Transmitters for gauge, absolute and differential pressure, flow and level

DS III, DS III PA and DS III FF series Technical description

Overview



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

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

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

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

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

- Gauge pressure
- · Absolute pressure
- For differential pressure transmitters
- · Filling level
- Mass level
- Volume level
- Volume flow
- Mass flow

Benefits

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

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

Application

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

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

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

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

The pressure transmitter can be operated locally over 3 control keys or programmed externally over HART communication or over PROFIBUS PA or FOUNDATION Fieldbus interface.

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DS III, DS III PA and DS III FF series Technical description

Pressure transmitter for gauge pressure

- Measured variable: Gauge pressure of aggressive and nonaggressive gases, vapors and liquids.
- Span (infinitely adjustable) for DS III HART: 0.01 bar to 700 bar (0.15 psi to 10153 psi)
- Nominal measuring range for DS III PA and FF: 1 bar to 700 bar (14.5 psi to 10153 psi)

Pressure transmitters for absolute pressure

- Measured variable: Absolute pressure of aggressive and nonaggressive gases, vapors and liquids.
- Span (infinitely adjustable) for DS III HART: 8.3 mbar a ... 100 bar a (0.12 ... 1450 psi a)
- Nominal measuring range for DS III PA and FF: 250 mbar a ... 100 bar a (3.63 ... 1450 psi a)
- There are two series:
 - Gauge pressure series
 - Differential pressure series

Pressure transmitters for differential pressure and flow

- · Measured variables:
 - Differential pressure
 - Small positive or negative pressure
 - Flow q ~ √∆p (together with a primary differential pressure device (see Chapter "Flow Meters"))
- Span (infinitely adjustable) for DS III HART: 1 mbar ... 30 bar (0.0145 ... 435 psi)
- Nominal measuring range for DS III PA and FF: 20 mbar ... 30 bar (0.29 ... 435 psi)

Pressure transmitters for level

- Measured variable: Level of aggressive and non-aggressive liquids in open and closed vessels.
- Span (infinitely adjustable) for DS III HART: 25 mbar ... 5 bar (0.363 ... 72.5 psi)
- Nominal measuring range for DS III PA and FF: 250 mbar ... 5 bar (3.63 ... 72.5 psi)
- · Nominal diameter of the mounting flange
 - DN 80 or DN 100
 - 3 inch or 4 inch

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

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

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

Design



Front view

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

The rating plate (3, Figure "Front view") with the Order No. is located on the side of the housing. The specified number together with the ordering information provide details on the optional design details and on the possible measuring range (physical properties of built-in sensor element).

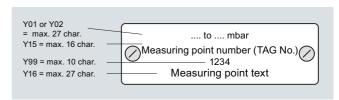
The approval label is located on the opposite side.

The housing is made of die-cast aluminium or stainless steel precision casting. A round cover is screwed on at the front and rear of the housing. The front cover (6) can be fitted with a viewing pane so that the measured values can be read directly on the digital display. The inlet (4) 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 (1). The measuring cell is prevented from rotating by a locking screw (8). 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 (5), which hides the input keys.

Example for an attached measuring point label

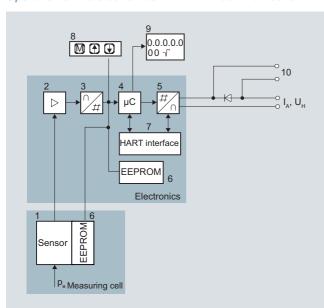


Transmitters for gauge, absolute and differential pressure, flow and level

DS III, DS III PA and DS III FF series
Technical description

Function

Operation of the electronics with HART communication



- 1 Measuring cell sensor
- 2 Instrument amplifier
- 3 Analog-to-digital converter
- 4 Microcontroller
- 5 Digital-to-analog converter
- 6 One non-volatile memory each in the measuring cell and electronics
- 7 HART interface
- 8 Three input keys (local operation)
- 9 Digital display
- 10 Diode circuit and connection for external ammeter
- I Output current
- $\hat{\mathsf{U}}_{\mathsf{H}}$ Power supply
- P_e Input variable

Function diagram of the electronics

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

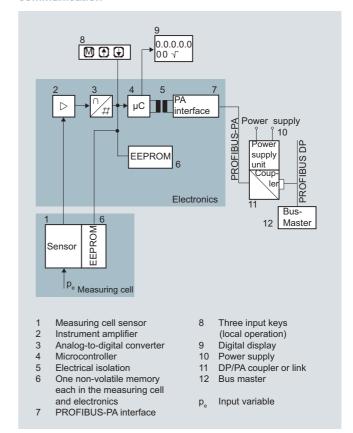
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

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

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

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

Operation of the electronics with PROFIBUS PA communication



Function diagram of the electronics

The bridge output voltage created by the sensor (1, Figure "Function diagram of the electronics") is amplified by the instrument 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 first memory is linked with the measuring cell, the second with the electronics. This modular design means that the electronics and the measuring cell can be replaced separately from one another.

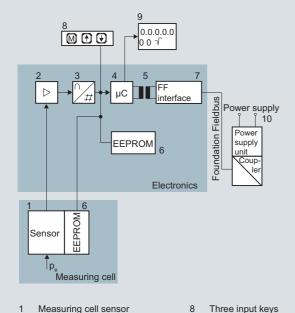
Using the three input keys (8) you can parameterize the pressure transmitter directly at the point of measurement. The input keys can also be used to control the view of the results, the error messages and the operating modes on the digital display (9).

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

Transmitters for gauge, absolute and differential pressure, flow and level

DS III, DS III PA and DS III FF series **Technical description**

Mode of operation of the FOUNDATION Fieldbus electronics



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

- 8 Three input keys (local operation)
- Digital display
- Power supply
- Input variable

Function diagram of the electronics

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

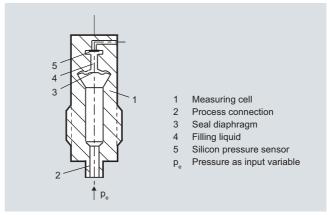
The data specific to the measuring cell, the electronics data, and the parameter data are stored in the two non-volatile memories (6). The one memory is coupled to the measuring cell, the other to the electronics. As the result of this modular design, the electronics and the measuring cell can be replaced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

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

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

Mode of operation of the measuring cells

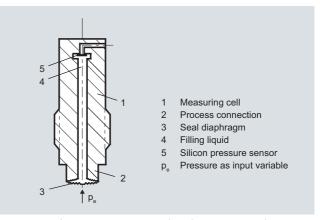
Measuring cell for gauge pressure



Measuring cell for gauge pressure, function diagram

The pressure pe 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 input pressure.

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



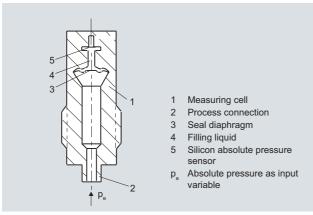
Measuring cell for gauge pressure, with front-flush diaphragm for paper industry, function diagram

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

Transmitters for gauge, absolute and differential pressure, flow and level

DS III, DS III PA and DS III FF series Technical description

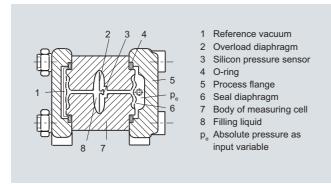
Measuring cell for absolute pressure from gauge pressure series



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 the gauge pressure series, 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 input pressure.

Measuring cell for absolute pressure from differential pressure series



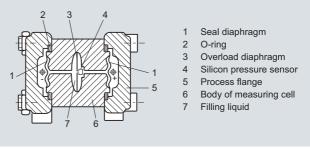
Measuring cell for absolute pressure from differential pressure series, function diagram

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

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

Measuring cell for differential pressure and flow



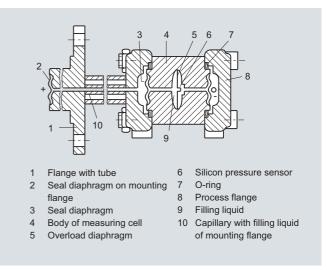
Measuring cell for differential pressure and flow, function diagram

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

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

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

Measuring cell for level



Measuring cell for level, function diagram

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

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

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

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

Transmitters for gauge, absolute and differential pressure, flow and level

DS III, DS III PA and DS III FF series Technical description

Parameterization DS III

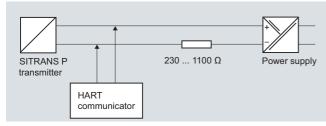
Depending on the version, there are a range of options for parameterizing the pressure transmitter and for setting or scanning the parameters.

Parameterization using the input keys (local operation)

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

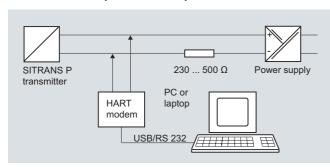
Parameterization using HART communication

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



Communication between a HART communicator and a pressure transm.

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



HART communication between a PC communicator and a pressure transmitter

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

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

Adjustable parameters, DS III HART

Parameters	Input keys (DS III HART)	HART communication
Start of scale	х	х
Full-scale value	x	х
Electrical damping	x	х
Start-of-scale value without application of a pressure ("Blind setting")	x	x
Full-scale value without application of a pressure ("Blind setting")	х	х
Zero adjustment	х	х
Current transmitter	х	х
Fault current	х	х
Disabling of keys, write protection	x	x ¹⁾
Type of dimension and actual dimen-	х	х
Characteristic (linear / square-rooted)	x ²⁾	x ²⁾
Input of characteristic		х
Freely-programmable LCD		х
Diagnostics functions		х

¹⁾ Cancel apart from write protection

2) Only differential pressure

Diagnostic functions for DS III HART

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

Available physical units of display for DS III HART

Table style: Technical specifications 2

Dharain da annialda	Dharain at alimana airma
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 ³ , dm ³ , hl, yd ³ , ft ³ , in ³ , US gallon, lmp. gallon, bushel, barrel, barrel liquid
Mass	g, kg, t, lb, Ston, Lton, oz
Volume flow	m ³ /d, m ³ /h, m ³ /s, I/min, I/s, ft ³ /d, ft ³ /min, ft ³ /s, US gallon/min, US gallon/s
Mass flow	t/d, t/h, t/min, kg/d, kg/h, kg/min, kg/s, g/d, g/h, g/min, g/s, lb/d, lb/h, lb/min, lb/s, LTon/d, LTon/h, STon/d, STon/h, STon/min
Temperature	K, °C, °F, °R
Miscellaneous	%, mA

Parameterization through PROFIBUS PA interface

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

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

Parameterization through FOUNDATION Fieldbus Interface

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

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

Adjustable parameters for DS III PA and FF

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

DS III, DS III PA and DS III FF series Technical description

Diagnostic functions for DS III PA and FF

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

Physical dimensions available for the display

Physical variable	Physical dimensions
Pressure (setting can also be made in the factory)	MPa, kPa, Pa, bar, mbar, torr, atm, psi, g/cm², kg/cm², mm $\rm H_2O$, mm $\rm H_2O$ (4 °C), in $\rm H_2O$, in $\rm H_2O$ (10 °C), mmHg, in $\rm H_2O$
Level (height data)	m, cm, mm, ft, in, yd
Volume	m ³ , dm ³ , hl, yd ³ , ft ³ , in ³ , 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/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	%

for gauge pressure

Technical specifications

SITRANS P, DS III series for gauge pressu						
	HART		PROFIBUS PA or FOUNDATION Fieldbus			
Input						
Measured variable	Gauge pressure					
Spans (infinitely adjustable) or nominal measuring range and	Span	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure		
max. permissible test pressure	0.01 1 bar g (0.15 14.5 psi g)	6 bar g (87 psi g)	1 bar g (14.5 psi g)	6 bar g (87 psi g)		
	0.04 4 bar g (0.58 58 psi g)	10 bar g (145 psi g)	4 bar g (58 psi g)	10 bar g (145 psi g)		
	0.16 16 bar g (2.23 232 psi g)	32 bar g (464 psi g)	16 bar g (232 psi g)	32 bar g (464 psi g)		
	0.6 63 bar g (9.14 914 psi g)	100 bar g (1450 psi g)	63 bar g (914 psi g)	100 bar g (1450 psi g)		
	1.6 160 bar g (23.2 2320 psi g)	250 bar g (3626 psi g)	160 bar g (2320 psi g)	250 bar g (3626 psi g)		
	4.0 400 bar g (58 5802 psi g)	600 bar g (8700 psi g)	400 bar g (5802 psi g)	600 bar g (8700 psi g)		
	7.0 700 bar g (102 10153 psi g)	800 bar g (11603 psi g)	700 bar g (10153 psi g)	800 bar g (11603 psi g)		
Lower measuring limit						
 Measuring cell with silicone oil filling 	30 mbar a (0.435 psi a))				
 Measuring cell with inert filling liquid 	30 mbar a (0.435 psi a))				
Jpper measuring limit	100% of max. span (max.	ax. 160 bar g (2320 psi g)	with oxygen measureme	ent and inert liquid)		
Output						
Output signal	4 20 mA		Digital PROFIBUS PA or FOUNDATION signal			
Lower limit (infinitely adjustable)	3.55 mA, factory prese	t to 3.84 mA	-			
• Upper limit (infinitely adjustable)	23 mA, factory preset to 22.0 mA	23 mA, factory preset to 20.5 mA or optionally set -				
Load			'			
Without HART communication	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V	3 A in Ω,	-			
• With HART communication	$R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (H		-			
Physical bus	-		IEC 61158-2			
Protection against polarity reversal	Protected against short-circuit and polarity reversal. Each connection against the other with supply voltage.			ainst the other with max.		
Accuracy	To EN 60770-1					
Reference conditions (All error data refer always refer to the set span)	Increasing characteristic, start-of-scale value 0 bar, stainless steel seal diaphragm, silicone room temperature 25 °C (77 °F)) r: Span ratio (r = max. span/set span)		aphragm, silicone oil fillin			
Error in measurement and fixed-point setting (including hysteresis and repeatability)						
Linear characteristic			≤ 0,075 %			
- r ≤ 10	\leq (0.0029 · r + 0.071) %	ó				
- 10 < r ≤ 30	\leq (0.0045 · r + 0.071) %	ó				
- 30 < r ≤ 100	≤ (0.005 · r + 0.05) %					
Long-term drift (temperature change ± 30 °C ± 54 °F))	≤ (0.25 · r) % every 5 ye	ears	≤ 0.25 % every 5 years	6		
nfluence of ambient temperature						
• at -10 +60 °C (14 140 °F)	\leq (0.08 · r + 0.1) % (at 700 bar: \leq (0.1 · r +	0.2) %)	≤ 0,3 %			
• at -4010 °C and +60 +85 °C (-40 +14 °F and 140 185 °F)	≤ (0.1 · r + 0.15) %/10 ł	<	≤ 0.25 %/10 K			
Measured Value Resolution	-		3 · 10 ⁻⁵ of nominal mea	asuring range		

