ftH₂O¹, mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C Setting of pressure indication in non-pressure units¹) Specify in plain text: Y22: up to l/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:		Y21	✓	✓	✓
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/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C Setting of pressure indication in non-pressure units¹) Specify in plain text: Y22:	Y21: mbar, bar, kPa, MPa, psi,				
mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C Setting of pressure indication in non-pressure units¹) Specify in plain text: Y22: up to l/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:					
*) ref. temperature 20 °C Setting of pressure indication in non-pressure units 1) Specify in plain text: Y22: up to /min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:	mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² ,				
non-pressure units¹) Specify in plain text: Y22: up to /min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:					
Specify in plain text: Y22: up to l/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Setting of pressure indication in		✓		
Y22: up to l/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters) Preset bus address possible between 1 and 126 Specify in plain text: Y25:					
possible between 1 and 126 Specify in plain text: Y25:	Y22: up to I/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with				
Specify in plain text: Y25:	Preset bus address	Y25		✓	
	Specify in plain text:				
		accorios			

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

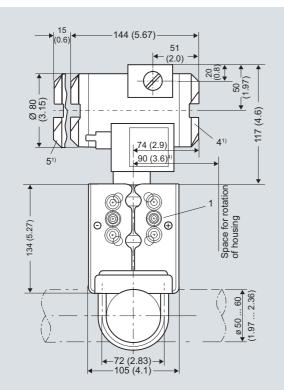
^{✓ =} available

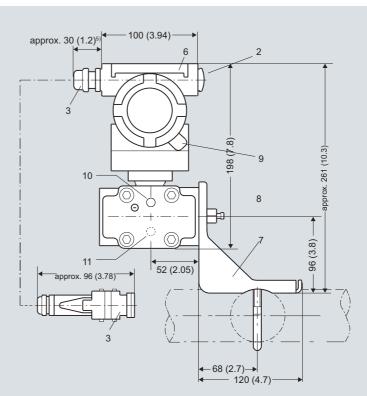
¹⁾ Preset values can only be changed over SIMATIC PDM.

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow

Dimensional drawings





- Process connection: 1/4-18 NPT (EN 61518)
- Blanking plug
- Electrical connection:
 - Screwed gland Pg 13,5 (adapter) $^{\!\!2)\,3)}\!,$ only DS III HART,
 - Screwed gland M20x1,5 3
 - Screwed gland 1/2-14 NPT,
 - Han 7D/Han $8D^{2)\,3)}$ plug, only DS III HART, or
 - M12 connector
- Terminal side
- Electronics side, digital display (longer overall length for cover with window)
- Protective cover over keys
- Mounting bracket (option)
- Sealing screw with valve (option)
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)

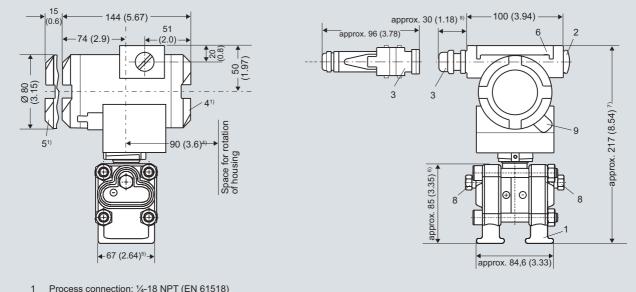
 10 Lateral venting for liquid measurement (Standard)
- 11 Lateral venting for gas measurement (suffix H02)

- 1) Allow approx. 20 mm (0.79 inch) thread length to permit
- Not with type of protection "explosion-proof enclosure"
- 3) Not with type of protection "FM + CSA [is + xp]"
- 92 mm (3.62 inch) for minimum distance to permit rotation with indicator
- 5) 45 mm (1.8 inch) for Pg 13,5 with adapter

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

Transmitters for general requirements

SITRANS P DS III for differential pressure and flow



- Process connection: 1/4-18 NPT (EN 61518)
- 2 Blanking plug
- Electrical connection:
 - Screwed gland Pg 13,5 (adapter)2)3), only DS III HART,
 - Screwed gland M20x1,5 3),
 - Screwed gland 1/2-14 NPT,
 - Han 7D/Han $8D^{2)\,3)}$ plug, only DS III HART, or
 - M12 connector
- Terminal side
- Electronics side, digital display (longer overall length for cover with window)
- Protective cover over keys
- Mounting bracket (option)
- Sealing screw with valve (option)
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)

- Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "explosion-proof enclosure"
- 3) Not with type of protection "FM + CSA [is + xp]"
- 92 mm (3.6 inch) for minimum distance to permit rotation with indicator
- 74 mm (2.9 inch) for PN \leq 420 (MWP \leq 6092 psi)
- 91 mm (3.6 inch) for PN ≤ 420 (MWP ≤ 6092 psi)
- 219 mm (8.62 inch) for PN \leq 420 (MWP \leq 6092 psi)
- 45 mm (1.8 inch) for Pg 13,5 with adapter

