Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III - Technical description

### Overview



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

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

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

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

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

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

### Benefits

- High quality and service life
- High reliability even under extreme chemical and mechanical loads
- For aggressive and non-aggressive gases, vapors and liquids
- Extensive diagnosis and simulation functions
- Separate replacement of measuring cell and electronics without recalibration
- Minimum conformity error
- · Good long-term stability
- Wetted parts made of high-grade materials (e.g. stainless steel, Hastelloy, gold, Monel, tantalum)

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

### Application

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

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

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

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

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

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#### SITRANS P DS III - Technical description

#### Pressure transmitter for gauge pressure

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

Span (infinitely adjustable)

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

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

### Pressure transmitters for absolute pressure

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

Span (infinitely adjustable)

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

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

There are two series:

- Gauge pressure series
- Differential pressure series

### Pressure transmitters for differential pressure and flow

Measured variables:

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

Span (infinitely adjustable)

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

Nominal measuring range

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

### Pressure transmitters for level

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

Span (infinitely adjustable)

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

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

#### Nominal diameter of the mounting flange

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

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

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

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

### Design



Front view

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

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

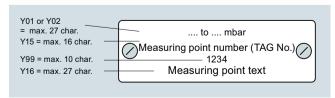
The approval label is located on the opposite side.

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

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

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

### Example for an attached measuring point label

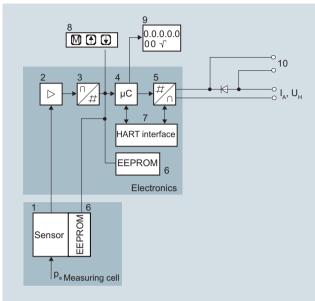


Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III - Technical description

### Function

#### Operation of electronics with HART communication



- 1 Measuring cell sensor
- 2 Instrument amplifier
- 3 Analog-to-digital converter
- 4 Microcontroller
- 5 Digital-to-analog converter
- 6 One non-volatile memory each in the measuring cell and electronics
- 7 HART interface
- 8 Three input keys (local operation)
- 9 Digital display
- 10 Diode circuit and connection for external ammeter
- Output current
- U<sub>H</sub> Power supply
- P<sub>e</sub> Input variable

### Function diagram of electronics

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

The diode circuit (10) protects against incorrect polarity.

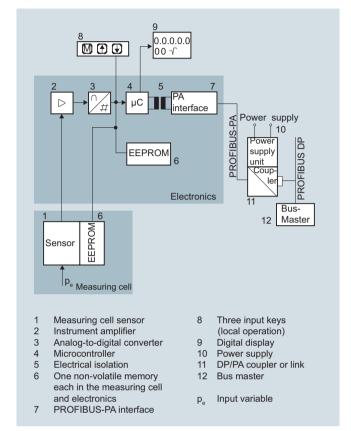
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

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

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

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

### Operation of electronics with PROFIBUS PA communication



Function diagram of electronics

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

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

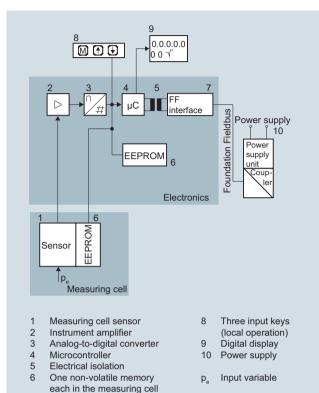
Using the three input buttons (8) you can parameterize the pressure transmitter directly at the measuring point. The input buttons can also be used to control the view of the results, the error messages and the operating modes on the display (9).

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

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III - Technical description

# Operation of electronics with FOUNDATION Fieldbus communication



### Function diagram of electronics

and electronics FF interface

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

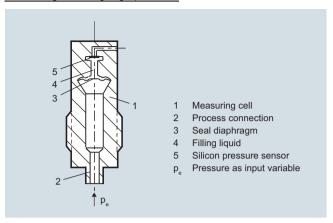
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

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

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

#### Mode of operation of the measuring cells

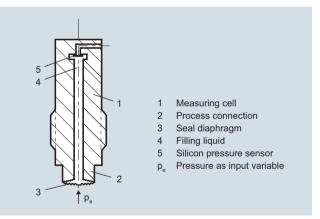
Measuring cell for gauge pressure



Measuring cell for gauge pressure, function diagram

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

Measuring cell for gauge pressure with front-flush diaphragm



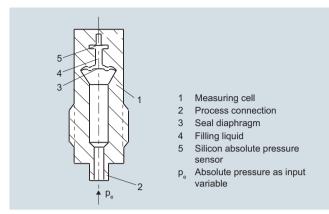
Measuring cell for gauge pressure, with front-flush diaphragm for paper industry, function diagram

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

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III - Technical description

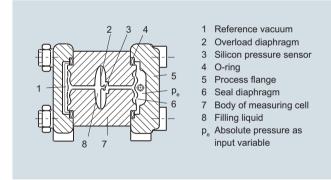
#### Measuring cell for absolute pressure from gauge pressure series



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

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

Measuring cell for absolute pressure from differential pressure series



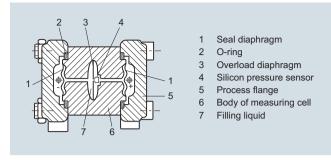
Measuring cell for absolute pressure from differential pressure series, function diagram

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

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

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

### Measuring cell for differential pressure and flow



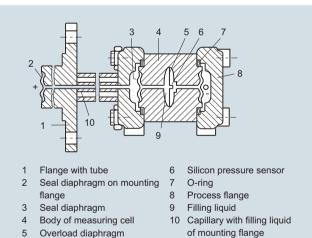
Measuring cell for differential pressure and flow, function diagram

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

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

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

### Measuring cell for level



Measuring cell for level, function diagram

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

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

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

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

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### SITRANS P DS III - Technical description

#### Parameterization DS III

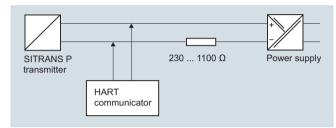
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

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

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

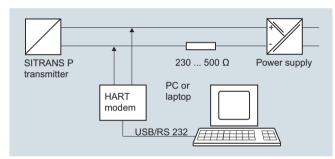
#### Parameterization using HART

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



Communication between a HART Communicator and a pressure transmitter

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



HART communication between a PC communicator and a pressure transmitter

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

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

### Adjustable parameters, DS III with HART

Adjustable parameters, DS III WII		
Parameters	Input keys (DS III HART)	HART communication
Start of scale	X	X
Full-scale value	X	X
Electrical damping	X	X
Start-of-scale value without application of a pressure ("Blind setting")	Х	X
Full-scale value without application of a pressure ("Blind setting")	Х	X
Zero adjustment	X	X
current transmitter	X	X
Fault current	X	X
Disabling of buttons, write protection	Х	x <sup>1)</sup>
Type of dimension and actual dimension	X	X
Characteristic (linear / square-rooted)	x <sup>2)</sup>	x <sup>2)</sup>
Input of characteristic		X
Freely-programmable LCD		X
Diagnostic functions		X

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

2) Only differential pressure

### Diagnostic functions for DS III with HART

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

#### Available physical units of display for DS III with HART

Table style: Technical specifications 2

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	Pa, MPa, kPa, bar, mbar, torr, atm, psi, $g/cm^2$ , $kg/cm^2$ , $inH_2O$ , $inH_2O$ (4 °C), $mmH_2O$ , $ftH_2O$ (20 °C), $inHg$ , $mmHg$
Level (height data)	m, cm, mm, ft, in
Volume	m <sup>3</sup> , dm <sup>3</sup> , hl, yd <sup>3</sup> , ft <sup>3</sup> , in <sup>3</sup> , US gallon, lmp. gallon, bushel, barrel, barrel liquid
Mass	g, kg, t, lb, Ston, Lton, oz
volume flow	$\rm m^3/d,m^3/h,m^3/s,l/min,l/s,ft^3/d,ft^3/min,ft^3/s,US$ gallon/min, US gallon/s
Mass flow	t/d, t/h, t/min, kg/d, kg/h, kg/min, kg/s, g/d, g/h, g/min, g/s, lb/d, lb/h, lb/min, lb/s, LTon/d, LTon/h, STon/d, STon/h, STon/min
Temperature	K, °C, °F, °R
Miscellaneous	%, mA

#### Parameterization through PROFIBUS PA interface

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

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

### Parameterization through FOUNDATION Fieldbus interface

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

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

# Adjustable parameters for DS III with PROFIBUS PA and FOUNDATION Fieldbus

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

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# Diagnostic functions for DS III with PROFIBUS PA and FOUNDATION Fieldbus

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

Physical dimensions available for the display

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

Transmitters for applications with advanced requirements (Advanced)

# SITRANS P DS III for gauge pressure

### Technical specifications

reclinical specifications				
SITRANS P, DS III series for gauge pressure				
Input				
Measured variable	Gauge pressure			
Span (fully adjustable) or measuring range, max. operating pressure (in accordance with 2014/68/EU Pressure Equipment Directive) and max. test pressure (pursuant to DIN 16086)	HART	PROFIBUS PA/ FOUNDATION Fieldbus		
(for oxygen measurement, max. 100 bar/10 MPa/1450 psi and 60 °C (140 °F) ambient temperature/process temperature)	Span	Nominal measuring range	Max. operating pressure MAWP (PS)	Max. perm. test pressure
	8.3 250 mbar 0.83 25 kPa 0.12 3.6 psi	250 mbar 25 kPa 3.6 psi	4 bar 400 kPa 58 psi	6 bar 600 kPa 87 psi
	0.01 1 bar 1 100 kPa 0.15 14.5 psi	1 bar 100 kPa 14.5 psi	4 bar 400 kPa 58 psi	6 bar 600 kPa 87 psi
	0.04 4 bar 4 400 kPa 0.58 58 psi	4 bar 400 kPa 58 psi	7 bar 0.7 MPa 102 psi	10 bar 1 MPa 145 psi
	0.16 16 bar 16 1600 kPa 2.3 232 psi	16 bar 1600 kPa 232 psi	21 bar 2.1 MPa 305 psi	32 bar 3.2 MPa 464 psi
	0.63 63 bar 63 6300 kPa 9.1 914 psi	63 bar 6300 kPa 914 psi	67 bar 6.7 MPa 972 psi	100 bar 10 MPa 1450 psi
	1.6 160 bar 0.16 16 MPa 23 2321 psi	160 bar 16 MPa 2321 psi	167 bar 16.7 MPa 2422 psi	250 bar 25 MPa 3626 psi
	4 400 bar 0.4 40 MPa 58 5802 psi	400 bar 40 MPa 5802 psi	400 bar 40 MPa 5802 psi	600 bar 60 MPa 8702 psi
	7 700 bar 0.7 70 MPa 102 10153 psi	700 bar 70 MPa 10153 psi	800 bar 80 MPa 11603 psi	800 bar 80 MPa 11603 psi
Lower measuring limit (for 250mbar/25 kPa/3.6 psi measuring cells, the lower measuring limit is 750 mbar a/75 kPa a/10.8 psi a. The measuring cell is vacuum-resistant upt to 30 mbar a/3 kPa a/0.44 psi a.)			'	l
Measuring cell with silicone oil filling	30 mbar a/3 kPa a/0	.44 psia		
Measuring cell with inert filling liquid	30 mbar a/3 kPa a/0	.44 psia		
Upper measuring limit		(max. 100 bar/10 MPa e/process temperature	a/1450 psi for oxygen e 60 °C (140 °F)	measurement)
Output	HART		PROFIBUS PA/FOU	NDATION Fieldbus
Output signal	4 20 mA		Digital PROFIBUS PA Fieldbus signal	A and FOUNDATION
<ul> <li>Lower limit (infinitely adjustable)</li> </ul>	3.55 mA, factory pre	set to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory prese optionally set to 22.0		-	
Load				
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.$ $U_{\rm H}$ : Power supply in		-	
• With HART	$R_{\rm B} = 230 \dots 500 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \dots 1100 \Omega ({\rm S}) \ R_{\rm B} = 230 \Omega ({\rm S}) \ R_{\rm B} $	IMATIC PDM) bzw. HART-Communicator)	-	
Physical bus	-		IEC 61158-2	
Protection against polarity reversal		nort-circuit and polarit ainst the other with m		
Electrical damping (step width 0.1 s)	Set to 2 s (0 100 s	3)		

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for gauge pressure

### SITRANS P, DS III series for gauge pressure

#### Measuring accuracy

Reference conditions

Measuring span ratio r (spread, Turn-Down)

Error in measurement at limit setting incl. hysteresis and reproducibility

- Linear characteristic
- 250 mbar/25 kPa/3.6 psi

1 bar/100 kPa/3.6 psi
 4 bar/400 kPa/58 psi
 16 bar/1.6 MPa/232 psi
 63 bar/6.3 MPa/914 psi
 160 bar/16 MPa/2321 psi

 400 bar/40 MPa/5802 psi 700 bar/70 MPa/10152 psi

Influence of ambient temperature (in percent per 28 °C (50 °F))

- 250 mbar/25 kPa/3.6 psi
- 1 bar/100 kPa/3.6 psi
- 4 bar/400 kPa/58 psi
   16 bar/1.6 MPa/232 psi
   63 bar/6.3 MPa/914 psi
   160 bar/16 MPa/2321 psi
   400 bar/40 MPa/5802 psi
- 700 bar/70 MPa/10152 psi

Long-term stability (temperature change ± 30 °C (± 54 °F))

- 250 mbar/25 kPa/3.6 psi
- 1 bar/100 kPa/3.6 psi
   4 bar/400 kPa/58 psi
- 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi 160 bar/16 MPa/2321 psi 400 bar/40 MPa/5802 psi
- 700 bar/70 MPa/10152 psi

Effect of mounting position

Effect of auxiliary power supply (in percent per change in voltage)

Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus

Acc. to IEC 60770-1

- Increasing characteristic
- Start-of-scale value 0 bar/kPa/psi
- Stainless steel seal diaphragm
- · Silicone oil filling
- Room temperature 25 °C (77 °F)

r = max. measuring span/set measuring span or nom. pressure range

 $r \le 1.25$ :  $\le 0.065$  %

 $1.25 < r \le 30$ :  $\le (0.008 \cdot r + 0.055)$  %

 $r \le 5$ :  $\le 0.065$  %

 $5 < r \le 100$ :  $\le (0.004 \cdot r + 0.045) \%$ 

 $r \le 3$ :  $\le 0.075 \%$ 

 $3 < r \le 10$ :  $\le (0.0029 \cdot r + 0.071) \%$  $10 < r \le 100$ :  $\le (0.005 \cdot r + 0.05) \%$ 

 $\leq$  (0.16 · r + 0.1) %

 $\leq$  (0.05 · r + 0.1) %

 $\leq$  (0.025 · r + 0.125) %

 $\leq$  (0.08 · r + 0.16) %

≤ (0.25 · r) % per year

≤ (0.25 · r) % in 5 years

≤ (0.125 · r) % in 5 years

≤ (0.25 · r) % in 5 years

≤ 0.05 mbar/0.005 kPa/0.000725 psi per 10° inclination

(zero point correction is possible with position error compensation)

0.005 % per 1 V

 $3 \cdot 10^{-5}$  of nominal measuring range

Transmitters for applications with advanced requirements (Advanced)

# SITRANS P DS III for gauge pressure

OTTIVATE LEGISLATION DE MILION GALAGO PICCOCATO			
, , , , , , , , , , , , , , , , , , , ,	SITRANS P, DS III series for gauge pressure		
Rated conditions	IDOC (		
Degree of protection (to EN 60529)	IP66 (optional IP66/IP68), NEMA 4X		
Temperature of medium  • Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)		
Measuring cell with inert filling liquid	-40 + 100 O (-40 +212 T)		
- 1 bar/100 kPa/3.6 psi	40 .05 %C / 40 .105 %T\		
4 bar/400 kPa/58 psi 16 bar/1.6 MPa/232 psi 63 bar/6.3 MPa/914 psi	-40 +85 °C (-40 +185 °F)		
- 160 bar/16 MPa/2321 psi 400 bar/40 MPa/5802 psi 700 bar/70 MPa/10152 psi	-20 +100 °C (-4 +212 °F)		
<ul> <li>In conjunction with dust explosion protection</li> </ul>	-20 +60 °C (-4 +140 °F)		
Ambient conditions			
Ambient temperature			
<ul> <li>Transmitter (with 4-wire connection, observe temperature values of sup- plementary 4-wire electronics)</li> </ul>	-40 +85 °C (-40 +185 °F)		
- Display readable	-30 +85 °C (-22 +185 °F)		
Storage temperature	-50 +85 °C (-58 +185 °F)		
Climatic class			
- Condensation	Relative humidity 0 100 % Condensation permissible, suitable for us	se in the tropics	
Electromagnetic Compatibility			
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21		
Design			
Weight (without options)	Die-cast aluminum: ≈ 2.0 kg (≈ 4.4 lb) Stainless steel precision casting: ≈ 4.6 kg (≈ 10.1 lb)		
Enclosure material	Low-copper die-cast aluminum, GD-AlSi mat. no. 1.4408	12 or stainless steel precision casting,	
Wetted parts materials			
Connection shank	Stainless steel, mat. no. 1.4404/316L or H	lastelloy C4, mat. no. 2.4602	
Oval flange	Stainless steel, mat. no. 1.4404/316L		
Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or H	lastelloy C276, mat. no. 2.4819	
Measuring cell filling	Silicone oil or inert filling liquid (maximum value with oxygen measureme (140 °F))	nt pressure 100 bar (1450 psi) at 60 °C	
Process connection	Connection shank G½B to DIN EN 837-1, (PN 160 (MAWP 2320 psi)) to DIN 19213 to EN 61518	female thread $\frac{1}{2}$ -14 NPT or oval flange with mounting thread M10 or $^{7}/_{16}$ -20 UNF	
Material of mounting bracket			
Steel	Sheet-steel, Mat. No. 1.0330, chrome-plat	ted	
Stainless steel	Sheet stainless steel, mat. no. 1.4301 (SS	304)	
Power supply $U_{H}$	HART	PROFIBUS PA/FOUNDATION Fieldbus	
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-	
Power supply	-	Supplied through bus	
Separate 24 V power supply	-	Not necessary	
Bus voltage			
• Not Ex	-	9 32 V	
With intrinsically-safe operation	-	9 24 V	
Current consumption			
Basic current (max.)	-	12.5 mA	
• Start-up current ≤ basic current	-	Yes	
Max. current in event of fault	-	15.5 mA	
Fault disconnection electronics (FDE) available	-	Yes	

Transmitters for applications with advanced requirements (Advanced)

# SITRANS P DS III for gauge pressure

SITRANS P, DS III series for gauge pressure	HART	PROFIBUS PA/ FOUNDATION Fieldbus
Certificates and approvals		
Classification according to PED 2014/68/EU	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)	
Drinking water approval	Und. Lab. Clfd in accordance with NSF/A	ANSI 372
Explosion protection		
• Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatu -40 +70 °C (-40 +158 °F) temperatu -40 +60 °C (-40 +140 °F) temperatu	re class T5;
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW; $P_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 174 \text{ mA}$ , $P_0 = 1 \text{ W}$
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatur -40 +60 °C (-40 +140 °F) temperatur	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H} = 9 \dots 32 \text{ V DC}$
Dust explosion protection for zone 20	PTB 01 ATEX 2055	
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)	
- Max. surface temperature	120 °C (248 °F)	
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $P_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $P_0 = 1 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH},  C_{\rm i} = 6  {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$
<ul> <li>Dust explosion protection for zone 21/22</li> </ul>	PTB 01 ATEX 2055	
- Marking	Ex II 2 D Ex tb IIIC T120°C Db	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H} = 9 \dots 32 \text{ V DC}$ ; $P_{\rm max} = 1 \text{ W}$
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X	
- Marking	Ex II 2/3 G Ex nA II T4/T5/T6 Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gc	
- Connection (Ex nA)	$U_{\rm m} = 45 \text{ V}$	$U_{\rm m} = 32 \text{ V}$
- Connections (Ex ic)	To circuits with values: $U_{\rm i} = 45 \text{ V}$	FISCO supply unit ic: $U_0 = 17.5 \text{ V}$ , $I_0 = 570 \text{ mA}$ Linear barrier: $U_0 = 32 \text{ V}$ , $I_0 = 132 \text{ mA}$ , $P_0 = 1 \text{ W}$
- Effective internal inductance/capacitance	$L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$	$L_{\rm i} = 7  \mu \text{H},  C_{\rm i} = 1.1  \text{nF}$
Explosion protection acc. to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV T4T6; CL I, DIV 2, GP ABCD T4T6; CL	
Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV DIV 2, GP ABCD T4T6; CL II, DIV 2, GP	

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for gauge pressure

SITRANS P DS III for gauge p	pressure		
HART communication		FOUNDATION Fieldbus	
HART	230 1100 Ω	communication	
Protocol	HART Version 5.x	Function blocks	3 function blocks analog input, 1 function block PID
Software for computer	SIMATIC PDM	Analog input	
PROFIBUS PA communication	4	- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
Simultaneous communication with master class 2 (max.)	4	- Electrical damping, adjustable	0 100 s
The address can be set using	Configuration tool or local operation (standard setting address 126)	- Simulation function	Output/input (can be locked within the device with a bridge)
Cyclic data usage	-,	- Failure mode	parameterizable (last good value, substitute value, incorrect
Output byte	5 (one measured value) or 10 (two measured values)	- Limit monitoring	value)  Yes, one upper and lower warn-
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)	Ğ	ing limit and one alarm limit respectively
Internal preprocessing	metering)	<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes
Device profile	PROFIBUS PA Profile for Process Control Devices Version	• PID	Standard FOUNDATION Fieldbus function block
	3.0, class B	<ul> <li>Physical block</li> </ul>	1 resource block
Function blocks  • Analog input	2	Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block
- Adaptation to customer-specif-	Yes, linearly rising or falling		LCD
ic process variables	characteristic	Pressure transducer block	
- Electrical damping, adjustable	0 100 s	<ul> <li>Can be calibrated by applying two pressures</li> </ul>	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 temperature and electronics tem-	Constant value or over parameterizable ramp function
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively	perature	
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output		
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)		
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively		
Physical block	1		
Transducer blocks	2		
Pressure transducer block			
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes		
- Monitoring of sensor limits	Yes		
Specification of a container characteristic with	Max. 30 nodes		
- Square-rooted characteristic for flow measurement	Yes		

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Parameterizable

Constant value or over parame-

terizable ramp function

- Gradual volume suppression

and implementation point of square-root extractionSimulation function for mea-

sured pressure value and sen-

sor temperature

1/116

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for gauge pressure

Selection and Orderin	a data	Arti	icle N	<del>ا</del> 0.
Pressure transmitter f	•			33-
SITRANS P DS III with	HART			-
Click on the Article N ration in the PIA Life	lo. for the online configu- Cycle Portal.			
Measuring cell filling	Measuring cell clean- ing			
Silicone oil	normal	1		
Inert liquid 1)	grease-free to cleanliness level 2	3		
Measuring span (min.	max.)			
8.3 250 mbar	(0.12 3.6 psi)	Α		
0.01 1 bar	(0.15 14.5 psi)	В		
0.04 4 bar	(0.58 58 psi)	С		
0.16 16 bar	(2.32 232 psi)	D		
0.63 63 bar	(9.14 914 psi)	E		
1.6 160 bar	(23.2 2320 psi)	F		
4.0 400 bar	(58.0 5802 psi)	G		
7.0 700 bar	(102.010153 psi)	J		
Wetted parts materials Seal diaphragm	Process connection			
Stainless steel	Stainless steel		Α	
Hastelloy	Stainless steel		В	
Hastelloy	Hastelloy		C	
Version as diaphragm s	seal <sup>2) 3) 4) 5)</sup>		Υ	
Process connection		-		
• Connection shank G1/	6B to EN 837-1		0	
• Female thread ½-14 N			1	
Stainless steel oval flagger				
connection (Oval fland	ge has no female thread)			
- Mounting thread 7/1	<sub>6</sub> -20 UNF to IEC 61518		2	
- Mounting thread M1	0 to DIN 19213		3	
- Mounting thread M1				
	2 to DIN 19213		4	
Male thread M20 x 1.5			4 5	
J	5			
Male thread M20 x 1.5	5 PT	_	5	
<ul> <li>Male thread M20 x 1.9</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-</li> </ul>	5 T erials cast aluminium	_	5 6	
<ul> <li>Male thread M20 x 1.5</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> </ul>	5 T erials cast aluminium	_	5 6	
<ul> <li>Male thread M20 x 1.8</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-</li> <li>Housing stainless ster</li> <li>Version</li> </ul>	or PT erials cast aluminium el precision casting <sup>6)</sup>		5 6	
<ul> <li>Male thread M20 x 1.8</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-</li> <li>Housing stainless steen</li> </ul>	erials cast aluminium el precision casting <sup>6)</sup> rman plate inscription,		5 6	3
<ul> <li>Male thread M20 x 1.3</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-</li> <li>Housing stainless ster</li> <li>Version</li> <li>Standard version, Gersetting for pressure ure</li> <li>International version,</li> </ul>	erials cast aluminium el precision casting <sup>6)</sup> rman plate inscription, nit: bar English plate inscription,	_	5 6	3
<ul> <li>Male thread M20 x 1.3</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-Housing stainless ster</li> <li>Version</li> <li>Standard version, Gesetting for pressure ure</li> <li>International version, setting for pressure ure</li> </ul>	erials cast aluminium el precision casting <sup>6)</sup> rman plate inscription, nit: bar English plate inscription, nit: bar		5 6	1
<ul> <li>Male thread M20 x 1.3</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-Housing stainless stered</li> <li>Standard version, Gesetting for pressure ure</li> <li>International version, setting for pressure ure</li> <li>Chinese version, Engli</li> </ul>	erials cast aluminium el precision casting <sup>6)</sup> rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription,		5 6	1
<ul> <li>Male thread M20 x 1.3</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-Housing stainless stering</li> <li>Standard version, Gesetting for pressure ure</li> <li>International version, setting for pressure ure</li> <li>Chinese version, Englisetting for pressure un</li> </ul>	perials cast aluminium el precision casting <sup>6)</sup> rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal		5 6	1
<ul> <li>Male thread M20 x 1.3</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-Housing stainless stee</li> <li>Version</li> <li>Standard version, Gesetting for pressure uis enting for pressure uis etting for pressure uis etting for pressure uis etting for pressure un</li> <li>Chinese version, Englis setting for pressure un</li> <li>All versions include DVD</li> </ul>	perials cast aluminium el precision casting <sup>6)</sup> rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal 0 with documentation for		5 6	1
<ul> <li>Male thread M20 x 1.3</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-Housing stainless stering</li> <li>Standard version, Gesetting for pressure under the setting for pressure</li></ul>	erials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, rit: bar sh plate inscription, it: Pascal o with documentation for English, French, Italian		5 6	1
<ul> <li>Male thread M20 x 1.3</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-</li> <li>Housing stainless stering</li> <li>Standard version, Gesetting for pressure ui</li> <li>International version, setting for pressure ui</li> <li>Chinese version, Englisetting for pressure ui</li> <li>Chinese version of pressure ui</li> <li>SITRANS P in German, Earn Spanish. Includes C</li> </ul>	erials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal 0 with documentation for English, French, Italian compact operating inst-		5 6	1
Male thread M20 x 1.3 Male thread ½ -14 NF Non-wetted parts mate Housing made of die-Housing stainless ster Version Standard version, Gesetting for pressure uielnternational version, setting for pressure uielniese version, Englisetting for pressure uielnternational version, Englisetting for pressure uielniese version, Englisetting for pressure uielniese versions include DVD SITRANS P in German, Eand Spanish. Includes Cructions in various EU la	erials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal 0 with documentation for English, French, Italian compact operating inst-		5 6	1 2 3
Male thread M20 x 1.8 Male thread ½ -14 NF Non-wetted parts mate Housing made of die-Housing stainless ster Version Standard version, Gesetting for pressure uielnternational version, setting for pressure uielniese version, Englisetting for pressure uielnternational version, Englisetting for pressure uielniese version, Englisetting for pressure uielniese versions include DVD SITRANS P in German, Eand Spanish. Includes Cructions in various EU la	erials cast aluminium el precision casting <sup>6)</sup> rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal o with documentation for English, French, Italian Compact operating inst- nguages.		5 6	1
Male thread M20 x 1.3 Male thread ½ -14 NF Non-wetted parts mate Housing made of die-Housing stainless ster Version Standard version, Gesetting for pressure useling for pressur	erials cast aluminium el precision casting <sup>6)</sup> rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal o with documentation for English, French, Italian compact operating inst- nguages.	-	5 6	1 2 3
<ul> <li>Male thread M20 x 1.3</li> <li>Male thread ½ -14 NF</li> <li>Non-wetted parts mate</li> <li>Housing made of die-</li> <li>Housing stainless stered</li> <li>Version</li> <li>Standard version, Gersetting for pressure ure</li> <li>International version, setting for pressure ure</li> <li>Chinese version, Englisetting for pressure ure</li> <li>All versions include DVS</li> <li>SITRANS P in German, Fand Spanish. Includes Coructions in various EU later</li> <li>Explosion protection</li> <li>None</li> <li>With ATEX, Type of practions in various safety (Exitations)</li> </ul>	perials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal o with documentation for English, French, Italian compact operating inst- nguages.  otection: ia)"		5 6	1 2 3 A B
Male thread M20 x 1.8 Male thread ½ -14 NF Non-wetted parts mate Housing made of die- Housing stainless ster Version Standard version, Gersetting for pressure ur International version, Englisetting for pressure un Chinese version, Englisetting for pressure un Il versions include DVE SITRANS P in German, End Sand Spanish. Includes Cructions in various EU la Explosion protection None With ATEX, Type of pr "Intrinsic safety (Exitations)	perials cast aluminium el precision casting <sup>6)</sup> rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal o with documentation for English, French, Italian Compact operating inst- nguages.  otection: (a)" (cd)" <sup>7)</sup>		5 6	1 2 3 A B D
Male thread M20 x 1.3 Male thread ½ -14 NF Non-wetted parts mate Housing made of die-Housing stainless ster Version Standard version, Gersetting for pressure ur International version, setting for pressure ur Chinese version, Englisetting for pressure un All versions include DVE SITRANS P in German, and Spanish. Includes Cructions in various EU la  Explosion protection None With ATEX, Type of pr "Intrinsic safety (Exitations) Texplosion-proof (Exitations)  None With ATEX, Type of pr "Explosion-proof (Exitations)	perials cast aluminium el precision casting <sup>6)</sup> rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal o with documentation for English, French, Italian Compact operating inst- nguages.  otection: (a)" (cd)" <sup>7)</sup>		5 6	1 2 3 A B
Male thread M20 x 1.3 Male thread ½ -14 NF Non-wetted parts mate Housing made of die- Housing stainless ster  Version Standard version, Gesetting for pressure un International version, Englisetting for pressure un Chinese version, Englisetting for pressure un All versions include DVD SITRANS P in German, End Sand Spanish. Includes Cructions in various EU la  Explosion protection None With ATEX, Type of promotion in the properties of the proof of the properties of the propert	perials cast aluminium el precision casting <sup>6)</sup> rman plate inscription, nit: bar English plate inscription, nit: barsh plate inscription, it: Pascal o with documentation for English, French, Italian compact operating inst- nguages.  otection: a)" c d)"7) flameproof enclosure"		5 6	1 2 3 A B D
Male thread M20 x 1.3 Male thread ½ -14 NF Non-wetted parts mate Housing made of die-Housing stainless ster Version Standard version, Gesetting for pressure under the setting for pressu	erials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal 0 with documentation for English, French, Italian Compact operating inst- nguages.  otection: a)" (cd)" (losion-proof enclosure"		5 6	1 2 3 3 A B D P
Male thread M20 x 1.3 Male thread ½ -14 NF Non-wetted parts mate Housing made of die-Housing stainless ster Version Standard version, Gesetting for pressure under the setting for pressu	erials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal 0 with documentation for English, French, Italian Compact operating inst- nguages.  otection: a)" (cd)" (losion-proof enclosure"		5 6	1 2 3 A B D P E
Male thread M20 x 1.3     Male thread ½ -14 NF     Non-wetted parts mate     Housing made of die-     Housing stainless ster  Version     Standard version, Gersetting for pressure ure     International version, setting for pressure ure     Chinese version, Englisetting for pressure ure     Ill versions include DVD SITRANS P in German, Earn Spanish. Includes Cructions in various EU la  Explosion protection     None     With ATEX, Type of presults after the compact of the co	erials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal o with documentation for English, French, Italian compact operating inst- nguages.  otection: (a)" (d)"7) flameproof enclosure"  olosion-proof enclosure protection (Ex ia + Ex d +		5 6	1 2 3 A B D P E
Male thread M20 x 1.3     Male thread ½ -14 NF     Non-wetted parts mate     Housing made of die-     Housing stainless ster  Version     Standard version, Gersetting for pressure ure     International version, setting for pressure ure     Chinese version, Englisetting for pressure ure     Chinese version, Englisetting for pressure ure     Chinese version, Englisetting for pressure ure     SITRANS P in German, Earn Spanish. Includes Cructions in various EU la  Explosion protection     None     With ATEX, Type of praction in various EU intrinsic safety (Existing in Explosion-proof (Existing in Explosion-proof (Existing in Explosion-proof (Existing in Explosion-proof (Existing in Explosion in Various Safety, and dust explosion in Zone 1D/2D)*     FM + CSA intrinsic sa	erials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal o with documentation for English, French, Italian compact operating inst- nguages.  otection: (a)" (c) d)" flameproof enclosure"  olosion-proof enclosure protection (Ex ia + Ex d + fe (is) <sup>11</sup> )		5 6	1 2 3 A B D P E R
Male thread M20 x 1.3     Male thread ½ -14 NF     Non-wetted parts mate     Housing made of die-     Housing stainless ster  Version     Standard version, Gersetting for pressure ure     International version, setting for pressure ure     Chinese version, Englisetting for pressure ure     Ill versions include DVD SITRANS P in German, Earn Spanish. Includes Cructions in various EU la  Explosion protection     None     With ATEX, Type of presults after the compact of the co	erials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, nit: bar sh plate inscription, it: Pascal o with documentation for English, French, Italian compact operating inst- nguages.  otection: (a)" (c) d)" flameproof enclosure"  olosion-proof enclosure protection (Ex ia + Ex d + fe (is) <sup>11</sup> )		5 6	1 2 3 A B D P E R
Male thread M20 x 1.4 Male thread ½ -14 NF Non-wetted parts mate Housing made of die- Housing stainless ster Version Standard version, Gesetting for pressure under the setting for the setting f	erials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, nit: bars sh plate inscription, it: Pascal 0 with documentation for English, French, Italian Compact operating inst- nguages.  otection: ia)" (a d)"7) flameproof enclosure"  losion-proof enclosure protection (Ex ia + Ex d + fe (is) <sup>11</sup> ) Ex ia + Ex d (ATEX) + of protection:		5 6	1 2 3 A B D P E R
Male thread M20 x 1.3 Male thread ½ -14 NF Non-wetted parts mate Housing made of die-Housing stainless ster Version Standard version, Gersetting for pressure une International version, setting for pressure une Chinese version, Englisetting for pressure une Chinese version, Englisetting for pressure une SITRANS P in German, Earling Spanish. Includes Cructions in various EU lae Explosion protection None With ATEX, Type of presult in the includes Cructions in various EU lae  Explosion protection None With ATEX, Type of presult in the includes Cructions in various EU lae  Explosion protection Intrinsic safety (Existence) "Explosion-proof (Existence)" (Existence) (Existen	erials cast aluminium el precision casting <sup>6</sup> )  rman plate inscription, nit: bar English plate inscription, nit: bars sh plate inscription, it: Pascal 0 with documentation for English, French, Italian Compact operating inst- nguages.  otection: ia)" (a d)"7) flameproof enclosure"  losion-proof enclosure protection (Ex ia + Ex d + fe (is) <sup>11</sup> ) Ex ia + Ex d (ATEX) + of protection:		5 6	1 2 3 A B D P E R