DS III series for gauge pressure

	HART	PROFIBUS PA or FOUNDATION Fieldbus	
Rated operating conditions			
Degree of protection (to EN 60529)	IP65		
Process temperature			
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)		
Measuring cell with inert filling liquid	-20 +100 °C (-4 +212 °F)		
• In conjunction with dust explosion protection	-20 +60 °C (-4 +140 °F)		
Ambient conditions			
Ambient temperature			
- Digital indicators	-30 +85 °C (-22 +185 °F)		
Storage temperature	-50 +85 °C (-58 +185 °F)		
Climatic class			
- Condensation	Permissible		
Electromagnetic compatibility			
- Emitted interference and interference immunity	To EN 61326 and NAMUR NE 21		
Design			
Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)		
Housing material	Poor in copper die-cast aluminium, GD-AlSi12	or stainless steel precision casting, mat. No. 1.440	
Wetted parts materials			
Connection shank	Stainless steel, mat. No. 1.4404/316L or Hastel	loy C4, mat. No. 2.4610	
Oval flange	Stainless steel, mat. No. 1.4404/316L		
Seal diaphragm	Stainless steel, mat. No. 1.4404/316L or Hastelloy C276, mat. No. 2.4819		
Measuring cell filling	Silicone oil or inert filling liquid (max. 160 bar (2	2320 psi g) with oxygen measurement)	
Process connection	Connection shank G½B to DIN EN 837-1, fema (MWP 2320 psi g)) to DIN 19213 with mounting	le thread $\frac{1}{2}$ -14 NPT or oval flange (PN 160 thread M10 or $\frac{7}{16}$ -20 UNF to EN 61518	
Material of the mounting bracket			
• Steel	Sheet steel, Mat. No. 1.0330, chrome-plated		
Stainless steel	Stainless steel, Mat. No. 1.4301 (SS304)		
Power supply <i>U</i> _H		Supplied through bus	
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-	
Separate 24 V power supply necessary	-	No	
Bus voltage			
• Not Ex	-	932 V	
 With intrinsically-safe operation 	-	924 V	
Current consumption			
Basic current (max.)	-	12.5 mA	
 Startup current ≤ basic current 	-	Yes	
Max. current in event of fault	-	15.5 mA	
Fault disconnection electronics (FDE) available	-	Yes	

for gauge pressure

SITRANS P, DS III series for gauge pressure	HART	PROFIBUS PA or FOUNDATION Fieldbus	
Certificate and approvals	HAITI	THO IDOUTA OF LOOKDATION Fleidbus	
Classification according to pressure equipment directive (DRGL 97/23/EC)	For gases of fluid group 1 and liquids of fluid gro graph 3 (sound engineering practice)	up 1; complies with requirements of Article 3, para	
Explosion protection			
Intrinsic safety "i"	PTB 99 ATEX 2122		
- Identification	Ex II 1/2 G EEx ia/ib IIB/IIC T6		
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class -40 +70 °C (-40 +158 °F) temperature class -40 +60 °C (-40 +140 °F) temperature class	T5;	
- Connection	To certified intrinsically-safe circuits with maximum values: U_i = 30 V, I_i = 100 mA, P_i = 750 mW; R_i = 300 Ω	FISCO supply unit: $U_{\rm o}=17.5$ V, $I_{\rm o}=380$ mA, $P_{\rm o}=5.32$ W Linear barrier: $U_{\rm o}=24$ V, $I_{\rm o}=250$ mA, $P_{\rm o}=1.2$ W	
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$	
• Explosion-proof "d"	PTB 99 ATEX 1160		
- Identification	Ex II 1/2 G EEx d IIC T4/T6		
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class -40 +60 °C (-40 +140 °F) temperature class	T4; T6	
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC	
Dust explosion protection for zone 20	PTB 01 ATEX 2055		
- Identification	Ex II 1 D IP65 T 120 °C Ex II 1/2 D IP65 T 120 °C		
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)		
- Max.surface temperature	120 °C (248 °F)		
- Connection	To certified intrinsically-safe circuits with maximum values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW, $R_{\rm i}$ = 300 Ω	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$	
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{\rm i} = 7 \mu \text{H}, C_{\rm i} = 1.1 \text{nF}$	
Dust explosion protection for zone 21/22	PTB 01 ATEX 2055		
- Identification	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; $P_{\rm max}$ = 1.2 W	
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned	
- Identification	Ex II 3 G EEx nA L IIC T4/T5/T6	-	
Explosion protection to FM	Certificate of Compliance 3008490		
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP EI DIV 2, GP ABCD T4T6; CL II, DIV 2, GP FG; CL		
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 EI T4T6; CL II, DIV 2, GP FG; CL III	FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD	

DS III series for gauge pressure

HART communication		Communication FOUNDATION Fieldbus
HART communication	230 1100 Ω	
Protocol	HART Version 5.x	Function blocks
Software for computer	SIMATIC PDM	Analog input
PROFIBUS PA communication	4	 Adaptation to customer-specific process variables
Simultaneous communication with master class 2 (max.)	4	- Electrical damping T ₆₃ ,
The address can be set using	Configuration tool or local operation (standard setting address	adjustableSimulation function
Cyclic data usage	126)	
Output byte	5 (one measuring value) or	- Failure mode
• Output byte	10 (two measuring values)	
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)	- Limit monitoring
Internal preprocessing		Carrage rested share staristic
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0,	- Square-rooted characteristic for flow measurement
	Class B	• PID
Function blocks	2	Physical block
Analog input		Transducer blocks
 Adaptation to customer- specific process variables 	Yes, linearly rising or falling characteristic	Pressure transducer block
 Electrical damping T₆₃, adjustable 	0 100 s	Can be calibrated by applying two pressures
- Simulation function	Input /Output	•
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)	 Monitoring of sensor limits Simulation function: Measured pressure value, sensor temper
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively	ature and electronics tempera- ture
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output	
- Failure mode	Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)	
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively	
 Physical block 	1	
Transducer blocks	2	
Pressure transducer block		
 Can be calibrated by applying two pressures 	Yes	
- Monitoring of sensor limits	Yes	
- Specification of a container characteristic with	Max. 30 nodes	
- Square-rooted characteristic for flow measurement	Yes	
Gradual volume suppression and implementation point of square-root extraction	Parameterizable	

Constant value or over para-

square-root extraction

- Simulation function for mea-

sured pressure value and sensor temperature

Constant value of over particular value of over par

function blocks	3 function blocks analog input, 1 function block PID
Analog input	
- Adaptation to customer-specific process variables	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
 Square-rooted characteristic for flow measurement 	Yes
PID	Standard FF function block
Physical block	1 Resource block
ransducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
Pressure transducer block	
 Can be calibrated by applying two pressures 	Yes
- Monitoring of sensor limits	Yes
- Simulation function: Measured pressure value, sensor temperature and electronics temperature	Constant value or over parameterizable ramp function

Transmitters for gauge, absolute and differential pressure, flow and level

DS III series for gauge pressure

Selection and Orderin	g data		Orc	ler	No	
SITRANS P pressure t	ransmitters for gauge		7 M	F 4	0 3	3 3 -
pressure, series DS III	HART					
Measuring cell filling	Measuring cell					
Ciliaana ail	cleaning Standard					
Silicone oil Inert liquid ¹⁾	Grease-free	•	3			
	Greate free		Ü			
Span 0.01 1 bar g	(0.15 14.5 psi g)	•	В			
0.04 4 bar g	(0.58 58 psi g)		C			
0.16 16 bar g	(2.32 232 psi g)		D			
0.63 63 bar g	(9.14 914 psi g)	•	E			
1.6 160 bar g	(23.2 2320 psi g)	•	F			
4.0 400 bar g	(58.0 5802 psi g)	•	G			
7,0 700 bar g	(102.010153 psi g)	>	J			
Wetted parts materials	<u> </u>					
Seal diaphragm	Process connection					
Stainless steel	Stainless steel	-		Α		
Hastelloy	Stainless steel			В		
Hastelloy	Hastelloy			С		
Version as diaphragm s	eal ^{2) 3)}			Υ		
Process connection						
 Connection shank G½ 	B to EN 837-1	•		0		
• Female thread ½-14 N	IPT			1		
 Oval flange made of s 	tainless steel					
- Mounting thread 7/16	₃ -20 UNF to EN 61518			2		
- Mounting thread M1	0 to DIN 19213			3		
- Mounting thread M1	2 to DIN 19213			4		
 Male thread M20 x 1,5 				5		
 Male thread ½-14 NP 				6		
Non-wetted parts mate						
Housing made of die-					0	
Housing stainless stee	er precision casting 7				3	
Version						
Standard version	To offer televities established					1
 International version, documentation in 5 la 	English label inscriptions,	, -				2
	ngaages on OD					
Explosion protection • Without						Α
 With ATEX, Type of presented 	otection:					^
- "Intrinsic safety (EEx						В
- "Explosion-proof (EE						D
- "Intrinsic safety and	explosion-proof enclosure	Э				P
(: 10.16)						
(EEx ia + EEx d)" ⁶⁾						
(EEx ia + EEx d)"", - "Ex nA/nL (zone 2)"						E
- "Ex nA/nL (zone 2)"- "Intrinsic safety, expl	osion-proof enclosure and	d►				E R
- "Ex nA/nL (zone 2)"- "Intrinsic safety, expl	osion-proof enclosure and ection (EEx ia + EEx d +	d▶				
 "Ex nA/nL (zone 2)" "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"⁶⁾ 	ection (EEx ia + EEx d +	d►				
 "Ex nA/nL (zone 2)" "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"⁶⁾ With FM + CSA, Type 	ection (EEx ia + EEx d + of protection:	d▶				R
 "Ex nA/nL (zone 2)" "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"⁶⁾ 	ection (EEx ia + EEx d + of protection:	d▶				
 "Ex nA/nL (zone 2)" "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"⁶) With FM + CSA, Type "Intrinsic safety and (is + xp)"⁵) 	of protection: explosion-proof	d►				R
 "Ex nA/nL (zone 2)" "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"⁶⁾ With FM + CSA, Type "Intrinsic safety and 	of protection: explosion-proof	d▶				R
- "Ex nA/nL (zone 2)" - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" • With FM + CSA, Type - "Intrinsic safety and (is + xp)" Electrical connection are Screwed gland Pg 13	of protection: explosion-proof cable entry 5 (adapter) ⁷⁾	d►				R NC
- "Ex nA/nL (zone 2)" - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" • With FM + CSA, Type - "Intrinsic safety and (is + xp)" • Electrical connection . • Screwed gland Pg 13 • Screwed gland M20x • Screwed gland ½-14	of protection: explosion-proof / cable entry .5 (adapter) ⁷⁾ 1.5 NPT					R N C
- "Ex nA/nL (zone 2)" - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" • With FM + CSA, Type - "Intrinsic safety and (is + xp)" • Screwed gland Pg 13 • Screwed gland M20x • Screwed gland ½-14 • Han 7D plug (plastic last)	of protection: explosion-proof / cable entry .5 (adapter) ⁷⁾ 1.5 NPT					R NC A B
- "Ex nA/nL (zone 2)" - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" • With FM + CSA, Type - "Intrinsic safety and (is + xp)" • Screwed gland Pg 13 • Screwed gland M20x • Screwed gland ½-14	oction (EEx ia + EEx d + of protection: explosion-proof / cable entry .5 (adapter) ⁷⁾ 1.5 NPT nousing) incl. mating					R NC A B C

Selection and Ordering data	Order No.
SITRANS P pressure transmitters for gauge pressure, series DS III HART	7 M F 4 0 3 3 -
Display	
Without indicator	0
 Without visible digital indicator (digital indicator ► hidden, setting: mA) 	1
• With visible digital indicator, setting: mA	6
 with customer-specific digital indicator (setting as specified, Order code "Y21" or "Y22" required) 	7

Available ex stock

Power supply units see "SITRANS I power supply units and isolation amplifiers".

Factory-mounting of shut-off valves and valve manifolds see page 2/147.

Included in delivery of the device:

- Brief instructions (Leporello)
 CD-ROM with detailed documentation
- 1) For oxygen application, add Order code E10.
- 2) When the manufacture's certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 3) Whe the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
- $^{\rm 4)}$ Not together with Electrical connection "Screwed gland Pg 13.5" and "Han7Ď plug".
- 5) Without cable gland, with blanking plug
- 6) With enclosed cable gland EEx ia and blanking plug
- 7) Not together with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof".
- 8) M12 delivered without cable socketsafety and explosion-proof

DS III series for gauge pressure

Selection and Orderin	•	Order No.
SITRANS P pressure t pressure	ransmitters for gauge	
DS III PA (PROFIBUS I	PA) series	7 M F 4 0 3 4 -
DS III FF series (FOUN	IDATION Fieldbus)	7MF4035-
•		3-1-1-1
Measuring cell filling		
0.00	cleaning	
Silicone oil Inert liquid ¹⁾	Standard Grease-free	1 3
		_
Nominal measuring ra		В
1 bar g 4 bar g	(14.5 psi g) (58 psi g)	C
16 bar g	(232 psi g)	D
63 bar g	(914 psi g)	E
160 bar g	(2320 psi g)	F
400 bar g	(5802 psi g)	Ġ
700 bar g	(10153 psi g)	J
Wetted parts materials	· · · · ·	
Seal diaphragm	Process connection	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	В
Hastelloy	Hastelloy	С
Version as diaphragm s	seal ^{2) 3)}	Y
 Male thread M20 x 1, Male thread ½-14 NP Non-wetted parts mate Housing made of die- Housing stainless stee Version 	Г erials cast aluminium	5 6 0 3
documentation in 5 la	English label inscriptions, nguages on CD	1 2
Explosion protection • Without		A
 With ATEX, Type of pr 		
- "Intrinsic safety (EE)		В
- "Explosion-proof (EE		D
- "Intrinsic safety and	explosion-proof enclosure	Р
(EEx ia + EEx d)" ⁵⁾		_
- "Ex nA/nL (zone 2)"		E
- "Ex nA/nL (zone 2)"- "Intrinsic safety, expl	osion-proof enclosure and ection (EEx ia + EEx d + for DS III EF)	
 "Ex nA/nL (zone 2)" "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"⁶⁾ (not 	ection (EEx ia + EEx d + for DS III FF)	
 "Ex nA/nL (zone 2)" "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"⁶⁾ (not 	ection (EEx ia + EEx d + for DS III FF) of protection:	
- "Ex nA/nL (zone 2)" - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" ⁶⁾ (not • With FM + CSA, Type - "Intrinsic safety and (is + xp)" ⁵⁾ Electrical connection	ection (EEx ia + EEx d + for DS III FF) of protection: explosion-proof	R NC
 "Ex nA/nL (zone 2)" "Intrinsic safety, expl dust explosion prote Zone 1D/2D)"⁶⁾ (not With FM + CSA, Type "Intrinsic safety and (is + xp)"⁵⁾ Electrical connection Screwed gland M20x 	ection (EEx ia + EEx d + for DS III FF) of protection: explosion-proof / cable entry 1.5	R NC —
- "Ex nA/nL (zone 2)" - "Intrinsic safety, expl dust explosion prote Zone 1D/2D)" ⁶⁾ (not • With FM + CSA, Type - "Intrinsic safety and (is + xp)" ⁵⁾ Electrical connection	ection (EEx ia + EEx d + for DS III FF) of protection: explosion-proof / cable entry 1.5	R NC

Selection and Ordering data	Order No.
SITRANS P pressure transmitters for gauge pressure	
DS III PA (PROFIBUS PA) series	7 M F 4 0 3 4 -
DS III FF series (FOUNDATION Fieldbus)	7 M F 4 0 3 5 -
	1-1-1-1-1-1
Display	
Without indicator	0
 Without visible digital indicator (digital indicator hidden, setting: mA) 	1
 With visible digital indicator 	6
 With customer-specific digital indicator (setting as specified, Order code "Y21" or required) 	7

Factory-mounting of shut-off valves and valve manifolds see page

The device is delivered together with brief instructions (Leporello) and a CD-ROM containing detailed documentation.