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



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

Technical specifications

SITRANS P DS III for level				
STITIANS F DS III IOI IEVEI	HART		PROFIBUS PA or FOU	NDATION Fieldbus
Input				
Measured variable		Le	evel	
Spans (infinitely adjustable) or nominal measuring range and max. permissible operating pressure	Span	Maximum operating pressure	Nominal measuring range	Maximum operating pressure
	25 250 mbar (0.36 3.63 psi)	See "Mounting flange"	250 mbar (3.63 psi)	See "Mounting flange
	25 600 mbar (0.36 8.7 psi)	See "Mounting flange"	600 mbar (8.7 psi)	See "Mounting flange
	53 1600 mbar (0.77 23.2 psi)	See "Mounting flange"	1600 mbar (23.2 psi)	See "Mounting flange
	160 5000 mbar (2.32 72.5 psi)	See "Mounting flange"	5000 mbar (72.5 psi)	See "Mounting flange
Lower measuring limit				
 Measuring cell with silicone oil filling 	-100 % of max	x. span or 30 mbar (0.43	5 psi a), depending on m	nounting flange
Upper measuring limit	100 % of max. span		100 % of the max. nom	inal measuring range
Output				
Output signal	4 20 mA		Digital PROFIBUS PA a FOUNDATION Fieldbus	
 Lower limit (infinitely adjustable) 	3.55 mA, factory preset	to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory preset to set to 22.0 mA	20.5 mA or optionally	-	
Load				
Without HART communication	$R_B \le (U_H - 10.5 \text{ V})/0.02$ U_H : Power supply in V	3 A in Ω,	-	
With HART communication	$R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (HA		-	
Physical bus	-		IEC 61158-2	
Protection against polarity reversal	Protected against short	-circuit and polarity rever supply	rsal. Each connection ag voltage.	ainst the other with ma
Measuring accuracy		Acc. to E	N 60770-1	
Reference conditions (All error data refer always refer to the set span)		c, start-of-scale value 0 k nperature 25 °C (77 °F))		
Error in measurement and fixed-point setting (including hysteresis and repeatability)				
Linear characteristic				
			≤ 0.15 %	
- r≤10	≤ 0.15 %		≤ 0.15 %	
- r ≤ 10 - 10 < r ≤ 30	≤ 0.15 % ≤ 0.3 %		≤ 0.15 %	
			≤ 0.15 %	
- 10 < r ≤ 30 - 30 < r ≤ 100 Long-term drift (temperature change ± 30 °C (± 54 °F))	≤ 0.3 %	ars	≤ 0.15 % ≤ 0.25 % every 5 years static pressure max. 70	bar g (1015 psi g)
- 10 < r ≤ 30 - 30 < r ≤ 100 Long-term drift (temperature change ± 30 °C (± 54 °F)) Influence of ambient temperature	$\leq 0.3 \%$ $\leq (0.0075 \cdot r + 0.075) \%$ $\leq (0.25 \cdot r)\%$ every 5 years	ars	≤ 0.25 % every 5 years	bar g (1015 psi g)
- 10 < r ≤ 30 - 30 < r ≤ 100 Long-term drift (temperature change ± 30 °C (± 54 °F)) Influence of ambient temperature • at -10 +60 °C (14 140 °F)	\leq 0.3 % \leq (0.0075 · r + 0.075) % \leq (0.25 · r)% every 5 yes static pressure max. 70	ars	≤ 0.25 % every 5 years static pressure max. 70	bar g (1015 psi g)
- 10 < r ≤ 30 - 30 < r ≤ 100 Long-term drift (temperature change ± 30 °C (± 54 °F)) Influence of ambient temperature • at -10 +60 °C (14 140 °F) - 250-mbar (3.63 psi) measuring cell	\leq 0.3 % \leq (0.0075 · r + 0.075) % \leq (0.25 · r)% every 5 yes static pressure max. 70 \leq (0.5 · r + 0.2) % (0.4 in place of 0.2 at 10	ars bar g (1015 psi g)	≤ 0.25 % every 5 years static pressure max. 70	bar g (1015 psi g)
- 10 < r ≤ 30 - 30 < r ≤ 100 Long-term drift (temperature change ± 30 °C (± 54 °F)) Influence of ambient temperature • at -10 +60 °C (14 140 °F) - 250-mbar (3.63 psi) measuring cell - 600-mbar (8.7 psi) measuring cell	\leq 0.3 % \leq (0.0075 · r + 0.075) % \leq (0.25 · r)% every 5 yes static pressure max. 70 \leq (0.5 · r + 0.2) % (0.4 in place of 0.2 at 10 \leq (0.3 · r + 0.2) % (0.4 in place of 0.2 at 10 \leq (0.4 in place of 0.2 at 10 \leq 0.4 in place of 0.2 at 10 \leq (0.4 in place of 0.2 at 10 \leq (0.4 in place of 0.2 at 10 \leq 0.3 · r + 0.2) %	ars barg (1015 psig) 0 < r ≤ 30) 0 < r ≤ 30)	≤ 0.25 % every 5 years static pressure max. 70 ≤ 0.7 % ≤ 0.5 %	bar g (1015 psi g)
- 10 < r ≤ 30 - 30 < r ≤ 100 Long-term drift (temperature change ± 30 °C (± 54 °F)) Influence of ambient temperature • at -10 +60 °C (14 140 °F) - 250-mbar (3.63 psi) measuring cell - 600-mbar (8.7 psi) measuring cell - 1600 and 5000 mbar (23.2 and 72.5 psi) measuring cells	\leq 0.3 % \leq (0.0075 · r + 0.075) % \leq (0.25 · r)% every 5 yes static pressure max. 70 \leq (0.5 · r + 0.2) % (0.4 in place of 0.2 at 10 \leq (0.3 · r + 0.2) %	ars barg (1015 psig) 0 < r ≤ 30) 0 < r ≤ 30)	≤ 0.25 % every 5 years static pressure max. 70	bar g (1015 psi g)
- 10 < r ≤ 30 - 30 < r ≤ 100 Long-term drift (temperature change ± 30 °C (± 54 °F)) Influence of ambient temperature • at -10 +60 °C (14 140 °F) - 250-mbar (3.63 psi) measuring cell - 600-mbar (8.7 psi) measuring cell - 1600 and 5000 mbar (23.2 and 72.5 psi)	\leq 0.3 % \leq (0.0075 · r + 0.075) % \leq (0.25 · r)% every 5 yes static pressure max. 70 \leq (0.5 · r + 0.2) % (0.4 in place of 0.2 at 10 \leq (0.3 · r + 0.2) % (0.4 in place of 0.2 at 10 \leq (0.25 · r + 0.2) % (0.4	ars barg (1015 psig) 0 < r ≤ 30) 0 < r ≤ 30)	≤ 0.25 % every 5 years static pressure max. 70 ≤ 0.7 % ≤ 0.5 %	bar g (1015 psi g)
- 10 < r ≤ 30 - 30 < r ≤ 100 Long-term drift (temperature change ± 30 °C (± 54 °F)) Influence of ambient temperature • at -10 +60 °C (14 140 °F) - 250-mbar (3.63 psi) measuring cell - 600-mbar (8.7 psi) measuring cell - 1600 and 5000 mbar (23.2 and 72.5 psi) measuring cells • at -4010 °C and 60 85 °C	\leq 0.3 % \leq (0.0075 · r + 0.075) % \leq (0.25 · r)% every 5 yes static pressure max. 70 \leq (0.5 · r + 0.2) % (0.4 in place of 0.2 at 10 \leq (0.3 · r + 0.2) % (0.4 in place of 0.2 at 10 \leq (0.25 · r + 0.2) % (0.4	ars bar g (1015 psi g) 0 < r ≤ 30) 0 < r ≤ 30) in place of 0.2 at	≤ 0.25 % every 5 years static pressure max. 70 ≤ 0.7 % ≤ 0.5 %	bar g (1015 psi g)
- 10 < r ≤ 30 - 30 < r ≤ 100 Long-term drift (temperature change ± 30 °C (± 54 °F)) Influence of ambient temperature • at -10 +60 °C (14 140 °F) - 250-mbar (3.63 psi) measuring cell - 600-mbar (8.7 psi) measuring cell - 1600 and 5000 mbar (23.2 and 72.5 psi) measuring cells • at -4010 °C and 60 85 °C (-40 +14 °F and 140 185 °F)	\leq 0.3 % \leq (0.0075 · r + 0.075) % \leq (0.25 · r)% every 5 yes static pressure max. 70 \leq (0.5 · r + 0.2) % (0.4 in place of 0.2 at 10 \leq (0.3 · r + 0.2) % (0.4 in place of 0.2 at 10 \leq (0.25 · r + 0.2) % (0.4 10 $<$ r \leq 30)	ars bar g (1015 psi g) 0 < r ≤ 30) 0 < r ≤ 30) in place of 0.2 at K r ≤ 30 K	≤ 0.25 % every 5 years static pressure max. 70 ≤ 0.7 % ≤ 0.5 % ≤ 0.45 %	bar g (1015 psi g)