Selection and Ordering data	Article No.		
Pressure transmitter for gauge pressure,	7 M F 4 0 3 3 -		
SITRANS P DS III with HART			
Electrical connection / cable entry			
<ul> <li>Screwed gland M20 x1 .5</li> </ul>	В		
<ul> <li>Screwed gland ½-14 NPT</li> </ul>	C		
<ul> <li>Han 7D plug (plastic housing) incl. mating</li> </ul>	D		
connector <sup>12)</sup>			
<ul> <li>M12 connectors (stainless steel)<sup>12)13)</sup></li> </ul>	F		
Display			
Without display		0	
Without visible display		1	
(display concealed, setting: mA)			
<ul> <li>With visible display (setting: mA)</li> </ul>		6	
<ul> <li>with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)</li> </ul>		7	
Power aupply units ass Chan 7 "Cupplementary Co	mnononto"		

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

Included in delivery of the device:

- Brief instructions (Leporello)
- DVD with detailed documentation
- 1) For oxygen application, add Order code E10.
- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 3) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF403.-..Y..-.... and 7MF4900-1...-.B

  The standard measuring cell filling of configurations with remote seals (Y)
- is silicone oil.
- 6) Not in conjunction with Electrical connection "Han7D plug".
- 7) Without cable gland, with blanking plug
- 8) With enclosed cable gland Ex ia and blanking plug
- 9) Configurations with HAN and M12 connectors are only available in Ex ic.
- 10) Only in connection with IP66.
- 11) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- 12) Only in connection with Ex approval A, B or E.
- 13) M12 delivered without cable socket

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for gauge pressure

CITIANO I BO III I	or gauge pressure		
Selection and Orderin	<u> </u>	Article No	٠.
Pressure transmitter	or gauge pressure		
SITRANS P DS III with I	PROFIBUS PA (PA)	7MF403	4 -
SITRANS P DS III with FOUNDATION Fieldbus (FF)		7 M F 4 0 3	5 -
Click on the Article I ration in the PIA Life	No. for the online configu- Cycle Portal.		
Measuring cell filling	Measuring cell clean- ing		
Silicone oil	normal	1	
Inert liquid <sup>1)</sup>	grease-free to	3	
	cleanliness level 2		
Nominal measuring ra	_		
250 mbar 1 bar	(3.6 psi)	A B	
4 bar	(14.5 psi) (58 psi)	C	
16 bar	(232 psi)	D	
63 bar	(914 psi)	E	
160 bar	(2320 psi)	F	
400 bar	(5802 psi)	G	
700 bar	(10153 psi)	J	
Wetted parts material			
Seal diaphragm	Process connection		
Stainless steel Hastelloy	Stainless steel Stainless steel	A B	
Hastelloy	Hastelloy	C	
Version as diaphragm :	seal <sup>2) 3) 4) 5)</sup>	Y	
Process connection			
<ul> <li>Connection shank G<sup>1</sup></li> </ul>	½B to EN 837-1	0	
<ul> <li>Female thread ½-14 i</li> </ul>		1	
Stainless steel oval flagger	ange with process connec-		
tion (Oval flange has	6-20 UNF to IEC 61518	2	
<ul> <li>Mounting thread M<sup>2</sup></li> </ul>		3	
- Mounting thread M		4	
<ul> <li>Male thread M20 x 1.</li> </ul>	5	5	
<ul> <li>Male thread ½ -14 NF</li> </ul>	PT	6	
Non-wetted parts mat			
<ul><li>Housing made of die</li><li>Housing stainless ste</li></ul>		0	
Version	er precision casting	_ 3	
	rman lahel inscription		1
<ul> <li>Standard version, German label inscription, setting of pressure unit: bar</li> </ul>			
<ul> <li>International version,</li> </ul>	English label inscription,		2
setting of pressure ur			2
<ul> <li>Chinese version, Englisetting of pressure ur</li> </ul>			3
All versions incl. DVD with documentation for			
	English, French, Italian and		
various EU languages.	operating instructions in		
Explosion protection			
• None			Α
• With ATEX, Type of pr	rotection:		
- "Intrinsic safety (Ex			В
- "Explosion-proof (Ex d)" <sup>7)</sup>			D
<ul> <li>"Intrinsic safety and (Ex ia + Ex d)"<sup>8)</sup></li> </ul>	flameproof enclosure"		P
- "Ex nA/ic (Zone 2)" <sup>9)</sup>			Е
- "Intrinsic safety, exp	losion-proof enclosure and		R
dust explosion prote	ection (Ex ia + Ex d + not for DS III FF)		
Zone 1D/2D) <sup>(0)</sup> (	not for DS III FF)		
• FM + CSA intrinsic safe (is) <sup>11)</sup>			F
• FM + CSA (is + ep) + Zone 1D/2D <sup>8)10)11)</sup>	Ex ia + Ex d (ATEX) +		S
• With FM + CSA. Type	of protection:		
- "Intrinsic Safe and E (is + xp)" <sup>7)11)</sup>	Explosion Proof		NC
$(is + xp)^{*/11}$			
•			

Selection and Ordering data	Article No.	
Pressure transmitter for gauge pressure		
SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 0 3 4 -	
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 0 3 5 -	
Electrical connection/cable entry		
<ul> <li>Screwed gland M20 x 1.5</li> </ul>	В	
• Screwed gland 1/2-14 NPT	C	
<ul> <li>M12 connectors (stainless steel)<sup>12)13)</sup></li> </ul>	F	
Display		
Without display	0	
<ul> <li>Without visible display (display concealed, setting: bar)</li> </ul>	1	
<ul> <li>With visible display (setting: bar)</li> </ul>	6	
<ul> <li>with customer-specific display (setting as specified, Order code "Y21" required)</li> </ul>	7	

Included in delivery of the device:

- Brief instructions (Leporello)
- DVD with detailed documentation
- 1) For oxygen application, add Order code E10.
- 2) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified
- 3) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 4) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF403.-.Y..-... and 7MF4900-1...-.B

  5) The standard measuring cell filling of configurations with remote seals (Y)
- is silicone oil.
- is Silicone on.

  M10 fastening thread: Max. span 160 bar (2320 psi)
  7/16-20 UNF and M12 fastening thread: Max. span 400 bar (5802 psi)
  Without cable gland, with blanking plug.
- 8) With enclosed cable gland Ex ia and blanking plug.
- 9) Configurations with HAN and M12 connectors are only available in Ex ic.
- 10) Only in connection with IP66.
- Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- 12) M12 delivered without cable socket.
- <sup>13)</sup> Only in connection with Ex approval A, B, E or F.

Transmitters for applications with advanced requirements (Advanced)

					SITRANS P DS I	II for g	gauge	pres	sure
Selection and Ordering data	Order	code			Selection and Ordering data	Order	code		
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF	Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF
Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U-					CRN approval Canada (Canadian Registration Number)	E22	✓	✓	✓
washer or 1 x bracket, 2 x nut, 2 x U- washer) made of:					Dual seal	E24	✓	1	✓
• Steel	A01	1	1	1	Explosion-proof "Intrinsic safety" (Ex ia)	E25 <sup>4)</sup>	✓	✓	✓
<ul> <li>Stainless steel 304</li> </ul>	A02	✓	✓	✓	to INMETRO (Brazil)				
Stainless steel 316L	A03	✓	✓	✓	(only for transmitter 7MF4B)	<b>4</b> )		,	
Plug  • Han 7D (metal)	A30	1			"Flameproof" explosion protection according to INMETRO (Brazil)	E26 <sup>4)</sup>	<b>✓</b>	<b>✓</b>	<b>✓</b>
Han 8D (instead of Han 7D)	A31	1			(only for transmitter 7MF4				
• Angled	A32	✓			Explosion-proof "Intrinsic safety" (Ex ia	E28 <sup>4)</sup>	1	1	
Han 8D (metal)	A33	✓			+ Ex d) to INMETRO (Brazil)				
Cable sockets for M12 connectors	A50	✓	✓	✓	(only for transmitter 7MF4P)	4			
(metal (CuZn))					Ex Approval IEC Ex (Ex ia)	E45 <sup>4)</sup>	✓	✓	<b>✓</b>
Rating plate inscription (instead of German)					(only for transmitter 7MF4B)	E46 <sup>4)</sup>		,	
• English	B11	✓	✓	✓	Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4D)	E46*	<b>V</b>	•	•
• French	B12	<b>√</b>	1	<b>V</b>	Explosion-proof "Intrinsic safety" to	E55 <sup>4)</sup>	1	1	1
<ul><li>Spanish</li><li>Italian</li></ul>	B13 B14	<b>√</b>	<b>√</b>	1	NEPSI (China)	E33 /	<b>,</b>	•	•
Cyrillic (russian)	B16	1	1	1	(only for transmitter 7MF4B)				
English rating plate	B21	✓	1	1	Explosion protection "Explosion-proof"	E56 <sup>4)</sup>	✓	✓	✓
Pressure units in inH <sub>2</sub> 0 and/or psi					to NEPSI (China)				
Quality Inspection Certificate (5-point	C11	✓	✓	✓	(only for transmitter 7MF4D)	<b>4</b> )	,	,	
characteristic curve test) according to IEC 60770-2 <sup>1)</sup>					Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57 <sup>4)</sup>	•	•	•
Inspection certificate <sup>2)</sup> Acc. to EN 10204-3.1	C12	✓	✓	✓	Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)	E58 <sup>4)</sup>	✓	✓	✓
Factory certificate	C14	1	1	1	(only for transmitter 7MF4R)				
Acc. to EN 10204-2.2					"Intrinsic safety" and "Explosion-proof"	E70 <sup>4)</sup>	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL	C20	✓			explosion protection acc. to Kosha (Korea) (only for transmitter 7MF4[B, D]Z + E11)				
conformity declaration  Functional safety (PROFIsafe)	C21 <sup>3)</sup>		<b>✓</b>		Ex-protection Ex ia according to EAC Ex (Russia)	E80 <sup>5)</sup>	✓	✓	✓
Certificate and PROFIsafe protocol					(only for transmitter 7MF4B)	(5)		,	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL	C23	<b>√</b>			Ex-protection Ex d according to EAC Ex (Russia) (only for transmitter 7MF4D)	E81 <sup>5)</sup>	•	•	•
conformity declaration	C61	,	1	,	Ex-protection Ex nA/ic (Zone 2) according	E82 <sup>5)</sup>	✓	✓	✓
<b>Drinking water approval</b> Und. Lab. Clfd in accordance with	COI	<b>V</b>	•	✓	to EAC Ex (Russia) (only for transmitter 7MF4P)				
NSF/ANSI 372					Ex-protection Ex ia + Ex d + Zone 1D/2D	E83 <sup>5)</sup>	1	1	1
Device passport Russia	C99	✓	✓	✓	according to EAC Ex (Russia)				
Setting of upper limit of output signal to 22.0 mA	D05	✓			(only for transmitter 7MF4R)  Two coats of lacquer on casing and	G10	✓	1	✓
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)	D07	✓	✓	✓	cover (PU on epoxy)  Transient protector 6 kV (lightning pro-	J01	1	1	1
Degree of protection IP66/IP68 (only for M20x1.5 and ½-14 NPT)	D12	✓	✓	✓	tection) Process connection Astava	J06	1	./	1
Supplied with oval flange	D37	1	1	1					•
(1 item), PTFE packing and screws in thread of oval flange					When the manufacture's certificate (calibration ordered for transmitters with diaphragm seals is recommended only to order this certificate of the commended only to order this certificate of the commended only to order this certificate.	accordir exclusive	ng to IEO ely with t	C 6077 the dia	1-
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	D59	✓	✓	✓	phragm seals. The measuring accuracy of the here.				
Use in or on zone 1D/2D	E01	✓	✓	1	2) If the acceptance test certificate 3.1.is ordered mounted diaphragm seals this certificate mus	a for the t also be	ıransmı ordere	tter wi d with	the
(only together with type of protection "Intrinsic safety" (transmitter					respective remote seals.	th th . 0-	7 F.O	n mr = 1 '	o 1
7MF4B Ex ia)" and IP66)					3) Profisafe transmitters can only be operated wi configuration software in combination with S7-		r - Syste	ems V	0.1
Ovvgen application	F10	1	1	1	4) Option does not include ATEV approval, but in		oludoo	only th	

E10

E11

Oxygen application

**Export approval Korea** 

(In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))

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

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

<sup>&</sup>lt;sup>5)</sup> Approval pending.

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for gauge pressure

Selection and Ordering data	Order	code		
Additional data Please add "-Z" to Article No. and specify Order code(s) and plain text.		HART	PA	FF
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	✓	<b>√</b> 1)	
Stainless steel tag plate and entry in device variable (measuring point description)  Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text (entry in device variable)  Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG)  Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in 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 <sub>2</sub> O*), inH <sub>2</sub> O*), ftH <sub>2</sub> O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or %  *) ref. temperature 20 °C	Y21	<b>✓</b>	✓	•
Setting of pressure indication in non-pressure units <sup>2</sup> ) Specify in plain text: Y22: up to I/min, m <sup>3</sup> /h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01	<b>√</b>		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	1
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	✓

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

✓ = available

### Ordering example

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

A01 + Y01 + Y21 B line:

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

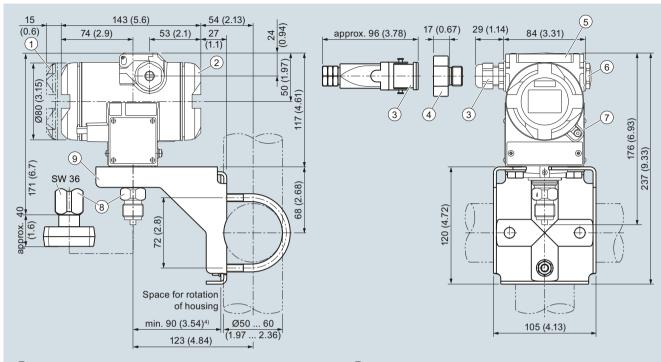
C line: Y21: bar (psi)

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

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for gauge pressure

### Dimensional drawings



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

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

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

Transmitters for applications with advanced requirements (Advanced)

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

### Technical specifications

Technical specifications				
SITRANS P DS III series for gauge and absolute pressure, v	vith front-flush diapl	hragm		
Input of gauge pressure, with front-flush diaphragm				
Measured variable	Gauge pressure, fro	nt-flush		
Span (continuously adjustable) or measuring range, max. operating pressure and max. test pressure	HART	PROFIBUS PA/ FOUNDATION Fieldbus		
	Span	Nominal measuring range	Max. operating pressure MAWP (PS)	Max. perm. test pressure
Agriculture   Agriculture		600 kPa		
	4 400 kPa	400 kPa	0.7 MPa	1 MPa
	16 1600 kPa	1600 kPa	2.1 MPa	3.2 MPa
	63 6300 kPa	6300 kPa	6.7MPa	10 MPa
Lower measuring limit				
Measuring cell with silicone oil filling	100 mbar a/10 kPa a	a/1.45 psia		
Measuring cell with inert filling liquid	100 mbar a/10 kPa a	a/1.45 psia		
Measuring cell with Neobee	100 mbar a/10 kPa a	a/1.45 psia		
Upper measuring limit	100 % of max. span			
Input of absolute pressure, with front-flush diaphragm				
Measured variable	Absolute pressure, f	ront-flush		
Span (continuously adjustable) or measuring range, max. operating pressure and max. test pressure	HART	FOUNDATION		
	·	range	sure MAWP (PS)	test pressure
	4.3 130 kPa a	130 kPa a	260 kPa a	1 MPa a
	16 500 kPa a	500 kPa a	1 MPa a	3 MPa a
	0.1 3 MPa a	3 MPa a	4.5 MPa a	10 MPa a
	Depending on the p	rocess connection, th	e span may differ from	m these values
Lower measuring limit	0 mbar a/0 kPa a/0 p	osia		
Upper measuring limit	100 % of max. span			
Output	HART		PROFIBUS PA/FOU	NDATION Fieldbus
Output signal	4 20 mA			and FOUNDATION
Lower limit (infinitely adjustable)	3.55 mA, factory pre	eset to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory prese optionally set to 22.0	et to 20.5 mA or ) mA	-	
	D 4/11 40.510/5	000 A in C		
	U <sub>H</sub> : Power supply in	V	-	
	$R_{\rm B} = 230 \dots 1100 \Omega$			
Physical bus	-		IEC 61158-2	
Protection against polarity reversal	other with max. supp	oly voltage.	y reversal. Each conr	ection against the
Electrical damping (step width 0.1 s)	Set to 2 s (0 100 s	3)		

Transmitters for applications with advanced requirements (Advanced)

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

#### SITRANS P DS III series for gauge and absolute pressure, with front-flush diaphragm Acc. to IEC 60770-1 Measuring accuracy Reference conditions • Increasing characteristic Start-of-scale value 0 bar/kPa/psi (All error data refer always refer to the set span) Stainless steel seal diaphragm · Silicone oil filling Room temperature 25 °C (77 °F) Measuring span ratio r (spread, Turn-Down) r = max. measuring span/set measuring span or nom. pressure range Error in measurement at limit setting incl. hysteresis and reproducibility · Linear characteristic Gauge pressure, front-flush Absolute pressure, front-flush - r < 5 $-5 < r \le 100$ - r ≤ 10 $-10 < r \le 30$ Influence of ambient temperature (in percent per 28 °C (50 °F)) Effect of ambient temperature (in pressure per temperature change) • Temperature difference between medium temperature and ambient temperature Long-term stability (temperature change ± 30 °C (± 54 °F)) Effect of mounting position (in pressure per change in angle) 0.4 mbar/0.04 kPa/0.006 per 10° inclination (zero point correction is possible with position error compensation) 0.005 % per 1 V Effect of auxiliary power supply (in percent per change in voltage) Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus 3 · 10<sup>-5</sup> of nominal measuring range **Rated conditions** Installation conditions Ambient temperature Observe the temperature class in areas subject to explosion hazard. Measuring cell with silicone oil -40 ... +85 °C (-40 ... +185 °F) -10 ... +85 °C (14 ... +185 °F) • Measuring cell with Neobee oil (with front-flush diaphragm) · Measuring cell with inert liquid -40 ... +85 °C (-40 ... +185 °F) Transmitter (with 4-wire connection, observe temperature val- -40 ... +85 °C (-40 ... +185 °F) ues of supplementary 4-wire electronics) -30 ... +85 °C (-22 ... +185 °F) Display readable -50 ... +85 °C (-58 ... +185 °F) Storage temperature (in the case of Neobee: -20 ... +85 °C (-4 ... +185/°F)) (for high temperature oil: -10 ... + 85 °C (14 ... 185 °F)) Climatic class Condensation Relative humidity 0 ... 100 % Condensation permissible, suitable for use in the tropics Degree of protection (to IEC 60529) IP66 (optional IP66/IP68), NEMA 4X Electromagnetic Compatibility Acc. to IEC 61326 and NAMUR NE 21 Emitted interference and interference immunity Medium conditions The max. medium temperature of the front-flush process connections is to be taken into account in accordance with the relevant connection standards (e. g. DIN 32676, DIN 11851 etc.). Temperature of medium · Measuring cell with silicone oil -40 ... +100 °C (-40 ... +212 °F) -40 ... +150 °C (-40 ... +302 °F) • Measuring cell with silicone oil (with front-flush diaphragm) Measuring cell with Neobee oil (with front-flush diaphragm) -10 ... +150 °C (14 ... 302 °F)

- Measuring cell with silicone oil, with temperature decoupler (only for gauge pressure version with front-flush diaphragm)
- Measuring cell with Neobee oil, with temp. decoupler (only for -10 ... +200 °C (14 ... 392 °F) gauge pressure version with flush-mounted diaphragm)
- · Measuring cell with inert filling liquid
- Measuring cell with high-temperature oil (only for gauge pres- -10 ... +250 °C (14 ... 482 °F) sure version with front-flush diaphragm)

	≤ 0.075 %	-
	$\leq$ (0.005 · r + 0.05) %	-
	-	≤ 0.2 %
	-	≤ 0.4 %
	$\leq$ (0.08 · r + 0.16) %	$\leq$ (0.16 · r + 0.24) %
	3 mbar/0.3 kPa/0.04 psi per 10 K	
	≤ (0.25 · r) % in 5 years	
١	0.4 mbar/0.04 kPa/0.006 per 10° inclination	nn

- -40 ... +200 °C (-40 ... +392 °F)
- -20 ... +100 °C (-4 ... +212 °F)

Current consumption
• Basic current (max.)

• Start-up current ≤ basic current

Fault disconnection electronics (FDE) available

• Max. current in event of fault

Transmitters for applications with advanced requirements (Advanced)

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

SITRANS P DS III series for gauge and absolute pressu	ure, with front-flush diaphragm	
Design		
Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)	
Enclosure material	Low-copper die-cast aluminum, GD-AlSi1 no. 1.4408	2 or stainless steel precision casting, mat.
Wetted parts materials	Stainless steel, mat. no. 1.4404/316L or H	lastelloy C276, mat. no. 2.4819
Measuring cell filling	Silicone oil or inert filling liquid	
Process connection	<ul> <li>Flanges as per EN and ASME</li> </ul>	
	F&B and pharmaceutical flanges	
Surface quality touched-by-media	$R_a$ -values ≤ 0.8 μm (32 μ-inch)/welds $R_a$ ) (Process connections acc. to 3A; $R_a$ -value (32 μ-inch)	$\leq$ 1.6 µm (64 µ-inch) es $\leq$ 0.8 µm (32 µ-inch)/welds $R_a$ ) $\leq$ 0.8 µm
Power supply <i>U</i> <sub>H</sub>	HART	PROFIBUS PA/FOUNDATION Fieldbus
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-
Power supply		Supplied through bus
Separate 24 V power supply necessary		No
Bus voltage		
• Not Ex	_	9 32 V
With intrinsically-safe operation	-	9 24 V

12.5 mA

15.5 mA

Yes

Yes

Transmitters for applications with advanced requirements (Advanced)

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

SITRANS P DS III series for gauge and absolute pressure,	with front-flush diaphragm	
Certificates and approvals		
Classification according to PED 2014/68/EU	For gases of fluid group 1 and liquids of fluarticle 4, paragraph 3 (sound engineering	uid group 1; complies with requirements of g practice)
Explosion protection		
• Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatur -40 +70 °C (-40 +158 °F) temperatur -40 +60 °C (-40 +140 °F) temperatur	re class T5;
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=$ 30 V, $I_{\rm i}=$ 100 mA, $P_{\rm i}=$ 750 mW; $P_{\rm i}=$ 300 $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatur -40 +60 °C (-40 +140 °F) temperatur	
- 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 ATEX 2055	
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)	
- Max. surface temperature	120 °C (248 °F)	
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $R_{\rm i}=300$ $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $P_0 = 1 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH},  C_{\rm i} = 6  {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$
• Dust explosion protection for zone 21/22	Ex II 2 D Ex tb IIIC T120°C Db	
- Marking	Ex II 2 D IP65 T 120 °C	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1 W
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X	
- Marking	Ex II 2/3 G Ex nA II T4/T5/T6 Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gc	
- Connection (Ex nA)	$U_{\rm m} = 45 \ {\rm V}$	<i>U</i> <sub>m</sub> = 32 V
- Connections (Ex ic)	To circuits with values: $U_{\rm i} = 45~{\rm V}$	FISCO supply unit ic: $U_0 = 17.5 \text{ V, } I_0 = 570 \text{ mA}$
		Linear barrier: $U_0 = 32 \text{ V}, I_0 = 132 \text{ mA}, P_0 = 1 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH},  C_{\rm i} = 6  {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$
Explosion protection acc. to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV T4T6; CL I, DIV 2, GP ABCD T4T6; CL II, DIV 2	
• Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV DIV 2, GP ABCD T4T6; CL II, DIV 2, GP	

### Hygiene version

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

Transmitters for applications with advanced requirements (Advanced)

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

orrination be in for gauge.	abootato procesare, man nom	
HART communication	222	FOUNDATION Fieldbus communication
HART	230 1100 Ω	Function blocks
Protocol	HART Version 5.x	r and to the state of
Software for computer	SIMATIC PDM	<ul> <li>Analog input</li> </ul>
PROFIBUS PA communication		- Adaptation to customer-sp
Simultaneous communication with master class 2 (max.)	4	ic process variables
The address can be set using	Configuration tool or local	- Electrical damping, adjust
aaa	operation (standard setting address 126)	- Simulation function
Cyclic data usage		- Failure mode
Output byte	5 (one measured value) or 10 (two measured values)	- Limit monitoring
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)	Ç
Internal preprocessing	metering)	<ul> <li>Square-rooted characteris for flow measurement</li> </ul>
Device profile	PROFIBUS PA Profile for Pro-	• PID
Device profile	cess Control Devices Version 3.0, class B	
Function blocks	2	Physical block
Analog input	_	Transducer blocks
- Adaptation to customer-specif-	Yes, linearly rising or falling	
ic process variables	characteristic	<ul> <li>Pressure transducer block</li> </ul>
- Electrical damping, adjustable	0 100 s	- Can be calibrated by app
- Simulation function	Input /Output	two pressures
- Failure mode	parameterizable (last good value, substitute value, incorrect value)	<ul> <li>Monitoring of sensor limits</li> <li>Simulation function: Measi pressure value, sensor ter</li> </ul>
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively	perature and electronics to perature
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output	
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)	
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively	
<ul> <li>Physical block</li> </ul>	1	
Transducer blocks	2	
<ul> <li>Pressure transducer block</li> </ul>		
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes	
- Monitoring of sensor limits	Yes	
<ul> <li>Specification of a container characteristic with</li> </ul>	Max. 30 nodes	
<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes	
<ul> <li>Gradual volume suppression and implementation point of square-root extraction</li> </ul>	Parameterizable	
- Simulation function for mea-	Constant value or over parame-	

#### NDATION Fieldbus nunication

- log input
- daptation to customer-specifprocess variables
- ectrical damping, adjustable
- mulation function
- ilure mode
- mit monitoring
- quare-rooted characteristic flow measurement
- sical block ducer blocks

- an be calibrated by applying o pressures
- onitoring of sensor limits
- mulation function: Measured essure value, sensor temerature and electronics temerature

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 FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

Yes

Constant value or over parameterizable ramp function

terizable ramp function

sured pressure value and sen-

sor temperature

Transmitters for applications with advanced requirements (Advanced)

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

Selection and Ordering	n data	Artic	e No.
	or gauge and absolute		4133-
pressure, front-flush d	liaphragm,		
SITRANS P DS III HAR			
ration in the PIA Life	lo. for the online configu- Cycle Portal.		
Measuring cell filling	Measuring cell cleaning		
Silicone oil Inert liquid	normal	1 3	
men ilquia	grease-free to cleanliness level 2	3	
FDA compliant fill fluid			
<ul> <li>Neobee oil</li> </ul>	normal	4	
Measuring span (min.	max.)		
0.01 1 bar	(0.15 14.5 psi)	В	
0.04 4 bar	(0.58 58 psi)	С	
0.16 16 bar	(2.32 232 psi)	D	
0.63 63 bar	(9.14 914 psi)	E	
43 1300 mbar a <sup>1)</sup>	(0.62 18.85 psia) <sup>1)</sup>	S	
0.16 5 bar a <sup>1)</sup>	(0.7 72.5 psia) <sup>1)</sup>	T	
1 30 bar a <sup>1)</sup>	(4.35 435 psia) <sup>1)</sup>	U	
Wetted parts materials			
Seal diaphragm	Connection shank		
Stainless steel	Stainless steel	A	
Hastelloy <sup>2)</sup>	Stainless steel	В	
Process connection			
	der code M, N, R or Q		7
Non-wetted parts mate			
<ul><li>Housing made of die-</li><li>Housing stainless stee</li></ul>			0
Version	or precision easing	_	
<ul> <li>Standard version, Ger</li> </ul>	man plate inscription.		1
setting for pressure ur			
	English plate inscription,		2
<ul><li>setting for pressure ur</li><li>Chinese version, Englis</li></ul>			3
setting for pressure uni			3
All versions include DVD			
SITRANS P in German, E	nglish, French, Italian and		
Spanish. Includes Comp in various EU languages	act operating instructions		
Explosion protection	•		
None			A
With ATEX, Type of pro	otection:		
- "Intrinsic safety (Ex i	a)"		В
- "Explosion-proof (Ex	d)" <sup>3)</sup>		D
<ul> <li>"Ex nA/ic (Zone 2)"<sup>4</sup></li> </ul>	)		E
• FM + CSA intrinsic sa			F
• FM + CSA (is + ep) + Zone 1D/2D <sup>5)6)7)</sup>	Exia + Ex d (ATEX) +		S
• With FM + CSA, Type			
- "Intrinsic Safe and Ex	xplosion Proof (is + xp)"3)5)		NC
Electrical connection/	cable entry		
• Inner thread M20 x 1.5			В
• Female thread ½-14 N			С
<ul> <li>Han 7D plug (plastic h connector<sup>8)</sup></li> </ul>	nousing) incl. mating		D
<ul><li>M12 connectors (stair</li></ul>	nless steel) <sup>9) 10)</sup>		F
- MIL COMBCIOIS (Stall	iiooo steerj		•

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

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

Included in delivery of the device:

- Brief instructions (Leporello)
  DVD 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 available for flanges with options M.., N.. and Q..
- 3) Without cable gland, with blanking plug
- 4) Configurations with HAN and M12 connectors are only available in Ex ic.
- Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- 6) Only in connection with IP66.
- 7) With enclosed cable gland Ex ia and blanking plug.
- 8) Only in connection with Ex approval A, B or E.
- 9) Only in connection with Ex approval A, B, E or F.
- 10) M12 delivered without cable socket

Transmitters for applications with advanced requirements (Advanced)