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

DS III series for gauge pressure

Selection and Ordering data	Order			
Further designs Add "-Z" to Order No. and specify Order code.		HART	PA	FF
Pressure transmitter with mounting				
bracket made of: • Steel	A01	1	1	/
• Stainless steel	A02	1	1	1
Plug				
Han 7D (metal, gray)	A30	✓		
Han 8U (instead of Han 7D)	A31	✓		
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription				
(instead of German)English	B11	1	1	1
• French	B12	· /	1	1
• Spanish	B13	✓	✓	✓
• Italian	B14	✓	✓	✓
English rating plate Pressure units in inH ₂ O or psi	B21	✓	✓	✓
Quality inspection certificate (Factory calibration) to IEC 60770-2 ¹⁾	C11	✓	✓	✓
Acceptance test certificate ²⁾	C12	/	1	/
To EN 10204-3.1	012	ľ	Ť	
Factory certificate To EN 10204-2.2	C14	✓	✓	✓
"Functional Safety (SIL)" certificate	C20	✓		
"PROFIsafe" certificate and protocol	C21		1	
Setting of upper limit of output signal to	D05	1		
22.0 mA	200			
Manufacturer's declaration acc. to NACE	D07	✓	✓	✓
Type of protection IP68 (only for M20x1.5 and ½-14 NPT)	D12	✓	✓	✓
Digital indicator alongside the input keys	D27	✓	✓	✓
(only together with the devices 7MF40330A.6 orA.7-Z, Y21 or Y22 + Y01)				
Supplied with oval flange	D37	✓	✓	✓
(1 item), PTFE packing and screws in thread				
of oval flange	- 04	,	,	,
Use in or on zone 1D/2D (only together with type of protection	E01	V	•	V
"Intrinsic safety (EEx ia)")				
Use on zone 0	E02	1	✓	1
(only together with type of protection				
"Intrinsic safety (EEx ia)")				
Oxygen application	E10	✓	✓	√
(max. 120 bar g (1740 psi g) at 60°C (140 °F) for oxygen measurement and inert liquid)				
Explosion-proof "Intrinsic safety" to	E25	1	1	1
INMETRO (Brazil)				
(only for transmitter 7MF4B)				
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	✓	✓	1
(only for transmitter 7MF4B)				
Explosion protection "Explosion-proof" to	E56	1	1	1
NEPSI (China)				
(only for transmitter 7MF4D)			,	
E1	E57	✓	V	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)				

Selection and Ordering data	Order code				
Additional data Add "-Z" to Order No. and specify Order code.		HART	PA	FF	
Measuring range to be set Specify in plain text (max. 5 digits): Y01: up to mbar, bar, kPa, MPa, psi	Y01	<			
Measuring point number (TAG No.) Max. 16 characters, specify in plain text: Y15:	Y15	*	✓	1	
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	*	✓	✓	
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	*			
Setting of pressure indication in pressure units Specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H ₂ O*, inH ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM oder % *) ref. temperature 20 °C	Y21	*	✓	✓	
Setting of pressure indication in non-pressure units ³) Specify in plain text: Y22: up to //min, m³/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		

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

✓ = available

Ordering example

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

B line: A01 + Y01 + Y21

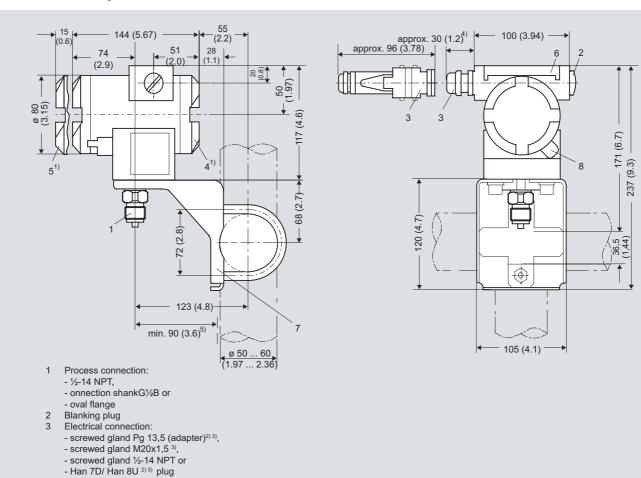
C line: Y01: 10 ... 20 bar (145 ... 290 psi)

Y21: bar (psi)

- $^{1)}\,$ When the manufacture's certificate M (calibration certificate) has to be orde red for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 2) Whe the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
- 3) Preset values can only be modified over SIMATIC PDM.

DS III series for gauge pressure

Dimensional drawings



- Terminal side Electronic side, digital display (longer overall
 - 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]" 3)
 - For Pg 13,5 with adapter approx. 45 mm (1.77 inch) 4)
 - Minimum distance for rotating

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

length for cover with window)

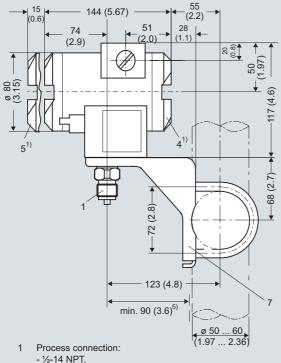
Protective cover over keys

Mounting bracket (option)

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

Screw cover - safety bracket (only for type of protection

DS III series for gauge pressure



100 (3.94) approx. 30 (1.2)⁴⁾ (6.7) 120 (4.7) 105 (4.1)

- connection shank G1/2B or
- oval flange
- Blanking plug
- Electrical connection:

 - screwed gland M20x1,5 ⁴), screwed gland ½-14 NPT or PROFIBUS-Stecker M12 ^{3) 4)}
- Terminal side
- Electronic side, digital display (longer overall length for cover with window)
- Protective cover over keys
- Mounting bracket (option)
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- Allow approx. 20 mm (0.79 inch) thread length in addition
- Minimum distance for rotating
- Not with type of protection "Explosion-proof enclosure"
- Not with type of protection "FM + CSA"
- Minimum distance for rotating

SITRANS P pressure transmitters, DS III PA and FF series for gauge pressure, dimensions in mm (inch)

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level DS III series for gauge and absolute pressure, with front-flush diaphragm

Technical specifications

SITRANS P, DS III series for gauge and abso	• •	aon alapinagin	DDOEIDIIC DA «« FOI	INDATION Elalabura				
	HART		PROFIBUS PA or FOUNDATION Fieldbus					
Input gauge pressure, with front-flush diaphragm	Gauge pressure, flush-mounted							
Measured variable		1	1	Ta a				
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure				
max. permissible test pressure	0.01 1 bar g (0.15 14.5 psi g)	6 bar g (87 psi g)	1 bar g (14.5 psi g)	6 bar g (87 psi g)				
	0.04 4 bar g (0.58 58 psi g)	10 bar g (145 psi g)	4 bar g (58 psi g)	10 bar g (145 psi g)				
	0.16 16 bar g (2.23 232 psi g)	32 bar g (464 psi g)	16 bar g (232 psi g)	32 bar g (464 psi g)				
	0.6 63 bar g (9.14 914 psi g)	100 bar g (1450 psi g)	63 bar g (914 psi g)	100 bar g (1450 psi g)				
Lower measuring limit	-100 mbar g (-1.45 psi	g)	'	r.				
Upper measuring limit	100% of max. span		100% of nominal meas	uring range				
Input absolute pressure, with front-flush diaphragm			 					
Measured variable	Absolute pressure, flus	h-mounted						
Spans (infinitely adjustable) or nominal measuring range and	Span	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure				
max. permissible test pressure	43 1300 mbar a (0.62 18.9 psi a)	10 bar a (145 psi a)	1300 mbar a (18.9 psi a)	10 bar a (145 psi a)				
	0,16 5 bar a (2.32 72,5 psi a)	30 bar a (435 psi a)	5 bar a (72,5 psi a)	30 bar a (435 psi a)				
	1 30 bar a (14.5 435 psi a)	100 bar a (1450 psi a)	30 bar a (435 psi a)	100 bar a (1450 psi a)				
	Depending on the proc may differ from these v	ess connection, the span values	Depending on the process connection, the nor nal measuring range may differ from these value					
Lower measuring limit	0 bar a (0 psi a)							
Upper measuring limit	100% of max. span		100% of nominal measuring range					
Output								
Output signal	4 20 mA		Digital PROFIBUS PA o signal	r FOUNDATION Fieldbus				
 Lower limit (infinitely adjustable) 	3.55 mA, factory prese	t to 3.84 mA	-					
Upper limit (infinitely adjustable)	23 mA, factory preset t set to 22.0 mA	o 20.5 mA or optionally	-					
Load			1					
Without HART communication	$R_{\rm B} \le (U_{\rm H}$ - 10.5 V)/0.02 $U_{\rm H}$: Power supply in V	3 A in Ω,	-					
With HART communication	$R_{\rm B} = 230 \dots 500 \ \Omega \ ({\rm SIN} \ R_{\rm B} = 230 \dots 1100 \ \Omega \ ({\rm H.} \ {\rm C})$		-					
Physical bus	-		IEC 61158-2					
Protection against polarity reversal	Protected against shor supply voltage.	t-circuit and polarity reve	rsal. Each connection ag	gainst the other with max				
Accuracy	To EN 60770-1							
Reference conditions (All error data refer always refer to the set spar		tic, start-of-scale value 0 25 °C (77 °F)) r: Span rat						
Error in measurement and fixed-point setting (including hysteresis and repeatability)								
	Gauge pressure, front-flushed	Absolute pressure, front-flushed	Gauge pressure, front-flushed	Absolute pressure, front-flushed				
Linear characteristic			≤ 0,075 %	≤ 0,2 %				
- r ≤ 10	≤ (0.0029 · r + 0.071) %	6 ≤ 0,2 %						
- 10 < r ≤ 30	≤ (0.0045 · r + 0.071) %							
- 30 < r ≤ 100	≤ (0.005 · r + 0.05) %	-						
Long-term drift (temperature change ±30 °C (±54 °F))	≤ (0.25 · r) % every 5 years		≤ 0.25 % every 5 years					

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level DS III series for gauge and absolute pressure, with front-flush diaphragm

SITRANS P, DS III series for gauge and absolu	ite pressure, with front-	flush diaphragm		
	HART		PROFIBUS PA or FO	UNDATION Fieldbus
Influence of ambient temperature				
• at -10 +60 °C (14 140 °F)	≤ (0.1 · r + 0.2) %	≤ (0,2 · r + 0,3) %	≤ 0,3 %	≤ 0,5 %
• at -4010 °C and +60 +85 °C (-40 +14 °F and 140 185 °F)	≤ (0.1 · r + 0.15) %/10 K	≤ (0,2 · r + 0,3) %/10 K	≤ 0.25 %/10 K	≤ 0,5 %/10 K
nfluence of mounting position	0.1 mbar g (0.00145 psi	g) per 10° inclination	1	'
Measured Value Resolution	-		3 · 10 ⁻⁵ of nominal me	asuring range
Influence of the medium temperature (only with front-flush diaphragm)			'	
 Temperature difference between medium temperature and ambient temperature 	3 mbar/10 K (0.04 psi/10	O K)		
Rated operating conditions				
Installation conditions				
Ambient temperature	Observe the temperatur	e class in areas subject	to explosion hazard.	
Measuring cell with silicone oil	-40 +85 °C (-40 +1	85 °F)		
 Measuring cell with Neobee oil (with front-flush diaphragm) 	-10 +85 °C (14 +18	35 °F)		
 Measuring cell with inert liquid (not with front-flush diaphragm) 	-20 +85 °C (-4 +18	5 °F)		
Digital display	-30 +85 °C (-22 +1	85 °F)		
• Storage temperature	-50 +85 °C (-58 +1 (with Neobee: -20 +8			
Climatic class				
Condensation	Permissible			
Degree of protection to EN 60529	IP65, IP68, NEMA X, end	closure cleaning, resistar	nt to lyes, steam to 150	° C (302 °F)
Electromagnetic compatibility				
Emitted interference and interference immunity	To EN 61326 and NAMU	JR NE 21		
Medium conditions				
Process temperature				
Measuring cell with silicone oil	-40 +100 °C (-40 +	212 °F)		
 Measuring cell with silicone oil (with front-flush diaphragm) 	-40 +150 °C (-40 +	302 °F)		
 Measuring cell with Neobee oil (with front-flush diaphragm) 	-40 +150 °C (-40 +	302 °F)		
 Measuring cell with silicone oil, with temperature isolator (only with front-flush diaphragm) 	-40 +200 °C (-40 +	392 °F)		
 Measuring cell with inert liquid 	-20 +100 °C (-4 +2	12 °F)		
• Measuring cell with high temperature oil	-10 +250 °C (14 +4	182 °F)		
Design				
Neight (without options)	≈ 1.5 kg (≈ 3.3 lb)			
Housing material	Poor in copper die-cast	aluminium, GD-AlSi12 or	stainless steel precision	casting, mat. No. 1.440
Wetted parts materials	Stainless steel, mat. No.	1.4404/316L		
Measuring cell filling	Silicone oil or inert filling	liquid		
Process connection	Flanges as per EN and			
	F&B and pharmaceution	cal flanges		
Surface quality touched-by-media	R _a values ≤ 0,8 µm (3.15	5·10 ⁻⁸ inch)/welded sean	$nsR_a \le 1,6 \ \mu m \ (6.4 \cdot 10^{-8})$	inch)
	(process connections at $R_a \le 0.8 \mu m (3.15 \cdot 10^{-8} ir$	ccording to 3A; R _a values	$s \le 0.8 \ \mu m \ (3.15 \cdot 10^{-8} \ inc$	ch)/welded seams

DS III series for gauge and absolute pressure, with front-flush diaphragm

	HART	PROFIBUS PA or FOUNDATION Fieldbus
Power supply $U_{\rm H}$		Supplied through bus
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-
Separate 24 V power supply necessary	-	No
Bus voltage		1
Not Ex	-	932 V
With intrinsically-safe operation	-	924 V
Current consumption		l .
Basic current (max.)	-	12.5 mA
• Startup current ≤ basic current	-	Yes
Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	-	Yes
Certificate and approvals		
Classification according to pressure equipment directive (DRGL 97/23/EC)	For gases of fluid group 1 and liquids of fluid grangraph 3 (sound engineering practice)	oup 1; complies with requirements of Article
Explosion protection		
Intrinsic safety "i"	PTB 99 ATEX 2122	
- Identification	Ex II 1/2 G EEx ia/ib IIB/IIC T6	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature clas: -40 +70 °C (-40 +158 °F) temperature clas: -40 +60 °C (-40 +140 °F) temperature clas:	s T5;
- Connection	To certified intrinsically-safe circuits with maximum values: $U_{\rm i}=$ 30 V, $I_{\rm i}=$ 100 mA, $P_{\rm i}=$ 750 mW; $R_{\rm i}=$ 300 Ω	FISCO supply unit: $U_0 = 17.5 \text{ V, } I_0 = 380 \text{ mA, } P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V, } I_0 = 250 \text{ mA, } P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 \rm mH, C_{\rm i} = 6 \rm nF$	$L_{i} = 7 \mu \text{H}, C_{i} = 1.1 \text{nF}$
Explosion-proof "d"	PTB 99 ATEX 1160	!
- Identification	Ex II 1/2 G EEx d IIC T4/T6	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class -40 +60 °C (-40 +140 °F) temperature class	s T4; s T6
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{H} = 9 \dots 32 \text{ V DC}$
Dust explosion protection for zone 20	PTB 01 ATEX 2055	
- Identification	Ex II 1 D IP65 T 120 °C Ex II 1/2 D IP65 T 120 °C	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)	
- Max.surface temperature	120 °C (248 °F)	
- Connection	To certified intrinsically-safe circuits with maximum values: $U_{\rm i}=$ 30 V, $I_{\rm i}=$ 100 mA, $P_{\rm i}=$ 750 mW, $R_{\rm i}=$ 300 Ω	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu H, C_i = 1.1 nF$
Dust explosion protection for zone 21/22	PTB 01 ATEX 2055	
- Identification	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; $P_{\rm max}$ = 1.2 W
Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned
- Identification	Ex II 3 G EEx nA L IIC T4/T5/T6	-
Explosion protection to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP FDIV 2, GP ABCD T4T6; CL II, DIV 2, GP FG; C	
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 E T4T6; CL II, DIV 2, GP FG; CL III	FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP A