SITRANS P DS III for level		
	HART	PROFIBUS PA or FOUNDATION Fieldbus
Influence of static pressure		
on the zero point		
- 250-mbar (3.63 psi) measuring cell	\leq (0.3 · r) % per nominal pressure	≤ 0.3 % per nominal pressure
- 600-mbar (8.7 psi) measuring cell	\leq (0.15 · r) % per nominal pressure	≤ 0.15 % per nominal pressure
 1600 and 5000 mbar (23.2 and 72.5 psi) measuring cells 	\leq (0.1 · r) % per nominal pressure	≤ 0.1 % per nominal pressure
• on the span	≤ (0.1 · r) % per nominal pressure	≤ 0.1 % per nominal pressure
Measured Value Resolution	-	3 · 10 ⁻⁵ of nominal measuring range
Rated conditions		
Degree of protection (to EN 60529)	IF	P65
Temperature of medium		max. permissible operating temperature to max. f the respective flange connection!
Measuring cell with silicone oil filling	-40 +100 °C	(-40 +212 °F)
- High-pressure side	p _{abs} ≥ 1 bar: -40 +	175 °C (-40 +347 °F)
	p _{abs} < 1 bar: -40 +	-80 °C (-40 +176 °F)
- Low-pressure side		(-40 +212 °F)
	-20 +60 °C (-4 +140 °F) in conj	unction with dust explosion protection
Ambient conditions		
Ambient temperature		
- Digital indicator	-30 +85 °C	(-22 +185 °F)
Storage temperature	-50 +85 °C	(-58 +185 °F)
Climatic class		
- Condensation		idity 0 100 % suitable for use in the tropics
Electromagnetic Compatibility		
- Emitted interference and interference immunity	Acc. to EN 61326	and NAMUR NE 21
Design		
Weight (without options)		
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 (<i>i</i>	≈ 24.2 39.7 lb)
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or s	stainless steel precision casting, mat. no. 1.4408
Wetted parts materials		
High-pressure side		
Seal diaphragm of mounting flange	Stainless steel, mat. no. 1.4404/316L, Monel, matelloy C276, mat. no. 2.4819, Hastelloy C	at. no. 2.4360, Hastelloy B2, mat. no. 2.4617, Ha: 4, mat. no. 2.4610, tantalum, PTFE, ETCFE
Measuring cell filling	Silico	one oil
Process connection		
High-pressure side	Flange to E	N and ASME
• Low-pressure side		tion with mounting thread M10 to DIN 19213 or Eto EN 61518
Power supply $m{\textit{U}}_{H}$		Supplied through bus
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-
Separate 24 V power supply necessary	-	No
Bus voltage		
• Not Ex	-	9 32 V
With intrinsically-safe operation	-	9 24 V
Current consumption		
Basic current (max.)	-	12.5 mA
• Start-up current ≤ basic current	-	Yes
Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	_	Yes
. adit disconficion cicononics (i DE) available		