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

Selection and Orderin	g data	Artic	le No	).		
Pressure transmitter in pressure, front-flush of	P for gauge and absolute diaphragm:					
SITRANS P DS III with PROFIBUS PA (PA)		7 M F	413	4	-	
SITRANS P DS III with FOUNDATION Fieldbus (FF)		7MF4135-				
Click on the Article N ration in the PIA Life	No. for the online configu- Cycle Portal.	П	-		Т	
Measuring cell filling	Measuring cell clean-					
Silicone oil	i <b>ng</b> normal	1				
Inert liquid	grease-free to	3				
ment ilquid	cleanliness level 2	9				
FDA compliant fill fluid						
Neobee oil	normal	4				
Nominal measuring ra	inae					
1 bar	(14.5 psi)	В				
4 bar	(58 psi)	С				
16 bar	(232 psi)	D				
63 bar	(914 psi)	E				
1300 mbar a <sup>1)</sup>	(18.85 psia) <sup>1)</sup>	S				
5 bar a <sup>1)</sup>	(72.5 psia) <sup>1)</sup>	T				
30 bar a <sup>1)</sup>	(435 psia) <sup>1)</sup>	Ü				
Wetted parts materials	, , ,					
Seal diaphragm	Connection shank					
Stainless steel	Stainless steel	А				
Hastellov <sup>2)</sup>	Stainless steel	В				
Process connection	Stall liess steel					
Flange version with O Q  Non-wetted parts mate	rder code M, N, R or		7			
Housing made of die-			0			
<ul> <li>Housing stainless ste</li> </ul>			3			
Version		-				
<ul> <li>Standard version, Ge</li> </ul>	rman plate inscription.			1		
setting for pressure u						
	English plate inscription,			2		
setting for pressure u						
Chinese version, Engli				3		
setting for pressure un All versions include DVD						
	English, French, Italian and					
	pact operating instructions					
in various EU languages						
Explosion protection						
<ul><li>None</li></ul>					Α	
<ul> <li>With ATEX, Type of pr</li> </ul>	otection:					
<ul> <li>"Intrinsic safety (Ex</li> </ul>					В	
- "Explosion-proof (Ex					D	
<ul> <li>"Ex nA/ic (Zone 2)"<sup>4</sup></li> </ul>					E	
<ul> <li>FM + CSA intrinsic sa</li> </ul>					F	
• FM + CSA (is + ep) + Zone 1D/2D <sup>5)6)7)</sup>	Ex ia + Ex d (ATEX) +				S	
• With FM + CSA, Type	of protection:					
	xplosion Proof (is + xp)" <sup>3)5)</sup>				NC	
(available soon)	anhla antini					
Screwed gland M20 v					В	
<ul> <li>Screwed gland M20 &gt;</li> <li>Screwed gland ½-14</li> </ul>					C	
M12 connectors (stair	nless steel)8)9)				F	
witz connectors (stan	11000 01001)					

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

- Included in delivery of the device:
   Brief instructions (Leporello)
   DVD with detailed documentation
- Not with temperature decoupler P00 and P10, not for process connections R01, R02, R04, R10 and R11, and can only be ordered in conjunction with silicone oil.
- 2) Only available for flanges with options M.., N.. and Q.
- 3) Without cable gland, with blanking plug
  4) Configurations with HAN and M12 connectors are only available in Ex ic.
- 5) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- 6) Only in connection with IP66.
- 7) With enclosed cable gland Ex ia and blanking plug.
- 8) Only in connection with Ex approval A, B, E or F.
- 9) M12 delivered without cable socket

Transmitters for applications with advanced requirements (Advanced)

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

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	ı
Plug				
• Han 7D (metal)	A30	1		
Han 8D (instead of Han 7D)	A31	1		
• Angled	A32	1		
• Han 8D (metal)	A33	1		
Cable sockets for M12 connectors	A50	1	✓	
(metal (CuZn))				
Rating plate inscription (instead of German			,	
• English	B11	<b>√</b>	✓,	
• French	B12	<b>Y</b>	<b>V</b>	
• Spanish	B13	<b>√</b>	<b>1</b>	
• Italian	B14	<b>√</b>	<b>1</b>	
Cyrillic (russian)	B16	✓	✓	
English rating plate	B21	✓	✓	
Pressure units in inH <sub>2</sub> 0 and/or psi  Quality Inspection Certificate (5-point char	C11	1		
acteristic curve test) according to	• • • • • • • • • • • • • • • • • • • •	Ů	•	
IEC 60770-2	040		,	
Inspection certificate Acc. to EN 10204-3.1	C12	✓	•	
Factory certificate	C14	1	1	
Acc. to EN 10204-2.2	• • •			
Functional safety (SIL2)	C20	1		
Devices suitable for use according to				
IEC 61508 and IEC 61511. Includes SIL con-				
formity declaration				
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 <sup>1)</sup>		✓	
Functional safety (SIL2/3)	C23	1		
Devices suitable for use according to				
IEC 61508 and IEC 61511. Includes SIL con-				
formity declaration	000	,	,	
Device passport Russia	C99	1	✓	
Setting of upper limit of output signal to 22.0 mA	D05	•		
Degree of protection IP66/IP68	D12	✓	✓	
(only for M20x1.5 and ½-14 NPT)				
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	D59	<b>√</b>	✓	
	E10	1	./	
Oxygen application (In the case of oxygen measurement and inert	210		•	
(In the case of oxygen measurement and inert				
liquid max. 100 bar (1450 psi) at 60°C (140 °F))		1	✓	
liquid max. 100 bar (1450 psi) at 60°C (140 °F)) <b>Export approval Korea</b>	E11			
Export approval Korea		1	1	
	E11	✓	✓	
Export approval Korea CRN approval Canada		<b>√</b>	✓	
Export approval Korea  CRN approval Canada (Canadian Registration Number)	E22	✓		
Export approval Korea  CRN approval Canada (Canadian Registration Number)  Dual seal  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E22	✓		
Export approval Korea  CRN approval Canada (Canadian Registration Number)  Dual seal  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)	E22 E24 E25 <sup>2)</sup>	✓		
Export approval Korea  CRN approval Canada (Canadian Registration Number)  Dual seal  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  "Flameproof" explosion protection accord-	E22 E24 E25 <sup>2)</sup>	✓		
Export approval Korea  CRN approval Canada (Canadian Registration Number)  Dual seal  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  "Flameproof" explosion protection according to INMETRO (Brazil)	E22 E24 E25 <sup>2)</sup>	✓		
Export approval Korea  CRN approval Canada (Canadian Registration Number)  Dual seal  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  "Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4D)	E22 E24 E25 <sup>2)</sup>	✓		
Export approval Korea  CRN approval Canada (Canadian Registration Number)  Dual seal  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  "Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia +	E22 E24 E25 <sup>2)</sup>	✓		
Export approval Korea  CRN approval Canada (Canadian Registration Number)  Dual seal  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  "Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E22 E24 E25 <sup>2)</sup>	✓		
Export approval Korea  CRN approval Canada (Canadian Registration Number)  Dual seal  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  "Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E22 E24 E25 <sup>2)</sup> E26 <sup>2)</sup>	✓ ✓ ✓ ✓		
Export approval Korea  CRN approval Canada (Canadian Registration Number)  Dual seal  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  "Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)  Ex Approval IEC Ex (Ex ia)	E22 E24 E25 <sup>2)</sup>	✓ ✓ ✓ ✓		
Export approval Korea  CRN approval Canada (Canadian Registration Number)  Dual seal  Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)  "Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4D)  Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E22 E24 E25 <sup>2)</sup> E26 <sup>2)</sup>	✓ ✓ ✓ ✓		

Selection and Ordering data	Order	code		
Further designs	Oradi	HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Explosion-proof "Intrinsic safety" to NEPSI	E55 <sup>2)</sup>	✓	✓	✓
(China) (only for transmitter 7MF4B)				
Explosion protection "Explosion-proof" to	E56 <sup>2)</sup>	./	./	./
NEPSI (China)	E30 /	_	•	¥
(only for transmitter 7MF4				
Ex protection "Zone 2" to NEPSI (China)	E57 <sup>2)</sup>	✓	✓	✓
(only for transmitter 7MF4				
Ex protection "Ex ia", "Ex d" and "Zone 2"	E58 <sup>2)</sup>	✓	✓	✓
to NEPSI (China) (only for transmitter 7MF4R)				
"Intrinsic safety" and "Explosion-proof"	E70 <sup>2)</sup>	1	1	1
explosion protection acc. to Kosha (Korea)			•	Ť
(only for transmitter				
7MF4[B, D]Z + E11)	3)		,	,
Ex-protection Ex ia according to EAC Ex (Russia)	E80 <sup>3)</sup>	<b>~</b>	✓	<b>~</b>
Ex-protection Ex d according to EAC Ex	E81 <sup>3)</sup>	1	1	1
(Russia)				
Ex-protection Ex nA/ic (Zone 2) according to	E82 <sup>3)</sup>	✓	✓	✓
EAC Ex (Russia)	_,			
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83 <sup>3)</sup>	✓	✓	✓
	G10	1		-/
Two coats of lacquer on casing and cover (PU on epoxy)	GIU		•	•
Transient protector 6 kV (lightning protec-	J01	✓	✓	✓
tion)				
Flanges to EN 1092-1, Form B1		,		,
<ul> <li>DN 25, PN 40<sup>4)</sup></li> <li>DN 40, PN 40</li> </ul>	M11 M13	1	1	<b>√</b>
• DN 40, PN 100	M23	1	1	1
• DN 50, PN 16	M04	✓	✓	✓
• DN 50, PN 40	M14	✓.	✓.	1
• DN 80, PN 16	M06	1	1	1
• DN 80, PN 40	M16	•	•	•
Flanges to ASME B16.5  • Stainless steel flange 1" class 150 <sup>4)</sup>	M40	1	1	1
• Stainless steel flange 1½" class 150	M41	1	1	1
• Stainless steel flange 2" class 150	M42	✓	✓	✓
Stainless steel flange 3" class 150	M43	✓.	✓.	<b>V</b>
• Stainless steel flange 4" class 150	M44	1	1	1
<ul> <li>Stainless steel flange 1½" class 300</li> <li>Stainless steel flange 2" class 300</li> </ul>	M46 M47	1	1	<b>√</b>
• Stainless steel flange 3" class 300	M48	1	1	✓
Stainless steel flange 4" class 300	M49	✓	✓	✓
Threaded connector to DIN 3852-2,				
form A, thread to ISO 228  • G ¾"-A, front-flush <sup>5)</sup>	R01	1	1	1
• G 1"-A, front-flush <sup>5)</sup>	R02	1	1	1
• G 2"-A, front-flush	R04	1	1	1
Tank connection <sup>6)</sup>				
Sealing is included in delivery				
• TG 52/50, PN 40	R10	1	1	1
• TG 52/150, PN 40	R11	•	•	•

Transmitters for applications with advanced requirements (Advanced)

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

_					
Selection and Ordering data	Order	code			Selection and Ordering data
Further designs		HART	PA	FF	Further designs
Add "-Z" to Article No. and specify Order code.					Add "-Z" to Article No. and specify Order of
Sanitary process connection according DIN 11851 (Dairy connection with slotted					Sanitary process connection to NEUMO Bio-Connect clamp connectio
union nut)	NOA		,	,	EHEDG compliant
• DN 50, PN 25	NO4	1	<b>√</b>	1	• DN 50, PN 16
• DN 80, PN 25	N06	<b>*</b>	✓	✓	• DN 65, PN 10
Tri-Clamp connection according					• DN 80, PN 10
DIN 32676/ISO 2852					• DN 100, PN 10
• DN 50/2", PN 16	N14	<b>V</b>	<b>~</b>	✓.	• DN 2½", PN 16
• DN 65/3", PN 10	N15	✓	✓	✓	• DN 3", PN 10
Varivent connection					• DN 4", PN 10
EHEDG compliant					Bio-Control sanitary process connecti
<ul> <li>Type N = 68 for Varivent housing</li> </ul>	N28	✓	✓	✓	EHEDG compliant <sup>8)</sup>
DN 40 125 and 1½" 6", PN 40					• DN 50, PN 16
Temperature decoupler up to 200 °C <sup>7)</sup>	P00	✓	✓	✓	• DN 65, PN 16
for version with front-flush diaphragm					Sanitary process connection to
Temperature decoupler up to 250 °C	P10	1	✓	✓	NEUMO Bio-Connect S flange connect
Measuring cell filling: High-temperature oil,					EHEDG compliant
only in conjunction with measuring cell filling					• DN 2", PN 16
silicone oil					Aseptic threaded socket to DIN 11864-
Sanitary process connection to DRD					Form A
• DN 50, PN 40	M32	✓	✓	✓	EHEDG compliant
SMS socket with union nut					• DN 50, PN 25
• 2"	M67	1	✓	1	• DN 65, PN 25
• 2½"	M68	1	1	1	• DN 80, PN 25
• 3"	M69	1	✓	1	• DN 100, PN 25
SMS threaded socket					Aseptic flange with notch to DIN 11864
• 2"	M73	1	1	1	Form A
• 21/2"	M74	1	1	1	EHEDG compliant
• 3"	M75	1	1	1	• DN 50, PN 16
•	W/7 S	Ţ	•	•	• DN 65, PN 16
IDF socket with union nut ISO 2853					• DN 80, PN 16
• 2"	M82	✓	✓.	✓,	• DN 100, PN 16
• 2½"	M83	<b>√</b>	<b>√</b>	<b>1</b>	Aseptic flange with groove to DIN 1180
• 3"	M84	✓	✓	✓	Form A EHEDG compliant
IDF threaded socket ISO 2853					• DN 50, PN 16
• 2"	M92	✓	✓	✓	,
• 2½"	M93	1	✓	✓	• DN 65, PN 16
• 3"	M94	1	✓	✓	
Sanitary process connection to					• DN 80, PN 16
NEUMO Bio-Connect screw connection					- DN 100 DN 10
EHEDG compliant		_	_		• DN 100, PN 16
• DN 50, PN 16	Q05	<b>√</b>	✓.	✓.	
• DN 65, PN 16	Q06	<b>✓</b>	✓.	✓.	Aseptic clamp with groove to DIN 1186 FormA
• DN 80, PN 16	Q07	✓	<b>V</b>	✓.	EHEDG compliant
• DN 100, PN 16	Q08	✓.	✓.	✓.	·
• DN 2", PN 16	Q13	✓	✓.	✓.	<ul><li>DN 50, PN 25</li><li>DN 65, PN 25</li></ul>
• DN 2½", PN 16	Q14	<b>V</b>	<b>V</b>	✓.	•
• DN 3", PN 16	Q15	<b>1</b>	✓.	✓.	<ul><li>DN 80, PN 16</li><li>DN 100, PN 16</li></ul>
• DN 4", PN 16	Q16	✓	✓	✓	• DIN 100, FIN 16
Sanitary process connection to NEUMO					1) Profisafe transmitters can only be operate
Bio-Connect flange connection					figuration software in combination with S
EHEDG compliant					<ol> <li>Option does not include ATEX approval, It try appoint approval</li> </ol>
• DN 50, PN 16	Q23	✓,	<b>1</b>	<b>√</b>	try-specific approval.  3) Approval pending.
• DN 65, PN 16	Q24	✓.	<b>V</b>	✓.	<ul> <li>Approval pending.</li> <li>Special seal in Viton included in the scol</li> </ul>
• DN 80, PN 16	Q25	✓.	<b>√</b>	<b>✓</b>	FKM; temperature range -20 +200 °C
• DN 100, PN 16	Q26	<b>V</b>	<b>V</b>	✓.	5) Cannot be combined with Order codes F
• DN 2", PN 16	Q31	✓.	<b>V</b>	✓.	with silicone oil measuring cell filling.
• DN 21/2", PN 16	Q32	✓	✓.	✓.	6) The weldable socket can be ordered un
• DN 3", PN 16	Q33	<b>/</b>	✓.	✓.	3A and EHEDG compliant. The maximur medium depend on the respective cell fi
• DN 4", PN 16	Q34	✓	✓	✓	8) 3A compliance ensured only when 3A co

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Sanitary process connection to				
NEUMO Bio-Connect clamp connection EHEDG compliant				
• DN 50, PN 16	Q39	1	1	1
• DN 65, PN 10	Q40	1	1	1
• DN 80, PN 10	Q41	1	1	1
• DN 100, PN 10	Q42	1	1	1
• DN 2½", PN 16	Q48	1	1	1
• DN 3", PN 10	Q49	1	✓	✓
• DN 4", PN 10	Q50	✓	✓	✓
Bio-Control sanitary process connection				
EHEDG compliant <sup>8)</sup>	050	,	1	1
• DN 50, PN 16	Q53	1	<b>v</b>	·/
• DN 65, PN 16	Q54	_		· ·
Sanitary process connection to NEUMO Bio-Connect S flange connection				
EHEDG compliant				
• DN 2", PN 16	Q72	✓	✓	✓
Aseptic threaded socket to DIN 11864-1				
Form A				
EHEDG compliant	NOO		,	,
• DN 50, PN 25	N33	<b>1</b>	<b>√</b>	<b>4</b>
• DN 65, PN 25	N34 N35	1	<b>v</b>	<b>V</b>
<ul><li>DN 80, PN 25</li><li>DN 100, PN 25</li></ul>	N36	<b>V</b>	·/	1
,	1430	ľ	•	•
Aseptic flange with notch to DIN 11864-2 Form A				
EHEDG compliant				
• DN 50, PN 16	N43	1	✓	✓
• 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 EHEDG compliant				
• DN 50, PN 16	N43 + P11	<b>✓</b>	✓	<b>✓</b>
• DN 65, PN 16	N44 +	✓	✓	✓
• DN 80, PN 16	P11 N45 +	1	1	1
- DN 60, 1 N 10	P11	ľ	•	·
• DN 100, PN 16	N46 + P11	✓	✓	✓
Acentic clamp with groove to DIN 11964.2				
Aseptic clamp with groove to DIN 11864-3 FormA				
EHEDG compliant				
• DN 50, PN 25	N53	✓	✓	✓
• DN 65, PN 25	N54	✓	✓	✓
• DN 80, PN 16	N55	✓	✓	✓
• DN 100, PN 16	N56	✓	1	1

ated with the S7 F Systems V6.1 con-S7-400H.

<sup>,</sup> but instead includes only the coun-

cope of delivery. C (-4 ... +392 °C) & P00 and P10. Can only be ordered

nder accessories.

um permissible temperatures of the fillings (see medium conditions).

compliant sealing rings are used.

Transmitters for applications with advanced requirements (Advanced)

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

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	<b>V</b>	<b>√</b> 1)	
Stainless steel tag plate and entry in device variable (measuring point description)  Max. 16 characters, specify in plain text:	Y15	✓	✓	✓
Measuring point text (entry in device variable)	Y16	✓	<b>✓</b>	✓
Max. 27 characters, specify in plain text: Y16:	=			
Entry of HART address (TAG)	Y17	<b>✓</b>		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indicator in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note:				
The following pressure units can be selected: bar, mbar, mm H <sub>2</sub> O*), inH <sub>2</sub> O*), ftH <sub>2</sub> O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % ") ref. temperature 20 °C				
Setting of pressure indication in	Y22 +	✓		
non-pressure units <sup>2)</sup> Specify in plain text: Y22: up to l/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y01			
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	✓
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	✓

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

✓ = available

### ordering example

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

B line: A22 + Y01 + Y21

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

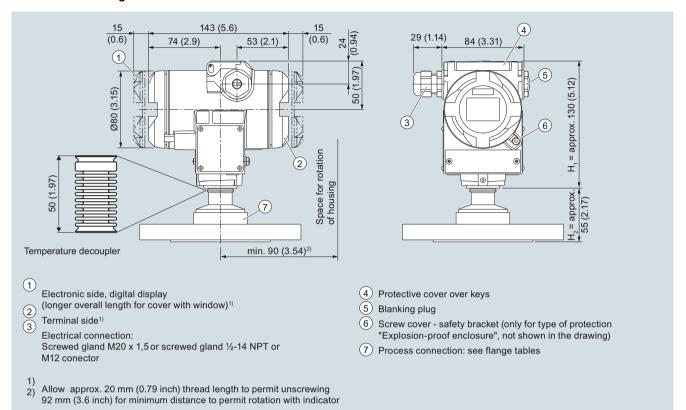
C line: Y21: bar (psi)

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

Transmitters for applications with advanced requirements (Advanced)

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

### Dimensional drawings



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

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

H<sub>1</sub> = Height of the SITRANS P300 up to a defined cross-section

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

Only the height H<sub>2</sub> is indicated in the dimensions of the flanges.

Transmitters for applications with advanced requirements (Advanced)

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

#### Flanges as per EN and ASME

#### Flange to EN

EN 1092-1					
	Order code	DN	PN	ØD	H <sub>2</sub>
	M11	25	40	115 mm (4.5")	Approx.
	M13	40	40	150 mm (5.9")	52 mm (2")
<u> </u>	M23	40	100	170 mm (6.7")	
	M04	50	16	165 mm (6.5")	
	M14	50	40	165 mm (6.5")	
	MO6	80	16	200 mm (7.9")	

80 40

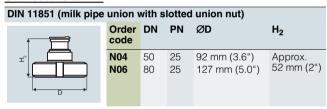
200 mm (7.9")

### Flanges to ASME

#### **ASME B16.5** Order DN PΝ ØD Hο code M40 1" 150 110 mm (4.3") Approx. 52 mm (2") M41 11/2" 150 130 mm (5.1") M42 2" 150 150 mm (5.9") 3" M43 190 mm (7.5") 150 M44 4" 150 230 mm (9.1") M46 11/2" 300 155 mm (6.1") M47 2" 300 165 mm (6.5") M48 3" 300 210 mm (8.1") M49 4" 300 255 mm (10.0")

### NuG and pharmaceutical connections

#### Connections to DIN



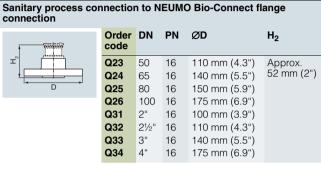
Tri-Clamp nach DIN 32676								
	Order code	DN	PN	ØD	H <sub>2</sub>			
	N14	50	16	64 mm (2.5")	Approx. 52 mm (2")			
D	N15	65	10	91 mm (3.6")	JZ IIIII (Z )			

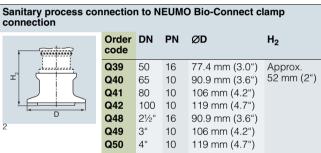
### Other connections

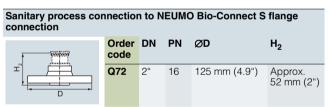
Varivent connection								
+ <del></del>	Order code	DN	PN	ØD	H <sub>2</sub>			
I D	N28	40 125	40	84 mm (3.3")	Approx. 52 mm (2")			

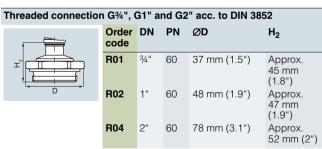
Sanitary process connection to DRD								
	Order code	DN	PN	ØD	H <sub>2</sub>			
	M32	50	40	105 mm (4.1")	Approx. 52 mm (2")			

#### Sanitary process screw connection to NEUMO Bio-Connect Order DN PΝ Hο code Q05 50 16 82 mm (3.2") Approx. 006 52 mm (2") 65 16 105 mm (4.1") 115 mm (4.5") Q07 80 16 Q08 100 16 145 mm (5.7") 82 mm (3.2") Q13 2" 16 Q14 21/2" 105 mm (4.1") 16 3" Q15 16 105 mm (4.1") 4" Q16 16 145 mm (5.7")









Transmitters for applications with advanced requirements (Advanced)

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

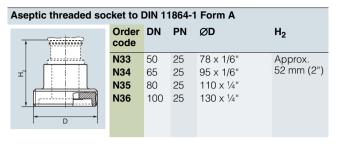
#### Tank connection TG 52/50 and TG52/150 Order DN PN Η2 code R10 25 40 63 mm (2.5") Approx. 63 mm (2.5")Approx. 170 mm R11 25 40 63 mm (2.5") (6.7")

SMS socket with union nut							
	Order code	DN	PN	ØD	H <sub>2</sub>		
I T	M67	2"	25	84 mm (3.3")	Approx.		
	M68	21/2"	25	100 mm (3.9")	52 mm (2")		
	M69	3"	25	114 mm (4.5")			
D							

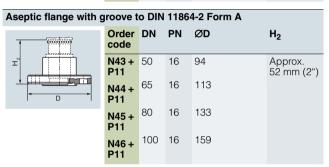
DN	DNI		
		ØD	H <sub>2</sub>
21/2"	25	85 x 1/6 mm	Approx. 52 mm (2")
	2" 2½"	2" 25 2½" 25	2" 25 70 x 1/6 mm 2½" 25 85 x 1/6 mm

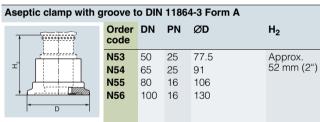
IDF socket with union nut								
	Order code	DN	PN	ØD	H <sub>2</sub>			
<b>1</b>	M82	2"	25	77 mm (3")	Approx.			
N	M83	21/2"	25	91 mm (3.6")	52 mm (2")			
D	M84	3"	25	106 mm (4.2")				





Aseptic flange with notch to DIN 11864-2 Form A								
	Order code	DN	PN	ØD	H <sub>2</sub>			
<b>1</b>	N43	50	16	94	Approx. 52 mm (2")			
	N44	65	16	113	52 mm (2")			
	N45	80	16	133				
l D l	N46	100	16	159				





Transmitters for applications with advanced requirements (Advanced)

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

# Technical specifications

SITRANS P DS III series for absolute pressure (from the gauge pressure series)						
Input						
Measured variable	Absolute pressure					
Span (fully adjustable) or measuring range, max. operating pressure (in accordance with 2014/68/EU Pressure Equipment Directive) and max. test pressure (pursuant to DIN 16086)	HART	PROFIBUS PA/ FOUNDATION Fieldbus				
	Span	Nominal measuring range	Max. operating pressure MAWP (PS)	Max. perm. test pressure		
	8.3 250 mbar a 0.83 25 kPa a 3 100 inH <sub>2</sub> O a	1.3 250 mbar a 250 mbar a 1.5 bar a 6 bar a 25 kPa a 150 kPa a 600 kPa				
	43 1300 mbar a 4.3 130 kPa a 17 525 inH <sub>2</sub> O a	1300 mbar a 130 kPa a 525 inH <sub>2</sub> O a	2.6 bar a 260 kPa a 37.7 psia	10 bar a 1 MPa a 145 psia		
	16 500 kPa a 500 kPa a 1 MPa a 3 MF			30 bar a 3 MPa a 435 psia		
	1 30 bar a 0.1 3 MPa a 14.5 435 psia	30 bar a 3 MPa a 435 psia	45 bar a 4.5 MPa a 653 psia	100 bar a 10 MPa a 1450 psia		
Lower measuring limit				·		
Measuring cell with silicone oil filling	0 mbar a/0 kPa a/0 psia					
<ul> <li>Measuring cell with inert filling liquid</li> </ul>						
- for process temperature -20 °C < 9 $\leq$ +60 °C (-4 °F < 9 $\leq$ +140 °F)	30 mbar a/3 kPa a/0.44 psia					
- for process temperature 60 °C < $9 \le$ +100 °C (max. 85 °C for measuring cell 30 bar) (140 °F < $9 \le$ +212 °C (max. 185 °C for measuring cell 435 psi))	30 mbar a + 20 mbar a · (9 - 60 °C)/°C 3 kPa a + 2 kPa a · (9 - 60 °C)/°C 0.44 psi a + 0.29 psi a · (9 - 108 °F)/°F					
Upper measuring limit	100 % of max. span (for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (108 °F) ambient temperature/process temperature)					
Start of scale value	Between the measuring limits (fully adjustable)					
Output	HART PROFIBUS PA/FOUNDATION Fie			NDATION Fieldbus		
Output signal	4 20 mA		Digital PROFIBUS PA and FOUNDATION Fieldbus signal			
<ul> <li>Lower limit (infinitely adjustable)</li> </ul>	3.55 mA, factory pre	eset to 3.84 mA	-			
Upper limit (infinitely adjustable)	23 mA, factory prese optionally set to 22.0		-			
Load						
• Without HART	$R_{\rm B} \leq (U_{\rm H}$ - 10.5 V)/0.023 A in $\Omega$ , $U_{\rm H}$ : Power supply in V					
• With HART	$R_{\rm B} = 230 \dots 500 \ \Omega$ (SIMATIC PDM) or $R_{\rm B} = 230 \dots 1100 \ \Omega$ (HART Communicator)					
Physical bus	- IEC 61158-2					
Protection against polarity reversal	Protected against short-circuit and polarity reversal.  Each connection against the other with max. supply voltage.					
Electrical damping (step width 0.1 s)	Set to 2 s (0 100 s)					

Transmitters for applications with advanced requirements (Advanced)

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

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

Transmitters for applications with advanced requirements (Advanced)

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

SITRANS P DS III series for absolute pressure (from the gauge pressure series)					
Design					
Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)				
Enclosure material	Low-copper die-cast aluminur no. 1.4408	m, GD-AlSi 12 or stainless steel precision casting, mat.			
Wetted parts materials					
Connection shank	Stainless steel, mat. no. 1.440	04/316L or Hastelloy C4, mat. no. 2.4602			
Oval flange	Stainless steel, mat. no. 1.440	04/316L			
Seal diaphragm	Stainless steel, mat. no. 1.440	Stainless steel, mat. no. 1.4404/316L or Hastelloy C276, mat. no. 2.4819			
Measuring cell filling		Silicone oil or inert filling liquid (maximum value with oxygen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))			
Process connection		Connection shank G½B to EN 837-1, female thread ½ -14 NPT or oval flange (PN 160 (MAWP 2320 psia)) to DIN 19213 with mounting thread M10 or $^7/_{16}$ -20 UNf to IEC 61518			
Material of mounting bracket					
• Steel	Sheet-steel, Mat. No. 1.0330,	Sheet-steel, Mat. No. 1.0330, chrome-plated			
• Stainless steel	Sheet stainless steel, mat. no.	Sheet stainless steel, mat. no. 1.4301 (SS 304)			
Power supply <i>U</i> ⊔	HART	PROFIBUS PA/FOUNDATION Fieldbus			

Check stailiness steet, that. No. 1.4001 (CO 004)		
HART	PROFIBUS PA/FOUNDATION Fieldbus	
10.5 45 V DC 10.5 30 V DC in intrinsically-safe mod	e -	
	Supplied through bus	
-	No	
-	9 32 V	
-	9 24 V	
-	12.5 mA	
-	Yes	
-	15.5 mA	
-	Yes	
	HART	

Transmitters for applications with advanced requirements (Advanced)

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

SITRANS P DS III series for absolute pressure (from the gauge pressure series)				
Certificates and approvals	HART PROFIBUS PA/ FOUNDATION Fields			
Classification according to PED 2014/68/EU	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)			
Explosion protection				
• Intrinsic safety "i"	PTB 13 ATEX 2007 X			
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +70 °C (-40 +158 °F) temperature class T5; -40 +60 °C (-40 +140 °F) temperature class T6			
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}=30~{\rm V},~l_{\rm i}=100~{\rm mA},~P_{\rm i}=750~{\rm mW};~R_{\rm i}=300~\Omega$ FISCO supply unit: $U_{\rm o}=17.5~{\rm V},~l_{\rm o}=380~{\rm mA},~P_{\rm o}=5.3.5~{\rm Linear~barrier};~U_{\rm o}=24~{\rm V},~l_{\rm o}=250~{\rm mA},~P_{\rm o}=1.2~{\rm W}$			
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$		
• Explosion-proof "d"	PTB 99 ATEX 1160			
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatur -40 +60 °C (-40 +140 °F) temperatur			
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC		
Dust explosion protection for zone 20	PTB 01 ATEX 2055			
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)			
- Max. surface temperature	120 °C (248 °F)			
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW, $R_{\rm i}$ = 300 $\Omega$ FISCO supply unit: $U_{\rm o}$ = 17.5 V, $I_{\rm o}$ = 380 mA, $P_{\rm o}$ = 5 Linear barrier: $U_{\rm o}$ = 24 V, $I_{\rm o}$ = 250 mA, $I_{\rm o}$ = 1.2			
- 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 ATEX 2055			
- Marking	Ex II 2 D Ex tb IIIC T120°C Db			
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V To circuits with values: $U_{\rm H}$ = 9 32 DC; $P_{\rm max}$ = 1.2 W			
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X			
- Marking	Ex II 2/3 G Ex nA II T4/T5/T6 Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gc			
- Connection (Ex nA)	$U_{\rm m} = 45 \ {\rm V}$	$U_{\rm m} = 32 \text{ V}$		
- Connection (Ex ic)	To circuits with values: FISCO supply unit ic: $U_0 = 45 \text{ V}$ FISCO supply unit ic: $U_0 = 17.5 \text{ V}$ , $I_0 = 570 \text{ mA}$			
	Linear barrier: $U_0 = 32 \text{ V}$ , $I_0 = 132 \text{ mA}$ , $P_0 = 1 \text{ V}$			
- 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 protection acc. to FM	Certificate of Compliance 3008490			
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6; CL I, DIV 2, GP ABCD T4T6; CL II, DIV 2, GP FG; CL III			
• Explosion protection to CSA	Certificate of Compliance 1153651			
- 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 applications with advanced requirements (Advanced)