Hygiene version

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

Communication FOUNDATION

ture

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level DS III series for gauge and absolute pressure, with front-flush diaphragm

HART communication	
HART communication	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local opera- tion (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measuring value) or 10 (two measuring values)
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
Analog input	
 Adaptation to customer- specific process variables 	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 100 s
- Simulation function	Input /Output
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
• Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
 Physical block 	1
Transducer blocks	2
Pressure transducer block	
 Can be calibrated by applying two pressures 	Yes
- Monitoring of sensor limits	Yes
- Specification of a container characteristic with	Max. 30 nodes
 Square-rooted characteristic for flow measurement 	Yes
 Gradual volume suppression and implementation point of square-root extraction 	Parameterizable
 Simulation function for mea- sured pressure value and sen- sor temperature 	Constant value or over parameterizable ramp function

Fieldbus	
Function blocks	3 function blocks analog input, 1 function block PID
Analog input	
 Adaptation to customer- specific process variables 	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
 Square-rooted characteristic for flow measurement 	Yes
• PID	Standard FF function block
 Physical block 	1 Resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
Pressure transducer block	
 Can be calibrated by applying two pressures 	Yes
- Monitoring of sensor limits	Yes
 Simulation function: Measured pressure value, sensor temper- ature and electronics tempera- 	Constant value or over parameterizable ramp function

DS III series for gauge and absolute pressure, with front-flush diaphragm

	g data	Order I	NO.
SITRANS P pressure		7 M F 4	133-
and absolute pressure series DS III HART	e, front-flush membrane,		- 1-1-
Measuring cell filling	Measuring cell cleaning		
Silicone oil	Standard	1	
Inert liquid	Grease-free	3	
FDA compliant fill fluid			
 Neobee oil 	Standard	4	
Span			
0.01 1 bar g	(0.15 14.5 psi g)	В	
0.04 4 bar g	(0.58 58 psi g)	С	
0.16 16 bar g	(2.32 232 psi g)	D	
0.63 63 bar g	(9.14 914 psi g)	E	
13 1300 mbar a ¹⁾	(0.19 18.9 psi a) ¹⁾	S	
0.05 5 bar a ¹⁾	(0.7 72.5 psi a) ¹⁾	Т	
3 30 bar a ¹⁾	(43.5 435 psi a) ¹⁾	Ü	
Wetted parts material			
Seal diaphragm	Connection shank		
Stainless steel	Stainless steel		
Stainless steel Hastelloy ²⁾	Stainless steel	A B	
	Starriess steer	. •	
Process connectionFlange version with O	rder code M, N, R or Q	7	
Non-wetted parts mat	erials		
 Housing made of die- 	-cast aluminium		0
 Housing stainless ste 	el precision casting		3
Version			
 Standard version 			1
• International version			
	English label inscriptions,		2
documentation in 5 la	English label inscriptions, inguages on CD		
documentation in 5 la Explosion protection	English label inscriptions, inguages on CD		2
documentation in 5 la Explosion protection • Without	inguages on CD		
documentation in 5 la Explosion protection • Without • With ATEX, Type of processing the second s	otection:		2 A
documentation in 5 la Explosion protection Without With ATEX, Type of produced in the control of the control	rotection: k ia)"		2 A B
documentation in 5 la Explosion protection Without With ATEX, Type of properties after the control of the co	rotection: (x ia)" Ex d)" ⁽³⁾		A B D
documentation in 5 la Explosion protection Without With ATEX, Type of pr "Intrinsic safety (EE: "Explosion-proof (Et "Intrinsic safety, exp	otection: (ia)" Ex d)" ³⁾ losion-proof enclosure and		2 A B
documentation in 5 la Explosion protection Without With ATEX, Type of pr "Intrinsic safety (EE: "Explosion-proof (Et "Intrinsic safety, exp dust explosion prote Zone 1D/2D)" ⁴)	otection: (ia)" Ex d)" ³⁾ losion-proof enclosure and ection (EEx ia + EEx d +		A B D
documentation in 5 la Explosion protection Without With ATEX, Type of property in the property in the protection of t	otection: (x ia)" Ex d)" ³⁾ losion-proof enclosure and ection (EEx ia + EEx d + of protection:		A B D
documentation in 5 la Explosion protection Without With ATEX, Type of pr "Intrinsic safety (EE: "Explosion-proof (Et "Intrinsic safety, exp dust explosion prote Zone 1D/2D)" ⁴)	otection: (x ia)" Ex d)" ³⁾ losion-proof enclosure and ection (EEx ia + EEx d + of protection:		A B D R
documentation in 5 la Explosion protection Without With ATEX, Type of pr "Intrinsic safety (EE: "Explosion-proof (Ef: "Intrinsic safety, exp dust explosion prote Zone 1D/2D)" ⁴⁾ With FM + CSA, Type "Intrinsic safety and (is + xp)" ³⁾ (available	otection: (x ia)" (Ex d)" (losion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry		A B D R
documentation in 5 la Explosion protection Without With ATEX, Type of property of prope	otection: (ia)" Ex (d)" losion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry		A B D R
documentation in 5 la Explosion protection Without With ATEX, Type of property of property of protection "Intrinsic safety (EE: "Explosion-proof (Ef: "Intrinsic safety, explust explosion protection and protection of protec	otection: (ia)" Ex d)" ³ losion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry		A B D R NC
documentation in 5 la Explosion protection Without With ATEX, Type of property of property of protection "Intrinsic safety (EE: "Explosion-proof (Ef: "Intrinsic safety, explust explosion protection and protection of protec	otection: (ia)" Ex d)" ³ losion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry		A B D R
documentation in 5 la Explosion protection Without With ATEX, Type of proper interior inte	otection: (ia)" Ex d)" ³ losion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry		A B D R NC
documentation in 5 la Explosion protection Without With ATEX, Type of property in the property in the protection of t	otection: (ia)" Ex d)" ³ losion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry		A B D R NC
documentation in 5 la Explosion protection Without With ATEX, Type of property of prope	otection: (ia)" Ex d)" ³ losion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry		A B D R NC
documentation in 5 la Explosion protection Without With ATEX, Type of proper interior safety (EE: "Explosion-proof (EF: "Intrinsic safety, explosion protection to the proper interior safety, explosion protection to the proper intrinsic safety and (is + xp)"3) (available safety and (is + xp)"3) (available safety and the proper interior safety and the properties of the properti	rotection: (ia)" Ex d)" ⁽³⁾ losion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry NPT al) ⁽⁵⁾ indicator (digital indicator >		A B D R NC
documentation in 5 la Explosion protection Without With ATEX, Type of proper interior safety (EE: "Explosion-proof (EF: "Intrinsic safety, explosion protection of the proper interior safety, explosion protection of the proper interior safety and (is + xp)"3) (available safety and (is + xp)"3) (available safety and the proper interior safety and the property and the propert	rotection: (x ia)" Ex d)" ⁽³⁾ losion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry NPT al) ⁽⁵⁾ indicator (digital indicator > dication, setting: mA		A B D R NC
documentation in 5 la Explosion protection Without With ATEX, Type of proper interior safety (EE: "Explosion-proof (EI: "Intrinsic safety, exp dust explosion protection of the proper interior safety and (is + xp)"3) (available safety and (is + xp)"3) (available safety and the proper interior safety and the properties of the properties and the pr	rotection: (x ia)" Ex d)" ⁽³⁾ Iosion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry NPT al) ⁽⁵⁾ indicator (digital indicator Indicator) dication, setting: mA c digital indication (setting)		A B D R NC
documentation in 5 la Explosion protection Without With ATEX, Type of proper interior in a safety (EE: "Explosion-proof (EE: "Intrinsic safety, explosion protection in a safety in a s	rotection: (x ia)" Ex d)" ⁽³⁾ Iosion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof e soon) / cable entry NPT al) ⁽⁵⁾ indicator (digital indicator Indicator) dication, setting: mA c digital indication (setting)		A B D R NC

Power supply units see "SITRANS I power supply units and isolation amplifiers".

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

- CD-ROM with detailed documentation
- Not with temperature decoupler P00 and P10, not for process connections R02, R04, R10 and R11, and can only be ordered in conjunction with silicone oil.
- 2) Only for flanges with option M.., N.. and Q.
- 3) Without cable gland, with blanking plug.
- 4) With enclosed cable gland EEx ia and blanking plug.
- 5) Cannot be used together with the following types of protection:
 "Explosion-proof" and "Intrinsic safety and explosion-proof"
- F) Subject to export regulations AL: 91999, ECCN: N.

DS III series for gauge and absolute pressure, with front-flush diaphragm

Selection and Orderin	g data	Order No.
SITRANS P pressure t		
pressure, front-flush n	nembrane	
DS III PA series (PROF	TIBUS PA) F)	7 M F 4 1 3 4 -
DS III FF series (FOUN	DATION Fieldbus) F)	7MF4135-
		10101-1010
Measuring cell filling	Measuring cell	
J J	cleaning	
Silicone oil	Standard	1
Inert liquid FDA compliant fill fluid	Grease-free	3
Neobee oil	Standard	4
Nominal measuring ra	nge	
1 bar g	(14.5 psi g)	В
4 bar g	(58 psi g)	С
16 bar g	(232 psi g)	D
63 bar g	(914 psi g)	E
1300 mbar a ¹⁾	(18.9 psi a) ¹⁾	S
5 bar a ¹⁾	(72.5 psi a) ¹⁾	T
30 bar a ¹⁾	(435 psi a) ¹⁾	U
Wetted parts materials		
Seal diaphragm	Connection shank	
Stainless steel	Stainless steel	A
Hastelloy ²⁾	Stainless steel	В
Process connection		
 Flange version with O Q 	rder code M, N, R or	7
Non-wetted parts mate	riolo	
Housing made of die-		0
Housing stainless stee		3
Version		
 Standard version 		1
	English label inscriptions,	2
documentation in 5 la	nguages on CD	
Explosion protection		
WithoutWith ATEX, Type of pre	ataction:	A
- "Intrinsic safety (EEx		В
- "Explosion-proof (EE		D
- "Intrinsic safety expl	osion-proof enclosure and	R
dust explosion prote	ection (EEx ia + EEx d +	
• With FM + CSA, Type		
- "Intrinsic safety and		NC
(is + xp)"3) (available	e soon)	
Electrical connection	cable entry	
Screwed gland M20x		В
• Screwed gland ½-14		C
 Han 7D plug (plastic l connector⁵⁾ 	nousing) incl. mating	D
M12 connectors (meta)		F
Display	•	
Without indicator		0
	indicator (digital indicator >	1
hidden, setting: mA)		
With visible digital dis With customer specific	play c digital display (setting as	6 7
specified, Order code	"Y21" or required)	-
. , , , , , , , , , , , , , , , , , , ,	1 7	

Included in delivery of the device:

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

- Not with temperature decoupler P00 and P10, not for process connections R01, R02, R04, R10 and R11, and can only be ordered in conjunction with silicone oil.
- 2) Only for flanges with option M.., N.. and Q..
- 3) Without cable gland, with blanking plug.
- 4) With enclosed cable gland EEx ia and blanking plug.
- 5) Cannot be used together with the following types of protection: "Explosion-proof" and "Intrinsic safety and explosion-proof"
- 6) M12 delivered without cable socket.
- F) Subject to export regulations AL: 91999, ECCN: N.

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level DS III series for gauge and absolute pressure, with front-flush diaphragm

Selection and Ordering data	Order	_			Selection and Ordering data	Order	_	_	_
Further designs		HART	PA	FF	Further designs		HART	PA	F
Add "-Z" to Order No. and specify Order code.					Add "-Z" to Order No. and specify Order code.				
Cable sockets for M12 connectors (metal)	A50	✓	✓	1	Temperature decoupler up to 200 °C ⁴⁾	P00	1	1	٠,
Rating plate inscription (instead of German)					for version with front-flush diaphragm Temperature decoupler up to 250 °C	P10	1	1	١,
,	B11	1	1	1	Measuring cell filling: High-temperature oil,				
● English ● French	B12	/	1	1	only in conjunction with measuring cell filling silicone oil				
• Spanish	B13	1	1	1	Bio-Control (Neumo) sanitary connection				
• Italian	B14	1	1	✓	certified to EHEDG				
English rating plate	B21	1	1	1	• DN 50, PN 16	Q53	1	1	
Pressure units in inH ₂ O or psi					• DN 65, PN 16	Q54	✓	✓	
Quality inspection certificate (Factory cali- pration) to IEC 60770-2	C11	✓	✓	✓	Sanitary process connection to DRD • 65 mm, PN 40	M32	1	✓	
,	040				SMS socket with union nut				
Acceptance test certificate To EN 10204-3.1	C12	✓	✓	✓	• 2"	M67	✓	1	
10 EN 10204-3.1					• 21/2"	M68	1	1	
actory certificate	C14	✓	✓	✓	• 3"	M69	✓	✓	
o EN 10204-2.2					SMS threaded socket				
PROFIsafe" certificate and protocol	C21		1		• 2"	M73	1	✓	
langes to EN 1092-1					• 21/2"	M74	/	1	
DN 25, PN 40 ¹⁾	M11	1	1	1	• 3"	M75	✓	✓	
DN 25, PN 100 ¹⁾	M21	1	✓	1	IDF socket with union nut ISO 2853				
DN 40, PN 40	M13	1	✓	✓	• 2"	M82	✓	V	
DN 40, PN 100	M23	✓	✓	✓	• 21/2"	M83	\	1	
DN 50, PN 16	M04	✓	✓	✓.	• 3"	M84	✓	✓	
DN 50, PN 40	M14	\	1	1	IDF threaded socket ISO 2853				
DN 80, PN 16 DN 80, PN 40	M06 M16	1	V	1	• 2"	M92	1	1	
	WITO		•	•	• 2½" • 3"	M93 M94	\ \ \	√	
Flanges to ASME B16.5	M40	1	1	1	-	WIST	*	•	
Stainless steel flange 1" class 150 ¹⁾ Stainless steel flange 1½" class 150	M41	\ \ \	V	*	Sanitary process connection to NEUMO Bio-Connect screw connection				
Stainless steel flange 172 class 150 Stainless steel flange 2" class 150	M42	1	1	1	certified to EHEDG				
Stainless steel flange 3" class 150	M43	1	1	1	• DN 50, PN 16	Q05	✓	✓	
Stainless steel flange 4" class 150	M44	1	1	1	• DN 65, PN 16	Q06	1	✓	
Stainless steel flange 1" class 3001)	M45	1	✓	✓	• DN 80, PN 16	Q07	/	✓	
Stainless steel flange 11/2" class 300	M46	✓	✓	✓	• DN 100, PN 16	Q08	/	✓	
Stainless steel flange 2" class 300	M47	✓	✓	✓	• DN 2", PN 16	Q13	\	1	
Stainless steel flange 3" class 300	M48	✓	✓	✓	• DN 2½", PN 16	Q14	1	1	
Stainless steel flange 4" class 300	M49	✓	✓	✓	DN 3", PN 16DN 4", PN 16	Q15 Q16	1	√	
Threaded connection acc. to DIN 3852-2, Form A, Thread to ISO 228					Sanitary process connection to NEUMO Bio-Connect flange connection	QIU		•	
G ¾", flush-mounted ²⁾	R01	V	V	V	certified to EHEDG				
G 1", flush-mounted ²⁾	R02	\	1	1	• DN 50, PN 16	Q23	1	✓	
G 2", flush-mounted ²⁾	R04	✓	✓	✓	• DN 65, PN 16	Q24	1	1	1
ank connection ³⁾					• DN 80, PN 16	Q25	1	1	
Sealing is included in delivery TG 52/50, PN 40	R10	1	1	1	• DN 100, PN 16	Q26	1	1	
TG 52/150, FN 40	R11	\ \ \	1	*	DN 2", PN 16DN 2½", PN 16	Q31 Q32	1	√	
, ,					• DN 3", PN 16	Q33	/	1	
anitary process connection according NN 11851 (Dairy connection)					• DN 4", PN 16	Q34	1	1	
DN 50, PN 25	N04	1	1	1	Sanitary process connection to				
DN 80, PN 25	N06	✓	✓	✓	NEUMO Bio-Connect clamp connection certified to EHEDG				
DIN 32676/ISO 2852					• DN 50, PN 16	Q39	✓	1	
DN 50/2", PN 16	N14	✓	1	✓	• DN 65, PN 10	Q40	✓	✓	
DN 65/3", PN 10	N15	✓	✓	✓	• DN 80, PN 10	Q41	✓	✓	
/arivent connection					• DN 100, PN 10	Q42	1	V	
certified to EHEDG					• DN 2½", PN 16	Q48	1	1	
Type N = 68 for Varivent housing	N28	✓	✓	✓	• DN 3", PN 10	Q49	1	1	
DN 40 125 and 1½" 6", PN 40					• DN 4", PN 10	Q50	V	•	П