SITRANS P DS III for level		
	HART	PROFIBUS PA or FOUNDATION Fieldbus
Certificates and approvals		
Classification according to PED 97/23/EC		group 1; complies with requirements of article 3, engineering practice)
Explosion protection		
• Intrinsic safety "i"	PTB 99 A	TEX 2122
- Marking	Ex II 1/2 G EEx	(ia/ib IIB/IIC T6
- Permissible ambient temperature	-40 +70 °C (-40 +158	5 °F) temperature class T4; 3 °F) temperature class T5; 0 °F) temperature class T6
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i} = 30 \text{ V}, I_{\rm i} = 100 \text{ mA}, P_{\rm i} = 750 \text{ mW}; P_{\rm i} = 300 \Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}, I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$ Linear barrier:
Effective internal industry of a presitor of		$U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 \rm mH, C_{\rm i} = 6 \rm nF$	$L_i = 7 \mu H, C_i = 1.1 nF$ TEX 1160
Explosion-proof "d" Marking:		
- Marking		Ex d IIC T4/T6
- Permissible ambient temperature	-40 +60 °C (-40 +140	5 °F) temperature class T4; 0 °F) temperature class T6
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{H} = 9 \dots 32 \text{ V DC}$
 Dust explosion protection for zone 20 	PTB 01 A	TEX 2055
- Marking		65 T 120 °C P65 T 120 °C
- Permissible ambient temperature	-40 +85 °C ((-40 +185 °F)
- Max. surface temperature	120 °C	(248 °F)
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW, $P_{\rm i}$ = 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	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_{\rm i} = 7 \mu \text{H}, C_{\rm i} = 1.1 \text{nF}$
• Dust explosion protection for zone 21/22	PTB 01 A	TEX 2055
- Marking	Ex II 2 D IP	65 T 120 °C
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1.2 W
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	TÜV 01 ATEX 1696 X
- Marking	Ex II 3 G EEx nA L IIC T4/T5/T6	Ex II 3 G EEx nA L IIC T4/T5/T6
• Explosion protection acc. to FM	Certificate of Cor	npliance 3008490
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, G CL I, DIV 2, GP ABCD T4T	GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; 6; CL II, DIV 2, GP FG; CL III
• Explosion protection to CSA	Certificate of Cor	npliance 1153651
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP EF T4T6; CL II, DIV	FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD V 2, GP FG; CL III

HART communication	
HART communication	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measured value) or 10 (two measured values)
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
Analog input	
 Adaptation to customer-specific process variables 	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 100 s
- Simulation function	Input/Output
- Failure mode	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively
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 parameterizable ramp function

	ioi ieve
FOUNDATION Fieldbus communication	
Function blocks	3 function blocks analog input, 1 function block PID
Analog input	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively
- Square-rooted characteristic for flow measurement	Yes
• PID	Standard FF function block
Physical block	1 resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
Pressure transducer block	
- Can be calibrated by applying two pressures	Yes
- Monitoring of sensor limits	Yes
- Simulation function: Measured pressure value, sensor temperature and electronics temperature	Constant value or over parameterizable ramp function
Mounting flange	
Nominal diameter	Nominal pressure
• Acc. to EN 1092-1	
- DN 80	PN 40
DNI100	DN16 DN40

- DN100 • To ASME B16.5

- 3 inch

- 4 inch

PN16, PN40

Class 150, class 300 Class 150, class 300

Transmitters for general requirements

SITRANS P DS III for level

Selection and Orderin	g data	Orde					
Pressure transmitter f SITRANS P DS III HAF		7 M F			Ť		
SITRANS P DS III HAF	11		Y	-		ч	۱
Measuring cell filling	Measuring cell						
Silicone oil	cleaning normal	1					
	Tionna.						
Measuring span 25 250 mbar	(0.363 3.63 psi)	D					
25 600 mbar	(0.363 8.70 psi)	E					
53 1600 mbar	(0.77 23.2 psi)	F					
0.16 5 bar	(2.32 72.5 psi)	G					
	(1 /	. "					
Process connection o	T with flange connection						
 Mounting thread ⁷/₁₆- 			2				
 Mounting thread M10 			0				
(only for replacement			۳				
Non-wetted parts mat		-					
process flange screws							
Stainless steel	Die-cast aluminum			2			
Stainless steel				3			
Stall liess steel	Stainless steel precision casting ¹⁾			J			
Version		_					
Standard versions					1		
	English label inscriptions,				2		
documentation in 5 la					Ī		
Explosion protection		-					
• None						Α	
• With ATEX, Type of pr	otection:						
- "Intrinsic safety (EE)						В	
- "Explosion-proof (EE						D	
- "Intrinsic safety and	flameproof enclosure"					Р	
(EEx ia + EEx d)"3)						_	
- "Ex nA/nL (Zone 2)"	lacion much analogues and					E	
dust explosion prote	losion-proof enclosure and ection (EEx ia+ EEx d +					R	
With FM + CSA, Type Water and Conference of February							
- Intrinsic Sale und E	explosion Proof (is + xp)"1)	_				NC	
	/ cable entrv						
						A	
 Screwed gland Pg 13 	.5 ⁴⁾					В	
Screwed gland Pg 13Screwed gland M20x	1.5 ⁴⁾						
 Screwed gland Pg 13 Screwed gland M20x Screwed gland ½-14 	.5 ⁴⁾ 1.5 NPT					С	
 Screwed gland Pg 13 Screwed gland M20x Screwed gland ½-14 Han 7D plug (plastic 	.5 ⁴⁾ 1.5 NPT						
 Screwed gland Pg 13 Screwed gland M20x Screwed gland ½-14 Han 7D plug (plastic connector⁴⁾ 	1.5 ⁴⁾ 1.5 NPT housing) incl. mating					С	
M12 connectors (met	1.5 ⁴⁾ 1.5 NPT housing) incl. mating	_				D	
 Screwed gland Pg 13 Screwed gland M20x Screwed gland ½-14 Han 7D plug (plastic connector⁴) M12 connectors (met Display 	1.5 ⁴⁾ 1.5 NPT housing) incl. mating	-				D	
 Screwed gland Pg 13 Screwed gland M20x Screwed gland ½-14 Han 7D plug (plastic connector⁴) M12 connectors (met Display Without indicator 	1.5 ⁴⁾ 1.5 NPT housing) incl. mating	-				D	C
 Screwed gland Pg 13 Screwed gland M20x Screwed gland ½-14 Han 7D plug (plastic connector⁴⁾ M12 connectors (met Display Without indicator 	1.5 ⁴⁾ 1.5 NPT housing) incl. mating al) ⁵⁾ indicator(digital indicator	_				D	
 Screwed gland Pg 13 Screwed gland M20x Screwed gland ½-14 Han 7D plug (plastic connector⁴) M12 connectors (met Display Without indicator Without visible digital 	1.5 ⁴⁾ 1.5 NPT housing) incl. mating al) ⁵⁾ indicator(digital indicator ► A)					D	C
 Screwed gland Pg 13 Screwed gland M20x Screwed gland ½-14 Han 7D plug (plastic connector⁴) M12 connectors (met Display Without indicator Without visible digital concealed, setting: m With visible digital inc 	1.5 ⁴⁾ 1.5 NPT housing) incl. mating al) ⁵⁾ indicator(digital indicator ► A) lication c digital indicator (setting					D	1