	SITRANS	P DS III for absolute pressure (	from gauge pressure series)
HART communication		FOUNDATION Fieldbus	
HART	230 1100 Ω	communication	
Protocol	HART Version 5.x	Function blocks	3 function blocks analog input, 1 function block PID
Software for computer	SIMATIC PDM	Analog input	
PROFIBUS PA communication		- Adaptation to customer-specif-	Yes, linearly rising or falling
Simultaneous communication with master class 2 (max.)	4	ic process variables	characteristic
The address can be set using	Configuration tool or local opera-	- Electrical damping, adjustable	0 100 s
The address can be set using	tion (standard setting address 126)	- Simulation function	Output/input (can be locked within the device with a bridge)
Cyclic data usage	-/	- Failure mode	parameterizable (last good value, substitute value, incorrect
Output byte	5 (one measured value) or 10 (two measured values)	- Limit monitoring	value) Yes, one upper and lower warn-
• Input byte	0, 1, or 2 (register operating mode and reset function for	- Limit monitoring	ing limit and one alarm limit respectively
Internal preprocessing	metering)	- Square-rooted characteristic for flow measurement	Yes
Device profile	PROFIBUS PA Profile for Pro-	• PID	Standard FOUNDATION
·	cess Control Devices Version 3.0, class B		Fieldbus function block
Function blocks	2	Physical block	1 resource block
Analog input	_	Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
<ul> <li>Adaptation to customer-specific process variables</li> </ul>	Yes, linearly rising or falling characteristic	Pressure transducer block	
- Electrical damping, adjustable	0 to 100 s	<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes
- Simulation function	Input /Output	- Monitoring of sensor limits	Yes
- Failure mode	parameterizable (last good value, substitute value, incorrect value)	- Simulation function: Measured pressure value, sensor tem-	Constant value or over parameterizable ramp function
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively	perature and electronics tem- perature	
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output		
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)		
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively		
<ul> <li>Physical block</li> </ul>	1		

Transducer blocks

two pressures

characteristic with - Square-rooted characteristic for flow measurement - Gradual volume suppression

sor temperature

• Pressure transducer block - Can be calibrated by applying

- Monitoring of sensor limits

- Specification of a container

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

sured pressure value and sen-

2

Yes

Yes

Max. 30 nodes

Parameterizable

Constant value or over parame-

terizable ramp function

Transmitters for applications with advanced requirements (Advanced)

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

Selection and Ordering data		Art	Article No.					
Pressure transmitters f		7 N	۱F	4 2	2 3	3 .		
from gauge pressure se	eries .							7
SITRANS P DS III with I								
↑ Click on the Article New ration in the PIA Life	lo. for the online configu- Cycle Portal.							
Measuring cell filling	Measuring cell cleaning							
Silicone oil	normal	1						
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3						
<del> </del>								
Measuring span (min.	•							
8.3 250 mbar a 43 1300 mbar a	(0.12 3.62 psia) (0.62 18.85 psia)	E F						
0.16 5 bar a	(2.32 72.5 psia)	G						
1 30 bar a	(14.5 435 psia)	H						
Wetted parts materials	. , ,							
Seal diaphragm	Process connection							
Stainless steel	Stainless steel		Α					
Hastelloy	Stainless steel		В					
Hastelloy	Hastelloy		С					
Version for diaphragm s	seal <sup>2) 3) 4) 5) 6)</sup>		Υ					
Process connection								
<ul> <li>Connection shank G½</li> </ul>				0				
<ul> <li>Female thread ½-14 N</li> </ul>				1				
Stainless steel oval flagger								
connection (Oval flang	ge has no female thread)			_				
<ul> <li>Mounting thread 1/16</li> <li>Mounting thread M1</li> </ul>	3-20 UNF to EN 61518			2				
- Mounting thread M1				ა 4				
Male thread M20 x 1.5				5				
Male thread ½ -14 NP				6				
Non-wetted parts mate		-						
Housing made of die-				c	)			
Housing stainless stee	_`			3				
Version	1 0	_						
<ul> <li>Standard version, Ger</li> </ul>	man plate inscription					1		
setting for pressure ur								
	English plate inscription,					2		
setting for pressure ur								
<ul> <li>Chinese version, English setting for pressure unit</li> </ul>						3		
All versions include DVD								
SITRANS P in German, E								
and Spanish. Includes C	compact operating inst-							
ructions in various EU lar	nguages.							
<ul><li>Explosion protection</li><li>None</li></ul>							١	
<ul> <li>With ATEX, Type of pre</li> </ul>	otection:					ľ	`	
- "Intrinsic safety (Ex i						ļ	3	
- "Explosion-proof (Ex							5	
- "Intrinsic safety and	flameproof enclosure"					ı	>	
- "Intrinsic safety and (Ex ia + Ex d)" <sup>9)</sup>								
<ul> <li>"Ex nA/ic (Zone 2)"<sup>10</sup></li> </ul>	0)							
- "Intrinsic safety, expl	losion-proof enclosure					F	7	
and dust explosion p Zone 1D/2D\"9)11)	protection (Ex ia+ Ex d +							
• FM + CSA intrinsic sa						ı,	=	
							3	
• FM + CSA (is + ep) + Zone 1D/2D <sup>9)11)12)</sup>	- · - · · · · · · · · · · · · · · · · ·							
<ul> <li>With FM + CSA, Type</li> </ul>	of protection:							
- "Intrinsic Safe and E	xplosion Proof					1	١C	
- "Intrinsic Safe and Explosion Proof (is + xp)" <sup>8)12)</sup>								
Electrical connection/								
Screwed gland M20x							В	
• Screwed gland ½-14 NPT							C	
<ul> <li>Han 7D plug (plastic housing) incl. mating connector<sup>13)</sup></li> </ul>							D	
							F	
• M12 connectors (stainless steel) <sup>14) 15)</sup>								

Selection and Ordering data	Article No.
Pressure transmitters for absolute pressure	7 M F 4 2 3 3 -
from gauge pressure series SITRANS P DS III with HART	
Display	
Without display	0
<ul> <li>Without visible display (display concealed, setting: mA)</li> </ul>	1
With visible display (setting: mA)	6
<ul> <li>with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)</li> </ul>	7

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

Included in delivery of the device:

- Brief instructions (Leporello)
- DVD with detailed documentation
- 1) For oxygen application, add Order code E10.
- <sup>2)</sup> Version 7MF4233-1DY... only up to max. span 200 mbar a (80 in $H_2O$  a).
- 3) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here. 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.
- The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF423.-.Y..-... and 7MF4900-1...-.B
- 6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 7) Not in conjunction with Electrical connection "Han7D plug".
- 8) Without cable gland, with blanking plug.
- 9) With enclosed cable gland Ex ia and blanking plug.
- 10) Configurations with HAN and M12 connectors are only available in Ex ic.
- 11) Only in connection with IP66.
- 12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- 13) Only in connection with Ex apporval A, B or E.
- <sup>14)</sup> Only in connection with Ex apporval A, B, E or F.
- 15) M12 delivered without cable socket

Transmitters for applications with advanced requirements (Advanced)

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

			SITR	ANS
Selection and Orderin	g data	Artio	cle No.	
Pressure transmitters	for absolute pressure			
from gauge pressure				
SITRANS P DS III with P	` ,		F4234-	
	OUNDATION Fieldbus (FF)		F4235-	
Click on the Article N ration in the PIA Life	No. for the online configu- Cycle Portal.			
Measuring cell filling	Measuring cell cleaning			
Silicone oil	normal	1		
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3		
Nominal measuring ra	nge			
250 mbar a	(3.62 psia)	D		
1300 mbar a	(18.85 psia)	F		
5 bar a	(72.5 psia)	G		
30 bar a	(435 psia)	Н		
Wetted parts materials Seal diaphragm	Process connection			
Stainless steel	Stainless steel	-	Δ	
Hastelloy	Stainless steel		В	
Hastelloy	Hastelloy			
Version as diaphragm s	seal <sup>2) 3) 4) 5) 6)</sup>		Y	
Process connection				
• Connection shank G1/2	2B to EN 837-1		0	
<ul> <li>Female thread ½-14 N</li> </ul>	NPT		1	
	inge with process connec-			
tion (Oval flange has a	no female thread) <sub>3</sub> -20 UNF to IEC 61518			
<ul> <li>Mounting thread 1/16</li> <li>Mounting thread M1</li> </ul>			2	
- Mounting thread M1			4	
Male thread M20 x 1.5			5	
• Male thread ½ -14 NP			6	
Non-wetted parts mate	erials	-		
Housing made of die-			0	
<ul> <li>Housing stainless stee</li> </ul>	el precision casting		3	
Version				
Standard version, Ger			1	
setting for pressure un	nit: bar English plate inscription,		2	
setting for pressure ur			2	
• Chinese version, English	sh plate inscription,		3	
setting for pressure uni				
All versions include DVD				
	English, French, Italian and pact operating instructions			
in various EU languages				
Explosion protection				
<ul><li>None</li><li>With ATEX, Type of presented in the present of the present o</li></ul>	otection:		А	
- "Intrinsic safety (Ex i			В	
- "Explosion-proof (Ex			D	
- "Intrinsic safety and	flameproof enclosure"		P	
(Ex ia + Ex d)"8)	1)			
- "Ex nA/ic (Zone 2)" <sup>9</sup>			E	
- "Intrinsic safety, expl	osion-proof enclosure and		R	
Zone 1D/2D) <sup>#8) 10)</sup> (I	ection (Ex ia + Ex d + not for DS III FF)			
<ul> <li>FM + CSA intrinsic sa</li> </ul>	fe (is) <sup>11)</sup>		F	
• FM + CSA (is + ep) + Zone 1D/2D <sup>8)10)11)</sup>	Ex ia + Ex d (ATEX) +		S	
<ul> <li>With FM + CSA, Type</li> <li>"Intrinsic Safe and F</li> </ul>			NC	
<ul> <li>"Intrinsic Safe and E (is + xp)"<sup>7)11)</sup></li> </ul>	Apicolotti tool		"	
Electrical connection/				
Screwed gland M20 x			E	
• Screwed gland ½-14	NPT		C	
M12 connectors (stair	ness steel) 127 137		F	

Selection and Ordering data	Article No.	
Pressure transmitters for absolute pressure from gauge pressure series		
SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 2 3 4 -	
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 2 3 5 -	
Display		
Without display		0
Without visible display		1
(display concealed, setting: bar)		
<ul> <li>With visible display (setting: bar)</li> </ul>		6
<ul> <li>with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)</li> </ul>		7

Included in delivery of the device:
• Brief instructions (Leporello)
• DVD with detailed documentation

- 1) For oxygen application, add Order code E10.
- <sup>2)</sup> Version 7MF4233-1DY... only up to max. span 200 mbar a (2.9 psia).
- 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
- 4) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF423.-..Y..-... and 7MF4900-1...-.B
- 6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 7) Without cable gland, with blanking plug.
- 8) With enclosed cable gland Ex ia and blanking plug.
- 9) Configurations with HAN and M12 connectors are only available in Ex ic.
- <sup>10)</sup>Only in connection with IP66.
- 11) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- 12) Only in connection with Ex approval A, B, E or F.
- 13) M12 delivered without cable socket.

Transmitters for applications with advanced requirements (Advanced)

### 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 Article No. and specify Order code.				
Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U- washer or 1 x bracket, 2 x nut, 2 x U- washer) made of:				
<ul><li>Steel</li><li>Stainless steel 304</li><li>Stainless steel 316L</li></ul>	A01 A02 A03	<b>* * *</b>	<ul><li>✓</li><li>✓</li></ul>	<b>✓ ✓</b>
Plug • Han 7D (metal) • Han 8D (instead of Han 7D) • Angled • Han 8D (metal)	A30 A31 A32 A33	<b>* * * *</b>		
Cable sockets for M12 connectors (metal (CuZn))	A50	1	✓	✓
Rating plate inscription (instead of German)				
English     French     Spanish     Italian     Cyrillic (russian)	B11 B12 B13 B14 B16	<b>* * * * * *</b>		<b>* * * * * *</b>
English rating plate	B21	<b>√</b>	<b>*</b>	<b>✓</b>
Pressure units in inH <sub>2</sub> 0 and/or psi  Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2 <sup>1)</sup>	C11	<b>*</b>	✓	✓
Inspection certificate <sup>2)</sup> Acc. to EN 10204-3.1	C12	✓	✓	✓
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	✓
Functional safety (SIL2) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C20	✓		
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 <sup>3)</sup>		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C23	✓		
Device passport Russia	C99	✓	✓	✓
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)	D07	✓	✓	✓
Degree of protection IP66/IP68 (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	✓
Supplied with oval flange (1 item), PTFE packing and screws in thread of oval flange	D37	1	✓	✓
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	D59	✓	✓	✓
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia)" and IP65)	E01	✓	✓	✓
Oxygen application (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	E10	✓	✓	✓
Export approval Korea	E11	✓	✓	✓

Selection and Ordering data	Order			
Further designs		HART	PA	FF
Add " <b>-Z</b> " to Article No. and specify Order code.				
CRN approval Canada (Canadian Registration Number)	E22	✓	✓	✓
Dual seal	E24	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25 <sup>4)</sup>	✓	✓	✓
(only for transmitter 7MF4B)	4)			
"Flameproof" explosion protection according to INMETRO (Brazil)	E26 <sup>4)</sup>	<b>✓</b>	✓	✓
(only for transmitter 7MF4)	4			
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28 <sup>4)</sup>	✓	✓	
(only for transmitter 7MF4P)	•			
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4B)	E45 <sup>4)</sup>	✓	✓	✓
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4D)	E46 <sup>4)</sup>	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55 <sup>4)</sup>	✓	✓	✓
(only for transmitter 7MF4B)	E56 <sup>4)</sup>		,	
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56.7	•	•	•
Explosion-proof "Zone 2" to NEPSI (China)	E57 <sup>4)</sup>	✓	✓	✓
(only for transmitter 7MF4E)	4\			
Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)  (only for transmitter 7MF4R)	E58 <sup>4)</sup>	<b>√</b>	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)	E70 <sup>4)</sup>	✓	✓	✓
(only for transmitter 7MF4[B, D]Z + E11)				
Ex-protection Ex ia according to EAC Ex (Russia)	E80 <sup>5)</sup>	✓	✓	✓
Ex-protection Ex d according to EAC Ex (Russia)	E81 <sup>5)</sup>	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82 <sup>5)</sup>	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83 <sup>5)</sup>	1	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	1	✓	✓
Transient protector 6 kV (lightning protection)	J01	✓	✓	✓
Oval flange NAM (ASTAVA)	J06	✓	✓	✓

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.

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

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

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

<sup>5)</sup> Approval pending.

Transmitters for applications with advanced requirements (Advanced)

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

Selection and Ordering data	Order	code		
Additional data		HART	PA	FI
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar a, bar a, kPa <sub>abs</sub> , MPa <sub>abs</sub> , psia <sup>2)</sup>	Y01	✓	<b>√</b> 1)	
Stainless steel tag plate and entry in device variable (measuring point description)  Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	•
Measuring point text (entry in device variable)	Y16	✓	✓	✓
Max. 27 characters, specify in plain text: Y16:  Entry of HART address (TAG)  Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure units Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected:	Y21	<b>✓</b>	•	•
bar, mbar, mm H <sub>2</sub> O <sup>*)</sup> , inH <sub>2</sub> O <sup>*)</sup> , ftH <sub>2</sub> O <sup>*)</sup> , mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units <sup>3)</sup> Specify in plain text: Y22: up to I/min, m <sup>3</sup> /h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y22 + Y01	✓		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		1	•
Damping adjustment in seconds	Y30	./	1	

Factory mounting of valve manifolds, see accessories.

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

✓ = available

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

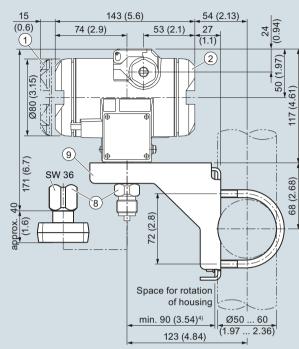
<sup>2)</sup> Only absolute pressure units selectable. Negative pressure values not permitted.

 $<sup>^{\</sup>rm 3)}$  Preset values can only be changed over SIMATIC PDM.

Transmitters for applications with advanced requirements (Advanced)

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

### Dimensional drawings

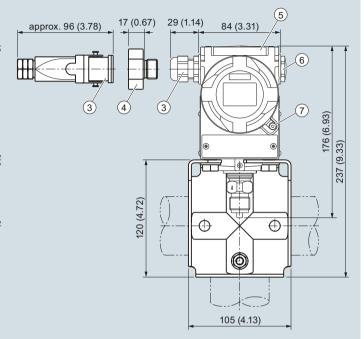


- 2 Terminal side<sup>1)</sup>
- (3) Electrical connection: Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/Han 8D<sup>2) 3)</sup> plug

(longer overall length for cover with window)1)

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

1 Electronic side, digital display



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

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

Transmitters for applications with advanced requirements (Advanced)

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

## Technical specifications

SITRANS P, DS III for absolute pressure (from the differenti	al pressure series)		
Input			
Measured variable	Absolute pressure		
Span (fully adjustable) or measuring range, max. operating pressure (in accordance with 2014/68/EU Pressure Equipment Directive) and max. test pressure (pursuant to DIN 16086)	HART	PROFIBUS PA/ FOUNDATION Fieldbus	
	Span	Nominal measuring range	Max. operating pressure MAWP (PS)
	8.3 250 mbar a 0.83 25 kPa a 3 100 inH <sub>2</sub> O a	250 mbar a 25 kPa a 100 inH <sub>2</sub> O a	32 bar a 3.2 MPa a 464 psia
	43 1300 mbar a 4.3 130 kPa a 17 525 inH <sub>2</sub> O a	1300 mbar a 130 kPa a 525 inH <sub>2</sub> O a	32 bar a 3.2 MPa a 464 psia
	160 5000 mbar a 16 500 kPa a 2.32 72.5 psia	5000 mbar a 500 kPa a 72.5 psia	32 bar a 3.2 MPa a 464 psia
	1 30 bar a 0.1 3 MPa a 14.5 435 psia	30 bar a 3 MPa a 435 psia	160 bar a 16 MPa a 2320 psia
	5.3 100 bar a 0.5 10 MPa a 76.9 1450 psia	100 bar a 10 MPa a 1450 psia	160 bar a 16 MPa a 2320 psia
Lower measuring limit		Г	'
Measuring cell with silicone oil filling	0 mbar a/0 kPa a/0 p	osia	
Measuring cell with inert filling liquid			
- for process temperature -20 °C < 9 $\leq$ +60 °C (-4 °F < 9 $\leq$ +140 °F)	30 mbar a/3 kPa a/0	.44 psia	
- for process temperature 60 °C < $9 \le$ +100 °C (max. 85 °C for measuring cell 30 bar) (140 °F < $9 \le$ +212 °C (max. 185 °C for measuring cell 435 psi))	30 mbar a + 20 mba 3 kPa a + 2 kPa a · ( 0.44 psi a + 0.29 ps	9 - 60 °C)/°C	
Upper measuring limit		ement max. 100 bar/1 e/process temperature	0 MPa/1450 psi and 60 °C (108 °F) e)
Start of scale value	Between the measur	ring limits (fully adjust	able)
Output	HART		PROFIBUS PA/ FOUNDATION Fieldbus
Output signal	4 20 mA		Digital PROFIBUS PA and FOUNDATION Fieldbus signal
Lower limit (infinitely adjustable)	3.55 mA, factory pre	eset to 3.84 mA	-
Upper limit (infinitely adjustable)	23 mA, factory prese optionally set to 22.0		-
Load			
• Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.00$ $U_{\rm H}$ : Power supply in	023 A in Ω, V	-
With HART	$R_{\rm B} = 230 \dots 500 \Omega (300 R_{\rm B} = 230 \dots 1100 R_{\rm B} (300 R_{\rm B} = 230 \dots 1100 R_{\rm B} (300 R_{\rm B} = 230 \dots 1100 R_{\rm B} (300 R_{\rm B} = 230 \dots 1100 R_{\rm B} (300 R_{\rm B} = 230 R_{\rm B} (300 R_{\rm B} (300 R_{\rm B} = 230 R_{\rm B} (300 R_{\rm B} ($	SIMATIC PDM) or (HART Communica-	-
Physical bus	-		IEC 61158-2
Protection against polarity reversal		nort-circuit and polarit ainst the other with m	
Electrical damping (step width 0.1 s)	Set to 2 s (0 100 s	3)	

Transmitters for applications with advanced requirements (Advanced)

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

SITRANS P, DS III for absolute pressure (from the differenti	al pressure series)
Measuring accuracy	Acc. to IEC 60770-1
Reference conditions (All error data refer always refer to the set span)	<ul> <li>Increasing characteristic</li> <li>Start-of-scale value 0 bar/kPa/psi</li> <li>Stainless steel seal diaphragm</li> <li>Silicone oil filling</li> <li>Room temperature 25 °C (77 °F)</li> </ul>
Measuring span ratio r (spread, Turn-Down)	r = max. measuring span/set measuring span or nom. pressure range
Error in measurement at limit setting incl. hysteresis and reproducibility	
Linear characteristic	
- r ≤ 10	≤ 0.1 %
- 10 < r ≤ 30	≤ 0.2 %
Influence of ambient temperature (in percent per 28 °C (50 °F))	
• 250 mbar a/25 kPa a/3.6 psia	$\leq$ (0.15 · r + 0.1) %
<ul> <li>1300 mbar a/130 kPa a/18.8 psia</li> <li>5 bar a/500 kPa a/72.5 psia</li> <li>30 bar a/3000 kPa a/435 psia</li> <li>100 bar a/10 MPa a/1450 psia</li> </ul>	$\leq$ (0.08 · r + 0.16) %
Long-term stability (temperature change ± 30 °C (± 54 °F))	≤ (0.25 · r) % in 5 years
Effect of mounting position (in pressure per change in angle)	≤ 0.7 mbar/0.07 kPa/0.001015 psi per 10° inclination (zero point correction is possible with position error compensation)
Effect of auxiliary power supply (in percent per change in voltage)	0.005 % per 1 V
Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus	3 ⋅ 10 <sup>-5</sup> of nominal measuring range
Rated conditions	
Degree of protection (to IEC 60529)	IP66 (optional IP66/IP68), NEMA 4X
Temperature of medium	
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)
Measuring cell with inert filling liquid	-20 +100 °C (-4 +212 °F)
<ul> <li>In conjunction with dust explosion protection</li> </ul>	-20 +60 °C (-4 +140 °F)
Ambient conditions	
Ambient temperature	
<ul> <li>Transmitter (with 4-wire connection, observe temperature values of sup- plementary 4-wire electronics)</li> </ul>	-40 +85 °C (-40 +185 °F)
- Display readable	-30 +85 °C (-22 +185 °F)
Storage temperature	-50 +85 °C (-58 +185 °F)
Climatic class	
- Condensation	Relative humidity 0 100 % Condensation permissible, suitable for use in the tropics
Electromagnetic Compatibility	
- Emitted interference and interference immunity	Acc. to IEC 61326 and NAMUR NE 21

Transmitters for applications with advanced requirements (Advanced)

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

SITRANS P, DS III for absolute pressure (from the differenti	al pressure series)		
Design			
Weight (without options)	≈ 4.5 kg (≈ 9.9 (lb)		
Enclosure material	Low-copper die-cast aluminum, GD-AlSi1 no. 1.4408	2 or stainless steel precision casting, mat.	
Wetted parts materials			
Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or H mat. no. 2.4360, tantalum or gold	astelloy C276, mat. no. 2.4819, Monel,	
Process flanges and sealing screw	Stainless steel, mat. no. 1.4408, Hastelloy 2.4360	C4, mat. no. 2.4602 or Monel, mat. no.	
• O-Ring	FPM (Viton) or optionally: PTFE, FEP, FEPI	M and NBR	
Measuring cell filling	Silicone oil or inert filling liquid (maximum value with oxigen measurement pressure 100 bar (1450 psi) at 60 °C (140 °F))		
Process connection	$^{1\!\!4}\text{-}18$ NPT and flange connection with mounting thread M10 to DIN 19213 or $^{7\!\!/}_{16}\text{-}20$ UNF to IEC 61518		
Material of mounting bracket			
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plat	ted	
Stainless steel	Sheet stainless steel, mat. no. 1.4301 (SS	304)	
Power supply $U_{H}$	HART	PROFIBUS PA/FOUNDATION Fieldbus	
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-	
Power supply		Supplied through bus	
Separate 24 V power supply necessary	-	No	
Bus voltage			
• Not Ex	-	9 32 V	
With intrinsically-safe operation	-	9 24 V	
Current consumption			
Basic current (max.)	-	12.5 mA	
• Start-up current ≤ basic current	-	Yes	
Max. current in event of fault	-	15.5 mA	
Fault disconnection electronics (FDE) available	-	Yes	

Transmitters for applications with advanced requirements (Advanced)

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

### SITRANS P, DS III for absolute pressure (from the differential pressure series) PROFIBUS PA/ FOUNDATION Fieldbus HART Certificates and approvals Classification according to PED 2014/68/EU For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice) Explosion protection Intrinsic safety "i" PTB 13 ATEX 2007 X Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb - Marking -40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +70 °C (-40 ... +158 °F) temperature class T5; -40 ... +60 °C (-40 ... +140 °F) temperature class T6 - Permissible ambient temperature - Connection To certified intrinsically-safe circuits with FISCO supply unit: $U_0 = 17.5 \text{ V}, I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$ peak values: $U_{\rm i} = 30 \text{ V}, I_{\rm i} = 100 \text{ mA}, P_{\rm i} = 750 \text{ mW}; R_{\rm i} = 300 \Omega$ Linear barrier: $U_{\rm O}$ = 24 V, $I_{\rm O}$ = 250 mA, $P_{\rm O}$ = 1.2 W - Effective internal inductance/capacitance $L_i = 7 \mu H, C_i = 1.1 nF$ $L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$ Explosion-proof "d" PTB 99 ATEX 1160 - Marking Ex II 1/2 G Ex d IIC T4/T6 Gb - Permissible ambient temperature -40 ... +85 °C (-40 ... +185 °F) temperature class T4; -40 ... +60 °C (-40 ... +140 °F) temperature class T6 - Connection To circuits with values: To circuits with values: $U_{H} = 9 \dots 32 \text{ V DC}$ H = 10.5 ... 45 V DC Dust explosion protection for zone 20 PTB 01 ATEX 2055 Ex II 1 D Ex ta IIIC T120°C Da - Marking Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db - Permissible ambient temperature -40 ... +85 °C (-40 ... +185 °F) 120 °C (248 °F) - Max. surface temperature - Connection To certified intrinsically-safe circuits with FISCO supply unit: $U_0 = 17.5 \text{ V}, I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$ peak values: $U_{\rm i} = 30 \text{ V}, I_{\rm i} = 100 \text{ mA},$ Linear barrier: $P_{\rm i} = 750 \text{ mW}, R_{\rm i} = 300 \Omega$ $U_0 = 24 \text{ V}, I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$ $L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$ - Effective internal inductance/capacitance $L_i = 7 \mu H, C_i = 1.1 nF$ Dust explosion protection for zone 21/22 PTB 01 ATEX 2055 - Marking Ex II 2 D Ex tb IIIC T120°C Db To circuits with values: $U_{\rm H}$ = 10.5 ... 45 V DC; $P_{\rm max}$ = 1.2 W To circuits with values: $U_H = 9 \dots 32 \text{ V DC}$ ; $P_{\text{max}} = 1 \text{ W}$ - Connection Type of protection "n" (zone 2) PTB 13 ATFX 2007 X - Marking Ex II 2/3 G Ex nA II T4/T5/T6 Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gc $U_{\rm m} = 45 \text{ V}$ - Connection (Ex nA) $U_{\rm m} = 32 \text{ V}$ FISCO supply unit ic: - Connection (Ex ic) To circuits with values: $U_{i} = 45 \text{ V}$ $U_0 = 17.5 \text{ V}, I_0 = 570 \text{ mA}$ Linear barrier: $U_{\rm o} = 32 \; {\rm V}, \; I_{\rm o} = 132 \; {\rm mA}, \; P_{\rm o} = 1 \; {\rm W}$ $L_i = 0.4 \text{ mH}, C_i = 6 \text{ nF}$ $L_i = 7 \mu H, C_i = 1.1 nF$ - Effective internal inductance/capacitance Explosion protection acc. to FM Certificate of Compliance 3008490 - Identification (XP/DIP) or (IS); (NI) CL I, DIV 1, GP ABCD T4...T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC

- Explosion protection to CSA
- Identification (XP/DIP) or (IS)

T4...T6:

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

Certificate of Compliance 1153651

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

Transmitters for applications with advanced requirements (Advanced)

	SITRANS P D	S III for absolute pressure (from	differential pressure series)
HART communication		FOUNDATION Fieldbus	
HART	230 1100 Ω	communication	
Protocol	HART Version 5.x	Function blocks	3 function blocks analog input, 1 function block PID
Software for computer	SIMATIC PDM	Analog input	
PROFIBUS PA communication		<ul> <li>Adaptation to customer-specif-</li> </ul>	Yes, linearly rising or falling
Simultaneous communication with master class 2 (max.)	4	ic process variables	characteristic
The address can be set using	Configuration tool or local opera-	- Electrical damping, adjustable	0 to 100 s
The address can be set using	tion (standard setting address 126)	- Simulation function	Output/input (can be locked within the device with a bridge)
Cyclic data usage	5 (and an analysis) an	- Failure mode	parameterizable (last good value, substitute value, incorrect value)
Output byte	5 (one measured value) or 10 (two measured values)	- Limit monitoring	Yes, one upper and lower warn-
• Input byte	0, 1, or 2 (register operating mode and reset function for	- Limit monitoring	ing limit and one alarm limit respectively
Internal preprocessing	metering)	<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes
Device profile	PROFIBUS PA Profile for Pro-	• PID	Standard FOUNDATION Field-
	cess Control Devices Version 3.0, class B	- Plane and laborate	bus function block
Function blocks	2	<ul> <li>Physical block</li> <li>Transducer blocks</li> </ul>	1 resource block 1 transducer block Pressure with
Analog input		Transducer blocks	calibration, 1 transducer block
<ul> <li>Adaptation to customer-specific process variables</li> </ul>	Yes, linearly rising or falling characteristic	Pressure transducer block	LCD
- Electrical damping, adjustable	0 100 s	- Can be calibrated by applying	Yes
- Simulation function	Input /Output	two pressures - Monitoring of sensor limits	Yes
- Failure mode	parameterizable (last good value, substitute value, incorrect value)	<ul> <li>Simulation function: Measured pressure value, sensor tem-</li> </ul>	Constant value or over parameterizable ramp function
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively	perature and electronics tem- perature	
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output		
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)		
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively		
<ul> <li>Physical block</li> </ul>	1		

Transducer blocks

two pressures

characteristic with - Square-rooted characteristic for flow measurement - Gradual volume suppression

sor temperature

• Pressure transducer block - Can be calibrated by applying

- Monitoring of sensor limits

- Specification of a container

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

sured pressure value and sen-

2

Yes

Yes

Max. 30 nodes

Parameterizable

Constant value or over parame-

terizable ramp function

Transmitters for applications with advanced requirements (Advanced)

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

SITRANS P DS III I	or absolute pressure	(11011)	ı alı	ierentia
Selection and Orderin	g data	Artic	le No	Э.
	for absolute pressure	7 M F	4 3 3	3 3 -
from differential press	sure series, HART			-
	No. for the online configu-	П		
Measuring cell filling	Measuring cell cleaning			
Silicone oil	normal	1		
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3		
Measuring span (min.	•			
8.3 250 mbar a	(0.12 3.62 psia)	D		
43 1300 mbar a 0.16 5 bar a	(0.62 18.85 psia) (2.32 72.5 psia)	F G		
1 30 bar a	(14.5 435 psia)	Н		
5.3 100 bar a	(76.9 1450 psia)	KE		
Wetted parts material				
Seal diaphragm	Parts of measuring cell			
Stainless steel	Stainless steel	Į.	١	
Hastelloy	Stainless steel	E		
Hastelloy	Hastelloy			
Tantalum	Tantalum	E		
Monel Gold	Monel	ŀ		
Version for diaphragm	Gold Seal <sup>2) 3) 4) 5) 6)</sup>	L		
Process connection		-		
	T with flange connection			
<ul> <li>Sealing screw opposi</li> </ul>	<u> </u>			
- Mounting thread <sup>7</sup> / <sub>1</sub>	<sub>6</sub> -20 UNF to EN 61518		2	
- Mounting thread M1			0	
(only for replacement				
• Vent on side of proce	ss flange '/			
<ul> <li>Mounting thread '/<sub>1</sub></li> <li>Mounting thread M1</li> </ul>	6-20 UNF to EN 61518		6 4	
(only for replacement			4	
Non-wetted parts mat process flange screws		-		
Stainless steel	Die-cast aluminum		2	
Stainless steel			3	
	Stainless steel precision casting <sup>8)</sup>			
Version				
<ul> <li>Standard version, Ge setting for pressure u</li> </ul>				1
	English plate inscription,			2
setting for pressure u	nit: bar			
<ul> <li>Chinese version, Engli setting for pressure un</li> </ul>	sh plate inscription,			3
All versions include DVE				
	English, French, Italian and			
	pact operating instructions			
Explosion protection				
• None				Α
• With ATEX, Type of pr				
- "Intrinsic safety (Ex				В
- "Explosion-proof (Ex	flamouroof analogura"			D
(Ex ia + Ex d)" 10)	flameproof enclosure"			P
- "Ex nA/ic (Zone 2)"1	1)			E
- "Intrinsic safety, exp	osion-proof enclosure and			R
dust explosion prote	ection (Ex ia+ Ex d +			
				_
• FM + CSA intrinsic sa	Fy ia ± Fy d (ΔΤΕΥ)			F S
• FM + CSA (is + ep) + Zone 1D/2D <sup>10)12)13)</sup>	LAIG I LAG (AILA) T			
• With FM + CSA, Type	of protection:			
<ul> <li>"Intrinsic Safe and E (is + xp)" <sup>9)13)</sup></li> </ul>	Explosion Proof			NC
(IS + XP)" (IS				

Article No.	Т
7MF4333-	
В	
C	
D	
F	
_	
0	
1	
6	
7	
	7 M F 4 3 3 3 - B C D F

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

Included in delivery of the device:

- Brief instructions (Leporello)
  DVD with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen applications, add Order code E10.
- <sup>2)</sup> Version 7MF4333-1DY... only up to max. span 200 mbar a (2.9 psia).
- 3) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified
- 4) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF433.-..Y..-... and 7MF4900-1...-.B
- 6) The standard measuring cell filling for configurations with remote seals (Y)
- 7) Not for span "5.3 ... 100 bar a (76.9 ... 1450 psia)". Position of the top vent valve in the process flange (see dimensional drawing).
- 8) Not in conjunction with Electrical connection "Han7D plug".
- 9) Without cable gland, with blanking plug
- 10) With enclosed cable gland Ex ia and blanking plug
- <sup>11)</sup> Configurations with HAN and M12 connectors are only available in Ex ic.
- 12) Only in connection with IP66.
- 13) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- <sup>14)</sup> Only in connection with Ex apporval A, B or E.
- 15) Only in connection with Ex approval A, B, E or F.
- <sup>16)</sup> M12 delivered without cable socket.