DS III series for gauge and absolute pressure, with front-flush diaphragm

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

¹⁾ Special Viton seal included in delivery.

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Add "-Z" to Order No. and specify Order code.				
Measuring range to be set Specify in plain text (max. 5 digits): Y01: up to mbar, bar, kPa, MPa, psi	Y01	✓		
Measuring point number (TAG No.) Max. 16 characters, specify in plain text: Y15:	Y15	*	✓	✓
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	✓
Entry of HART address (TAG)	Y17	✓		
Max. 8 characters, specify in plain text: Y17:				
Setting of pressure indicator in pressure units Specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi, Note: The following pressure units can be selected: bar, mbar, mm H ₂ O*), inH ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM oder % *) ref. temperature 20 °C	Y21	•	✓	✓
Preset bus address (possible between 1 and 126) Specify in plain text: Y25:	Y25		✓	

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

✓ = available

Ordering example

7MF4133-1DB20-1AB7-Z Item line: B line: A22 + Y01 + Y21

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

Y21: bar (psi) C line:

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

³⁾ The weldable socket can be ordered under accessories

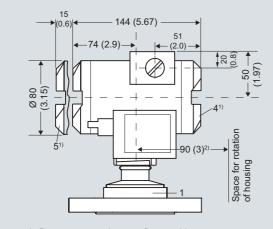
<sup>The wordable societies and a described and depend on the respective cell fillings.

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

Transmitters for gauge, absolute and differential pressure, flow and level

DS III series for gauge and absolute pressure, with front-flush diaphragm

Dimensional drawings



approx. 30 (1.18)

100 (3.94)

7

100 (3.94)

7

17

17

17

17

- 1 Process connection: see flange tables
- 2 Blanking plug
- 3 Electrical connection:
 - screwed gland M20x1,5 - screwed gland ½-14 NPT
- 4 Terminal side
- 5 Electronics side, digital display (longer overall length for cover with window)
- 6 Protective cover over keys
- 7 Screw cover safety bracket (only for explosion-proof enclosure, not shown in the drawing)

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

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

The diagram shows a SITRANS P DS III with an example of a flange. In this drawing the height is subdivided into H_1 and H_2 . H_1 = Height of the SITRANS DS III up to a defined cross-section H_2 = Height of the flange up to this defined cross-section Only the height H_2 is indicated in the dimensions of the flanges.

Flanges to EN and ASME

Flanges to EN

EN 1092-1

£,

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

Flanges to ASME

ASME B16.5



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

NuG and pharmaceutical connections

Connections to DIN

DIN 11851 (Dairy connection)				
	DN	PN	ØD	H ₂
	50	25	92 mm (3.6")	Approx.
	80	25	127 mm (5.0")	52 mm (2")

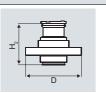
Tri-Clamp according DIN 32676 DN PN ØD H₂ 50 16 64 mm (2.5") Approx. 65 16 91 mm (3.6") 52 mm (2")

Other connections

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

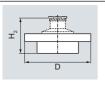
DS III series for gauge and absolute pressure, with front-flush diaphragm

Bio-Control connection



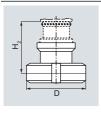
DN	PN	ØD	H ₂
50	16	90 mm (3.5")	Approx.
65	16	120 mm (4.7")	52 mm (2")

Sanitary process connection to DRD



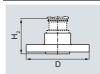
_				
	DN	PN	ØD	H ₂
	50	40	105 mm (4.1")	Approx. 52 mm (2")

Sanitary process screw connection to NEUMO Bio-Connect



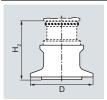
DN	PN	ØD	H ₂
50	16	82 mm (3.2")	Approx.
65	16	105 mm (4.1")	52 mm (2")
80	16	115 mm (4.5")	
100	16	145 mm (5.7")	
2"	16	82 mm (3.2")	
21/2"	16	105 mm (4.1")	
3"	16	105 mm (4.1")	
4"	16	145 mm (5.7")	

Sanitary connection to NEUMO Bio-Connect flange connection



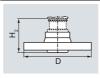
DN	PN	ØD	H ₂
50	16	110 mm (4.3")	Approx.
65	16	140 mm (5.5")	52 mm (2'
80	16	150 mm (5.9")	
100	16	175 mm (6.9")	
2"	16	100 mm (3.9")	
21/2"	16	110 mm (4.3")	
3"	16	140 mm (5.5")	
4"	16	175 mm (6.9")	

Sanitary connection to NEUMO Bio-Connect clamp connection



DN	PN	ØD	H ₂
50	16	77,4 mm (3.0")	Approx.
65	10	90,9 mm (3.6")	52 mm (2")
80	10	106 mm (4.2")	
100	10	119 mm (4.7")	
2"	16	64 mm (2.5")	
21/2"	16	77,4 mm (3.0")	
3"	10	90,9 mm (3.6")	
4"	10	119 mm (4.7")	

Sanitary connection to NEUMO Bio-Connect S flange connection



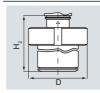
DN	PN	ØD	H ₂
50	16	125 mm (4.9")	Approx.
65	10	145 mm (5.7")	52 mm (2")
80	10	155 mm (6.1")	
100	10	180 mm (7.1")	
2"	16	125 mm (4.9")	
21/2"	10	135 mm (5.3")	
3"	10	145 mm (5.7")	
4"	10	180 mm (7.1")	

Thread connection G¾", G1" and G2" to DIN 3852



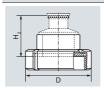
DN	PN	ØD	H ₂
3/4"	63	37 mm (1.5")	Approx. 45 mm (1.8")
1"	63	48 mm (1.9")	Approx. 47 mm (1.9")
2"	63	78 mm (3.1")	Approx. 52 mm (2")

Tank connection TG52/50 and TG52/150



DN	PN	ØD	H_2
25	40	63 mm (2.5")	Approx. 63 mm (2.5")
25	40	63 mm (2.5")	Approx. 170 mm (6.7")

SMS socket with union nut



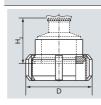
•							
	DN	PN	ØD	H ₂			
	2"	25	84 mm (3.3")	Approx. 52 mm			
	2½"	25	100 mm (3.9")	(2.1")			
	3"	25	114 mm (4.5")				

SMS threaded socket



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

IDF socket with union nu



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

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level DS III series for gauge and absolute pressure, with front-flush diaphragm

IDF threaded socket

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

Aseptic threaded socket to DIN 11864-1 Form A						
	DN	PN	ØD	H ₂		
	50	25	78 x 1/6"	Approx. 52 mm		
T T	65	25	95 x 1/6"	(2.1")		
	80	25	110 x 1/4"			
D	100	25	130 x 1/4"			

Aseptic flange with notch to DIN 11864-2 Form A					
+ (11)	DN	PN	ØD	H ₂	
<u> </u>	50	16	94	Approx 52 mm	
	65	16	113	52 mm (2.1")	
<u> </u>	80	16	133	` '	
I D I	100	16	159		

Aseptic flange with groove to DIN 11864-2 Form A					
+ ()	DN	PN	ØD	H ₂	
	50	16	94	Approx. 52 mm	
	65	16	113	(2.1")	
<u>* + + + + - + - + - + - + + + + </u>	80	16	133		
I D I	100	16	159		

Aseptic clamp with groove to DIN 11864-3 Form A					
_ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	DN	PN	ØD	H ₂	
	50	25	77,5	Approx. 52 mm	
±	65	25	91	52 mm (2.1")	
	80	16	106	` ′	
- D	100	16	130		

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level DS III series for absolute pressure (from gauge pressure series)

Technical specifications

SITRANS P, DS III series for absolute pre	essure (from the gauge p	ressure series)				
	HART	HART		UNDATION Fieldbus		
Input						
Measured variable	Absolute pressure	Absolute pressure				
Spans (infinitely adjustable) or nominal measuring range and max. permissible test pressure	Span	Max. perm. test pressure	Nominal measuring range	Max. perm. test pressure		
	8.3 250 mbar a (0.12 3.6 psi a)	6 bar a (87 psi a)	250 mbar a (3.6 psi a)	6 bar a (87 psi a)		
	43 1300 mbar a (0.62 18.9 psi a)	10 bar a (145 psi a)	1300 mbar a (18.9 psi a)	10 bar a (145 psi a)		
	160 5000 mbar a (2.32 72.5 psi a)	30 bar a (435 psi a)	5 bar a (72.5 psi a)	30 bar a (435 psi a)		
	1 30 bar a (14.5 435 psi a)	100 bar a (1450 psi a)	30 bar a (435 psi a)	100 bar a (1450 psi a)		
Lower measuring limit						
• Measuring cell with silicone oil filling	0 mbar a (0 psi a)					
Jpper measuring limit	100% of max. span					
Output						
Output signal	4 20 mA		Digital PROFIBUS PA	or FOUNDATION Fieldbu		
Lower limit (infinitely adjustable)	3.55 mA, factory prese	3.55 mA, factory preset to 3.84 mA				
Upper limit (infinitely adjustable)	23 mA, factory preset to 22.0 mA	to 20.5 mA or optionally se	t -			
∟oad			·			
Without HART communication	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in \		-			
With HART communication	$R_{\rm B}$ = 230 500 Ω (SII) $R_{\rm B}$ = 230 1100 Ω (H	MATIC PDM) or IART Communicator)	-			
Physical bus	-		IEC 61158-2			
Protection against polarity reversal	Protected against shows supply voltage.	rt-circuit and polarity rever	sal. Each connection aga	ainst the other with max.		
Accuracy	To EN 60770-1					
Reference conditions (All error data refer always refer to the set span)		tic, start-of-scale value 0 b °C (77 °F)) r: Span ratio (r =		aphragm, silicone oil fillir		
Error in measurement and fixed-point settir including hysteresis and repeatability)	ng					
Linear characteristic			≤ 0.1 %			
- r ≤ 10	≤ 0.1 %					
- 10 < r ≤ 30	≤ 0.2 %					
.ong-term drift (temperature change ±30 $^\circ$ ±54 $^\circ$ F))	C ≤ (0.1 · r) %/year		≤ 0.1 %/year			
nfluence of ambient temperature						
at -10 +60 °C (14 140 °F)	≤ (0.1 · r +0.2) %		≤ 0,3 %			
• at -4010 °C and +60 +85 °C (-40 +14 °F and 140 185 °F)	≤ (0.1 · r + 0.15) %/10	K	≤ 0.25 %/10 K			
Measured Value Resolution	-			3 · 10 ⁻⁵ of nominal measuring range		

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level DS III series for absolute pressure (from gauge pressure series)

SITRANS P, DS III series for absolute press	sure (from the gauge pressure series)	
	HART	PROFIBUS PA or FOUNDATION Fieldbus
Rated operating conditions		
Degree of protection (to EN 60529)	IP65	
Process temperature		
• Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)	
• Measuring cell with inert filling liquid	-20 +100 °C (-4 +212 °F)	
In conjunction with dust explosion protection	-20 +60 °C (-4 +140 °F)	
Ambient conditions		
Ambient temperature		
- Digital indicators	-30 +85 °C (-22 +185 °F)	
Storage temperature	-50 +85 °C (-58 +185 °F)	
Climatic class		
- Condensation	Permissible	
• Electromagnetic compatibility		
- Emitted interference and interference immunity	To EN 61326 and NAMUR NE 21	
Design		
Weight (without options)	≈ 1.5 kg (≈ 3.3 lb)	
Housing material	Poor in copper die-cast aluminium, GD-AlSi12 or	stainless steel precision casting, mat. No. 1.440
Wetted parts materials		
Connection shank	Stainless steel, mat. No. 1.4404/316L or Hastelloy	C4, mat. No. 2.4610
Oval flange	Stainless steel, mat. No. 1.4404/316L	
Seal diaphragm	Stainless steel, mat. No. 1.4404/316L or Hastelloy	C276, mat. No. 2.4819
Measuring cell filling	Silicone oil or inert filling liquid (max. 160 bar a (2	320 psi a) with oxygen measurement)
Process connection	Connection shank G½B to DIN EN 837-1, female (MWP 2320 psi a)) to DIN 19213 with mounting th	thread ½ -14 NPT or oval flange (PN 160 read M10 or ⁷ / ₁₆ -20 UNF to EN 61518
Material of the mounting bracket		
Steel	Sheet steel, Mat. No. 1.0330, chrome-plated	
Stainless steel	Stainless steel, Mat. No. 1.4301 (SS304)	
Power supply $\emph{\textbf{U}}_{\!ee}$		Supplied through bus
Ferminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-
Separate 24 V power supply necessary	-	No
Bus voltage		
Not Ex	-	9 32 V
With intrinsically-safe operation	-	9 24 V
Current consumption		
Basic current (max.)	-	12.5 mA
• Startup current ≤ basic current	-	Yes
Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) available	-	Yes

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level DS III series for absolute pressure (from gauge pressure series)