Available ex stock

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. 8 "Supplementary Components".

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

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

SITRANS P DS III for level

Selection and Ordering		Orde	er No.		
Pressure transmitters SITRANS P DS III PA (I SITRANS P DS III FF (F		7 M F	463	5 -	
Nominal measuring ra 250 mbar 600 mbar 1600 mbar 5 bar Process connection of Female thread ¼-18 NP • Mounting thread M10 (only for replacement	(3.63 psi) (8.70 psi) (23.2 psi) (72.5 psi) Flow-pressure side T with flange connection 20 UNF to EN 61518 to DIN 19213	D E F G	2 0		
Non-wetted parts mate process flange screws Stainless steel Stainless steel	Prials Electronics housing Die-cast aluminum Stainless steel precision casting		2 3		
Version • Standard versions • International version, I documentation in 5 lar	English label inscriptions, nguages on CD			1 2	
dust explosion prote Zone 1D/2D)" ²⁾ (not • With FM + CSA, Type	ia)" x ¹⁾ d)" flameproof enclosure" osion-proof enclosure and ction (EEx ia + EEx d + for DS III FF)			A B D P E R	
• Screwed gland M20 x • Screwed gland ½-14 I • M12 connectors (meta	1.5 NPT			B C F	
concealed, setting: m.With visible digital ind	ication c digital indication (setting				0 1 6 7

Available ex stock

Ordering information

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

ordering example

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

- Included in delivery of the device:

 Brief instructions (Leporello)

 CD-ROM with detailed documentation

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

	- ·			
Selection and Ordering data	Order			
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
O-rings for process flanges on				
low-pressure side (instead of FPM (Viton))				
PTFE (Teflon)	A20	1	1	1
• FEP (with silicone core, approved for food)	A21	✓	✓	✓
• FFPM (Kalrez, compound 4079)	A22	✓	✓	✓
NBR (Buna N)	A23	✓	✓	✓
Plug				
Han 7D (metal, gray) Han 7D (instead of Han 7D)	A30 A31	1		
Han 8U (instead of Han 7D)Angled	A32	1		
Han 8D (metal, gray)	A33	1		
Sealing screw				
1/4-18 NPT, with valve in mat. of process flanges	A40	✓	✓	✓
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription				
(instead of German)				
English French	B11 B12	1	✓	1
Spanish	B13	V	V	V
• Italian	B14	1	1	1
English rating plate	B21	1	1	1
Pressure units in inH ₂ 0 and/or psi				
Quality inspection certificate	C11	✓	✓	✓
(factory calibration) to IEC 60770-2			,	
Inspection certificate Acc. to EN 10204-3.1	C12	1	✓	V
Factory certificate	C14	1	/	1
Acc. to EN 10204-2.2	014	Ť	Ť	·
"Functional safety (SIL2)" certificate	C20	✓		
PROFIsafe certificate and protocol	C21		✓	
"Functional safety (SIL2/3)" certificate	C23	✓		
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Degree of protection IP68	D12	1	1	1
(only for M20x1.5 and ½-14 NPT)				
Supplied with oval flange	D37	✓	✓	✓
(1 item), PTFE packing and screws in thread				
of process flange	E01	1		
Use on zone 1D / 2D (only together with type of protection "Intrinsic	EUI		•	•
safety (EEx ia)")				
Overfilling safety device for flammable and	E08	✓	✓	
non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device				
with type of protection "Intrinsic safety (EEx ia)")				
Explosion-proof "Intrinsic safety"	E25	✓	✓	✓
to INMETRO (Brazil)				
(only for transmitter 7MF4B)	E45	.,		
Ex Approval IEC Ex (EEx ia) (only for transmitter 7MF4B)	E45	•	•	•
Ex Approval IEC Ex (EEx id)	E46	1	1	1
(only for transmitter 7MF4)	L40		V	v
,				

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order Code.				
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B)	E55	*	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China)	E56	✓	✓	✓
(only for transmitter 7MF4)				
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Replacement of process connection side	H01	✓	✓	✓
Additional data				
Please add "-Z" to Order No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	4		
Stainless steel tag plate (measuring point	Y15	✓	✓	✓
description) Max. 16 characters, specify in plain text: Y15:				
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
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 ₂ O*), inH ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indicator in	Y22 ¹⁾	✓		
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)	+ Y01			
Preset bus address possible between 1 and 126 Specify in plain text Y25:	Y25		1	

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

^{✓ =} available

¹⁾ Not in conjunction with over-filling safety device for flammable and non-flammable liquids (Order Code "E08")