Transmitters for applications with advanced requirements (Advanced)

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

			SI	H	łΑ	NS	P
Selection and Orderin		Α	rtic	le N	Vo.		
Pressure transmitter f from differential press							
SITRANS P DS III with P		7	ΜF	43	3.3	4 -	
	OUNDATION Fieldbus (FF)		MF				
	No. for the online configu-						
ration in the PIA Life	Cycle Portal.						
Measuring cell filling	Measuring cell cleaning						
Silicone oil	normal	1					
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3					
Nominal measuring ra							
250 mbar a	(3.62 psia)		D				
1300 mbar a	(18.85 psia)		F				
5 bar a	(72.5 psia)		G				
30 bar a 100 bar a	(435 psia) (1450 psia)		H KE				
Wetted parts materials	` ' '	-					
Seal diaphragm	Parts of measuring cell						
Stainless steel	Stainless steel		Α				
Hastelloy	Stainless steel		В				
Hastelloy	Hastelloy		C				
Tantalum Monel	Tantalum Monel		E				
Gold	Gold		Ľ				
Version as diaphragm s	seal <sup>2) 3) 4) 5) 6)</sup>		Y				
Process connection							
	T with flange connection						
<ul> <li>Sealing screw opposi</li> </ul>							
<ul> <li>Mounting thread 1/1/1</li> <li>Mounting thread M1</li> </ul>	6-20 UNF to IEC 61518			2			
(only for replacement	nt requirement)						
• Vent on side of proces	ss flange 7)						
<ul> <li>Mounting thread '/<sub>1</sub></li> <li>Mounting thread M1</li> </ul>	6-20 UNF to IEC 61518			6 4			
(only for replacement				4			
Non-wetted parts mate							
process flange screws							
Stainless steel	Die-cast aluminum			2			
Stainless steel	Stainless steel precision casting			3	'		
Version	··· •						
Standard version, Ger						1	
setting for pressure u						2	
<ul> <li>International version, setting for pressure up</li> </ul>	English plate inscription, nit: bar					2	
<ul> <li>Chinese version, Engli</li> </ul>	sh plate inscription,					3	
setting for pressure un							
All versions include DVD SITRANS P in German. E	) with documentation for English, French, Italian and						
Spanish. Includes Comp	pact operating instructions						
in various EU languages	i.						
Explosion protection  None						A	
<ul> <li>With ATEX, Type of pr</li> </ul>	otection:					ľ	
- "Intrinsic safety (Ex						В	
- "Explosion-proof (Ex						D P	
(Ex ia + Ex d)" 9)	flameproof enclosure"					ľ	
<ul> <li>"Ex nA/ic (Zone 2)"10</li> </ul>	0)					E	
- "Intrinsic safety, expl	osion-proof enclosure and					R	
Zone 1D/2D) <sup>(9)</sup> 11) (	ection (Ex ia + Ex d + not for DS III FF)						
FM + CSA intrinsic sa	fe (is) <sup>12)</sup>					F	
• FM + CSA (is + ep) + Zone 1D/2D <sup>9)11)12)</sup>						S	
<ul> <li>Zone 1D/2D<sup>3</sup>/11/12/</li> <li>With FM + CSA, Type</li> </ul>							
- "Intrinsic Safe and E (is + xp)" 8)12)	Explosion Proof					N	С
$(is + xp)^{(8)12}$						IN	Ü
		_					_

Selection and Ordering data	Article No.
Pressure transmitter for absolute pressure from differential pressure series	
SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 3 3 4 -
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7 M F 4 3 3 5 -
Electrical connection/cable entry	
<ul> <li>Screwed gland M20 x 1.5</li> </ul>	В
<ul> <li>Screwed gland ½-14 NPT</li> </ul>	С
<ul> <li>M12 connectors (stainless steel)<sup>13)14)</sup></li> </ul>	F
Display	
<ul> <li>Without display</li> </ul>	0
<ul> <li>Without visible display</li> </ul>	1
(display concealed, setting: bar)	
<ul> <li>With visible display (setting: bar)</li> </ul>	6
<ul> <li>With customer-specific display (setting as</li> </ul>	7
specified, Order code "Y21" required)	

Included in delivery of the device:

- Brief instructions (Leporello)
- DVD with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- <sup>2)</sup> Version 7MF4334-1DY... only up to max. span 200 mbar a (80 inH<sub>2</sub>O a).
- 3) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 4) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF433.-..Y..-.... and 7MF4900-1...-.B
- 6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 7) Not for nominal measuring range 100 bar a (1450 psia). Position of the top vent valve in the process flange (see dimensional drawing).
- 8) Without cable gland, with blanking plug
- 9) With enclosed cable gland Ex ia and blanking plug
- 10) Configurations with HAN and M12 connectors are only available in Ex ic.
- <sup>11)</sup> Only in connection with IP66.
- 12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- 13) 11Only in connection with Ex approval A, B, E or F.
- <sup>14)</sup> M12 delivered without cable socket

Transmitters for applications with advanced requirements (Advanced)

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

SITINANS P DS III for absolute press	are (ii	om a	mere	ritiai
Selection and Ordering data	Order			
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF
Pressure transmitter with mounting				
bracket (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut,				
2 x U-washer) made of:		,	,	
Steel     Stainless steel 304	A01 A02	<b>√</b>	1	1
• Stainless steel 304 • Stainless steel 316L	A02	· /	1	1
O-rings for process flanges				
(instead of FPM (Viton))				
PTFE (Teflon)     FFP (with all and a series are a series and the form for all and the series are a seri	A20	<b>√</b>	1	1
<ul><li>FEP (with silicone core, approved for food)</li><li>FFPM (Kalrez, compound 4079),</li></ul>	A21 A22	<b>∀</b>	<b>V</b>	<b>V</b>
for measured medium temperatures				
-15 100 °C (5 212 °F)) • NBR (Buna N)	A23	1	1	1
. ,	AZS	, ·	•	•
Plug • Han 7D (metal)	A30	1		
Han 8D (instead of Han 7D)	A31	✓		
• Angled	A32	✓.		
Han 8D (metal)	A33	✓.		
Sealing screw	A40	✓	✓	✓
1/4-18 NPT, with valve in mat. of process flanges	4-0			
Cable sockets for M12 connectors (metal (CuZn))	A50	<b>√</b>	•	•
Rating plate inscription				
(instead of German)				
• English	B11	<b>V</b>	1	1
<ul><li>French</li><li>Spanish</li></ul>	B12 B13	<b>√</b>	<b>✓</b>	<b>√</b>
• Italian	B14	1	1	1
Cyrillic (russian)	B16	✓	✓	✓
English rating plate	B21	✓	✓	✓
Pressure units in inH <sub>2</sub> 0 and/or psi				
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2 <sup>1)</sup>	C11	<b>✓</b>	✓	✓
Inspection certificate <sup>2)</sup> Acc. to EN 10204-3.1	C12	✓	✓	✓
Factory certificate	C14	1	1	1
Acc. to EN 10204-2.2	• • •			
Functional safety (SIL2)	C20	✓		
Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL confor-				
mity declaration				
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 <sup>3)</sup>		✓	
Functional safety (SIL2/3)	C23	1		
Devices suitable for use according to IEC	020	Ť		
61508 and IEC 61511. Includes SIL conformity declaration				
Device passport Russia	C99	1	1	1
Setting of upper limit of	D05	1	•	
output signal to 22.0 mA	200	·		
Manufacturer's declaration acc. to NACE	D07	✓	✓	✓
(MR 0103-2012 and MR 0175-2009) (only together with seal diaphragm made of Hastelloy and stainless steel)				
<b>Degree of protection IP66/IP68</b> (only for M20 x 1.5 and ½-14 NPT)	D12	1	✓	✓
Supplied with oval flange	D37	✓	✓	✓
(1 item), PTFE packing and screws in thread				
of process flange  Capri cable gland 4F CrNi and clamping	D59	1	1	1
device (848699 + 810634) included	533	ĺ	·	·
•				

Selection and Ordering data	Order	code		
Further designs	Ordor	HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety" (transmitter 7MF4	E01	✓	✓	✓
Oxygen application (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	E10	✓	✓	✓
Export approval Korea	E11	✓	✓	✓
<b>CRN approval Canada</b> (Canadian Registration Number)	E22	✓	✓	✓
Dual seal	E24	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)	E25 <sup>4)</sup>	✓	✓	1
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4)	E26 <sup>4)</sup>	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28 <sup>4)</sup>	1	✓	
(only for transmitter 7MF4P)  Ex Approval IEC Ex (Ex ia)  (only for transmitter 7MF4	E45 <sup>4)</sup>	✓	✓	✓
(only for transmitter 7MF4B) <b>Ex Approval IEC Ex (Ex d)</b> (only for transmitter 7MF4D)	E46 <sup>4)</sup>	✓	✓	✓
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55 <sup>4)</sup>	✓	✓	✓
(only for transmitter 7MF4B)  Explosion protection "Explosion-proof" to NEPSI (China)	E56 <sup>4)</sup>	✓	✓	✓
(only for transmitter 7MF4D)  Explosion-proof "Zone 2" to NEPSI (China)	E57 <sup>4)</sup>	<b>√</b>	✓	1
(only for transmitter 7MF4E)  Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)	E58 <sup>4)</sup>	✓	✓	✓
(only for transmitter 7MF4R) "Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)	E70 <sup>4)</sup>	✓	✓	✓
(only for transmitter 7MF4[B, D]Z + E11) Ex-protection Ex ia according to EAC Ex	E80 <sup>5)</sup>	1	✓	1
(Russia)  Ex-protection Ex d according to EAC Ex (Russia)	E81 <sup>5)</sup>	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82 <sup>5)</sup>	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83 <sup>5)</sup>	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	<b>✓</b>	<b>✓</b>	<b>✓</b>
Interchanging of process connection side	H01	✓	1	1
Vent on side for gas measurements	H02	✓	✓	✓
Stainless steel process flanges for vertical differential pressure lines (not together with K01, K02 and K04) <sup>6)</sup>	H03	✓	✓	✓

Transmitters for applications with advanced requirements (Advanced)

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

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF
Transient protector 6 kV (lightning protection)	J01	✓	✓	✓
Chambered graphite gasket for process flange	J02	✓	✓	✓
Chambered PTFE graphite gasket	J03	✓	✓	✓
EPDM O-rings for process flange with approval (WRC/WRAS)	J05	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display) <sup>7)</sup>	J08	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display) <sup>7)</sup>	J09	✓	✓	✓
Process flange				
Hastelloy	K01	✓	✓	✓
Monel	K02	✓	✓	✓
<ul> <li>Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F) For ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible</li> </ul>	K04	<b>✓</b>	✓	<b>√</b>

- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified
- 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.
- Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H
- Option does not include ATEX approval, but instead includes only the country-specific approval.
- 5) Approval pending.
- Not suitable for connection of remote seals.
- Blanking plug is standard configuration. Order option A40 if a vent valve is required instead of a blanking plug.

Oalastian and Ondaring data	0			
Selection and Ordering data	Order			
Additional data		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set	Y01	1	<b>√</b> 1)	
Specify in plain text (max. 5 characters): Y01: up to mbar a, bar a, kPa <sub>abs</sub> , MPa <sub>abs</sub> , psia <sup>2)</sup>				
Stainless steel tag plate and entry in device variable (measuring point description)	Y15	✓	✓	✓
Max. 16 characters, specify in plain text:				
Y15:				
Measuring point text (entry in device variable)	Y16	✓	✓	✓
Max. 27 characters, specify in plain text: Y16:				
Entry of HART address (TAG)	Y17	✓		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indication in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi,				
Note: The following pressure units can be selected:				
bar, mbar, mm H <sub>2</sub> O <sup>*)</sup> , inH <sub>2</sub> O <sup>*)</sup> , ftH <sub>2</sub> O <sup>*)</sup> , mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in	Y22 +	✓		
non-pressure units <sup>3)</sup> Specify in plain text: Y22: up to I/min, m <sup>3</sup> /h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y01			
Preset bus address	Y25		✓	✓
possible between 1 and 126 Specify in plain text: Y25:				
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	✓

Factory mounting of valve manifolds, see accessories.

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

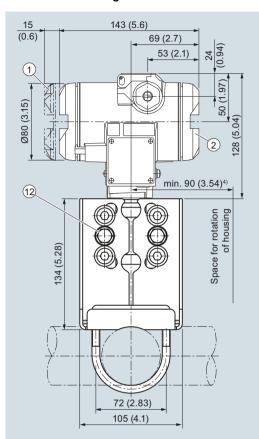
✓ = available

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

Transmitters for applications with advanced requirements (Advanced)

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

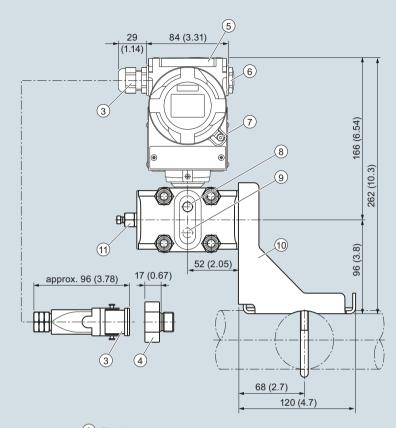
### Dimensional drawings



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

  Not with type of protection "FM + CSA" [IS + XP]"

- 92 mm (3.62 inch) for minimum distance to permit rotation with indicator



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

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

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for differential pressure and flow

### Technical specifications

### SITRANS P. DS III for differential pressure and flow

### Input

Measured variable

Span (fully adjustable) or measuring range, max. operating pressure (in accordance with 2014/68/EU Pressure Equipment Directive) and max. test pressure (pursuant to DIN 16086)

Differential pressure and flow

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

### Lower measuring limit

- · Measuring cell with silicone oil filling
- Measuring cell with inert filling liquid
- for process temperature -20 °C < 9  $\leq$  +60 °C (-4 °F < 9  $\leq$  +140 °F)
- for process temperature 60 °C <  $9 \le +100$  °C (max. 85 °C for measuring cell 30 bar) (140 °F <  $9 \le +212$  °C (max. 185 °C for measuring cell 435 psi))

Upper measuring limit

Start of scale value

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

30 mbar a + 20 mbar a · (\$ - 60 °C)/°C 3 kPa a + 2 kPa a · (\$ - 60 °C)/°C 0.44 psi a + 0.29 psi a · (\$ - 108 °F)/°F

100 % of max. span

(for oxygen measurement max. 100 bar/10 MPa/1450 psi and 60 °C (108 °F) ambient temperature/process temperature)

Between the measuring limits (fully adjustable)

Transmitters for applications with advanced requirements (Advanced)

SITRANS P, DS III for differential pressure and flow				
Output	HART		PROFIBUS PA/FOUNDATION Fieldbus	
Output signal	4 20 mA		Digital PROFIBUS PA and FOUNDATION Fieldbus signal	
• Lower limit (infinitely adjustable)	3.55 mA, factory	preset to 3.84 mA	-	
Upper limit (infinitely adjustable)	23 mA, factory p optionally set to 2	reset to 20.5 mA or 22.0 mA	-	
Load				
Without HART	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ N})$ $U_{\rm H}$ : Power suppl		-	
With HART		Ω (SIMATIC PDM) or Σ $Ω$ (HART Communica-	-	
Physical bus	-		IEC 61158-2	
Protection against polarity reversal	Protected agains other with max. s		ty reversal. Each connection against the	
Electrical damping (step width 0.1 s)	Set to 2 s (0 10	00 s)		
Measuring accuracy	Acc. to IEC 6077	70-1		
Reference conditions (All error data refer always refer to the set span)	<ul><li>Stainless steel</li><li>Silicone oil fillin</li></ul>	alue 0 bar/kPa/psi seal diaphragm		
Measuring span ratio r (spread, Turn-Down)	r = max. measur	ring span/set measuring	span or nom. pressure range	
Error in measurement at limit setting incl. hysteresis and reproducibility				
Linear characteristic				
- 20 mbar/2 kPa/0.29 psi	$r \le 5$ : 5 < $r \le 10$ : 10 < $r \le 20$ :	$\leq$ 0.075 % $\leq$ (0.0029 · r + 0.071 $\leq$ (0.0045 · r + 0.071		
- 60 mbar/6 kPa/0.87 psi	$r \le 5$ : $5 < r \le 60$ :			
<ul> <li>250 mbar/25 kPa/3.63 psi</li> <li>600 mbar/60 kPa/8.7 psi</li> <li>1600 mbar/160 kPa/23.21 psi</li> <li>5 bar/500 kpa/72.5 psi</li> <li>30 bar/3 MPa/435 psi</li> </ul>	r ≤ 5 : 5 < r ≤ 100 :			
• Square-rooted characteristic (flow > 50 %)				
- 20 mbar/2 kPa/0.29 psi	r≤5: 5 < r≤10: 10 < r≤20:	≤ 0.075 % ≤ (0.0029 · r + 0.071 ≤ (0.0045 · r + 0.071		
- 60 mbar/6 kPa/0.87 psi	r≤5: 5 < r≤60:	≤ 0.15 % ≤ (0.005 · r + 0.05) °	· %	
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kpa/72.5 psi 30 bar/3 MPa/435 psi	r≤5: 5 <r≤100:< td=""><td>≤ 0.065 % ≤ (0.004 · r + 0.045)</td><td>%</td></r≤100:<>	≤ 0.065 % ≤ (0.004 · r + 0.045)	%	
• Square-rooted characteristic (flow > 25 50 %)				
- 20 mbar/2 kPa/0.29 psi	r≤5: 5 <r≤10: 10<r≤20:< td=""><td>≤ 0.15 % ≤ (0.0058 · r + 0.142 ≤ (0.009 · r + 0.142)</td><td></td></r≤20:<></r≤10: 	≤ 0.15 % ≤ (0.0058 · r + 0.142 ≤ (0.009 · r + 0.142)		
- 60 mbar/6 kPa/0.87 psi	$r \le 5$ : $5 < r \le 60$ :	≤ 0.015 % ≤ (0.01 · r + 0.1) %		
- 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kpa/72.5 psi 30 bar/3 MPa/435 psi	r≤5: 5 <r≤100:< td=""><td>≤ 0.13 % ≤ (0.008 · r + 0.09) °</td><td>%</td></r≤100:<>	≤ 0.13 % ≤ (0.008 · r + 0.09) °	%	

Transmitters for applications with advanced requirements (Advanced)

SITRANS P, DS III for differential pressure and flow			
Measuring accuracy (continued)	Acc. IEC 60770-1		
Influence of ambient temperature (in percent per 28 °C (50 °F))			
• 20 mbar/2 kPa/0.29 psi	$\leq$ (0.15 · r + 0.1) %		
• 60 mbar/6 kPa/0.87 psi	$\leq$ (0.075 · r + 0.1) %		
<ul> <li>250 mbar/25 kPa/3.63 psi</li> <li>600 mbar/60 kPa/8.7 psi</li> <li>1600 mbar/160 kPa/23.21 psi</li> <li>5 bar/500 kpa/72.5 psi</li> <li>30 bar/3 MPa/435 psi</li> </ul>	≤ (0.025 · r + 0.125) %		
Influence of static pressure			
• on the zero point			
- 20 mbar/2 kPa/0.29 psi	$\leq$ (0.15 $\cdot$ r) % per 32 bar (zero-point correction is possible with position error adjustment)		
<ul> <li>60 mbar/6 kPa/0.87 psi</li> <li>250 mbar/25 kPa/3.63 psi</li> <li>600 mbar/60 kPa/8.7 psi</li> <li>1600 mbar/160 kPa/23.21 psi</li> </ul>	$\leq$ (0.1 · r) % per 70 bar (zero-point correction is possible with position error adjustment)		
- 5 bar/500 kpa/72.5 psi 30 bar/3 MPa/435 psi	$\leq$ (0.2 · r) % per 70 bar (zero-point correction is possible with position error adjustment)		
• on the span			
- 20 mbar/2 kPa/0.29 psi	≤ 0.2 % per 32 bar		
- 60 mbar/6 kPa/0.87 psi 250 mbar/25 kPa/3.63 psi 600 mbar/60 kPa/8.7 psi 1600 mbar/160 kPa/23.21 psi 5 bar/500 kpa/72.5 psi 30 bar/3 MPa/435 psi	≤ 0.14 % per 70 bar		
Long-term stability (temperature change ± 30 °C (± 54 °F))	Static pressure max. 70 bar/7 MPa/ 1015 psi		
• 20 mbar/2 kPa/0.29 psi	≤ (0.2 · r) % per year		
• 60 mbar/6 kPa/0.87 psi 30 bar/3 MPa/435 psi	≤ (0.25 · r) % in 5 years		
<ul> <li>250 mbar/25 kPa/3.63 psi</li> <li>600 mbar/60 kPa/8.7 psi</li> <li>1600 mbar/160 kPa/23.21 psi</li> <li>5 bar/500 kpa/72.5 psi</li> </ul>	≤ (0.125 · r) % in 5 years		
Effect of mounting position (in pressure per change in angle)	$\leq$ 0.7 mbar/0.07 kPa/0.028 inH $_2$ O per 10° inclination (zero-point correction is possible with position error adjustment)		
Effect of auxiliary power supply (in percent per change in voltage)	0.005 % per 1 V		
Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus	3 · 10 <sup>-5</sup> of nominal measuring range		

Transmitters for applications with advanced requirements (Advanced)

SITHANS P DS III for differential pressure and flor	IV		
SITRANS P, DS III for differential pressure and flow			
Rated conditions			
Degree of protection (to EN 60529)	IP66 (optional IP66/IP68), NEMA 4X		
Temperature of medium			
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F) -20 +100 °C (-4 +212 °F) with 30 bar measuring cell		
Measuring cell with inert filling liquid	-20 +100 °C (-4 +212 °F)		
• In conjunction with dust explosion protection	-20 +60 °C (-4 +140 °F)		
Ambient conditions			
Ambient temperature			
<ul> <li>Transmitter (with 4-wire connection, observe temperature values of sup- plementary 4-wire electronics)</li> </ul>	-40 +85 °C (-40 +185 °F) -20 +85 °C (-4 +185 °F) with 30 bar	measuring cell	
- Display readable	-30 +85 °C (-22 +185 °F)		
Storage temperature	-50 +85 °C (-58 +185 °F)		
Climatic class			
- Condensation	Relative humidity 0 100 % Condensation permissible, suitable for us	se in the tropics	
Electromagnetic Compatibility			
<ul> <li>Emitted interference and interference immunity</li> </ul>	Acc. to IEC 61326 and NAMUR NE 21		
Design			
Weight (without options)	Die-cast aluminum: $\approx$ 4.5 kg ( $\approx$ 9.9 lb) Stainless steel precision casting: $\approx$ 7.1 kg ( $\approx$ 15.6 lb)		
Enclosure material	Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408		
Wetted parts materials			
Seal diaphragm	Stainless steel, mat. no. 1.4404/316L or Hmat. no. 2.4360, tantalum or gold	Hastelloy C276, mat. no. 2.4819, Monel,	
Process flanges and sealing screw	Stainless steel, mat. no. 1.4408, Hastelloy mat. no. 2.4360	/ C4, mat. no. 2.4602 or Monel,	
• O-Ring	FPM (Viton) or optionally: PTFE, FEP, FEP	M and NBR	
Measuring cell filling	Silicone oil or inert filling liquid (maximum value with oxygen measureme (140 °F))	ent pressure 100 bar (1450 psi) at 60 °C	
Process connection	Female thread ½-18 NPT and flange connection with mounting thread M10 to DIN 19213 or 7/16-20 UNF to IEC 61518		
Material of mounting bracket			
• Steel	Sheet-steel, Mat. No. 1.0330, chrome-plated		
• Stainless steel	Sheet stainless steel, mat. no. 1.4301 (SS 304)		
Power supply $U_{\mathbb{H}}$	HART	PROFIBUS PA/ FOUNDATION Fieldbus	
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-	
Power supply	-	Supplied through bus	
Separate 24 V power supply necessary		No	

• Stairliess steel	Sheet stainless steet, mat. no. 1.4301 (33 304)		
Power supply $U_{H}$	HART	PROFIBUS PA/ FOUNDATION Fieldbus	
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-sa	fe mode	
Power supply	-	Supplied through bus	
Separate 24 V power supply necessary	_	No	
Bus voltage			
• Not Ex		9 32 V	
With intrinsically-safe operation	+	9 24 V	
Current consumption			
Basic current (max.)	-	12.5 mA	
• Start-up current ≤ basic current	-	Yes	
Max. current in event of fault	-	15.5 mA	
Fault disconnection electronics (FDE) available	-	Yes	

Transmitters for applications with advanced requirements (Advanced)

	SITRANS P DS II	Il for differential pressure and flow
SITRANS P, DS III for differential pressure and flow		
Certificates and approvals	HART	PROFIBUS PA/ FOUNDATION Fieldbus
Classification according to PED 2014/68/EU	PN 32/160 (MAWP 464/2320 psi) for ga group 1; complies with requirements of practice)	article 4, paragraph 3 (sound engineering
	<ul> <li>PN 420 (MAWP 6092) for gases of fluid complies with basic safety requirement assigned to category III, conformity eva</li> </ul>	s of Article 4, paragraph 1 (appendix 1);
Drinking water approval	Und. Lab. Clfd in accordance with NSF/.	ANSI 372
Explosion protection		
Intrinsic safety "i"	PTB 13 ATEX 2007 X	
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatu -40 +70 °C (-40 +158 °F) temperatu -40 +60 °C (-40 +140 °F) temperatu	re class T5;
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW; $R_{\rm i}$ = 300 $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 \ {\rm mH}, \ C_{\rm i} = 6 \ {\rm nF}$	$L_{\rm i} = 7 \ \mu {\rm H}, \ C_{\rm i} = 1.1 \ {\rm nF}$
• Explosion-proof "d"	PTB 99 ATEX 1160	
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperatu -40 +60 °C (-40 +140 °F) temperatu	re class T6
- Connection	To circuits with values: $U_{H} = 10.5 \dots 45 \text{ V DC}$	To circuits with values: $U_H = 9 \dots 32 \text{ V DC}$
<ul> <li>Dust explosion protection for zone 20</li> </ul>	PTB 01 ATEX 2055	
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)	
- Max. surface temperature	120 °C (248 °F)	T-1000
- Connection	To certified intrinsically-safe circuits with peak values: $U_i = 30 \text{ V}, \ I_i = 100 \text{ mA}, \ P_i = 750 \text{ mW}, \ P_i = 300 \ \Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $P_0 = 1 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  \rm mH,  C_{\rm i} = 6  \rm nF$	$L_{\rm i} = 7  \mu \text{H},  C_{\rm i} = 1.1  \text{nF}$
<ul> <li>Dust explosion protection for zone 21/22</li> </ul>	PTB 01 ATEX 2055	'
- Marking	Ex II 2 D Ex tb IIIC T120°C Db	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1 W
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X	ax
- Marking	Ex II 2/3 G Ex nA IIC T4/T5/T6 Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gc	
- Connection (Ex nA)	$U_{\rm m} = 45 \ {\rm V}$	<i>U</i> <sub>m</sub> = 32 V
- Connection (Ex ic)	To circuits with values: $U_i = 45 \text{ V}$	FISCO supply unit ic: $U_0 = 17.5 \text{ V}$ , $I_0 = 570 \text{ mA}$ Linear barrier: $U_0 = 32 \text{ V}$ , $I_0 = 132 \text{ mA}$ , $P_0 = 1 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH}, \; C_{\rm i} = 6  {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$
• Explosion protection acc. to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV T4T6; CL I, DIV 2, GP ABCD T4T6; CL I, DIV 2, GP ABCD T4T6; CL II, DIV	1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC 2, GP FG; CL III
• Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV DIV 2, GP ABCD T4T6; CL II, DIV 2, GF	

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for differential pressure and flow

HART communication	
HART	230 1100 Ω
Protocol	HART Version 5.x
Software for PC	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local opera- tion (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measured value) or 10 (two measured values)
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, class B
Function blocks	2
Analog input	
<ul> <li>Adaptation to customer-specific process variables</li> </ul>	Yes, linearly rising or falling characteristic
- Electrical damping, adjustable	0 100 s
- Simulation function	Input /Output
- Failure mode	parameterizable (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	parameterizable (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respec- tively
Physical block	1
Transducer blocks	2
Pressure transducer block	
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes
- Monitoring of sensor limits	Yes
<ul> <li>Specification of a container characteristic with</li> </ul>	Max. 30 nodes
<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes
- Gradual volume suppression and implementation point of square-root extraction	Parameterizable
<ul> <li>Simulation function for mea- sured pressure value and sen- sor temperature</li> </ul>	Constant value or over parameterizable ramp function

# FOUNDATION Fieldbus communication

Function blocks

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

3 function blocks analog input, 1 function block PID

Yes, linearly rising or falling characteristic

0 ... 100 s

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

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

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

Yes

Standard FOUNDATION Fieldbus function block

1 resource block

1 transducer block Pressure with calibration, 1 transducer block LCD

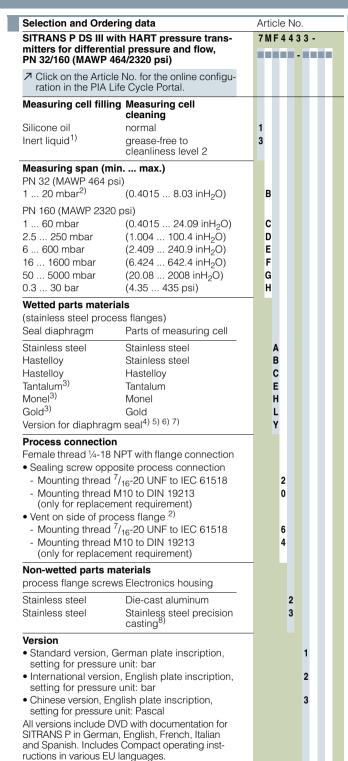
Yes

Yes

Constant value or over parameterizable ramp function

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for differential pressure and flow



Selection and Ordering data	Article No.
SITRANS P DS III with HART pressure trans- mitters for differential pressure and flow, PN 32/160 (MAWP 464/2320 psi)	7 M F 4 4 3 3 -
Explosion protection	
• None	Α
With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)"	В
- "Explosion-proof (Ex d)" <sup>9)</sup>	D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)" <sup>10</sup> )	P
- "Ex nA/ic (Zone 2)" <sup>11)</sup>	E
<ul> <li>"Intrinsic safety, explosion-proof enclosure and dust explosion protection (Ex ia+ Ex d + Zone 1D/2D)*<sup>10</sup>)<sup>12</sup>)</li> </ul>	R
• FM + CSA intrinsic safe (is) <sup>13)</sup>	F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX) + Zone 1D/2D <sup>10</sup> ) <sup>12</sup> ) <sup>13</sup> )	S
<ul> <li>With FM + CSA, Type of protection:</li> </ul>	
<ul> <li>"Intrinsic Safe and Explosion Proof (is + xp)" (is + xp)</li> </ul>	NC
Electrical connection/cable entry	
<ul> <li>Screwed gland M20 x 1.5</li> </ul>	В
<ul> <li>Screwed gland ½-14 NPT</li> </ul>	C
<ul> <li>Han 7D plug (plastic housing) incl. mating connector <sup>14)15)</sup></li> </ul>	D
<ul> <li>M12 connectors (stainless steel)<sup>16)17)</sup></li> </ul>	F
Display	_
Without display	0
Without visible display	1
(display concealed, setting: mA)	
With visible display (setting: mA)	6
<ul> <li>with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)</li> </ul>	7
Power supply units see Chan, 7 "Supplementary C	omnonents"

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

Included in delivery of the device:

- Brief instructions (Leporello)
- DVD with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- <sup>2)</sup> Not suitable for connection of remote seal. Position of the top vent valve in the process flange (see dimensional drawing).
- $^{\rm 3)}$  Not in conjunction with max. span 20 and 60 mbar (8.03 and 24.09 in  $\rm H_2O))$
- 4) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the 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) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF443.-..Y..-... and 7MF4900-1...-.B
- 7) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil
- 8) Not in conjunction with Electrical connection "Han7D plug".
- 9) Without cable gland, with blanking plug
- <sup>10)</sup>With enclosed cable gland Ex ia and blanking plug
- <sup>11)</sup>Configurations with HAN and M12 connectors are only available in Ex ic.
- 12) Only in connection with IP66.
- <sup>13)</sup> Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505
- <sup>14)</sup> Only in connection with Ex apporval A, B or E.
- <sup>15)</sup>Permissible only for crimp-contact of conductor cross-section 1 mm<sup>2</sup>
- <sup>16)</sup>Only in connection with Ex approval A, B, E or F.
- 17)M12 delivered without cable socket.