SITRANS P, DS III series for absolute pressure (from the gauge pressure series)					
	HART	PROFIBUS PA or FOUNDATION Fieldbus			
Certificate and approvals					
Classification according to pressure equipment directive (DRGL 97/23/EC)	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)				
Explosion protection					
• Intrinsic safety "i"	PTB 99 ATEX 2122				
- Identification	Ex II 1/2 G EEx ia/ib IIB/IIC T6				
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +70 °C (-40 +158 °F) temperature class T5; -40 +60 °C (-40 +140 °F) temperature class T6				
- Connection	To certified intrinsically-safe circuits with maximum values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW; $R_{\rm i}$ = 300 Ω	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$			
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_i = 7 \mu\text{H}, C_i = 1.1 \text{nF}$			
• Explosion-proof "d"	PTB 99 ATEX 1160				
- Identification	Ex II 1/2 G EEx d IIC T4/T6				
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +60 °C (-40 +140 °F) temperature class T6				
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC			
• Dust explosion protection for zone 20	PTB 01 ATEX 2055				
- Identification	Ex II 1 D IP65 T 120 °C Ex II 1/2 D IP65 T 120 °C				
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)				
- Max.surface temperature	120 °C (248 °F)				
- Connection	To certified intrinsically-safe circuits with maximum values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW, $P_{\rm i}$ = 300 Ω	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$			
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{i} = 7 \mu\text{H}, C_{i} = 1.1 \text{nF}$			
• Dust explosion protection for zone 21/22	PTB 01 ATEX 2055				
- Identification	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: $U_H = 9 \dots 32 \text{ V DC}$; $P_{\text{max}} = 1.2 \text{ W}$			
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned			
- Identification	Ex II 3 G EEx nA L IIC T4/T5/T6	-			
• Explosion protection 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 EF T4T6; CL II, DIV 2, GP FG; CL III	G; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD			

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

HART communication	
HART communication	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measuring value) or 10 (two measuring values)
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
 Analog input 	
 Adaptation to customer- specific process variables 	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 100 s
- Simulation function	Input /Output
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
 Physical block 	1
Transducer blocks	2
Pressure transducer block	
 Can be calibrated by applying two pressures 	Yes
- Monitoring of sensor limits	Yes
 Specification of a container characteristic with 	Max. 30 nodes
 Square-rooted characteristic for flow measurement 	Yes
 Gradual volume suppression and implementation point of square-root extraction 	Parameterizable
- Simulation function for mea- sured pressure value and sen- sor temperature	Constant value or over parameterizable ramp function

Communication FOUNDATION Fieldbus	
Function blocks	3 function blocks analog input, 1 function block PID
 Analog input 	
 Adaptation to customer- specific process variables 	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
 Square-rooted characteristic for flow measurement 	Yes
• PID	Standard FF function block
 Physical block 	1 Resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
 Pressure transducer block 	
 Can be calibrated by applying two pressures 	Yes
- Monitoring of sensor limits	Yes
 Simulation function: Measured pressure value, sensor temper- ature and electronics tempera- ture 	Constant value or over parameterizable ramp function

Transmitters for gauge, absolute and differential pressure, flow and level

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

Selection and Orderin			der		
SITRANS P pressure transmitters for absolute F) pressure, from the pressure series DS III HART		7 M	7MF4233-		
pressure, from the pre	essure series DS III HART			- 11	
Measuring cell filling	Measuring cell cleaning				
Silicone oil	Standard	1			
nert liquid ¹⁾	Grease-free	3			
Span					
8.3 250 mbar a	(0.12 3.63 psi a)	D			
43 1300 mbar a	(0.62 18.9 psi a)	F			
0.16 5 bar a	(2.32 72.5 psi a)	G			
1 30 bar a	(14.5 435 psi a)	Н			
Wetted parts material					
Seal diaphragm	Process connection				
Stainless steel	Stainless steel F		Α		
Hastelloy	Stainless steel F)		В		
Hastelloy	Hastelloy F)		С		
Version for diaphragm	seal ^{2,3,4,}		Y		
Process connection	(D. 5) 607 (
 Connection shank G½ Female thread ½-14 I 			0		
• Female inread 72-14 i • Oval flange made of :			1		
	6-20 UNF to EN 61518		2		
 Mounting thread M² 			3		
 Male thread M20 x 1, 			5		
 Male thread ½-14 NP 			6		
Non-wetted parts mat	erials	-			
 Housing made of die- 				0	
 Housing stainless ste 				3	
Version		-			
 Standard version 				1	
	English label inscriptions,			2	
documentation in 5 la	inguages on CD				
Explosion protection					
WithoutWith ATEX, Type of pr	rotection:			A	
- "Intrinsic safety (EE:				В	
- "Explosion-proof (El				D	
- "Intrinsic safety and (EEx ia + EEx d)"7)	explosion-proof enclosure			P	
- "Ex nA/nL (zone 2)"				Е	
, ,	losion-proof enclosure and			R	
dust explosion prote	ection (EEx ia + EEx d +			n	
 With FM + CSA, Type 					
- "Intrinsic safety and (is + xp)" ⁶⁾	•			N	С
Electrical connection	/ cable entry				
• Screwed gland Pg 13					Α
 Screwed gland I g 18 Screwed gland M20x 					В
JULIUM GIGING IVIZUA					C
	NPI				
 Screwed gland ½-14 					
					D

Selection and Ordering data	Order No.
SITRANS P pressure transmitters for absolute F)	7 M F 4 2 3 3 -
pressure, from the pressure series DS III HART	1-1-1-1-1-1
Display	
Without indicator	0
 Without visible digital indicator (digital indicator hidden, setting: mA) 	1
With visible digital indicator	6
 With customer-specific digital indicator (setting as specified, Order code "Y21" or "Y22" required) 	7

Power supply units see "SITRANS I power supply units and isolation amplifiers"

Factory-mounting of shut-off valves and valve manifolds see page 2/147.

Included in delivery of the device:

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

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

0-1			0 .	K *	_		
Selection and Ordering data			Order No.				
SITRANS P pressure t pressure (from the ga	ransmitters for absolute uge pressure series)						
DS III PA series (PROF	IBUS PA)	F)	7 M I	F 4 2	34-		
DS III FF series (FOUN	IDATION Fieldbus)	F)	7 M F 4 2 3 5 -				
,					- 1		
Measuring cell filling	Measuring cell		-				
	cleaning						
Silicone oil	Standard		1				
Inert liquid ¹⁾	Grease-free		3				
Nominal measuring ra	nge						
250 mbar a	(3.63 psi a)		D				
1300 mbar a	(18.9 psi a)		F				
5 bar a	(72.5 psi a)		G				
30 bar a	(435 psi a)		Н				
Wetted parts materials							
Seal diaphragm	Process connection	-					
Stainless steel	Stainless steel	F)		4			
Hastelloy	Stainless steel	F)		3			
Hastelloy Version as diaphragm s	Hastelloy	F)) Y			
	eai * * *	_		ı			
Process connection	D +- EN 007 4			,			
 Connection shank G½ Female thread ½-14 N 				0			
Pemale thread %2-14 INPT Oval flange made of stainless steel				'			
- Mounting thread ⁷ / ₁₆ -20 UNF to EN 61518				2			
- Mounting thread M10 to DIN 19213				3			
Male thread M20 x 1,5	5			5			
 Male thread ½-14 NP 	Г			6			
Non-wetted parts mate	erials						
• Housing made of die-	cast aluminium			0			
 Housing stainless stee 	el precision casting			3			
Version							
 Standard version 					1		
	English label inscriptions,				2		
documentation in 5 la	nguages on CD						
Explosion protection							
• Without					Α		
 With ATEX, Type of pre- "Intrinsic safety (EEx 					В		
- "Explosion-proof (EE					D		
	explosion-proof enclosure				P		
(EEx ia + EEx d)" ⁶⁾	2p. 30.011 p. 301 0110100010						
- "Ex nA/nL (zone 2)"		E					
- "Intrinsic safety, expl	osion-proof enclosure and				R		
Zone 1D/2D) ⁶⁾ (not	ection (EEx ia + EEx d + for DS III FF)						
• With FM + CSA, Type							
					N	С	
 "Intrinsic safety and (is + xp)"⁵⁾ 							
Electrical connection	cable entry						
 Screwed gland M20x 						В	
• Screwed gland ½-14						C	
Plug M12 incl. mating	connector'					F	

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

Factory-mounting of shut-off valves and valve manifolds see page

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

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

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

Selection and Ordering data Further designs Add "-Z" to Order No. and specify Order code.	Order	code		
Add "-Z" to Order No. and specify Order		LIADE	-	
		HART	PA	FF
codc.				
Pressure transmitter with mounting				
bracket made of: • Steel	A01	1	1	1
• Stainless steel	A02	1	1	1
Plug				
Han 7D (metal, gray)	A30	✓		
 Han 8U (instead of Han 7D) 	A31	✓		
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription				
(instead of German)	D11		,	
EnglishFrench	B11 B12	✓	V	y
• Spanish	B13	*	1	1
• Italian	B14	✓	✓	1
English rating plate	B21	1	1	1
Pressure units in inH ₂ O or psi				
Quality inspection certificate (Factory calibration) to IEC 60770-2 1)	C11	✓	✓	✓
Acceptance test certificate ²⁾ To EN 10204-3.1	C12	✓	✓	1
Factory certificate To EN 10204-2.2	C14	✓	✓	✓
	000			
"Functional Safety (SIL)" certificate	C20	•	,	
"PROFIsafe" certificate and protocol	C21		✓	
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Manufacturer's declaration acc. to NACE	D07	✓	✓	1
Type of protection IP68 (only for M20x1.5 and ½-14 NPT)	D12	✓	✓	✓
Digital indicator alongside the input keys (only together with the devices 7MF42330A.6 orA.7-Z, Y21 or Y22 + Y01).	D27	*	✓	✓
Supplied with oval flange (1 item), PTFE packing and screws in thread of oval flange	D37	*	✓	✓
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	*	✓	✓
Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)")	E02	✓	✓	✓
Oxygen application (max. 120 bar a (1740 psi a) at 60 °C (140 °F)	E10	✓	✓	~
with oxygen measurement and inert liquid) Explosion-proof "Intrinsic safety" to INMETRO (Brazil)	E25	✓	✓	1
(only for transmitter 7MF4B)				
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	1	✓	1
(only for transmitter 7MF4B)				
Explosion protection "Explosion-proof" to NEPSI (China)	E56	*	✓	~
(only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	~	✓	~

Selection and Ordering data Order code				
Additional data		HART	PA	FF
Add "-Z" to Order No. and specify Order code.				
Measuring range to be set Specify in plain text (max. 5 digits): Y01: up to mbar, bar, kPa, MPa, psi	Y01	*		
Measuring point number (TAG No.) Max. 16 characters, specify in plain text: Y15:	Y15	*	✓	✓
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	1
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure	Y21	✓	✓	1
units Specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi, Note:				
The following pressure units can be selected: bar, mbar, mm H ₂ O*), inH ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM oder % *) ref. temperature 20 °C				
Setting of pressure indication in non-pressure units ³⁾	Y22 +	✓	✓	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)	Y01			
Preset bus address (possible between 1 and 126) Specify in plain text: Y25:	Y25		✓	

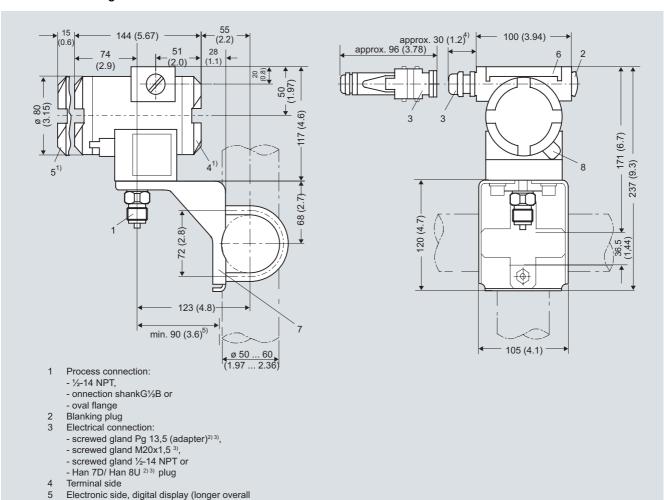
Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset

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

 2) Whe the acceptance test certificate 3.1 for transmitters with direct-con-
- nected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
- 3) Preset values can only be modified over SIMATIC PDM.

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

Dimensional drawings



- 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]" 3)
 - For Pg 13,5 with adapter approx. 45 mm (1.77 inch) 4)
 - Minimum distance for rotating

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

Screw cover - safety bracket (only for type of protection

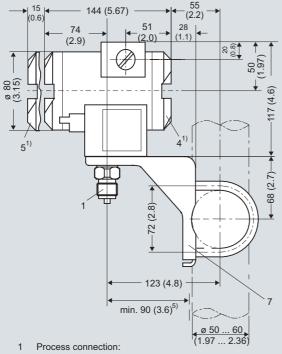
length for cover with window)

Protective cover over keys

Mounting bracket (option)

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

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



100 (3.94) approx. 30 (1.2)⁴⁾ (6.7) 120 (4.7) 105 (4.1)

- ½-14 NPT,
- connection shank G1/2B or
- oval flange
- Blanking plug
- Electrical connection:

 - screwed gland M20x1,5 ⁴), screwed gland ½-14 NPT or PROFIBUS-Stecker M12 ^{3) 4)}
- Terminal side
- Electronic side, digital display (longer overall length for cover with window)
- Protective cover over keys
- Mounting bracket (option)
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- Allow approx. 20 mm (0.79 inch) thread length in addition
- Minimum distance for rotating
- Not with type of protection "Explosion-proof enclosure"
 - Not with type of protection "FM + CSA"
- Minimum distance for rotating

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

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

Technical specifications

SITRANS P, DS III series for absolute press	ure (from differential pr	essure series)			
	HART		PROFIBUS PA or FOU	NDATION Fieldbus	
Input					
Measured variable	Absolute pressure pres	sure			
Spans (infinitely adjustable) or nominal measuring range and max. permissible working pressure	Span	Maximum working pressure	Nominal measuring range	Maximum working pres- sure	
	8.3 250 mbar a (0.12 3.6 psi a)	32 bar a (464 psi a)	250 mbar a (3.6 psi a)	32 bar a (464 psi a)	
	43 1300 mbar a (0.62 18.9 psi a)	32 bar a (464 psi a)	1300 bar a (18.9 psi a)	32 bar a (464 psi a)	
	160 5000 mbar a (2.32 72.5 psi a)	32 bar a (464 psi a)	5 bar a (72.5 psi a)	32 bar a (464 psi a)	
	1 30 bar a (14.5 435 psi a)	160 bar a (2320 psi a)	30 bar a (435 psi a)	160 bar a (2320 psi a)	
	5.3 100 bar a (77 1450 psi a)	160 bar a (2320 psi a) (for connection thread M10 and ⁷ / ₁₆ -20 UNF in the process flanges)	100 bar a (1450 psi a)	160 bar a (2320 psi a) (for connection thread M10 and ⁷ / ₁₆ -20 UNF in the process flanges)	
Lower measuring limit		ľ	ı	"	
Measuring cell with silicone oil filling	0 mbar a (0 psi a)				
Upper measuring limit	100% of max. span				
Output					
Output signal	4 20 mA		Digital PROFIBUS PA or signal	r FOUNDATION Fieldbus	
 Lower limit (infinitely adjustable) 	3.55 mA, factory preset	to 3.84 mA	-		
Upper limit (infinitely adjustable)	23 mA, factory preset to to 22.0 mA	20.5 mA or optionally set	-		
Load			,		
Without HART communication	$R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.023$ $U_{\rm H}$: Power supply in V	3 A in Ω ,	-		
With HART communication	$R_{\rm B} = 230 \dots 500 \ \Omega \ ({\rm SIM} \ R_{\rm B} = 230 \dots 1100 \ \Omega \ ({\rm Hz})$	ATIC PDM) or ART Communicator)	-		
Physical bus	-		IEC 61158-2		
Protection against polarity reversal	Protected against short supply voltage.	-circuit and polarity reversa	ersal. Each connection against the other with max.		
Accuracy	To EN 60770-1				
Reference conditions (All error data refer always refer to the set span)		c, start-of-scale value 0 ba C (77 °F)) r: Span ratio (r =		phragm, silicone oil filling,	
Error in measurement and fixed-point setting (including hysteresis and repeatability)					
Linear characteristic			≤ 0.1 %		
- r ≤ 10	≤ 0.1 %				
- 10 < r ≤ 30	≤ 0.2 %				
Long-term drift (temperature change \pm 30 °C (\pm 54 °F))	≤ (0.1 · r) %/year		≤ 0.1 %/year		
Influence of ambient temperature					
• at -10 +60 °C (14 140 °F)	≤ (0.1 · r +0.2) %		≤ 0.3 %		
• at -4010 °C and +60 +85 °C (-40 +14 °F and 140 185 °F)	≤ (0.1 · r + 0.15) %/10 k	X	≤ 0.25 %/10 K		
Measured Value Resolution	-		3 · 10 ⁻⁵ of nominal meas	suring range	