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

Directly mounted on the SITRANS P pressure transmitter (converter part) for level, for DS III series Connection to EN 1092-1 Nominal diameter Nominal pressure DN 80 PN 40 D DN 100 PN 16 G PN 40 H Connection to ASME B16.5 Nominal diameter Nominal pressure 3 inch Class 150 D Class 300 R 4 inch Class 150 T Class 300 U Other version, add Order Code and plain text: Nominal diameter; Nominal press.: Wetted parts materials Stainless steel 316L Coated with PFA Coated with PFFE Coated with PFFE Foatelloy B2, mat. no. 2.4617 Hastelloy C276, mat. no. 2.4610 Hastelloy C276, mat. no. 2.4610 Hastelloy C4, mat. no. 2.4610 Hastelloy C576, mat. no. 2.4610 Hastelloy C676, mat. no. 2.4610 Hastelloy C776, mat. no. 2.4610 Hastello	Selection and Or	dering data		Order N	lo.		
transmitter (converter part) for level, for DS III series Connection to EN 1092-1 Nominal diameter Nominal pressure DN 80 PN 40 D DN 100 PN 16 G PN 40 H Connection to ASME B16.5 Nominal diameter Nominal pressure 3 inch Class 150 Q Class 300 R 4 inch Class 150 T Class 300 U Other version, add Order Code and plain text: Nominal diameter:; Nominal press.: Wetted parts materials • Stainless steel 316L - Coated with PFA - Coated with PFFE • Coated with PFFE • Coated with ECTFE¹¹ • Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: sealing face, see "Technical specifications* Tube length • None • 50 mm (1.97 inch) 1 • 100 mm (3,94 inch) 2 • 150 mm (5.90 inch) 3 • 200 mm (7.87 inch) 4 Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M50 • Food oil (FDA-listed) Other version, add Order Code and plain text: ube length:	Mounting flange		D)	7 M F 4	9 1	2	
Nominal diameter Nominal pressure DN 80	transmitter (conve			3	1		
DN 80	Connection to El	N 1092-1					
DN 100	Nominal diamete	er Nominal pressure					
PN 40 Connection to ASME B16.5 Nominal diameter	DN 80	PN 40		D			
Connection to ASME B16.5 Nominal diameter Nominal pressure 3 inch Class 150 Q Class 300 R 4 inch Class 150 T Class 300 U Other version, add Order Code and plain text: Nominal diameter:; Nominal press.: Wetted parts materials • Stainless steel 316L - Coated with PFA - Coated with PFA - Coated with PFE • Coated with ECTFE1) • Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) • 100 mm (3.94 inch) • 1200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M5 • Silicone oil M5 • Silicone oil M5 • Halocarbon oil (for O ₂ -measurement) • Glycerin/water² • Food oil (FDA-listed) Other version, add Order Code and plain text:	DN 100	PN 16		G			
Nominal diameter Nominal pressure 3 inch		PN 40		Н			
3 inch Class 150 Class 300 R 4 inch Class 150 Class 300 R 4 inch Class 150 Class 300 U Other version, add Order Code and plain text: Nominal diameter:; Nominal press.: Wetted parts materials • Stainless steel 316L A D Coated with PFA D D Coated with PFF E D D D D D D D D D D D D D D D D D D	Connection to A	SME B16.5					
Class 300	Nominal diamete	er Nominal pressure					
4 inch Class 150 Class 300 Other version, add Order Code and plain text: Nominal diameter:; Nominal press.: Wetted parts materials • Stainless steel 316L - Coated with PFA - Coated with PFA - Coated with ECTFE ¹⁾ • Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) • 100 mm (3,94 inch) • 100 mm (5.90 inch) • 200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M50 • High-temperature oil • Halocarbon oil (for O ₂ -measurement) • Glycerin/water ²⁾ • Food oil (FDA-listed) Other version, add Order Code and plain text:	3 inch	Class 150		Q			
Class 300 U Z J 1 Y		Class 300		R			
Other version, add Order Code and plain text: Nominal diameter:; Nominal press.: Wetted parts materials • Stainless steel 316L - Coated with PFA - Coated with PFF • Coated with ECTFE¹) • Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) • 100 mm (3,94 inch) • 150 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M5 • Silicone oil M5 • High-temperature oil • Halocarbon oil (for O ₂ -measurement) • Glycerin/water² • Food oil (FDA-listed) Other version, add Order Code and plain text:	4 inch	Class 150		T			
Order Code and plain text: Nominal diameter:; Nominal press.: Wetted parts materials • Stainless steel 316L - Coated with PFA - Coated with PFE • Coated with ECTFE ¹⁾ • Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) • 100 mm (3,94 inch) • 150 mm (5.90 inch) • 200 mm Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M5 • Silicone oil M50 • High-temperature oil • Halocarbon oil (for O ₂ -measurement) • Glycerin/water ²⁾ • Food oil (FDA-listed) Other version, add Order Code and plain text:		Class 300		U			
Nominal diameter:; Nominal press.: Wetted parts materials Stainless steel 316L - Coated with PFA - Coated with PFFE • Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) • 100 mm (3,94 inch) • 150 mm (5.90 inch) • 200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M50 • High-temperature oil • Halocarbon oil (for O ₂ -measurement) • Glycerin/water ²⁾ • Food oil (FDA-listed) Other version, add Order Code and plain text:				Z		J	1 Y
Wetted parts materials Stainless steel 316L Coated with PFA Coated with PFFE Coated with PTFE Monel 400, mat. no. 2.4360 Hastelloy B2, mat. no. 2.4617 Hastelloy C276, mat. no. 2.4819 Hastelloy C4, mat. no. 2.4610 Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length None So mm 1.97 inch) 100 mm 3.94 inch) 200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid Silicone oil M50 High-temperature oil Halocarbon oil (for O ₂ -measurement) Gilycerin/water ² Food oil (FDA-listed) Other version, add Order Code and plain text:							
• Stainless steel 316L - Coated with PFA - Coated with PFFE • Coated with ECTFE ¹⁾ • Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) • 100 mm (3,94 inch) • 150 mm (5.90 inch) • 200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M50 • High-temperature oil • Halocarbon oil (for O ₂ -measurement) • Glycerin/water ²⁾ • Food oil (FDA-listed) Other version, add Order Code and plain text:		<u> </u>					
- Coated with PFA - Coated with PTFE - Coated with ECTFE ¹⁾ • Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) • 150 mm (3.94 inch) • 150 mm (5.90 inch) • 200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M50 • High-temperature oil • Halocarbon oil (for O ₂ -measurement) • Glycerin/water ²⁾ • Food oil (FDA-listed) Other version, add Order Code and plain text:	•						
- Coated with PTFE • Coated with ECTFE ¹⁾ • Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) • 100 mm (3,94 inch) • 150 mm (5.90 inch) • 200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M50 • High-temperature oil • Halocarbon oil (for O ₂ -measurement) • Glycerin/water ²⁾ • Food oil (FDA-listed) Other version, add Order Code and plain text:							
• Coated with ECTFE ¹⁾ • Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) • 100 mm (3,94 inch) • 150 mm (5.90 inch) • 150 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M5 • Silicone oil M50 • High-temperature oil • Halocarbon oil (for O ₂ -measurement) • Glycerin/water ²⁾ • Food oil (FDA-listed) Other version, add Order Code and plain text:				_			