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for differential pressure and flow

	or amerendar precedar						
Selection and Ordering	g data	Ar	ticl	e N	lo.		
Pressure transmitters and flow PN 32/160 (M	for differential pressure AWP 464/2320 psi)						
SITRANS P DS III with P	ROFIBUS PA (PA)	71	ИF	4 4	3 4	١-	
SITRANS P DS III with F	OUNDATION Fieldbus (FF)	71	ИF	4 4	3 5	; <b>-</b>	
	No. for the online configu- Cycle Portal.	ľ	۱	1	-		П
Measuring cell filling	Measuring cell cleaning					П	T
Silicone oil	normal	1					
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3					
Nominal measuring ra	nge						
PN 32 (MAWP 464 psi) 20 mbar <sup>2)</sup>	(8.03 inH <sub>2</sub> O)	E	3				
PN 160 (MAWP 2320 ps	si)						
60 mbar	(24.09 inH <sub>2</sub> O)						
250 mbar	(100.4 inH <sub>2</sub> O)		2				
600 mbar 1600 mbar	(240.9 inH <sub>2</sub> O)		=				
5 bar	(642.4 inH <sub>2</sub> O) (2008 inH <sub>2</sub> O)		r G				
30 bar	(435 psi)		л Н				
Wetted parts materials							
(stainless steel process							
Seal diaphragm	Parts of measuring cell						
Stainless steel	Stainless steel		Α				
Hastelloy	Stainless steel		В				
Hastelloy	Hastelloy		С				
Tantalum <sup>3)</sup>	Tantalum		Ε				
Monel <sup>3)</sup>	Monel		Н				
Gold <sup>3)</sup> Version as diaphragm s	Gold		L				
	eai / / / /	-	ı				
Process connection Female thread 1/4-18 NE	T with flange connection						
<ul> <li>Sealing screw opposit</li> </ul>	9						
	<sub>3</sub> -20 UNF to IEC 61518			2			
- Mounting thread M1	0 to DIN 19213			0			
(only for replacement	nt requirement)						
• Venting on side of pro	cess flanges <sup>2)</sup>						
	<sub>3</sub> -20 UNF to IEC 61518			6			
<ul> <li>Mounting thread M1 (only for replacement</li> </ul>				4			
Non-wetted parts mate							
process flange screws	Electronics housing						
Stainless steel	Die-cast aluminum			2			
Stainless steel	Stainless steel precision casting			3			
Version							
Standard versions	manufacture of the second				1		
<ul> <li>International version, I documentation in 5 la (no Order code select</li> </ul>					2		
Version							
Standard version, Ger     setting for pressure ur					1		
<ul> <li>International version</li> </ul>	nt: par English plate inscription,				2		
setting for pressure ur					-		
Chinese version, English	sh plate inscription,				3	3	
setting for pressure uni							
All versions include DVD SITRANS P in German, F	with documentation for English, French, Italian and						
Spanish. Includes Comp	act operating instructions						
in various EU languages							

Selection and Ordering data	Article No.
Pressure transmitters for differential pressure and flow PN 32/160 (MAWP 464/2320 psi)	
SITRANS P DS III with PROFIBUS PA (PA)	7 M F 4 4 3 4 -
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7MF4435-
,	
Explosion protection	
• None	A
With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)" - "Explosion-proof (Ex d)" <sup>8)</sup>	B D
- "Intrinsic safety and flameproof enclosure"	P
(Ex ia + Ex d)" <sup>9)</sup>	
- "Ex nA/ic (Zone 2)" 10)	E
- "Intrinsic safety, explosion-proof enclosure and	R
dust explosion protection (Ex ia + Ex d + Zone 1D/2D)*9)11)(not for DS III FF)	
• FM + CSA intrinsic safe (is) <sup>12)</sup>	F
	s
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX)+ Zone 1D/2D <sup>9)11)12</sup>	
<ul><li>With FM + CSA, Type of protection:</li></ul>	
<ul> <li>"Intrinsic Safe and Explosion Proof (is + xp)"<sup>8)12)</sup></li> </ul>	NC
	-
Electrical connection/cable entry • Screwed gland M20 x 1.5	В
Screwed gland ½-14 NPT	C
• M12 connectors (stainless steel) <sup>13)</sup> <sup>14)</sup>	F
Display	
Without display	0
<ul> <li>Without visible display (display concealed, setting: bar)</li> </ul>	1
With visible display (setting: bar)	6
With visible display (setting, bar)     With customer-specific display	7
(setting as specified, Order code "Y21" required)	
Included in delivery of the device:	

Included in delivery of the device:

- Brief instructions (Leporello)
- DVD 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).
- Not in conjunction with max. span 20 and 60 mbar (8.03 and 24.09 in  $H_2O$ ))
- 4) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 5) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 6) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF443.-..Y..-.... and 7MF4900-1...-.B
- 7) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 8) Without cable gland, with blanking plug.
- 9) With enclosed cable gland Ex ia and blanking plug.
- 10) Configurations with HAN and M12 connectors are only available in Ex ic.
- 11) Only in connection with IP66.
- 12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- 13) Only in connection with Ex approval A, B, E or F.
- <sup>14)</sup> M12 delivered without cable socket

Transmitters for applications with advanced requirements (Advanced)

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	
Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:				
• Steel	A01	1	✓	
Stainless steel 304	A02	✓	✓	
Stainless steel 316L	A03	✓	✓	
O-rings for process flanges				
(instead of FPM (Viton))				
PTFE (Teflon)	A20	✓	✓	
• FEP (with silicone core, approved for food)	A21	✓	✓	
<ul> <li>FFPM (Kalrez, compound 4079), for measured medium temperatures</li> <li>-15 100 °C (5 212 °F)</li> </ul>	A22	✓	✓	
• NBR (Buna N)	A23	1	1	
plug				
• Han 7D (metal)	A30	1		
Han 8D (instead of Han 7D)	A31	1		
• Angled	A32	1		
Han 8D (metal)	A33	✓		
Sealing screws (2 units)	A40	1	1	
1/4-18 NPT, with valve in mat. of process flanges				
Cable sockets for M12 connectors (metal (CuZn))	A50	✓	✓	
Rating plate inscription				
(instead of German)				
• English	B11	<b>√</b>	1	
• French	B12 B13	1	<b>✓</b>	
<ul><li>Spanish</li><li>Italian</li></ul>	B14	<b>✓</b>	1	
Cyrillic (russian)	B16	1	1	
	B21	1	· /	
English rating plate Pressure units in inH <sub>2</sub> O and/or psi	BZI	•	•	
	C11	1	./	-
Quality Inspection Certificate (5-point characteristic curve test) according to IEC 60770-2 <sup>1)</sup>	C11	•	•	
Inspection certificate <sup>2)</sup> to EN 10204-3.1	C12	✓	1	
Factory certificate to EN 10204-2.2	C14	1	1	
Functional safety (SIL2)	C20	1		
Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	320			
Functional safety (PROFIsafe) Certificate and PROFIsafe protocol	C21 <sup>3)</sup>		✓	
Functional safety (SIL2/3) Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL conformity declaration	C23	✓		
<b>Drinking water approval</b> Und. Lab. Clfd in accordance with NSF/ANSI 372	C61	✓	✓	
Device passport Russia	000			
	C99	_	1	

Selection and Ordering data	Order			
<b>Further designs</b> Add "- <b>Z</b> " to Article No. and specify Order code.		HART	PA	F
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)	D07	✓	✓	4
(only together with seal diaphragm made of Hastelloy and stainless steel)				
<b>Degree of protection IP66/IP68</b> (only for M20 x 1.5 and ½-14 NPT)	D12	✓	✓	٠
Process flange screws made of Monel (max. nominal pressure PN20)	D34	✓	✓	,
Supplied with oval flange set (2 items), PTFE packings and screws in thread of process flanges	D37	✓	✓	,
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	D59	✓	✓	,
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia)"and IP66)	E01	✓	✓	,
Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MAWP 464 psi), basic device with type of protection "Intrinsic safety (Ex ia)", to WHG and VbF, not together with measuring cell filling "inert liquid")	E08	•		
Oxygen application (In the case of oxygen measurement and inert liquid max. 100 bar (1450 psi) at 60°C (140 °F))	E10	<b>✓</b>	✓	,
Export approval Korea	E11	✓	1	
<b>CRN approval Canada</b> (Canadian Registration Number)	E22	✓	✓	
Dual seal	E24	✓	✓	
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil) (only for transmitter 7MF4B)	E25 <sup>4)</sup>	✓	✓	
"Flameproof" explosion protection according to INMETRO (Brazil) (only for transmitter 7MF4D)	E26 <sup>4)</sup>	✓	✓	
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only d) for transmitter 7MF4	E28 <sup>4)</sup>	✓	✓	
Ex Approval IEC Ex (Ex ia) (only for transmitter 7MF4B)	E45 <sup>4)</sup>	✓	✓	
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4D)	E46 <sup>4)</sup>	✓	✓	
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B)	E55 <sup>4)</sup>	✓	✓	
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56 <sup>4)</sup>	✓	✓	
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4	E57 <sup>4)</sup>	✓	✓	
Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)	E58 <sup>4)</sup>	✓	✓	
(only for transmitter 7MF4R) "Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)	E70 <sup>4)</sup>	✓	✓	

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for differential pressure and flow

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Article No. and specify Order code.		HART	PA	FF
Ex-protection Ex ia according to EAC Ex (Russia)	E80 <sup>5)</sup>	✓	✓	✓
Ex-protection Ex d according to EAC Ex (Russia)	E81 <sup>5)</sup>	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82 <sup>5)</sup>	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83 <sup>5)</sup>	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Interchanging of process connection side	H01	✓	✓	✓
Vent on side for gas measurements	H02	✓	✓	✓
Stainless steel process flanges for vertical differential pressure lines	H03	✓	✓	✓
(not together with K01, K02 and K04 <sup>6)</sup>				
Transient protector 6 kV (lightning protection)	J01	✓	✓	✓
Chambered graphite gasket for process flange	J02	✓	✓	1
Chambered PTFE graphite gasket	J03	✓	✓	✓
EPDM O-rings for process flange with approval (WRC/WRAS)	J05	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display) <sup>7)</sup>	J08	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display) <sup>7)</sup>	J09	✓	✓	✓
Process flange				
Hastelloy	K01	✓	✓	✓
Monel     Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F)	K02 K04	<b>√</b>	<b>✓</b>	<b>√</b>
For ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible				
Factory mounting of value manifolds are ass				

Factory mounting of valve manifolds, see accessories.

Supplementary electronics for 4-wire connection, see accessories.

### ✓ = available

- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 2) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 3) Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H
- 4) Option does not include ATEX approval, but instead includes only the countryspecific approval.
- 5) Approval pending.
- 6) Not suitable for connection of remote seal.
- 7) Blanking plug is standard configuration. Order option A40 if a vent valve is required instead of a blanking plug.

Selection and Ordering data	Order	code		
Additional data Please add "-Z" to Article No. and specify Order code(s) and plain text.		HART	PA	FF
Measuring range to be set  Specify in plain text:  • in the case of linear characteristic curve (max. 5 characters):  Y01: 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	Y01 Y02	*	<b>√</b> 1)	
Stainless steel tag plate and entry in device variable (measuring point description)  Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text (entry in device variable) Max. 27 char., specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG) Max. 8 char., specify in plain text: Y17:	Y17	✓		
Setting of pressure indicator in pressure units  Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi,  Note: The following pressure units can be selected: bar, mbar, mm H <sub>2</sub> O <sup>*</sup> ), inH <sub>2</sub> O <sup>*</sup> ), ftH <sub>2</sub> O <sup>*</sup> ), mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or %  *) ref. temperature 20 °C	Y21	•	✓	✓
Setting of pressure indicator in non-pressure units <sup>2</sup> ) Specify in plain text: Y22: up to I/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters)	Y22 <sup>3)</sup> + Y01 or Y02	<b>✓</b>		
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	✓
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	✓

Factory mounting of valve manifolds, see accessories.

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

✓ = available

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

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for differential pressure and flow

SITRANS P DS III wi	ing data	Article No.
	th HART pressure trans-	7MF4533-
mitters for differenti PN 420 (MAWP 6092	al pressure and flow,	
•	e No. for the online configu-	
ration in the PIA Li	fe Cycle Portal.	
Measuring cell filling	g Measuring cell cleaning	
Silicone oil	normal	1
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3
Measuring span (mi		
2.5 250 mbar 6 600 mbar	(1.004 100.4 inH <sub>2</sub> O) (2.409 240.9 inH <sub>2</sub> O)	D E
6 600 mbar	(6.424 642.4 inH <sub>2</sub> O)	F
50 5000 mbar	(20.08 2008 inH <sub>2</sub> O)	G
0.3 30 bar	(4.35 435 psi)	H
Wetted parts materi	. ,	
(stainless steel proce		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	В
Gold <sup>2)</sup>	Gold	L
Version for diaphragr	n seal <sup>3) 4) 5) 6)</sup>	Y
Process connection		
	NPT with flange connection	
Sealing screw opport	osite process connection	
<ul> <li>Mounting thread */</li> <li>Mounting thread */</li> </ul>	7/ <sub>16</sub> -20 UNF to IEC 61518	3
(only for replacem		
	process flanges, location of	
	process flanges (see dimen-	
sional drawing)	7/ 00 LINE to IEC 01510	7
<ul> <li>Mounting thread I</li> </ul>	7/ <sub>16</sub> -20 UNF to IEC 61518	7 5
(only for replacem	nent requirement)	3
Non-wetted parts m		
nrocess flange screw	s Electronics housing	
Stainless steel	Die-cast aluminum Stainless steel precision casting <sup>7</sup>	2 3
Stainless steel Stainless steel Version	Die-cast aluminum Stainless steel precision casting <sup>7)</sup>	
Stainless steel Stainless steel  Version Standard version, G	Die-cast aluminum Stainless steel precision casting <sup>7</sup> ) German plate inscription,	
Stainless steel Stainless steel  Version Standard version, Consetting for pressure	Die-cast aluminum Stainless steel precision casting <sup>7</sup> ) German plate inscription, unit: bar)	1
Stainless steel Stainless steel  Version Standard version, Consetting for pressure	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription,	3
Stainless steel Stainless steel  Version  Standard version, C setting for pressure International version setting for pressure Chinese version, En	Die-cast aluminum Stainless steel precision casting?)  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription,	1
Stainless steel Stainless steel Version Standard version, Country setting for pressure International version setting for pressure Chinese version, Ensetting for pressure	Die-cast aluminum Stainless steel precision casting?)  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal	1 2
Stainless steel Stainless steel Version • Standard version, G setting for pressure International version setting for pressure Chinese version, Ensetting for pressure All versions include D	Die-cast aluminum Stainless steel precision casting?)  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for	1 2
Stainless steel Stainless steel Stainless steel Version • Standard version, G setting for pressure • International version setting for pressure • Chinese version, Ensetting for pressure All versions include D'SITRANS P in Germar Spanish. Includes Cor	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions	1 2
Stainless steel Stainless steel Stainless steel Version • Standard version, Gentling for pressure • International version setting for pressure • Chinese version, Ensetting for pressure All versions include D'SITRANS P in Germar Spanish. Includes Corin various EU language	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.	1 2
Stainless steel Stainless steel Stainless steel Version • Standard version, Gesetting for pressure • International version setting for pressure • Chinese version, Ensetting for pressure All versions include D'SITRANS P in Germar Spanish. Includes Corin various EU language Explosion protectio	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.	3 1 2 3
Stainless steel Stainless steel Stainless steel Version • Standard version, G setting for pressure • International version setting for pressure • Chinese version, Ensetting for pressure All versions include D'SITRANS P in Germar Spanish. Includes Corin various EU languag Explosion protectio • None	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.	1 2
Stainless steel Stainless steel Stainless steel Version • Standard version, G setting for pressure • International version setting for pressure • Chinese version, Ensetting for pressure setting for pressure • Chinese version, Ensetting for processure • Vision protectio • None • With ATEX, Type of	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal vD with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection:	3 1 2 3
Stainless steel Stainless steel Stainless steel Version • Standard version, G setting for pressure • International version setting for pressure • Chinese version, Ensetting for pressure All versions include D'SITRANS P in Germar Spanish. Includes Corin various EU languag Explosion protectio • None	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection: x ia)"	3 1 2 3 4 B
Version  Stainless steel Stainless steel Stainless steel Version  Standard version, Gestting for pressure International version setting for pressure Chinese version, Ensetting for pressure International version setting for pressure Chinese version, Ensetting for pressure Unious Europe Syanish. Includes Corin various EU languag Explosion protectio None With ATEX, Type of "Intrinsic safety (E-"Explosion-proof (	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VPD with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection: x ia)" Ex d)"8)	3 1 2 3 3 A B D
Version  Stainless steel Stainless steel Stainless steel Version  Standard version, Consecting for pressure International version setting for pressure Chinese version, Ensetting for pressure Chinese version in Chinese Chinese version protection None With ATEX, Type of "Intrinsic safety (Explosion-proof (Control of the pressure version protection in Chinese version protection protection in Chinese version protection protection protection protection in Chinese version protection pr	Die-cast aluminum Stainless steel precision casting?)  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection: (x ia)" Ex d)"8)  nd flameproof enclosure"	3 1 2 3 4 B
Version  Stainless steel Stainless steel Stainless steel Version  Standard version, Getting for pressure International version setting for pressure Chinese version, Ensetting for pressure Ill versions include D'SITRANS P in Germar Spanish. Includes Corin various EU languag Explosion protectio None With ATEX, Type of "Intrinsic safety (E-"Explosion-proof (	Die-cast aluminum Stainless steel precision casting?)  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection: (x ia)" Ex d)"8)  nd flameproof enclosure"	3 1 2 3 3 A B D
Version Stainless steel Stainless steel Stainless steel Version Standard version, Gesetting for pressure International version setting for pressure Chinese version, Ensetting for pressure All versions include D'SITRANS P in Germar Spanish. Includes Corin various EU language Explosion protectio None With ATEX, Type of "Intrinsic safety (E "Explosion-proof ( "Intrinsic safety (E "Intrinsic safety (E "Ex nA/ic (Zone 2)" "Intrinsic safety, ey "Intrinsic safety, ey "Intrinsic safety, ey	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection: x ia)" Ex d)"8) nd flameproof enclosure" y"10) polosion-proof enclosure and	3 1 2 3 3 A B D P
Version Stainless steel Stainless steel Stainless steel Version Standard version, Gesetting for pressure International version setting for pressure Chinese version, Ensetting for pressure All versions include D'SITRANS P in Germar Spanish. Includes Corin various EU language Explosion protectio None With ATEX, Type of "Intrinsic safety (E "Explosion-proof ( "Intrinsic safety (E "Intrinsic safety (E "Ex nA/ic (Zone 2)" "Intrinsic safety, ey "Intrinsic safety, ey "Intrinsic safety, ey	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection: x ia)" Ex d)"8) nd flameproof enclosure" y"10) polosion-proof enclosure and	3 1 2 3 3 A B D P E
Version Stainless steel Stainless steel Stainless steel Version Standard version, Gesetting for pressure International version setting for pressure Chinese version, Ensetting for pressure International version setting for pressure Chinese version, Ensetting for pressure Unious Eventual Programs Spanish. Includes Corin various EU language Explosion protectio None With ATEX, Type of "Intrinsic safety (Early explosion-proof (Explosion-proof (Explo	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection: x ia)" Ex d)"8) nd flameproof enclosure" y*10) colosion-proof enclosure and otection (Ex ia+ Ex d +	3 1 2 3 3 A B D P E
Version  Stainless steel Stainless steel Stainless steel Stainless steel Version  Standard version, Gestling for pressure International version setting for pressure Chinese version, Ensetting for pressure International version setting for pressure International version setting for pressure International version setting for pressure International Processure International Processure With ATEX, Type of language International Processure Intrinsic safety (Early Standard S	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection: x ia)" Ex d)"8) nd flameproof enclosure" (p*10) (plosion-proof enclosure and otection (Ex ia + Ex d + safe (is) <sup>12</sup> )	3 1 2 3 4 B D P E R
Version  Stainless steel Stainless steel Stainless steel Version  Standard version, Getting for pressure International version setting for pressure Chinese version, Ensetting for pressure International version setting for pressure Chinese version, Ensetting for pressure Unious include D'SITRANS P in Germar Spanish. Includes Corin various EU languag  Explosion protectio None With ATEX, Type of "Intrinsic safety (E"Explosion-proof ("Intrinsic safety (E"Explosion-proof ("Intrinsic safety, evalust explosion produst explosion production in the product	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal Who with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection: x ia)" Ex d)"8) nd flameproof enclosure" y"10) xplosion-proof enclosure and otection (Ex ia+ Ex d + safe (is) <sup>12)</sup> + Ex ia + Ex d (ATEX) +	3 1 2 3 3 A B D P E R
Version  Stainless steel Stainless steel Stainless steel Stainless steel Version  Standard version, Gestling for pressure International version setting for pressure Chinese version, Ensetting for pressure International version setting for pressure International version setting for pressure International version setting for pressure International Processure International Processure With ATEX, Type of language International Processure Intrinsic safety (Early Standard S	Die-cast aluminum Stainless steel precision casting <sup>7</sup> )  German plate inscription, unit: bar) n, English plate inscription, unit: bar glish plate inscription, unit: Pascal VD with documentation for n, English, French, Italian and mpact operating instructions es.  n  protection:  x ia)" Ex d)" hd flameproof enclosure" y" 10) xplosion-proof enclosure and otection (Ex ia+ Ex d + safe (is) <sup>12)</sup> + Ex ia + Ex d (ATEX) + be of protection:	3 1 2 3 3 A B D P E R

Selection and Ordering data	Article No.	
SITRANS P DS III with HART pressure trans- mitters for differential pressure and flow, PN 420 (MAWP 6092 psi)	7 M F 4 5 3 3 -	
Electrical connection/cable entry  Screwed gland M20x1.5  Screwed gland ½-14 NPT  Han 7D plug (plastic housing) incl. mating connector 13)14)  M12 connectors (stainless steel) 15) 16)	B C D	
Display  • Without display  • Without visible display (display concealed, setting: mA)  • With visible display (setting: mA)  • with customer-specific display (setting as specified, Order code "Y21" or "Y22" required)		0 1 6 7

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

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

- 1) For oxygen application, add Order code E10.
- 2) Not in conjunction with max. span 600 mbar (240.9 inH<sub>2</sub>O)
- 3) When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here
- 4) If the acceptance test certificate 3.1.is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) The diaphragm seal is to be specified with a separate order number and must be included with the transmitter order number, for example 7MF453.-..Y..-... and 7MF4900-1....-.B
- 6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 7) Not in conjunction with Electrical connection "Han7D plug".
- 8) Without cable gland, with blanking plug
- 9) With enclosed cable gland Ex ia and blanking plug
- 10) Configurations with HAN and M12 connectors are only available in Ex ic.
- <sup>11)</sup> Only in connection with IP66.
- 12) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- 13) Only in connection with Ex approval A, B or E.
- <sup>14)</sup> Permissible only for crimp-contact of conductor cross-section 1 mm<sup>2</sup>
- 15) Only in connection with Ex approval A, B, E or F.
- <sup>16)</sup> M12 delivered without cable socket.

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for differential pressure and flow

Selection and Orderin		Α	rtic	le	No	١.	
Pressure transmitters and flow, PN 420 (MA)	for differential pressure NP 6092 psi)						
SITRANS P DS III with F	PROFIBUS PA (PA)	7	ΜF	4	5 3	4 -	
SITRANS P DS III with F	OUNDATION Fieldbus (FF)	7	M F	4	5 3	5 -	
✓ Click on the Article No ration in the PIA Life	No. for the online configu- Cycle Portal.		1		-	ľ	Ŧ
Measuring cell filling	Measuring cell cleaning						
Silicone oil	normal	1					
Inert liquid <sup>1)</sup>	grease-free to cleanliness level 2	3					
Nominal measuring ra	inge						
250 mbar	(100.4 inH <sub>2</sub> O)		D				
600 mbar	(240.9 inH <sub>2</sub> O)		E				
1600 mbar	(642.4 inH <sub>2</sub> O)		F				
5 bar 30 bar	(2008 inH <sub>2</sub> O)		G H				
	(435 psi)		П				
Wetted parts materials stainless steel process							
stamess steel process Seal diaphragm	Parts of measuring cell						
Stainless steel	Stainless steel		Δ				
Hastelloy	Stainless steel		B				
Gold <sup>2)</sup>	Gold		ĭ				
Version for diaphragm :			Y	,			
<ul> <li>Sealing screw opposi</li> <li>Mounting thread <sup>7</sup>/<sub>1</sub></li> <li>Mounting thread M1 (only for replacement</li> <li>Venting on side of provent valve at top of prosional drawing).</li> </ul>	6-20 UNF to IEC 61518 2 to DIN 19213 nt requirement) acess flanges, location of ocess flanges (see dimen- 6-20 UNF to IEC 61518 2 to DIN 19213 nt requirement)	_		3 1 7 5			
Process flange screws							
Stainless steel Stainless steel	Die-cast aluminum Stainless steel precision casting				2		
/ersion							
setting for pressure u						1	
<ul> <li>International version, setting for pressure up</li> </ul>	English plate inscription, nit: bar					2	
<ul> <li>Chinese version, Engli setting for pressure un</li> </ul>	sh plate inscription,					3	
SITRANS P in German, E	English, French, Italian and pact operating instructions						

Selection and Ordering data	Article No.
Pressure transmitters for differential pressure and flow, PN 420 (MAWP 6092 psi)	
SITRANS P DS III with PROFIBUS PA (PA)	7MF4534-
SITRANS P DS III with FOUNDATION Fieldbus (FF)	7MF4535-
Explosion protection	
• None	Α
• With ATEX, Type of protection:	
- "Intrinsic safety (Ex ia)"	В
- "Explosion-proof (Ex d)" / )	D
- "Intrinsic safety and flameproof enclosure" (Ex ia + Ex d)" <sup>8)</sup>	P
- "Ex nA/ic (Zone 2)" <sup>9)</sup>	E
- "Intrinsic safety, explosion-proof enclosure and	R
dust explosion protection (Ex ia + Ex d + Zone 1D/2D) <sup>(8)</sup> 10) (not for DS III FF)	
FM + CSA intrinsic safe (is) <sup>11)</sup>	F
• FM + CSA (is + ep) + Ex ia + Ex d (ATEX)+ Zone 1D/2D <sup>9)10)11)</sup>	S
• With FM + CSA, Type of protection:	
	N C
<ul> <li>"Intrinsic safety and explosion-proof (is + xp)"<sup>7)11)</sup>, max PN 360</li> </ul>	
Electrical connection/cable entry	
<ul> <li>Screwed gland M20 x 1.5</li> </ul>	В
• Screwed gland ½-14 NPT	С
• M12 connectors (stainless steel) 12) 13)	F
Display	
<ul><li>Without (display hidden)</li></ul>	0
Without visible display     (display consoled, setting; bar)	1
(display concealed, setting: bar)	6
<ul> <li>With visible display (setting: bar)</li> <li>With customer-specific display (setting as</li> </ul>	7
specified, Order code "Y21" required)	1

Included in delivery of the device:

- Brief instructions (Leporello)
  DVD 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 in conjunction with max. span 600 mbar (240.9 inH<sub>2</sub>O)
- When the manufacture's certificate (calibration certificate) has to be ordered for transmitters with diaphragm seals according to IEC 60770-2, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified
- 4) If the acceptance test certificate 3.1 is ordered for the transmitter with mounted diaphragm seals this certificate must also be ordered with the respective remote seals.
- 5) The diaphragm seal is to be specified with a separate order number and must be included wiht the transmitter order number, for example 7MF453.-..Y..-... and 7MF4900-1....-.B
- 6) The standard measuring cell filling for configurations with remote seals (Y) is silicone oil.
- 7) Without cable gland, with blanking plug.
- 8) With enclosed cable gland Ex ia and blanking plug.
- 9) Configurations with HAN and M12 connectors are only available in Ex ic.
- <sup>10)</sup> Only in connection with IP66.
- 11) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- <sup>12)</sup> Only in connection with Ex approval A, B, E or F.
- 13) M12 delivered without cable socket

Transmitters for applications with advanced requirements (Advanced)

Coloration and Ordering date	Oudou	0000		
Selection and Ordering data Further designs	Order	HART	DΛ	FF
· ·		папі	PA	FF
Add "-Z" to Article No. and specify Order code.				
Pressure transmitter with mounting bracket (1x fixing angle, 2 x nut, 2 x U-washer or 1 x bracket, 2 x nut, 2 x U-washer) made of:				
• Steel	A01	✓	✓	1
• Stainless steel 304	A02	✓	✓	✓
Stainless steel 316L	A03	✓	✓	✓
O-rings for process flanges (instead of FPM (Viton))				
• PTFE (Teflon)	A20	1	1	1
• FEP (with silicone core, approved for food)	A21	1	1	1
• FFPM (Kalrez, compound 4079),	A22	1	1	1
for measured medium temperatures -15 100 °C (5 212 °F)				
NBR (Buna N)      NBR (Buna N)	A23	✓	✓	1
Plug  ◆ Han 7D (metal)	A30	1		
Han 8D (instead of Han 7D)	A31	1		
• Angled	A32	1		
Han 8D (metal)	A33	✓		
Sealing screws (2 units) 1/4-18 NPT, with valve in mat. of process flanges	A40	✓	✓	✓
	A50	1	./	1
Cable sockets for M12 connection (metal (CuZn))	A50	•		•
Rating plate inscription (instead of German) • English	B11	1	1	1
• French	B12	✓	✓	✓
Spanish	B13	✓	✓	✓
• Italian	B14	✓	1	✓
Cyrillic (russian)	B16	✓	✓	✓
English rating plate	B21	✓	✓	✓
Pressure units in inH <sub>2</sub> O and/or psi  Quality Inspection Certificate (5-point charac-	C11	<b>√</b>	<b>✓</b>	<b>✓</b>
teristic curve test) according to IEC 60770-2				
Inspection certificate Acc. to EN 10204-3.1	C12	✓	✓	1
Factory certificate Acc. to EN 10204-2.2	C14	✓	✓	1
Functional safety (SIL2)	C20	1		
Devices suitable for use according to IEC 61508 and IEC 61511. Includes SIL confor-				
mity declaration  Functional safety (PROFIsafe)	C21 <sup>1)</sup>		1	
Certificate and PROFIsafe protocol				
Functional safety (SIL2/3) Devices suitable for use according to	C23	1		
IEC 61508 and IEC 61511. Includes SIL conformity declaration				
Device passport Russia	C99	1	1	1
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Manufacturer's declaration acc. to NACE (MR 0103-2012 and MR 0175-2009)	D07	✓	✓	1
(only together with seal diaphragm made of Hastelloy and stainless steel)				
Degree of protection IP66/IP68	D12	1	1	1
(only for M20 x 1.5 and ½-14 NPT)	DEC	,		
Nom. press. rating PN 500 (MAWP 7250 psi) (Only for measuring cell 600 mbar 30 bar (240 inH <sub>2</sub> Q 435 psi), SIL- and Ex-options not possible)) <sup>2)</sup>	D56	•		
Capri cable gland 4F CrNi and clamping device (848699 + 810634) included	D59	1	✓	✓
Use in or on zone 1D/2D	E01	1	1	1
(only together with type of protection				
"Intrinsic safety" (transmitter				
7MF4B Ex ia)"and IP66)				

SITIANS I BS III ISI dillerentia				
Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Article No. and specify Order code.				
Export approval Korea	E11	✓	✓	✓
CRN approval Canada (Canadian Registration Number)	E22 <sup>4)</sup>	✓	✓	✓
Dual seal	E24	✓	✓	✓
Explosion-proof "Intrinsic safety" (Ex ia) to INMETRO (Brazil)	E25 <sup>3)</sup>	✓	✓	✓
(only for transmitter 7MF4B)				
"Flameproof" explosion protection according to INMETRO (Brazil)	E26 <sup>3)</sup>	✓	✓	✓
(only for transmitter 7MF4D)	2\			
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil) (only for transmitter 7MF4P)	E28 <sup>3)</sup>	<b>√</b>	✓	
Ex Approval IEC Ex (Ex ia)	E45 <sup>3)</sup>	1	1	1
(only for transmitter 7MF4B)	L43 '	ľ	•	·
Ex Approval IEC Ex (Ex d) (only for transmitter 7MF4D)	E46 <sup>3)</sup>	✓	✓	✓
Explosion-proof "Intrinsic safety"	E55 <sup>3)</sup>	1	1	1
to NEPSI (China)  (only for transmitter 7MF4B)	L33 /	·	·	•
Ex prot. "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56 <sup>3)</sup>	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57 <sup>3)</sup>	✓	✓	✓
Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)  (only for transmitter 7MF4R)	E58 <sup>3)</sup>	✓	✓	✓
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)	E70 <sup>3)</sup>	✓	✓	✓
(only for transmitter 7MF4[B, D]Z + E11)				
Ex-protection Ex ia acc. to EAC Ex (Russia)	E80 <sup>4)</sup>	✓	✓	✓
Ex-protection Ex d acc. to EAC Ex (Russia)	E81 <sup>4)</sup>	✓	✓	✓
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82 <sup>4)</sup>	✓	✓	✓
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83 <sup>4)</sup>	✓	✓	✓
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	✓
Interchanging of process connection side	H01	✓	✓	1
Stainless steel process flanges for vertical differential pressure lines	H03	✓	✓	✓
Transient protector 6 kV (lightning protection)	J01	✓	✓	1
Chambered graphite gasket for process flange	J02	✓	✓	✓
EPDM O-rings for process flange with approval (WRC/WRAS)	J05	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display) <sup>5)</sup>	J08	✓	✓	✓
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display) <sup>5)</sup>	J09	1	✓	✓

Profisafe transmitters can only be operated with the S7 F Systems V6.1 configuration software in combination with S7-400H
 Tested according to IEC 61010. Only for measuring materials of the group of fluids 2 in accordance with PED permissible. Not for use with dangerous media suitable.
 Option does not include ATEX approval, but instead includes only the country-specific approval.
 Approval pending.
 Blanking pluig is standard configuration. Order option A40 if a vent valve is

<sup>5)</sup> Blanking plug is standard configuration. Order option A40 if a vent valve is required instead of a blanking plug.