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level DS III series for absolute pressure (from differential pressure series)

SITRANS P, DS III series for absolute press	sure (from differential pressure series)	
	HART	PROFIBUS PA or FOUNDATION Fieldbus
Rated operating conditions		•
Degree of protection (to EN 60529)	IP65	
Process temperature		
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)	
Measuring cell with inert filling liquid	-20 +100 °C (-4 +212 °F)	
• In conjunction with dust explosion protection	-20 +60 °C (-4 +140 °F)	
Ambient conditions		
Ambient temperature		
- Digital indicators	-30 +85 °C (-22 +185 °F)	
Storage temperature	-50 +85 °C (-58 +185 °F)	
Climatic class		
- Condensation	Permissible	
Electromagnetic compatibility		
- Emitted interference and interference immunity	To EN 61326 and NAMUR NE 21	
Design		
Weight (without options)	≈ 4.5 kg (≈ 9.9 lb)	
Housing material	Poor in copper die-cast aluminium, GD-AlSi12 or	r stainless steel precision casting, mat. No. 1.4408
Wetted parts materials		
Seal diaphragm	Stainless steel, mat. No. 1.4404/316L or Hastello tantalum or gold	y C276, mat. No. 2.4819, Monel, mat. No. 2.4360,
 Process flanges and sealing screw 	Stainless steel, mat. No. 1.4408, Hastelloy C4, m	at. No. 2.4610 or Monel, mat. No. 2.4360
• O-Ring	FPM (Viton) or optionally: PTFE, FEP, FEPM and I	NBR
Measuring cell filling	Silicone oil or inert filling liquid (max. 160 bar (23	320 psi a) with oxygen measurement)
Process connection	$^{1}\!\!4\text{-}18$ NPT and flange connection to DIN 19213 v $^{7}\!\!/_{16^{\circ}}$ 20 UNF to EN 61518	vith mounting thread M10 to DIN 19213 or
Material of the mounting bracket		
• Steel	Sheet steel, Mat. No. 1.0330, chrome-plated	
Stainless steel	Stainless steel, Mat. No. 1.4301 (SS304)	
Power supply $m{\textit{U}}_{m{ee}}$		Supplied through bus
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-
Separate 24 V power supply necessary	-	No
Bus voltage		
• Not Ex	-	9 32 V
With intrinsically-safe operation	-	9 24 V
Current consumption		ı
Basic current (max.)	-	12.5 mA
 Startup current ≤ basic current 	-	Yes
Max. current in event of fault	-	15.5 mA
Fault disconnection electronics (FDE) avail-	-	Yes
able		

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level DS III series for absolute pressure

(from differential pressure series)

SITRANS P, DS III series for absolute pressure (from differential pressure series)				
	HART	PROFIBUS PA or FOUNDATION Fieldbus		
Certificate and approvals				
Classification according to pressure equipment directive (DRGL 97/23/EC)	For gases of fluid group 1 and liquids of fluid group graph 3 (sound engineering practice)	up 1; complies with requirements of Article 3, para-		
Explosion protection				
• Intrinsic safety "i"	PTB 99 ATEX 2122			
- Identification	Ex II 1/2 G EEx ia/ib IIB/IIC T6			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +70 °C (-40 +158 °F) temperature class T5; -40 +60 °C (-40 +140 °F) temperature class T6			
- Connection	To certified intrinsically-safe circuits with maximum values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW; $R_{\rm i}$ = 300 Ω	FISCO supply unit: $U_0 = 17.5 \text{ V, } I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V, } I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 \rm mH, C_{\rm i} = 6 \rm nF$	$L_{\rm i} = 7 \mu \text{H}, C_{\rm i} = 1.1 \text{nF}$		
• Explosion-proof "d"	PTB 99 ATEX 1160			
- Identification	Ex II 1/2 G EEx d IIC T4/T6			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +60 °C (-40 +140 °F) temperature class T6			
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC		
• Dust explosion protection for zone 20	PTB 01 ATEX 2055	"		
- Identification	Ex II 1 D IP65 T 120 °C Ex II 1/2 D IP65 T 120 °C			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)			
- Max.surface temperature	120 °C (248 °F)			
- Connection	To certified intrinsically-safe circuits with maximum values: $ U_{\rm i} = 30 \text{ V, } I_{\rm i} = 100 \text{ mA,} \\ P_{\rm i} = 750 \text{ mW, } R_{\rm i} = 300 \Omega $	FISCO supply unit: $U_0 = 17.5 \text{ V, } I_0 = 380 \text{ mA}, P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V, } I_0 = 250 \text{ mA}, P_0 = 1.2 \text{ W}$		
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$		
• Dust explosion protection for zone 21/22	PTB 01 ATEX 2055	"		
- Identification	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; $P_{\rm max}$ = 1.2 W		
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned		
- Identification	Ex II 3 G EEx nA L IIC T4/T5/T6	-		
 Explosion protection to FM 	Certificate of Compliance 3008490	<u>'</u>		
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP EI DIV 2, GP ABCD T4T6; CL II, DIV 2, GP FG; CL			
• 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 EI T4T6; CL II, DIV 2, GP FG; CL III	ABCD T4T6; CL II, DIV 1, GP EFG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD V 2, GP FG; CL III		

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

(iroin amerenda presedi	0 001100)		
HART communication		Communication FOUNDATION Fieldbus	
HART communication	230 1100 Ω	Function blocks	O franction blooks and an innert
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-	Yes, linearly rising or falling char-
Simultaneous communication with	4	specific process variables	acteristic
master class 2 (max.)	Configuration tool or local opera	 Electrical damping T₆₃ , 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	Can be parameterized (last good
Output byte	5 (one measuring value) or 10 (two measuring values)	, and o mode	value, substitute value, incorrect value)
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)	- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
Internal preprocessing		- Square-rooted characteristic	Yes
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0,	for flow measurement	100
	Class B	• PID	Standard FF function block
Function blocks	2	 Physical block 	1 Resource block
Analog input		Transducer blocks	1 transducer block Pressure with
 Adaptation to customer- specific process variables 	Yes, linearly rising or falling characteristic		calibration, 1 transducer block LCD
- Electrical damping T ₆₃ ,	0 100 s	Pressure transducer blockCan be calibrated by applying	Yes
adjustable	land to 100 stars to	two pressures	165
- Simulation function	Input /Output	- Monitoring of sensor limits	Yes
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)	 Simulation function: Measured pressure value, sensor temperature and electronics tempera- 	Constant value or over parameterizable ramp function
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively	ture	
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output		
- Failure mode	Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)		
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively		
 Physical block 	1		
Transducer blocks	2		
Pressure transducer block			
 Can be calibrated by applying two pressures 	Yes		
- Monitoring of sensor limits	Yes		
- Specification of a container	Max. 30 nodes		

characteristic with - Square-rooted characteristic

sor temperature

for flow measurement

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

sured pressure value and sen-

Yes

Parameterizable

Constant value or over para-

meterizable ramp function

SITRANS P measuring instruments for pressure

Transmitters for gauge, absolute and differential pressure, flow and level

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

	g data		Ord	_	_		
SITRANS P pressure t pressure, from the diff series DS III HART	ransmitters for absolute ferential pressure,	• F)	7 M				
Measuring cell filling	Measuring cell			-			
weasuring cen mining	cleaning						
Silicone oil	Standard		1				
nert liquid ¹⁾	Grease-free		3				
Span							
3.3 250 mbar a	(0.12 3.63 psi a)	E)	D				
13 1300 mbar a	(0.62 18.9 psi a)	E)	F				
).16 5 bar a	(2.32 72.5 psi a)	E)	G				
30 bar a	(14.5 435 psi a)	۲)	Н				
5.3 100 bar a	(76.9 1450 psi a)		K	=			
			K	-			
Vetted parts materials							
Seal diaphragm	Parts of measuring cell	_					
Stainless steel	Stainless steel			Α			
Hastelloy	Stainless steel			В			
Hastelloy	Hastelloy			С			
antalum	Tantalum			E			
Monel	Monel	E)	J	Н			
Gold	Gold			L			
ersion for diaphragm s	seal ²⁾³⁾⁴⁾			Υ			
Process connection							
	T with flange connection						
 Mounting thread M1 (only for replacement Vent on side of process 	nt needs) as flange ⁵⁾			0			
 Mounting thread ⁷/₁₆ Mounting thread M1 	₃ -20 UNF to EN 61518			6			
(only for replacemen							
(only for replacement Non-wetted parts mater Process flange screws	nt needs) erials						
Non-wetted parts mate Process flange screws Stainless steel	nt needs) erials				2 3		
Non-wetted parts mate Process flange screws Stainless steel Stainless steel	erials Electronics housing Die-cast aluminium Stainless steel precision	<u> </u>					
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions,					1 2	
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, documentation in 5 la	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions,						4
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, documentation in 5 la Explosion protection	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD						4
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, documentation in 5 la Explosion protection Without	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD					2	A
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, documentation in 5 la Explosion protection Without With ATEX, Type of pro-"Intrinsic safety (EEx	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD					2	A B D
Non-wetted parts mater Process flange screws Stainless steel Stainless steel Version Standard version International version, I documentation in 5 la Explosion protection Without With ATEX, Type of pro- "Intrinsic safety (EEX "Explosion-proof (EEX "Intrinsic safety and	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD etection: English all inscriptions, nguages on CD					2	
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, I documentation in 5 la Explosion protection Without With ATEX, Type of procession of the procession of	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD					2	D P
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, I documentation in 5 la Explosion protection Without With ATEX, Type of process "Intrinsic safety (EEx "Explosion-proof (EE "Intrinsic safety and (EEx ia + EEx d)" 8) "Ex nA/nL (zone 2)"	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD otection: (ia)" (ix d)" ⁷) explosion-proof enclosure)				2	D P
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, documentation in 5 la Explosion protection Without With ATEX, Type of pro- "Intrinsic safety (EEx "Explosion-proof (EE "Intrinsic safety and (EEx ia + EEx d)" 8) - "Ex nA/nL (zone 2)" "Intrinsic safety, explosion prote dust explosion prote Zone 1D/2D)"8)	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Diection: Ex d)" Ex d) = Ex d + E)				2	D P
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, documentation in 5 la Explosion protection Without With ATEX, Type of pro- "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and (EEx ia + EEx d)" 8) - "Ex nA/nL (zone 2)" - "Intrinsic safety, expdust explosion prote Zone 1D/2D)"8)	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD etection: (ia)" (ix d)" ⁷) explosion-proof enclosure and ection (EEx ia + EEx d + of protection:)				2	D P
Non-wetted parts mater Process flange screws Stainless steel Stainless steel Stainless steel Version Standard version International version, I documentation in 5 la Explosion protection Without With ATEX, Type of processing the processing of the processing terms of th	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD cotection: (a)" (ax d)" ⁷) explosion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof)				2	D E R
Non-wetted parts mater Process flange screws Stainless steel Stainless Standard version, documentation in 5 la Staplosion protection Without Staff	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD etection: Ex d)"7) explosion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof)				2	D P E E R
Non-wetted parts mater Process flange screws Stainless steel Stainless steel Stainless steel Version Standard version International version, I documentation in 5 la Explosion protection Without With ATEX, Type of processing the processing of th	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD cotection: (a)" (ax d)" ⁷) explosion-proof enclosure and ection (EEx ia + EEx d + of protection: explosion-proof)				2	D P E E R NC
Non-wetted parts mater Process flange screws Stainless steel Stainless steel Stainless steel Version Standard version International version, I documentation in 5 la Explosion protection Without With ATEX, Type of properties of the properties of the process of	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, inguages on CD Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, inguages on CD Diection: Ex (a)" Ex (b)" Explosion-proof enclosure and exting (EEx ia + EEx d + exting (EEx ia + EEx d + explosion-proof Cable entry Explosion-proof Cable entry Explosion-proof)				2	P E E R NC
Non-wetted parts mater Process flange screws Stainless steel Stainless steel Stainless steel Version Standard version International version, documentation in 5 la Explosion protection Without With ATEX, Type of processing the processing of the	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, inguages on CD Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, inguages on CD Diection: Ex (a)" Ex (b)" Explosion-proof enclosure and exting (EEx ia + EEx d + exting (EEx ia + EEx d + explosion-proof Cable entry Explosion-proof Cable entry Explosion-proof)				2	D P E E R NC

Selection and Ordering data	Order No.
SITRANS P pressure transmitters for absolute F) pressure, from the differential pressure, series DS III HART	7 M F 4 3 3 3 -
Display	
Without indicator	0
 Without visible digital indicator (digital indicator hidden, setting: mA) 	1
With visible digital indicator	6
 With customer-specific digital indicator (setting as specified, Order code "Y21" or "Y22" re- quired) 	7

Power supply units see "SITRANS I power supply units and isolation amplifiers".

Factory-mounting of shut-off valves and valve manifolds see page 2/147.

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen applications, add Order code E10.
- Version 7MF4333-1DY... only up to max. span 200 mbar a (2.9 psi a).
 When the manufacture's certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to
- accuracy of the total combination is certified here.
 4) Whe the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.

order this certificate exclusively with the diaphragm seals. The measuring

- 5) Not for span '5.3 ... 100 bar a (76.9 ... 1450 psi a)'. Position of the top vent valve in the process flange (see dimensional drawing).
- 6) Not together with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 7) Without cable gland, with blanking plug
- 8) With enclosed cable gland EEx ia and blanking plug
- 9) Not together with types of protection "Explosion-proof" and "Ex nA", "Intrinsic safety" and "Explosion-proof"..
- ¹⁰⁾ M12 delivered without cable socket.
- E) Combinations of the versions marked with E) are subject to the export regulations AL: 2B230, ECCN: N.
- F) Subject to export regulations AL: 91999, ECCN: N.