• Monel 400, mat. no. 2.4360 • Hastelloy B2, mat. no. 2.4617 • Hastelloy C276, mat. no. 2.4819 • Hastelloy C4, mat. no. 2.4610 • Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) • 100 mm (3.94 inch) • 150 mm (5.90 inch) • 200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid • Silicone oil M50 • High-temperature oil • Halocarbon oil (for O ₂ -measurement) • Glycerin/water²) • Food oil (FDA-listed) Other version, add Order Code and plain text:							
 Hastelloy B2, mat. no. 2.4617 Hastelloy C276, mat. no. 2.4819 Hastelloy C4, mat. no. 2.4610 Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length None 50 mm (1.97 inch) 100 mm (3,94 inch) 200 mm (7.87 inch) 200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid Silicone oil M5 Silicone oil M50 Halocarbon oil (for O₂-measurement) Glycerin/water²) Food oil (FDA-listed) Other version, add 				-			
 Hastelloy C276, mat. no. 2.4819 Hastelloy C4, mat. no. 2.4610 Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length None 50 mm 100 mm 150 mm 150 mm 150 mm 150 mm 17.87 inch 200 mm 17.87 inch 4 Other version: add Order Code and plain text: tube length: Filling liquid Silicone oil M5 Silicone oil M50 Halocarbon oil (for O₂-measurement) Glycerin/water² Food oil (FDA-listed) Other version, add Other Code and plain text: 				-			
 Hastelloy C4, mat. no. 2.4610 Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length None 50 mm (1.97 inch) 100 mm (3,94 inch) 200 mm (7.87 inch) 200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid Silicone oil M5 Silicone oil M50 Halocarbon oil (for O₂-measurement) Glycerin/water²) Food oil (FDA-listed) Other version, add Other Code and plain text: 							
• Tantalum Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length • None • 50 mm (1.97 inch) 1 • 100 mm (3.94 inch) 2 • 150 mm (5.90 inch) 3 • 200 mm (7.87 inch) 4 Other version: add 9 Order Code and plain text: tube length: Filling liquid • Silicone oil M5 • Silicone oil M50 • High-temperature oil • Halocarbon oil (for O ₂ -measurement) • Glycerin/water²) • Food oil (FDA-listed) Other version, add Order Code and plain text:							
Other version, add Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length None 100 mm (1.97 inch) 100 mm (3,94 inch) 200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid Silicone oil M5 Silicone oil M50 Halocarbon oil (for O ₂ -measurement) Glycerin/water² Food oil (FDA-listed) Other version, add Order Code and plain text:	•	at. no. 2.4610		_			
Order Code and plain text: material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length None 100 mm (1.97 inch) 1100 mm (3,94 inch) 200 mm (5.90 inch) 300 200 mm (7.87 inch) 400 Code rode and plain text: tube length: Filling liquid Silicone oil M5 Silicone oil M50 Halocarbon oil (for O ₂ -measurement) Glycerin/water ² Food oil (FDA-listed) Other version, add Order Code and plain text:							
material of parts in contact with the medium: Sealing face, see "Technical specifications" Tube length None 100 mm 100 mm 150 mm 150 mm 150 mm 17.87 inch) 190 mm 190 mm				Z		K	1 Y
Sealing face, see "Technical specifications" Tube length 0 • None 0 • 50 mm (1.97 inch) 1 • 100 mm (3,94 inch) 2 • 150 mm (5.90 inch) 3 • 200 mm (7.87 inch) 4 Other version: add 9 L 1 Y Order Code and plain text: tube length: 9 L 1 Y Filling liquid • Silicone oil M5 1 • Silicone oil M50 2 • High-temperature oil 3 • Halocarbon oil (for O₂-measurement) 4 • Glycerin/water²) 6 • Food oil (FDA-listed) 7 Other version, add 9 M 1 Y							
Tube length 0 • None 0 • 50 mm (1.97 inch) 1 • 100 mm (3,94 inch) 2 • 150 mm (5.90 inch) 3 • 200 mm (7.87 inch) 4 Other version: add 9 L 1 Y Order Code and plain text: 1 1 tube length: 5 1 Filling liquid 2 2 • Silicone oil M50 2 2 • High-temperature oil 3 3 • Halocarbon oil (for O₂-measurement) 4 4 • Glycerin/water²) 6 6 • Food oil (FDA-listed) 7 7 Other version, add 9 M 1 Y							
• None • 50 mm (1.97 inch) 1 • 100 mm (3,94 inch) 2 • 150 mm (5.90 inch) 3 • 200 mm (7.87 inch) 4 Other version: add 9 Order Code and plain text: tube length: Filling liquid • Silicone oil M5 1 • Silicone oil M50 2 • High-temperature oil 3 • Halocarbon oil (for O ₂ -measurement) 4 • Glycerin/water²) 6 • Food oil (FDA-listed) 7 Other version, add Order Code and plain text:	<u> </u>	·					
• 50 mm (1.97 inch) 1 • 100 mm (3,94 inch) 2 • 150 mm (5.90 inch) 3 • 200 mm (7.87 inch) 4 Other version: add 9 Order Code and plain text: tube length: Filling liquid • Silicone oil M5 1 • Silicone oil M50 2 • High-temperature oil 3 • Halocarbon oil (for O ₂ -measurement) 4 • Glycerin/water ²⁾ 6 • Food oil (FDA-listed) 7 Other version, add 9 Order Code and plain text:	•			0			
• 100 mm (3,94 inch) 2 • 150 mm (5.90 inch) 3 • 200 mm (7.87 inch) 4 Other version: add 9 Order Code and plain text: tube length: Filling liquid • Silicone oil M5 1 • Silicone oil M50 2 • High-temperature oil 3 • Halocarbon oil (for O ₂ -measurement) 4 • Glycerin/water ²⁾ 6 • Food oil (FDA-listed) 7 Other version, add 9 Order Code and plain text:		(1.97 inch)					
• 150 mm (5.90 inch) 3 • 200 mm (7.87 inch) 4 Other version: add 9 Order Code and plain text: tube length: Filling liquid • Silicone oil M5 1 • Silicone oil M50 2 • High-temperature oil 4 • Halocarbon oil (for O ₂ -measurement) 4 • Glycerin/water ²⁾ 6 • Food oil (FDA-listed) 7 Other version, add 9 M1 Y							
200 mm (7.87 inch) Other version: add Order Code and plain text: tube length: Filling liquid Silicone oil M5 Silicone oil M50 High-temperature oil Halocarbon oil (for O ₂ -measurement) Glycerin/water ²⁾ Food oil (FDA-listed) Other version, add Order Code and plain text:		* * *					
Other version: add Order Code and plain text: tube length: Filling liquid Silicone oil M5 Silicone oil M50 High-temperature oil Halocarbon oil (for O ₂ -measurement) Glycerin/water ²⁾ Food oil (FDA-listed) Other version, add Order Code and plain text:		'					
tube length: Filling liquid Silicone oil M5 Silicone oil M50 High-temperature oil Halocarbon oil (for O ₂ -measurement) Glycerin/water ²⁾ Food oil (FDA-listed) Other version, add Order Code and plain text:	Other version: add	,		9		L	1 Y
Filling liquid Silicone oil M5 Silicone oil M50 High-temperature oil Halocarbon oil (for O ₂ -measurement) Glycerin/water ² Food oil (FDA-listed) Other version, add Order Code and plain text:		olain text:					
 Silicone oil M5 Silicone oil M50 High-temperature oil Halocarbon oil (for O₂-measurement) Glycerin/water²⁾ Food oil (FDA-listed) Other version, add Order Code and plain text: 	tube length:						
 Silicone oil M50 High-temperature oil Halocarbon oil (for O₂-measurement) Glycerin/water²⁾ Food oil (FDA-listed) Other version, add Order Code and plain text: 	Filling liquid						
 High-temperature oil Halocarbon oil (for O₂-measurement) Glycerin/water²) Food oil (FDA-listed) Other version, add Order Code and plain text: 					-		
 Halocarbon oil (for O₂-measurement) Glycerin/water²⁾ Food oil (FDA-listed) Other version, add Order Code and plain text: 					2		
 Glycerin/water²⁾ Food oil (FDA-listed) Other version, add Order Code and plain text: 							
 Food oil (FDA-listed) Other version, add Order Code and plain text: 					-		
Other version, add Order Code and plain text:					6		
Order Code and plain text:	• Food oil (FDA-lis	sted)			7		
Order Code and plain text:					9	M	1 Y
filling liquid:	Order Code and p						
	tilling liquid:						