Transmitters for applications with advanced requirements (Advanced)

### **SITRANS P DS III for differential pressure and flow**

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set				
<ul> <li>Specify in plain text:</li> <li>in the case of linear characteristic curve (max. 5 characters);</li> </ul>	Y01	✓	<b>√</b> 1)	
<ul> <li>Y01: up to mbar, bar, kPa, MPa, psi</li> <li>in the case of square rooted characteristic (max. 5 characters):</li> <li>Y02: up to mbar, bar, kPa, MPa, psi</li> </ul>	Y02	✓		
Stainless steel tag plate and entry in device variable (measuring point description)	Y15	✓	✓	✓
Max. 16 characters, specify in plain text:				
Measuring point text (entry in device variable)	Y16	✓	✓	✓
Max. 27 char., specify in plain text: Y16:				
Entry of HART address (TAG)	Y17	✓		
Max. 8 char., specify in plain text: Y17:		,		,
Setting of pressure indication in pressure units	Y21	<b>~</b>	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi, Note:				
The following pressure units can be selected: bar, mbar, mm H <sub>2</sub> O <sup>*</sup> ), inH <sub>2</sub> O <sup>*</sup> ), ftH <sub>2</sub> O <sup>*</sup> ), mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in	Y22 +	✓		
non-pressure units <sup>2</sup> ) Specify in plain text: Y22: up to I/min, m <sup>3</sup> /h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters)	Y01 or Y02			
Preset bus address	Y25		1	1
possible between 1 and 126 Specify in plain text: Y25:				
Damping adjustment in seconds (0 100 s)	Y30	✓	✓	✓

Factory mounting of valve manifolds, see accessories.

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

✓ = available

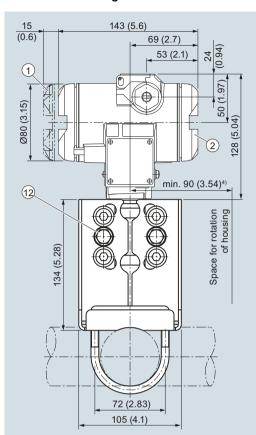
Measuring accuracies for PROFIBUS PA transmitters with Option Y01 are calculated in the same way as for HART devices.

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

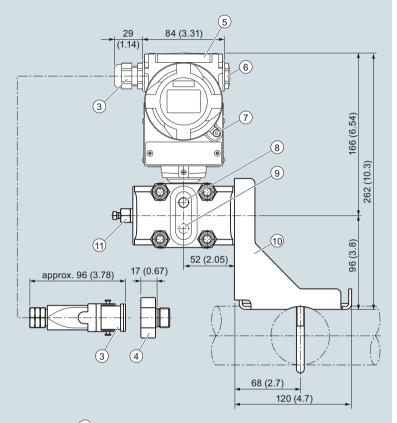
Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for differential pressure and flow

## Dimensional drawings



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

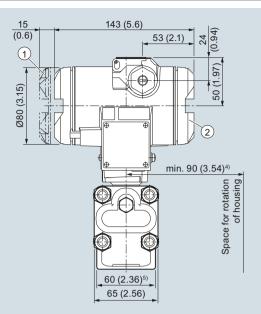


- 6 Blanking plug
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- 8 Lateral venting for liquid measurement (Standard)
- 9 Lateral venting for gas measurement (suffix H02)
- 10 Mounting bracket (option)
- 11 Sealing screw with valve (option)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

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

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for differential pressure and flow



- 17 (0.67) 29 (1.14) approx. 96 (3.78) 84 (3.31) (6) 128 (5.04) (4) (3) 217 (8.54)7) (8) 85 (3.35)6) approx. approx. 87 (3.43)
- 1 Electronic side, digital display (longer overall length for cover with window)1)
- Electrical connection: Screwed gland M20 x 1,5 or Screwed gland ½-14 NPT or Han 7D/ Han 8D<sup>2) 3)</sup> plug
- 4 Harting adapter
- Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "Explosion-proof enclosure" Not with type of protection "FM + CSA" [IS + XP]"
- 92 mm (3.6 inch) for minimum distance to permit rotation with indicator
- 74 mm (2.9 inch) for PN  $\geq$  420 (MAWP  $\geq$  6092 psi)
- 91 mm (3.6 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)
- 219 mm (8.62 inch) for PN ≥ 420 (MAWP ≥ 6092 psi)

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

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



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

Transmitters for applications with advanced requirements (Advanced)

## SITRANS P DS III for level

## Technical specifications

SITRANS P DS III for level			
Input			
Measured variable	Level		
Span (fully adjustable) or measuring range, max. operating pressure (in accordance with 2014/68/EU Pressure Equipment Directive) and max. test pressure (pursuant to DIN 16086)	HART	PROFIBUS PA/ FOUNDATION Fieldbus	
	Span	Nominal measuring range	Max. operating pressure MAWP (PS)
	25 250 mbar 2.5 25 kPa 10 100 inH <sub>2</sub> O	250 mbar 25 kPa 100 inH <sub>2</sub> O	See "Mounting flange"
	25 600 mbar 2.560 kPa 10 240 inH <sub>2</sub> O	600 mbar 60 kPa 240 inH <sub>2</sub> O	
	53 1600 mbar 5.3160 kPa 21 640 inH <sub>2</sub> O	1600 mbar 160 kPa 642 inH <sub>2</sub> O	
	160 5000 mbar 16500 kPa 2.32 72.5 psi	5000 mbar 500 kPa 72.5 psi	
Lower measuring limit			'
Measuring cell with silicone oil filling	-100 % of max. span or 30 mbar a/3 kPa a/0.44 psia depending on mounting flange		
Measuring cell with inert filling liquid	-100 % of max. span or 30 mbar a/3 kPa a/0.44 psia depending on mounting flange		
Upper measuring limit	100 % of max. span		
Start of scale value	Between the measuring limits (fully adjustable)		
Output	HART		PROFIBUS PA/FOUNDATION Fieldbus
Output signal	4 20 mA		Digital PROFIBUS PA and FOUNDATION Fieldbus signal
Lower limit (infinitely adjustable)	3.55 mA, factory preset to 3.84 mA		-
Upper limit (infinitely adjustable)	23 mA, factory preset to 20.5 mA or optionally set to 22.0 mA		-
Load			
Without HART	$R_{\rm B} \leq (U_{\rm H}$ - 10.5 V)/0.023 A in $\Omega$ , $U_{\rm H}$ : Power supply in V		-
• With HART	$R_{\rm B}$ = 230 500 $\Omega$ (SIMATIC PDM) or $R_{\rm B}$ = 230 1100 $\Omega$ (HART Communicator)		-
Physical bus	-		IEC 61158-2
Protection against polarity reversal	Protected against short-circuit and polarity reversal.  Each connection against the other with max. supply voltage.		
Electrical damping (step width 0.1 s)	Set to 2 s (0 100 s)		

Transmitters for applications with advanced requirements (Advanced)

## SITRANS P DS III for level

SITRANS P DS III for level			
SITRANS P DS III for level			
Measuring accuracy	Acc. to IEC 60770-	1	
Reference conditions	Increasing characteristic Start-of-scale value 0 bar/kPa/psi Stainless steel seal diaphragm Silicone oil filling Room temperature 25 °C (77 °F)		
Measuring span ratio r (spread, Turn-Down)	r = max. measuring	g span/set measuring span or nom. pressure range	
Error in measurement at limit setting incl. hysteresis and reproducibility			
Linear characteristic			
- 250 mbar/25 kPa/3.6 psi	r≤5: 5 <r≤10:< td=""><td>≤ 0.125 % ≤ (0.007 · r + 0.09) %</td></r≤10:<>	≤ 0.125 % ≤ (0.007 · r + 0.09) %	
- 600 mbar/60 kPa/8.7 psi	r≤5: 5 <r≤25:< td=""><td>≤ 0.125 % ≤ (0.007 · r + 0.09) %</td></r≤25:<>	≤ 0.125 % ≤ (0.007 · r + 0.09) %	
- 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi	r≤5: 5 <r≤30:< td=""><td>≤ 0.125 % ≤ (0.007 · r + 0.09) %</td></r≤30:<>	≤ 0.125 % ≤ (0.007 · r + 0.09) %	
Influence of ambient temperature (in percent per 28 °C (50 °F))			
• 250 mbar/25 kPa/3.6 psi	$\leq$ (0.4 · r + 0.16) %		
• 600 mbar/60 kPa/8.7 psi	$\leq$ (0.24 · r + 0.16) %		
• 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi	$\leq$ (0.2 · r + 0.16) %		
Influence of static pressure			
• on the zero point			
- 250 mbar/25 kPa/3.6 psi	≤ (0.3 · r) % per nor	minal pressure	
- 600 mbar/60 kPa/8.7 psi	≤ (0.15 · r) % per no	ominal pressure	
- 1600 mbar/160 kPa/23.21 psi 5 bar/500 kPa/72.5 psi	≤ (0.1 · r) % per nor	minal pressure	
• on the span	$\leq$ (0.1 · r) % per nor	minal pressure	
Long-term stability (temperature change $\pm$ 30 °C ( $\pm$ 54 °F))	≤ (0.25 · r)% in 5 years static pressure max. 70 bar/7 MPa/1015 psi		
Effect of mounting position	Depending on filling liquid of mounting flange		
Effect of auxiliary power supply (in percent per change in voltage)	0.005 % per 1 V		
Measuring value resolution for PROFIBUS PA and FOUNDATION Fieldbus	3 · 10 <sup>-5</sup> of nominal r	measuring range	
Rated conditions			
Degree of protection to IEC 60529	IP66 (optional IP66)	(IP68), NEMA 4X	
Temperature of medium	ture to max. permis	into account assignment of max. permissible operating temperasible operating pressure of the respective flange connection!	
Measuring cell with silicone oil filling	-40 +100 <sup>1)</sup> °C (-40 +212 <sup>1)</sup> °F)		
- High-pressure side	$p_{abs} < 1 \text{ bar: -40} \dots$	+175 °C (-40 +347 °F) +80 °C (-40 +176 °F)	
- Low-pressure side	-40 +100 °C (-40 -20 +60 °C (-4	+212 °F) +140 °F) in conjunction with dust explosion protection	
Ambient conditions			
Ambient temperature  Transmitter	40 .0E °C ( 40	.105 %	
<ul> <li>Transmitter (with 4-wire connection, observe temperature values of sup- plementary 4-wire electronics)</li> </ul>	-40 +85 °C (-40 .	+165 'F)	
Display readable	-30 +85 °C (-22 .	+185 °F)	
Storage temperature	-50 +85 °C (-58 +185 °F)		
Climatic class			
- Condensation	Relative humidity 0 ics	100 %, condensation permissible, suitable for use in the trop-	
Electromagnetic Compatibility			
- Emitted interference and interference immunity	Acc. to IEC 61326	and NAMUR NE 21	

Transmitters for applications with advanced requirements (Advanced)

## SITRANS P DS III for level

SITRANS P DS III for level				
Design				
Weight (without options)				
<ul> <li>To EN (pressure transmitter with mounting flange, without tube)</li> </ul>	≈ 11 13 kg (≈ 24.2 28.7 (lb)	≈ 11 13 kg (≈ 24.2 28.7 (lb)		
<ul> <li>To ASME (pressure transmitter with mounting flange, without tube)</li> </ul>	≈ 11 18 kg (≈ 24.2 39.7 lb)	≈ 11 18 kg (≈ 24.2 39.7 lb)		
Enclosure material	Low-copper die-cast aluminum, GD-AlSimat. no. 1.4408	Low-copper die-cast aluminum, GD-AlSi12 or stainless steel precision casting, mat. no. 1.4408		
Wetted parts materials				
High-pressure side				
Seal diaphragm of mounting flange	Stainless steel, WNr. 1.4404/316L coated with PFA coated with PTFE coated with ECTFE gold plated Monel 400, mat. no. 2.4360 Hastelloy C276, mat. no 2.4619 Hastelloy C4, mat. no. 2.4602 Hastelloy C22, mat. no. 2.4602 Tantalum Titanium, mat. no. 3.7035 Nickel 201 Duplex 2205, mat. no. 1.4462			
Measuring cell filling	Silicone oil			
Process connection				
High-pressure side	Flange to EN and ASME			
• Low-pressure side	Female thread $\frac{1}{4}$ -18 NPT and flange connection with mounting thread M10 to DIN 19213 or $\frac{7}{16}$ -20 UNF to EN 61518			
Power supply $U_{H}$	HART	PROFIBUS PA/FOUNDATION Fieldbus		
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-		
Power supply		Supplied through bus		
Separate 24 V power supply necessary	-	No		
Bus voltage				
• Not Ex	_	9 32 V		
With intrinsically-safe operation	_	9 24 V		
Current consumption		5 2		
Basic current (max.)		12.5 mA		
- Dasio Guiterii (Max.)	-	12.0 IIIA		

• Start-up current ≤ basic current

Fault disconnection electronics (FDE) available

• Max. current in event of fault

Yes 15.5 mA

Yes

Transmitters for applications with advanced requirements (Advanced)

## SITRANS P DS III for level

Certificates and approvals	HART	PROFIBUS PA/ FOUNDATION Fieldbus		
Classification according to PED 2014/68/EU		For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of		
3 · · · · · · · · · · · · · · · · · · ·		article 4, paragraph 3 (sound engineering practice)		
Explosion protection				
Intrinsic safety "i"	PTB 13 ATEX 2007 X	PTB 13 ATEX 2007 X		
- Marking	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb	Ex II 1/2 G Ex ia/ib IIC T4/T5/T6 Ga/Gb		
- Permissible ambient temperature	-40 +70 °C (-40 +158 °F) temperatu	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +70 °C (-40 +158 °F) temperature class T5; -40 +60 °C (-40 +140 °F) temperature class T6		
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW; $R_{\rm i}$ = 300 $\Omega$	$U_0 = 17.5 \text{ V}, \ I_0 = 380 \text{ mA}, \ P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}, \ I_0 = 250 \text{ mA}, \ P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$		
• Explosion-proof "d"	PTB 99 ATEX 1160			
- Marking	Ex II 1/2 G Ex d IIC T4/T6 Gb			
- Permissible ambient temperature		-40 +85 °C (-40 +185 °F) temperature class T4; -40 +60 °C (-40 +140 °F) temperature class T6		
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{H} = 9 32 \text{ V DC}$		
Dust explosion protection for zone 20	PTB 01 ATEX 2055	PTB 01 ATEX 2055		
- Marking	Ex II 1 D Ex ta IIIC T120°C Da Ex II 1/2 D Ex ta/tb IIIC T120°C Da/Db			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)			
- Max. surface temperature	120 °C (248 °F)			
- Connection	To certified intrinsically-safe circuits with peak values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW, $R_{\rm i}$ = 300 $\Omega$	FISCO supply unit: $U_0 = 17.5 \text{ V}$ , $I_0 = 380 \text{ mA}$ , $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$ , $I_0 = 250 \text{ mA}$ , $P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH},  C_{\rm i} = 6  {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 \text{ nF}$		
• Dust explosion protection for zone 21/22	PTB 01 ATEX 2055			
- Marking	Ex II 2 D Ex tb IIIC T120°C Db			
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC; $P_{\rm max}$ = 1.2 W	To circuits with values: $U_{\rm H}$ = 9 32 V DC; $P_{\rm max}$ = 1 W		
• Type of protection "n" (zone 2)	PTB 13 ATEX 2007 X			
- Marking	Ex II 2/3 G Ex nA II T4/T5/T6 Gc Ex II 2/3 G Ex ic IIC T4/T5/T6 Gc			
- Connection (Ex nA)	$U_{\rm m} = 45 \text{ V}$	<i>U</i> <sub>m</sub> = 32 V		
- Connection (Ex ic)	To circuits with values: $U_{\rm i} = 45 \text{ V}$	FISCO supply unit ic: $U_0 = 17.5 \text{ V}$ , $I_0 = 570 \text{ mA}$ Linear barrier: $U_0 = 32 \text{ V}$ , $I_0 = 132 \text{ mA}$ , $P_0 = 1 \text{ W}$		
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4  {\rm mH},  C_{\rm i} = 6  {\rm nF}$	$U_0 = 32 \text{ V}, I_0 = 132 \text{ mA}, P_0 = 1 \text{ W}$ $L_1 = 7 \text{ \muH}, C_1 = 1.1 \text{ nF}$		
• Explosion protection acc. to FM	Certificate of Compliance 3008490			
- Identification (XP/DIP) or (IS); (NI)	T4T6;	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP EFG; CL III; CL I, ZN 0/1 AEx ia IIC T4T6;		
• Explosion protection to CSA	Certificate of Compliance 1153651	CL I, DIV 2, GP ABCD T4T6; CL II, DIV 2, GP FG; CL III		
- Identification (XP/DIP) or (IS)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV	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		

 $<sup>^{1)}\,</sup>$  This value may be increased if the process connection is sufficiently insulated.

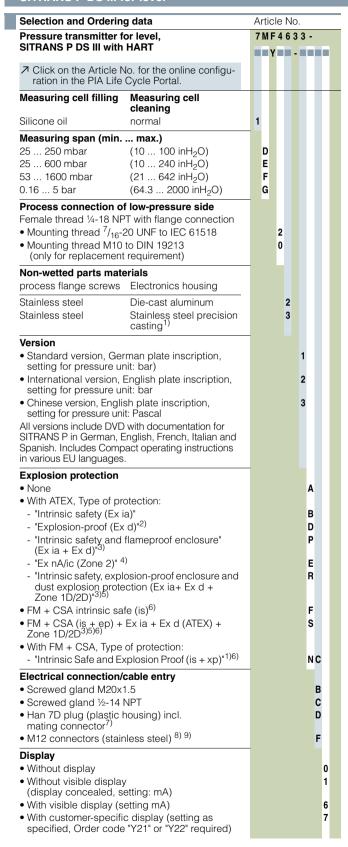
Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for level

			SITRANS P DS III for level
HART communication		FOUNDATION Fieldbus	
HART	230 1100 $\Omega$	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	characteristic 0 100 s
The address can be set using	Configuration tool or local	- Electrical damping, adjustable	
	operation (standard setting address 126)	- Simulation function	Output/input (can be locked within the device with a bridge)
Cyclic data usage	[ (	- Failure mode	parameterizable (last good value, substitute value, incorrect value)
Output byte	5 (one measured value) or 10 (two measured values)	- Limit monitoring	Yes, one upper and lower warn-
Input byte	0, 1, or 2 (register operating mode and reset function for metering)		ing limit and one alarm limit respectively
Internal preprocessing	meening	<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes
Device profile	PROFIBUS PA Profile for Process Control Devices Version	• PID	Standard FOUNDATION Field- bus function block
	3.0, class B	<ul> <li>Physical block</li> </ul>	1 resource block
Function blocks  • Analog input	2	Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block
- Adaptation to customer-specif-	Yes, linearly rising or falling		LCD
ic process variables	characteristic	<ul> <li>Pressure transducer block</li> <li>Can be calibrated by applying</li> </ul>	Yes
- Electrical damping, adjustable	0 100 s	two pressures	ies
- Simulation function	Input/Output	- Monitoring of sensor limits	Yes
- Failure mode	parameterizable (last good value, substitute value, incorrect value)	<ul> <li>Simulation function: Measured pressure value, sensor tem- perature and electronics tem-</li> </ul>	Constant value or over parameterizable ramp function
- Limit monitoring	Yes, one upper and lower warn- ing limit and one alarm limit respectively	perature  Mounting flange	
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output	Nominal diameter • Acc. to EN 1092-1	Nominal pressure
- Failure mode	parameterizable (summation	- DN 80	PN 40
	with last good value, continuous summation, summation with incorrect value)	- DN100 • To ASME B16.5	PN16, PN40
- Limit monitoring	One upper and lower warning	- 3 inch	class 150, class 300
	limit and one alarm limit respec- tively	- 4 inch	class 150, class 300
<ul> <li>Physical block</li> </ul>	1		
Transducer blocks	2		
Pressure transducer block			
<ul> <li>Can be calibrated by applying two pressures</li> </ul>	Yes		
- Monitoring of sensor limits	Yes		
<ul> <li>Specification of a container characteristic with</li> </ul>	Max. 30 nodes		
<ul> <li>Square-rooted characteristic for flow measurement</li> </ul>	Yes		
<ul> <li>Gradual volume suppression and implementation point of square-root extraction</li> </ul>	Parameterizable		
<ul> <li>Simulation function for measured pressure value and sensor temperature</li> </ul>	Constant value or over parameterizable ramp function		

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for level



### Ordering information

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

### ordering example

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

B line: Y01

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

Item line 2: 7MF4912-3GE01

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

Included in delivery of the device:

- Brief instructions (Leporello)
- DVD with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) Not in conjunction with Electrical connection "Han7D plug".
- 2) Without cable gland, with blanking plug.
- 3) With enclosed cable gland Ex ia and blanking plug.
- 4) Configurations with HAN and M12 connectors are only available in Ex ic.
- 5) Only in connection with IP66.
- 6) Explosion protection acc. to FM/CSA: suitable for installations according to NEC 500/505.
- Only in connection with Ex approval A, B or E.
- 8) M12 delivered without cable socket
- 9) Only in connection with Ex approval A, B, E or F.

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for level

Selection and Orde	ering data	Artic	le	No				
Pressure transmitt	ters for level							
SITRANS P DS III wi	ith PROFIBUS PA (PA)	7 M F	4	6 3	4 -			
SITRANS P DS III wi	th FOUNDATION Fieldbus (FF)	7 M F	4	6 3	5 -			
7 Click on the Article     ration in the PIA	cle No. for the online configu- Life Cycle Portal.	1 <b>=</b> Y	-	-	ľ			
Nominal measurin	g range							
250 mbar 600 mbar 1600 mbar 5 bar	$\begin{array}{l} (100 \; \text{inH}_2\text{O}) \\ (240 \; \text{inH}_2\text{O}) \\ (642 \; \text{inH}_2\text{O}) \\ (2000 \; \text{inH}_2\text{O}) \end{array}$	D E F G						
<ul> <li>Female thread ½-18</li> <li>Mounting thread Nounting Nountin</li></ul>	on of low-pressure side 3 NPT with flange connection // <sub>16</sub> -20 UNF to IEC 61518 M10 to DIN 19213 nent requirement)		2 0					
<u> </u>	ews Electronics housing							
Stainless steel Stainless steel	Die-cast aluminum Stainless steel precision casting			3				
setting for pressur	on, English plate inscription,				1			
Chinese version, E setting for pressure All versions include I SITRANS P in Germa	inglish plate inscription, e unit: Pascal DVD with documentation for an, English, French, Italian and ompact operating instructions				3			
Explosion protecti • None	on				,			
With ATEX, Type of	of protection:					`		
<ul> <li>"Intrinsic safety (</li> <li>"Explosion-proof</li> <li>"Intrinsic safety (</li> <li>(Ex ia + Ex d)"<sup>2</sup>)</li> </ul>					E C F	)		
<ul><li>"Ex nA/ic (Zone</li><li>"Intrinsic safety.</li></ul>	2)" <sup>3)</sup> explosion-proof enclosure and protection (Ex ia + Ex d + 0) (not for DS III FF)				F			
<ul> <li>FM + CSA intrinsic</li> </ul>					F			
• With FM + CSA, T	ype of protection: and Explosion Proof (is + xp)*1)5)				N	1 C		
Electrical connect	•							
<ul> <li>Screwed gland M</li> <li>Screwed gland ½</li> <li>M12 connectors (</li> </ul>	-14 NPT					B C F		
Display								
<ul><li>Without display</li><li>Without visible dis</li></ul>	enlav						0	
(display conceale							1	
With visible displa	, , ,						6	
	ecific display (setting as code "Y21" required)						7	

#### Ordering information

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

#### Ordering example

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

Included in delivery of the device:
• Brief instructions (Leporello)
• DVD with detailed documentation

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

Transmitters for applications with advanced requirements (Advanced)

# SITRANS P DS III for level

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

Selection and Ordering data	Oraer	code		
Further designs		HART	PA	F
Add "-Z" to Article No. and specify Order code.				
Use on zone 1D / 2D	E01	1	✓	,
(only together with type of protection "Intrinsic safety" (transmitter 7MF4B Ex ia) "and IP66)				
Overfilling safety device for flammable and non-flammable liquids	E08	✓		
(max. PN 32 (MAWP 464 psi), basic device with type of protection "Intrinsic safety (Ex ia)" to WHG and VbF, not together with measuring cell filling "inert liquid")				
Export approval Korea	E11	1	✓	,
CRN approval Canada (Canadian Registration Number)	E22	✓	✓	,
Dual seal	E24	✓	1	,
Explosion-proof "Intrinsic safety" (Ex ia) to	E25 <sup>2)</sup>	1	1	,
INMETRO (Brazil)				
(only for transmitter 7MF4B)	-			
"Flameproof" explosion protection according to INMETRO (Brazil)	- E26 <sup>2)</sup>	✓	✓	٠
(only for transmitter 7MF4D)	2)			
Explosion-proof "Intrinsic safety" (Ex ia + Ex d) to INMETRO (Brazil)	E28 <sup>2)</sup>	✓	✓	
(only for transmitter 7MF4P)	2)			
Ex Approval IEC Ex (Ex ia)	E45 <sup>2)</sup>	✓	✓	•
(only for transmitter 7MF4B)	= 402)	,	,	
<b>Ex Approval IEC Ex (Ex d)</b> (only for transmitter 7MF4D)	E46 <sup>2)</sup>	•	•	
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55 <sup>2)</sup>	✓	✓	•
(only for transmitter 7MF4B)	•			
Explosion protection "Explosion-proof" to NEPSI (China)	E56 <sup>2)</sup>	✓	✓	
(only for transmitter 7MF4D)	_ 2)			
Ex protection "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57 <sup>2)</sup>	<b>V</b>	✓	
Ex protection "Ex ia", "Ex d" and "Zone 2" to NEPSI (China)	£58 <sup>2)</sup>	✓	✓	
(only for transmitter 7MF4				
"Intrinsic safety" and "Explosion-proof" explosion protection acc. to Kosha (Korea)	E70 <sup>2)</sup>	✓	✓	,
(only for transmitter 7MF4[B, D]Z + E11)	2)			
Ex-protection Ex ia according to EAC Ex (Russia)	E80 <sup>3)</sup>	✓	✓	1
Ex-protection Ex d according to EAC Ex (Russia)	E81 <sup>3)</sup>	✓	✓	
Ex-protection Ex nA/ic (Zone 2) according to EAC Ex (Russia)	E82 <sup>3)</sup>	✓	✓	•
Ex-protection Ex ia + Ex d + Zone 1D/2D according to EAC Ex (Russia)	E83 <sup>3)</sup>	✓	✓	•
Two coats of lacquer on casing and cover (PU on epoxy)	G10	✓	✓	•
Replacement of process connection side	H01	1	1	

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for level

Selection and Ordering data	Order	Order code						
Further designs		HART	PA	FF				
Add "- $\mathbf{Z}$ " to Article No. and specify Order code.								
Transient protector 6 kV (lightning protection)	J01	✓	✓	1				
Vent valve or blanking plug of process flange welded-in (orientation: on right when viewing the display) <sup>4)</sup>	J08	✓	✓	✓				
Vent valve or blanking plug of process flange welded-in (orientation: on left when viewing the display) <sup>4)</sup>	J09	✓	✓	✓				

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

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

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Please add "-Z" to Article No. and specify Order code(s) and plain text.				
Measuring range to be set Specify in plain text (max. 5 characters): Y01: up to mbar, bar, kPa, MPa, psi	Y01	✓	<b>√</b> 1)	
Stainless steel tag plate and entry in device variable (measuring point description)	Y15	✓	✓	✓
Max. 16 characters, specify in plain text: Y15:				
Measuring point text (entry in device variable)	Y16	✓	✓	✓
Max. 27 characters, specify in plain text: Y16:				
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indicator in pressure units	Y21	1	✓	✓
Specify in plain text (standard setting: bar): Y21: mbar, bar, kPa, MPa, psi,				
Note: The following pressure units can be selected:				
bar, mbar, mm H <sub>2</sub> O <sup>*)</sup> , inH <sub>2</sub> O <sup>*)</sup> , ftH <sub>2</sub> O <sup>*)</sup> , mmHG, inHG, psi, Pa, kPa, MPa, g/cm <sup>2</sup> , kg/cm <sup>2</sup> , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indicator in non-pressure units <sup>2)</sup>	Y22 <sup>3)</sup> + Y01	1		
Specify in plain text: Y22: up to I/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	+ 101			
Preset bus address possible between 1 and 126 Specify in plain text: Y25:	Y25		✓	✓
Damping adjustment in seconds (0 100 s)	Y30	1	✓	1

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

<sup>2)</sup> Option does not include ATEX approval, but instead includes only the country-specific approval.

<sup>3)</sup> Approval pending.

<sup>✓ =</sup> available

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

calculated in the same way as for HART devices.

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

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

Transmitters for applications with advanced requirements (Advanced)

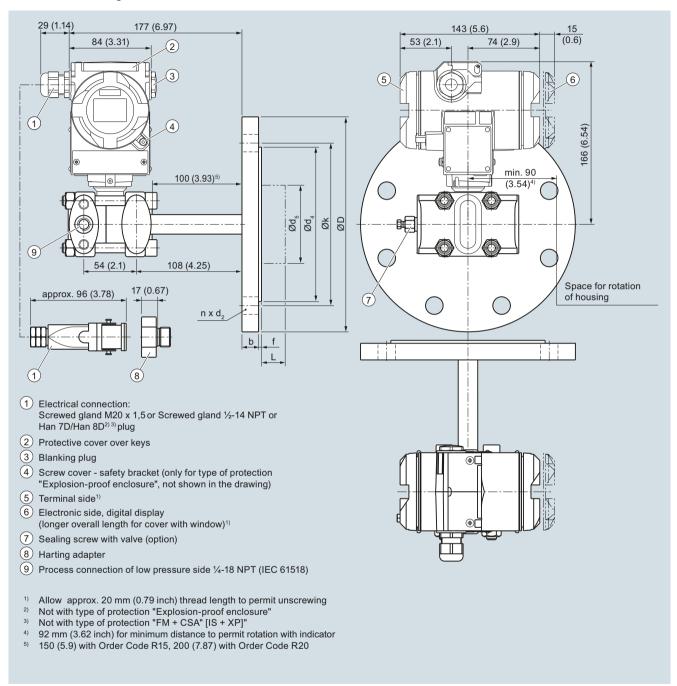
# SITRANS P DS III for level

Selection and	Ordering data		Article	e No	Order	CC	d	le
Mounting flang	ge							
directly mounte 7MF46 ■ ■ (ord	ed at SITRANS P ler separately)	for Level	7 M F					
	Article No. for the PIA Life Cycl							
Flange	Size	Class						
ANSI B16.5	2 inch	150 300	L M					
	3 inch	150 300	Q R					
	4 inch	150 300	T U					
Special design supplied	, customer infor	mation to be	Z			J 1	1 '	Y
Materials and	wetted parts							
• SST 316L	a arban niaman	tad Taflan linad	A	,				
diaphragm (g	n carbon pigmen Jood upto 500 °F		-	•				
Monel 400, m     Hastollov C27	at. No. 2.4360 76, mat. No. 2.48	210	G					
• Tantal	0, mai. No. 2.40	519	K					
Special design supplied	, customer infor	mation to be	Z		I	K 1	1 '	Y
	gth (316SS star	•						
Without extensi 2"	on (standard ve 50 mm	rsion, 0 mm)		0 1				
4"	100 mm			2				
6" 8"	150 mm 200 mm			3 4				
Special design supplied for ex	, customer infortension	mation to be		9		Li	1 '	Y
System fill								
<ul> <li>Silicone oil D0</li> <li>Silicone oil D0</li> </ul>				1 2				
<ul> <li>High tempera</li> </ul>	ture oil	,		3				
<ul> <li>Halocarbon (1</li> <li>Silicone oil M</li> </ul>	for O <sub>2</sub> -applicatio 5	on)		4 5				
<ul> <li>Syltherm 800</li> </ul>				6				
<ul><li>DC704 silicor</li><li>Fluorolube</li></ul>	ie oii			8				
	, customer infor	mation to be		9	ı	M 1	1 '	Y
supplied				Ш				
Further designates Please add "-Z Order code	<b>1s</b> " to Article No. a	and specifiy						
	e path restrictio	n				Α (	0	1
Rotatable Flang	•					В		
Certificates: Certification of	calibration N.I.S	i.T. (20% steps)				c ·	1	1
Material confor	mance certificat	e				c ·	1	2
		ified with HT oil)				V		
Calculation of s questionnaire to	span of transmitt o be attached)	er (completed				Υ (	0	5

Transmitters for applications with advanced requirements (Advanced)

SITRANS P DS III for level

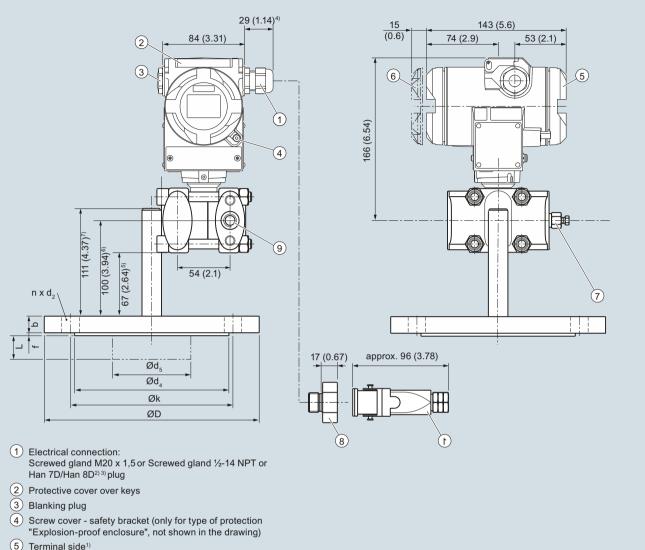
## Dimensional drawings



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

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for level



- Electronic side, digital display (longer overall length for cover with window)1)
- 7 Sealing screw with valve (option)
- 8 Harting adapter
- 9 Process connection of low pressure side 1/4-18 NPT (IEC 61518)
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "Explosion-proof enclosure"
- Not with type of protection "FM + CSA" [IS + XP]"
- For Pg 13,5 with adapter approx. 45 mm (1.77 inch)
- 117 (4.61) with Order Code R15, 167 (6.57) with Order Code R20
- 150 (5.19) with Order Code R15, 200 (7.87) with Order Code R20
- 7) 161 (6.34) with Order Code R15, 211 (8.31) with Order Code R20

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

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III for level

### Connection to EN 1092-1

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

### Connection to ASME B16.5

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

d: Internal diameter of gasket to DIN 2690

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

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

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

Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III Supplementary electronics for 4-wire connection

#### Overview



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

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

#### Note on ordering:

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

### Technical specifications

Output					
·					
Output signal	0 20 mA or 4 20 mA				
Load	Max. 750 Ω				
Voltage measurement	Linear (square-rooting in transmitter if necessary)				
Electrical isolation	Between power supply and input/ output				
Measuring accuracy	acc. to IEC 60770-1				
Measurement deviation (in addition to transmitter)	≤ 0.15 % of set span				
Influence of ambient temperature	≤ 0.1 % per 10 K				
Power supply effect	≤ 0.1 % per 10 % change in voltage or frequency				
Load effect	≤ 0.1 % per 100 % change				
Rated conditions					
Ambient temperature					
• 24 V version	-20 +80 °C (-4 +176 °F)				
• 230 V version	-20 +60 °C (-4 +140 °F)				
Storage temperature	-50 +85 °C (-58 +185 °F)				
Degree of protection	IP54 to IEC 60529				
Electromagnetic compatibility (EMC)	IEC 61236				
Condensation	Relative humidity 0 95 % condensation permissible				

#### Structural design

Dimensions (W x H x D) in mm

(inch)

Electrical connection

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

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

#### Power supply

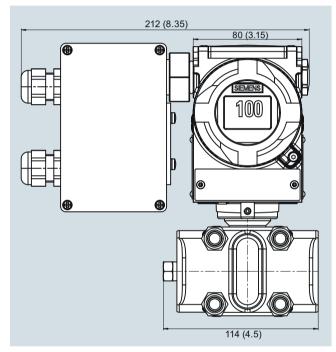
Supply voltage

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

Permissible ripple (within the specified limits)

Approx. 2.5 V pp

### Dimensional drawings



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

Transmitters for applications with advanced requirements (Advanced)

# SITRANS P DS III Supplementary electronics for 4-wire connection

# 

Supplementary electronics for 4-wire connection, connection diagram

SL Protective earth conductor

Han 7D Han 7D Han 7D Han 8D

U<sub>H</sub> Power supply

AC 230 V UC 24 V

I<sub>a</sub> Output current

Selection and	Ordering data	Or	der	rcode
Supplementary connection Article No. of the 7MF4.33A	٧			
Power supply	Electrical connection			
24 V AC/DC	Terminals; 2 Pg screwed glands, to left	1		
	2 Han 7D/Han 8D plugs incl. mating connector, to left	3	3	
	1 Han 7D plug incl. mating connector, angled	5	5	
	Terminals; 1 Pg screwed gland, downwards	6	3	
	1 Han 8D plug incl. mating connector, downwards (observe arrangement of plug and differential pressure line)	9		
230 V AC	Terminals; 2 Pg screwed glands, to left	7	1	
	2 Han 7D plugs incl. mating connector, to left	8	3	
Output current	l .			
0 20 mA 4 20 mA			0	

Transmitters for applications with advanced requirements (Advanced)

# SITRANS P DS III Accessories/Spare Parts

Selection and Ord	ering data	Artic	le No.	
Replacement mea for SITRANS P DS		4990 0-00		
Click on the Artic tion in the PIA Li	cle No. for the online configura- fe Cycle Portal.			
Measuring cell filli	ng Measuring cell cleaning			
Silicone oil	Normal	1		
Inert liquid	grease-free to cleanliness level 2	3		
Measured span (m	in max.)			
0.01 1 bar	(0.15 14.5 psi)	В		
0.04 4 bar	(0.6 58 psi)	С		
0.16 16 bar	(2.32 232 psi)	D		
0.63 63 bar	(9.14 914 psi)	E		
1.6 160 bar	(23.2 2320 psi)	F		
4.0 400 bar	(58.0 5802 psi)	G		
7.0 700 bar	(102.0 10153 psi)	J		
Wetted parts mate	rials			
Seal diaphragm	Process connection			
Stainless steel	Stainless steel	A	١	
Hastelloy	Stainless steel	Е	3	
Hastelloy	Hastelloy	C	;	
Process connection	on			
• Connection shank	G1/2B to EN 837-1		0	
<ul> <li>Female thread ½-</li> </ul>	14 NPT		1	
<ul> <li>Oval flange made</li> </ul>				
max. span 160 ba				
	1 <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518		2	
<ul> <li>Mounting thread</li> </ul>	M10 to DIN 19213		3	
Further designs		Orde	er code	
Please add " <b>-Z</b> " to A Order code.	Article No. and specify			
Inspection certific	ate	C12		
to EN 10204-3.1				

Selection and Orde	ring data	Articl	e No.
Replacement meas pressure for SITRA pressure series)		4992- 0-0DB0	
Click on the Article tion in the PIA Life	le No. for the online configura- e Cycle Portal.		
J	g Measuring cell cleaning		
Silicone oil Inert liquid	Normal grease-free to cleanliness level 2	3	
Measured span (mi	n max.)		
8.3 250 mbar a 43 1300 mbar a 0.16 5 bar a 1 30 bar a	(0.12 3.62 psia) (0.62 18.85 psia) (2.32 72.5 psia) (14.5 435 psia)	D F G H	
Wetted parts mater	ials		
Seal diaphragm	Process connection		
Stainless steel Hastelloy Hastelloy	Stainless steel Stainless steel Hastelloy	A B C	
Process connection Connection shank Female thread ½-1 Oval flange made	G½B to EN 837-1 4 NPT of stainless steel,		0
max. span 160 bar - Mounting thread - Mounting thread	<sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518		2 3
Further designs		Orde	r code
Please add " <b>-Z</b> " to Ar Order code.	ticle No. and specify		
Inspection certifica to EN 10204-3.1	te	C12	

Transmitters for applications with advanced requirements (Advanced)

# SITRANS P DS III Accessories/Spare Parts

Selection and Ordering data	Article No.	Selection and Ordering data	Article No.
Replacement measuring cell for absolute pres-	7 M F 4 9 9 3 -	Replacement measuring cell for differential	7MF4994-
sure (from the differential pressure series) for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus series	- 0 D C 0	pressure and PN 32/160 (MAWP 464/2320 psi) for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus series	- 0 D C 0
		Click on the Article No. for the online configura- tion in the PIA Life Cycle Portal.	
Measuring cell filling Measuring cell cleaning Silicone oil Normal		Measuring cell filling Measuring cell cleaning Silicone oil Normal	
Silicone oil Normal Inert liquid grease-free to cleanliness level 2	3	Inert liquid grease-free to cleanliness level 2	3
Measured span (min max.)         8.3 250 mbar a       (0.12 3.62 psia)         43 1300 mbar a       (0.62 18.85 psia)         0.16 5 bar a       (2.32 72.5 psia)         1 30 bar a       (14.5 435 psia)         5.3 100 bar a       (76.9 1450 psia)	D F G H KE	Measured span (min max.) PN 32 (MAWP 464 psi) 1 20 mbar <sup>1)</sup> (0.4 8 inH <sub>2</sub> O) PN 160 (MAWP 2320 psi) 1 60 mbar (0.4 24 inH <sub>2</sub> O) 2.5 250 mbar (1 100 inH <sub>2</sub> O)	B C D
Wetted parts materials Seal diaphragm Parts of measuring cell		$6 \dots 600 \text{ mbar}$ (2.4 240 inH <sub>2</sub> O) $16 \dots 1600 \text{ mbar}$ (6.4 642 inH <sub>2</sub> O) $50 \dots 5000 \text{ mbar}$ (20 2000 inH <sub>2</sub> O)	E F G
Stainless steelStainless steelHastelloyStainless steelHastelloyHastelloyTantalumTantalumMonelMonel	A B C E H	0.3 30 bar (4.35 435 psi)  Wetted parts materials (stainless steel process flanges)  Seal diaphragm Parts of measuring cell	_ Н
Gold Gold  Process connection  Female thread ¼-18 NPT with flange connection  • Sealing screw opposite process connection  - Mounting thread M10 to DIN 19213	_ L 0	Stainless steel Hastelloy Hastelloy Tantalum <sup>2)</sup> Monel <sup>2)</sup> Gold Stainless steel Hastelloy Tantalum Monel Gold <sup>2)</sup> Gold	A B C E H L
<ul> <li>Mounting thread <sup>7</sup>/<sub>16</sub>-20 UNF to IEC 61518</li> <li>Vent on side of process flange<sup>1)</sup></li> <li>Mounting thread M10 to DIN 19213</li> <li>Mounting thread <sup>7</sup>/<sub>16</sub>-20 UNF to IEC 61518</li> <li>Non-wetted parts materials</li> </ul>	2 4 6	Process connection Female thread 1/4-18 NPT with flange connection Sealing screw opposite process connection Mounting thread M10 to DIN 19213 Mounting thread 7/16-20 UNF to IEC 61518 Vent on side of process flange	0 2
Stainless steel process flange screws  Further designs  Please add "-Z" to Article No. and specify Order code.	Order code	- Mounting thread M10 to DIN 19213 - Mounting thread <sup>7</sup> / <sub>16</sub> -20 UNF to IEC 61518  Non-wetted parts materials  Stainless steel process flange screws	_ 4 6
O-rings for process flanges (instead of FPM (Viton))		Further designs Please add "-Z" to Article No. and specify Order code.	Order code
<ul> <li>PTFE (Teflon)</li> <li>FEP (with silicone core, approved for food)</li> <li>FFPM (Kalrez, compound 4079), for measured medium temperatures -15 100 °C (5 212 °F)</li> <li>NBR (Buna N)</li> </ul>	A20 A21 A22 A23	O-rings for process flanges (instead of FPM (Viton))  • PTFE (Teflon)  • FEP (with silicone core, approved for food)  • FFPM (Kalrez, compound 4079), for measured medium temperatures -15 100 °C (5 212 °F)	A20 A21 A22
Inspection certificate to EN 10204-3.1	C12	NBR (Buna N) Inspection certificate	A23 C12
Process connection G½B	D16	to EN 10204-3.1	
Remote seal flanges (not together with K01, K02 and K04)	D20	Remote seal flanges (not together with K01, K02 and K04)	D20
Vent on side for gas measurements	H02	Vent on side for gas measurements	H02
Process flanges • without • with process flange made of	K00	Stainless steel process flanges for vertical differential pressure lines (not together with K01, K02 and K04)	H03
<ul> <li>Hastelloy</li> <li>Monel</li> <li>Stainless steel with PVDF insert max. PN 10 (MAWP 145 psi) max.temperature of medium 90 °C (194 °F) For ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible</li> </ul>	K01 K02 K04	Process flanges  without  with process flange made of Hastelloy Monel Stainless steel with PVDF insert, max. PN 10 (MAWP 145 psi), max. temperature of medium 90 °C (194 °F). For ½-14 NPT inner process con-	K00 K01 K02 K04
1) Not for span 5.3 100 bar (76.9 1450 psi)		nection on the side in the middle of the process flange, vent valve not possible	

Not suitable for connection of remote seal
 Only together with max. spans 250, 1600, 5000 and 30000 mbar (100 inH<sub>2</sub>O, 642 inH<sub>2</sub>O, 2000 inH<sub>2</sub>O and 435 psi).

Transmitters for applications with advanced requirements (Advanced)

# SITRANS P DS III Accessories/Spare Parts

Selection and Ordering	g data	Article	e No.
Replacement measuring cell for differential pressure and PN 420 (MAWP 6092 psi) for SITRANS P DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus series			4995- - 0DC0
Click on the Article N     tion in the PIA Life Cy	o. for the online configura- vcle Portal.		
Measuring cell filling Silicone oil	Measuring cell cleaning Normal	1	
Measured span (min 2.5 250 mbar 6 600 mbar 16 1600 mbar 50 5000 mbar 0.3 30 bar	<b>max.)</b> (1 100 inH <sub>2</sub> O) (2.4 240 inH <sub>2</sub> O) (6.4 642 inH <sub>2</sub> O) (20 2000 inH <sub>2</sub> O) (4.35 435 psi)	D E F G	
Wetted parts materials (stainless steel process			
Seal diaphragm	Parts of measuring cell		
Stainless steel Hastelloy Gold <sup>1)</sup>	Stainless steel Stainless steel Gold	A B L	
Process connection Female thread ½-18 NP connection Sealing screw opposit Mounting thread M1: Mounting thread <sup>7</sup> / <sub>16</sub> Vent on side of proces Mounting thread M1:	e process connection 2 to DIN 19213 -20 UNF to IEC 61518 s flange		1 3 5
- Mounting thread <sup>7</sup> / <sub>16</sub>	-20 UNF to IEC 61518	_	7
<ul><li>Non-wetted parts mate</li><li>Stainless steel process</li></ul>			2
Further designs Please add "-Z" to Article code.	e No. and specify Order	Order	r code
dium temperatures -15  NBR (Buna N)		A20 A21 A22 A23	
Inspection certificate to EN 10204-3.1		C12	
Stainless steel process flanges for vertical differential pressure lines		H03	
without process flanges		K00	

 $<sup>^{1)}</sup>$  Not together with max. span 600 mbar (240 inH $_2$ O)

Transmitters for applications with advanced requirements (Advanced)

# SITRANS P DS III Accessories/Spare Parts

Selection and Ordering data	Article No.	Selection and Ordering data	Article No.
Spare parts/Accessories		Digital indicator	7MF4997-1BR
Mounting bracket and fastening parts		Including mounting material for SITRANS P	
for pressure transmitters		DS III with HART, DS III with PROFIBUS PA and DS III with FOUNDATION Fieldbus	
SITRANS P DS III with HART, DS III with			_
PROFIBUS PA and DS III with FOUNDATION		Measuring point label • without inscription (5 units)	7MF4997-1CA
Fieldbus (7MF403C.)		Printed (1 unit)	7MF4997-1CB-Z
For absolute pressure transmitters SITRANS P DS III with HART, DS III with		Data according to Y01 or Y02, Y15, Y16 and	Y:
PROFIBUS PA and DS III with FOUNDATION		Y99 (see "Pressure transmitters")	
Fieldbus (7MF423C.)		Mounting screws	
<ul> <li>made of steel</li> </ul>	7MF4997-1AB	•	7MF4997-1CD
<ul> <li>made of stainless steel 304/1.4301</li> </ul>	7MF4997-1AH	For measuring point label, grounding and con- nection terminals or for display	/WF4997-1CD
made of stainless steel 316L/1.4404	7MF4997-1AP	(50 units)	
Mounting bracket and fastening parts		Sealing screws	-
for pressure transmitters		(1 set = 2 units) for process flange	
SITRANS P DS III with HART, DS III with		<ul> <li>made of stainless steel</li> </ul>	7MF4997-1CG
PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF403A.,B.,D. andF.)		<ul> <li>made of Hastelloy</li> </ul>	7MF4997-1CH
For absolute pressure transmitters		Sealing screws with vent valve	-
SITRANS P DS III with HART, DS III with		Complete (1 set = 2 units)	
PROFIBUS PA and DS III with FOUNDATION Fieldbus 7MF423A.,B.,D. andF.)		<ul> <li>made of stainless steel</li> </ul>	7MF4997-1CP
• made of steel	7MF4997-1AC	<ul> <li>made of Hastelloy</li> </ul>	7MF4997-1CQ
made of stainless steel 304/1.4301	7MF4997-1AJ	Application electronics	-
• made of stainless steel 316L/1.4404	7MF4997-1AQ	<ul> <li>for SITRANS P DS III with HART</li> </ul>	7MF4997-1DK
Mounting and fastening brackets	-	<ul> <li>for SITRANS P DS III with PROFIBUS PA</li> </ul>	7MF4997-1DL
For differential pressure transmitters with		<ul> <li>for SITRANS P DS III with FOUNDATION</li> </ul>	7MF4997-1DM
flange thread M10		Fieldbus	_
SITRANS P DS III with HART, DS III with		Connection board	
PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF433 and 7MF443)		• for SITRANS P DS III	7MF4997-1DN
• made of steel	7MF4997-1AD	<ul> <li>for SITRANS P DS III PROFIBUS PA and FOUNDATION Fieldbus</li> </ul>	7MF4997-1DP
made of stainless steel 304/1.4301	7MF4997-1AK		-
• made of stainless steel 316L/1.4404	7MF4997-1AR	O-rings for process flanges made of:	7ME4007 0DA
Mounting and fastening brackets	<u>-</u>	<ul><li>FPM (Viton)</li><li>PTFE (Teflon)</li></ul>	7MF4997-2DA 7MF4997-2DB
For differential pressure transmitters with		FEP (with silicone core, approved for food)	7MF4997-2DC
flange thread M12		• FFPM (Kalrez, compound 4079)	7MF4997-2DD
SITRANS P DS III with HART, DS III with		• NBR (Buna N)	7MF4997-2DE
PROFIBUS PA and DS III with FOUNDATION Fieldbus (7MF453)		Sealing ring for process connection	see "Fittings"
• made of steel	7MF4997-1AE		see Tittings
made of stainless steel 304/1.4301	7MF4997-1AL	Weldable sockets for PMC connection	7MF4997-2HA
<ul> <li>made of stainless steel 316L/1.4404</li> </ul>	7MF4997-1AS	<ul> <li>PMC Style Standard: Thread 1½"</li> <li>PMC Style Minibolt: front-flush 1"</li> </ul>	7MF4997-2HB
Mounting and fastening brackets	-	·	/WF499/-2FID
For differential and absolute pressure transmit-		Gaskets for PMC connection (packing unit = 5 units)	
ters with flange thread 7/16 -20 UNF		PTFE seal for PMC Style Standard:	7MF4997-2HC
SITRANS P DS III with HART, DS III with		Thread 1½"	71111 4557 2110
PROFIBUS PA and DS III with FOUNDATION Fieldbus		<ul> <li>Gasket made of Viton for PMC Style Minibolt:</li> </ul>	7MF4997-2HD
(7MF433, 7MF443 and 7MF453)		front-flush 1"	
• made of steel	7MF4997-1AF	Weldable socket for TG52/50 and TG52/150	
• made of stainless steel 304/1.4301	7MF4997-1AM	connection	
made of stainless steel 316L/1.4404	7MF4997-1AT	• TG52/50 connection	7MF4997-2HE
Cover		TG52/150 connection	7MF4997-2HF
Made of die-cast aluminum, including gasket,		Seals for TG 52/50 and TG 52/150 made of	7MF4997-2HG
for SITRANS P DS III with HART, DS III with		silicone (FDA compliant)	
PROFIBUS PA and DS III with FOUNDATION Fieldbus.		Seals for flange connection with front-flush	
Compatible for Ex and non-Ex transmitters		diaphragm M;aterial FKM (Viton); temperature range:	
• without window	7MF4997-1BB	-20 +200 °C (-4 +392 °F), 10 units	
• with window	7MF4997-1BE	• DN 25, PN 40 (M11)	7MF4997-2HH
Cover		• 1", class 150 (M40)	7MF4997-2HK
Made of stainless steel, including gasket,			
for SITRANS P DS III with HART, DS III with			
PROFIBUS PA and DS III with FOUNDATION			
Fieldbus.			

7MF4997-1BC

7MF4997-1BF

• without window

• with window

Compatible for Ex and non-Ex transmitters

Transmitters for applications with advanced requirements (Advanced)

# SITRANS P DS III Accessories/Spare Parts

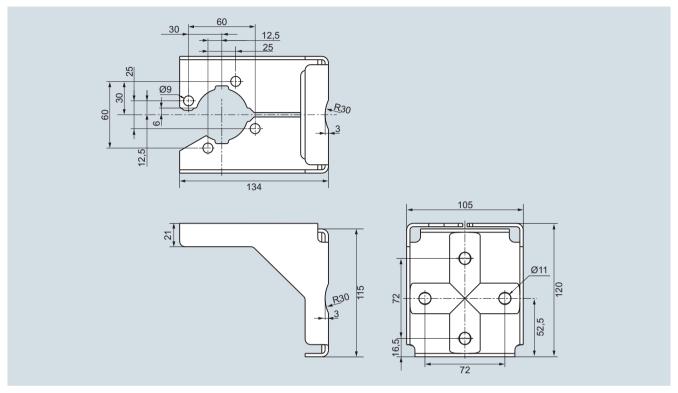
Selection and Ordering data	Article No.
Documentation	
The entire documentation is available for download free-of-charge in various languages at: http://www.siemens.com/processinstrumentation/documentation	
Compact operating instructions SITRANS P DS III/P410	
English, German, Spanish, French, Italian,     Dutch	A5E03434626
• Estonian, Latvian, Lithuanian, Polish, Romanian, Croatian	A5E03434631
Bulgarian, Czech, Finnish, Slovakian, Slovenian	A5E03434645
<ul> <li>Danish, Greek, Portuguese, Swedish, Hungarian</li> </ul>	A5E03434656
The compact operating instructions are available on the DVD supplied with each transmitter.	
DVD with documentation The DVD contains detailed documentation for all device versions	A5E00090345
Certificates (order only via SAP) instead of Internet download	
• hard copy (to order)	A5E03252406
on DVD (to order)	A5E03252407
HART modem with USB interface	7MF4997-1DB
Supplementary electronics for 4-wire	See page 1/184
connection	Occ page 1/104

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

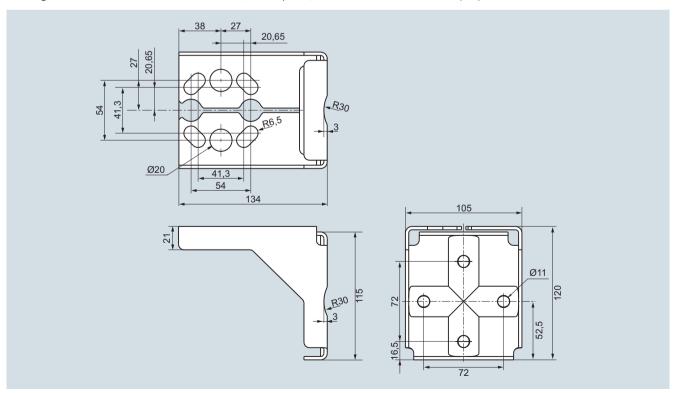
Transmitters for applications with advanced requirements (Advanced)

### SITRANS P DS III Accessories/Spare Parts

## Dimensional drawings



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



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

Transmitters for applications with advanced requirements (Advanced)

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

#### Overview

SITRANS P transmitters

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

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

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

#### Design

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

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

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

Once installed, the complete unit is checked under pressure for leaks (compressed air 6 bar (87 psi)) and is certified leak-proof with a test report to EN 10204 - 2.2.

All valve manifolds should preferably be secured with the respective mounting brackets. The transmitters are mounted on the valve manifold and not on the unit itself.

If you order a mounting bracket when choosing the option "Factory mounting of valve manifolds", you will receive a mounting bracket for the valve manifold instead of a bracket for mounting the transmitter.

If you order an acceptance test certificate 3.1 to EN 10204 when choosing the option "Factory mounting of valve manifolds", a separate certificate is provided for the transmitters and the valve manifolds respectively.

#### Selection and Ordering data

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



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

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



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

Transmitters for applications with advanced requirements (Advanced)

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

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



Add <b>-Z</b> to the Article No. of the transmitter and add Order codes	Order code
SITRANS P DSIII 7MF4031, 7MF4231	Т03
With process connection female thread ½-14 NPT in-sealed with PTFE sealing tape	
Delivery incl. high-pressure test certified by test report to EN 10204-2.2	
Further designs:	
Delivery includes mounting brackets and mounting clips made of stainless steel (instead of the mounting bracket supplied with the transmitter)	A02
Supplied acceptance test certificate to EN 10204- 3.1 for transmitters and mounted valve manifold	C12
With manufacturer declaration according to NACE, MR-0175	D07

#### 7MF9011-4EA

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



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

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



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

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



\	Add <b>-Z</b> to the Article No. of the transmitter and add Order codes	Order code
	SITRANS P DSIII 7MF443 and 7MF4531 1) mounted with gaskets made of PTFE and screws made of • chromized steel • Stainless steel Delivery incl. high-pressure test certified by test report to EN 10204-2.2	U03 U04
	Further designs:	
	Delivery includes mounting bracket and mounting clips made of • Steel • Stainless steel (instead of the mounting bracket supplied with the transmitter)	A01 A02
	Supplied acceptance test certificate to EN 10204-3.1 for transmitters and mounted valve manifold	C12
	With manufacturer declaration according to NACE, MR-0175	D07

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

Transmitters for applications with advanced requirements (Advanced)

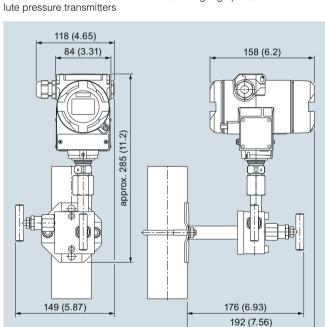
### SITRANS P DS III - Factory-mounting of valve manifolds on transmitters

### Dimensional drawings

### Valve manifolds mounted on SITRANS P DS III



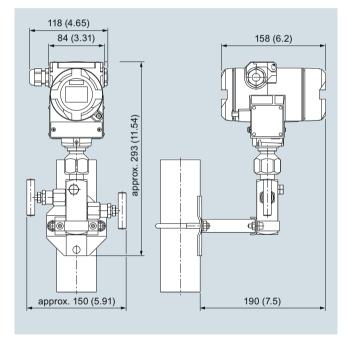
7MF9011-4EA valve manifold with mounted gauge pressure and absolute pressure transmitters



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



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



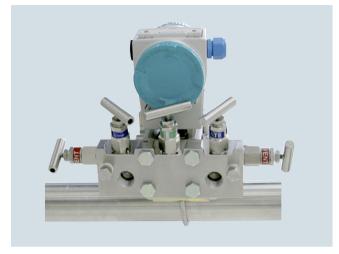
7MF9011-4FA valve manifold with mounted gauge pressure and absolute pressure transmitters, dimensions in mm (inch)

Transmitters for applications with advanced requirements (Advanced)

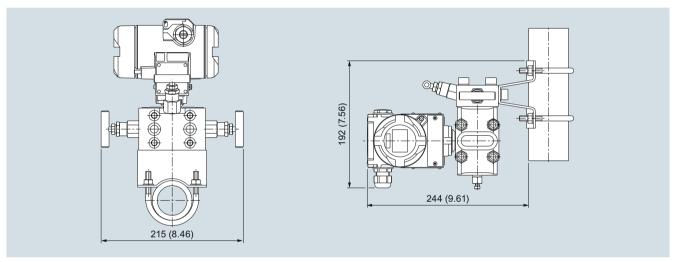
### SITRANS P DS III - Factory-mounting of valve manifolds on transmitters



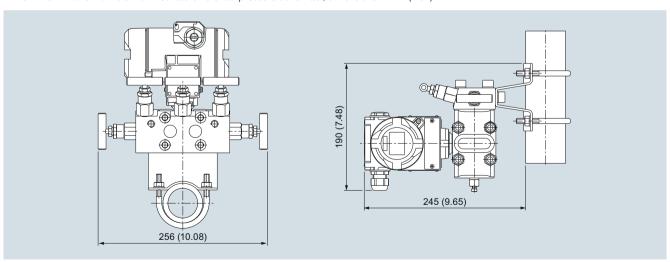
 $7\mbox{MF9411-5BA}$  valve manifold with mounted differential pressure transmitter



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



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



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