1)	For	vacuum	on	request	
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²⁾ Not suitable for use in low-pressure range

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

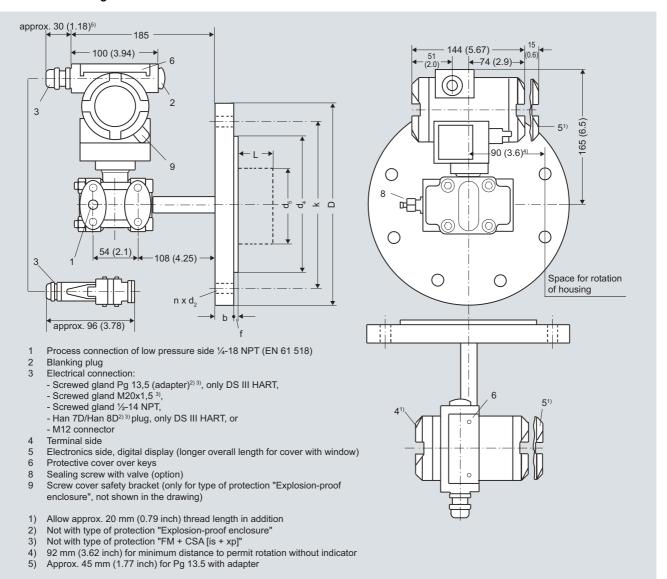
^{✓ =} available

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

Transmitters for general requirements

SITRANS P DS III for level

Dimensional drawings



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

Connection to EN 1092-1

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

Connection to ASME B16.5

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

d: Internal diameter of gasket to DIN 2690

d_M: Effective diaphragm diameter

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