SITRANS P measuring instruments for pressure

Transmitters for gauge, absolute and differential pressure, flow and level

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

	pressure series)						
Selection and Ordering			Ord	er l	No.		
	ransmitters for absolute erential pressure series						
DS III PA series (PROF	IBUS PA)	F)	7 M	F 4	3 3	4 -	
DS III FF series (FOUN	DATION Fieldbus)	F)	7 M	F 4	3 3	5 -	
						×	
Measuring cell filling	Measuring cell						
Silicone oil	cleaning						
Inert liquid ¹⁾	Standard Grease-free		1				
			•				
Nominal measuring ra 250 mbar a	n ge (3.63 psi a)	E)	D				
1300 mbar a	(18.9 psi a)	E)	F				
5 bar a	(72.5 psi a)	E)	G				
30 bar a	(435 psi a)	-,	Н				
100 bar a	(1450 psi a)		K	E			
Wetted parts materials	· · · · · · · · · · · · · · · · · · ·						
Seal diaphragm	Parts of measuring cell						
Stainless steel	Stainless steel	-		A			
Hastelloy	Stainless steel			В			
Hastelloy	Hastelloy			С			
Tantalum	Tantalum			E			
Monel	Monel	E)		Н			
Gold	Gold			L			
Version as diaphragm s	eal ^{2,3,4}			Y			
 Mounting thread M1 (only for replacemer Vent on side of proces Mounting thread ⁷/₁₆ Mounting thread M1 (only for replacement 	at needs) as flange ⁵⁾ g-20 UNF to EN 61518 O to DIN 19213			0 6 4			
Non-wetted parts mate Process flange screws							
Stainless steel Stainless steel	Die-cast aluminium Stainless steel precision casting	١			2 3		
Version							
documentation in 5 la	English label inscriptions, nguages on CD					1 2	
Explosion protectionWithout							
 without With ATEX, Type of pro 	otection:					Α	
- "Intrinsic safety (EEx						В	
- "Explosion-proof (EE	·					D	
1 1 1	explosion-proof enclosure	,				Р	
(EEx ia + EEx d)" ⁷⁾	, ,						
- "Ex nA/nL (zone 2)"						Е	
 "Intrinsic safety, explosion prote dust explosion prote Zone 1D/2D)"⁷⁾ (not 	osion-proof enclosure and ction (EEx ia + EEx d + for DS III EE)	t				R	
• With FM + CSA, Type							
- "Intrinsic safety and (is + xp)" ⁶⁾	·					N	С
Electrical connection /	cable entry						
 Screwed gland M20x² 							В
• Screwed gland ½-14 I							C
M12 Connector (meta	11)07						F

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

Factory-mounting of shut-off valves and valve manifolds see page

Included in delivery of the device:

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

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

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order code.				
Pressure transmitter with mounting bracket made of:				
• Steel	A01	1	1	1
• Stainless steel	A02	1	1	1
O-rings for process flanges				
(instead of FPM (Viton))				
• PTFE (Teflon)	A20	1	1	1
 FEP (with silicone core, approved for food) FFPM (Kalrez, compound 4079) 	A21 A22	1	✓	1
NBR (Buna N)	A23	1	1	1
Plug				
• Han 7D (metal, gray)	A30	✓		
• Han 8U (instead of Han 7D)	A31	✓		
Sealing screws	A40	✓	✓	1
1/4-18 NPT, with vent valve in material of process flanges				
Cable sockets for M12 connectors (metal)	A50	1	1	1
Rating plate inscription				
(instead of German)				
• English	B11	✓.	1	1
• French	B12 B13	✓	✓	1
• Spanish • Italian	B14	✓	*	✓
English rating plate	B21	1	1	1
Pressure units in inH ₂ O or psi	J		•	
Quality inspection certificate (Factory calibration) to IEC 60770-2 1)	C11	✓	✓	~
Acceptance test certificate ²⁾ To EN 10204-3.1	C12	✓	✓	1
Factory certificate To EN 10204-2.2	C14	✓	✓	1
"Functional Safety (SIL)" certificate	C20	1		
"PROFIsafe" certificate and protocol	C21		1	
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Manufacturer's declaration acc. to NACE only together with seal diaphragm made of Hastelloy and stainless steel)	D07	*	✓	1
Type of protection IP68 (only for M20x1.5 and ½-14 NPT)	D12	✓	✓	1
Digital indicator alongside the input keys (only together with the devices 7MF43332A.6 orA.7-Z, Y21 or Y22 + Y01)	D27	*	✓	1
Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange	D37 ^{F)}	✓	✓	1
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	*	✓	1
Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)")	E02	✓	✓	1
Oxygen application (max. 120 bar a (1740 psi a) at 60°C (140 °F) with oxygen measurement and inert liquid)	E10	*	✓	1
Explosion-proof "Intrinsic safety" to	E25	✓	✓	1

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order code.				
Explosion-proof "Intrinsic safety" to NEPSI	E55	✓	✓	1
(China) (only for transmitter 7MF4B)				
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56	✓	✓	1
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	1
Interchanging of process connection side	H01	1	✓	1
Vent on side for gas measurements	H02	✓	✓	1
Process flange • Hastelloy • Monel • Stainless steel with PVDF insert max. PN 10 (MWP 145 psi), max. temperature of medium 90 °C (194 °F)	K01 K02 K04	* * * *	√ √ √	* * *
For ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible				
Additional data				
Add "-Z" to Order No. and specify Order code.				
Measuring range to be set Specify in plain text (max. 5 digits): Y01: up to mbar, bar, kPa, MPa, psi	Y01	V		
Measuring point number (TAG No.) Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	1
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indication in pressure units	Y21	✓	✓	1
Specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi, Note:				
The following pressure units can be selected: bar, mbar, mm H ₂ O*), inH ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM oder % *) ref. temperature 20 °C				
Setting of pressure indication in	Y22 +	✓		
non-pressure units ³) Specify in plain text: Y22: up to I/min, m ³ /h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	Y01			
Preset bus address (possible between 1 and 126) Specify in plain text: Y25:	Y25		✓	
Only "Y01", "Y21", "Y22", "Y25" and "D05" can be	e facto	rv prese	et	

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

^{✓ =} available

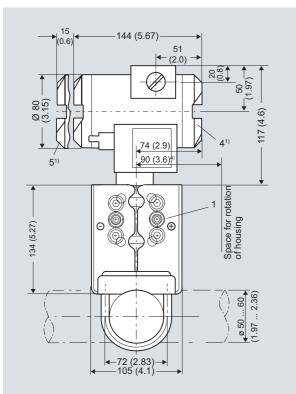
¹⁾ When the manufacture's certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the <u>total</u> combination is certified here.

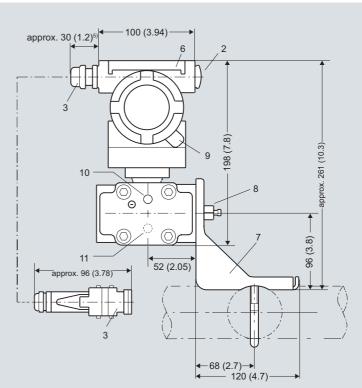
²⁾ Whe the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.

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

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

Dimensional drawings



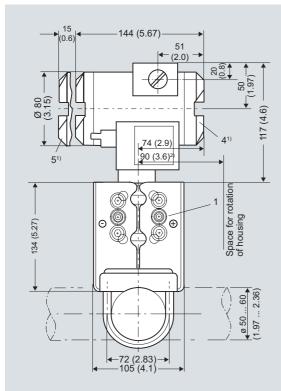


- Process connection: 1/4-18 NPT (EN 61518)
- Blanking plug
- Electrical connection:
 - screwed gland Pg 13,5 (adapter) 2)3),
 - screwed gland M20x1,5 3
 - screwed gland ½-14 NPT or
 - Han 7D/ Han 8U plug 2) 3)
- Terminal side
- Electronics side, digital display (longer overall length for cover with window)
- Protective cover over keys
- Mounting bracket (option)
- Sealing screw (optionally with vent valve)
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- 10 Lateral venting for liquid measurement (Standard)
- 11 Lateral venting for gas measurement (suffix H02)

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

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

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



- 100 (3.94) approx. 30 (1.2) 98 (7.8) 10 Θ 96 (3.8) 52 (2.05) 68 (2.7) 120 (4.7)
- Process connection: 1/4-18 NPT (EN 61518)
- Blanking plug
- Electrical connection:
 - screwed gland M20x1,5 ⁴⁾,
 - screwed gland 1/2-14 NPT or
 - PROFIBUS plug M12 3) 4)
- Electronic side, digital display (longer overall length for cover with window)
- Protective cover over keys
- Mounting bracket (option)
- Sealing screw (optionally with vent valve)
- Screw cover safety bracket (only for explosion-proof enclosure, not shown in the drawing)
- 10 Lateral venting for liquid measurement (Standard)
- 11 Lateral venting for gas measurement (suffix H02)

- 1) Allow approx. 20 mm (0.79 inch) thread length in addition
- 92 mm (3.62 inch) for minimum distance to permit rotation with indicator
- Not with type of protection "explosion-proof enclosure" Not with type of protection "FM + CSA" 3)

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

DS III series for differential pressure and flow

Technical specifications

SITRANS P, DS III series, for differential p	ressure and flow			
	HART		PROFIBUS PA or FO	UNDATION Fieldbus
nput			<u>'</u>	
Measured variable	Differential pressure an	nd flow		
Spans (infinitely adjustable) or nominal measuring range and	Span	Maximum working pressure	Nominal measuring range	Maximum working pressure
nax. permissible working pressure	1 20 mbar (0.4 8 inH ₂ O)	32 bar (464 psi)	20 mbar g (8 inH ₂ O)	32 bar (464 psi)
	1 60 mbar (0.4 24 inH ₂ O)	160 bar (2320 psi)	60 mbar (24 inH ₂ O)	160 bar (2320 psi)
	2.5 250 mbar (1 100 inH ₂ O)		250 mbar (100 inH ₂ O)	
	6 600 mbar (2.4 240 inH ₂ O)		600 mbar (240 inH ₂ O)	
	16 1600 mbar (6.4 642 inH ₂ O)		1600 mbar (642 inH ₂ O)	
	50 5000 mbar (20 2000 inH ₂ O)		5 bar (2000 inH ₂ O)	
	0.3 30 bar (4.35 435 psi)		30 bar (435 psi)	
	2.5 250 mbar (1 100 inH ₂ O)	420 bar (6091 psi)	250 mbar (100 inH ₂ O)	420 bar (6091 psi)
	6 600 mbar (2.4 240 inH ₂ O)		600 mbar (240 inH ₂ O)	
	16 1600 mbar (6.4 642 inH ₂ O)		1600 mbar (642 inH ₂ O)	
	50 5000 mbar (20 2000 inH ₂ O)		5 bar (2000 inH ₂ O)	
	0.3 30 bar (4.35 435 psi)		30 bar (435 psi)	
ower measuring limit				
Measuring cell with silicone oil filling	-100% of max. span (-3	33% with 30 bar (435 psi)) measuring cell or 30 mb	ar a (0.44 psi))
Jpper measuring limit	100% of max. span (for	r oxygen version and ine	rt filling liquid; max. 160 b	ar g (2320 psi g))
Output			1	
Output signal	4 20 mA		Digital PROFIBUS PA signal	or FOUNDATION Fieldb
Lower limit (infinitely adjustable)	3.55 mA, factory prese	t to 3.84 mA	-	
Upper limit (infinitely adjustable)				
opper iiriii (iriiifiiteiy aujustable)	23 mA, factory preset to 22.0 mA	o 20.5 mA or optionally s	et -	
		o 20.5 mA or optionally s	et -	
Upper limit (infinitely adjustable) Load Without HART communication			et - -	
oad Without HART communication	to 22.0 mA $R_{\rm B} \le (U_{\rm H} - 10.5 \text{ V})/0.02$	3 A in Ω, //ATIC PDM) or	et	
oad Without HART communication With HART communication	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \ \Omega$ (SIM	3 A in Ω, //ATIC PDM) or	et - - - IEC 61158-2	
oad Without HART communication With HART communication Physical bus	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \ \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \ \Omega$ (H.	3 A in Ω, MATIC PDM) or ART Communicator)	- - -	ainst the other with max.
oad Without HART communication With HART communication Physical bus Protection against polarity reversal	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (Harroriected against shor	3 A in Ω, MATIC PDM) or ART Communicator)	- - IEC 61158-2	ainst the other with max.
without HART communication With HART communication Physical bus Protection against polarity reversal Accuracy Reference conditions All error data refer always refer to the set	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (H.) Protected against shor supply voltage. To EN 60770-1 Increasing characterist	3 A in Ω, MATIC PDM) or ART Communicator) t-circuit and polarity reve	IEC 61158-2 rsal. Each connection aga	
oad Without HART communication With HART communication Physical bus Protection against polarity reversal Accuracy Reference conditions All error data refer always refer to the set pan) Former in measurement and fixed-point setting	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (H. Protected against shor supply voltage. To EN 60770-1 Increasing characterist room temperature 25 °C	3 A in Ω, MATIC PDM) or ART Communicator) t-circuit and polarity reve	IEC 61158-2 rsal. Each connection aga	
without HART communication With HART communication Physical bus Protection against polarity reversal Eccuracy Reference conditions All error data refer always refer to the set pan) Pror in measurement and fixed-point setting including hysteresis and repeatability)	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (H. Protected against shor supply voltage. To EN 60770-1 Increasing characterist room temperature 25 °C	3 A in Ω, MATIC PDM) or ART Communicator) t-circuit and polarity reve	IEC 61158-2 rsal. Each connection aga	
without HART communication With HART communication Physical bus Protection against polarity reversal Accuracy Reference conditions All error data refer always refer to the set pan) Error in measurement and fixed-point setting including hysteresis and repeatability)	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (H. Protected against shor supply voltage. To EN 60770-1 Increasing characterist room temperature 25 °C	3 A in Ω, MATIC PDM) or ART Communicator) t-circuit and polarity reve ic, start-of-scale value 0 C (77 °F)) r: Span ratio (r	lEC 61158-2 ersal. Each connection against the stainless steel seal display and set span)	
oad Without HART communication With HART communication Physical bus Protection against polarity reversal ACCURACY Reference conditions All error data refer always refer to the set pan) Perform in measurement and fixed-point setting including hysteresis and repeatability) Linear characteristic - r ≤ 10	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (H. Protected against shor supply voltage. To EN 60770-1 Increasing characterist room temperature 25 °C	3 A in Ω, MATIC PDM) or ART Communicator) t-circuit and polarity reve ic, start-of-scale value 0 C (77 °F)) r: Span ratio (r	lEC 61158-2 ersal. Each connection against the stainless steel seal display and set span)	
without HART communication With HART communication Physical bus Protection against polarity reversal Accuracy Reference conditions All error data refer always refer to the set pan) Firor in measurement and fixed-point setting including hysteresis and repeatability) Linear characteristic	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H} : \text{Power supply in V}$ $R_{\rm B} = 230 \dots 500 \ \Omega \text{ (SIN }$ $R_{\rm B} = 230 \dots 1100 \ \Omega \text{ (H. }$ - Protected against shor supply voltage. To EN 60770-1 Increasing characterist room temperature 25 °0	3 A in Ω, MATIC PDM) or ART Communicator) t-circuit and polarity reve ic, start-of-scale value 0 C (77 °F)) r: Span ratio (r	lEC 61158-2 ersal. Each connection against the stainless steel seal display and set span)	
oad Without HART communication With HART communication Physical bus Protection against polarity reversal Execuracy Reference conditions All error data refer always refer to the set pan) Performing the measurement and fixed-point setting including hysteresis and repeatability) Linear characteristic - r ≤ 10 - 10 < r ≤ 30 - 30 < r ≤ 100	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (H.) Protected against shor supply voltage. To EN 60770-1 Increasing characterist room temperature 25 °0 $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$	3 A in Ω, MATIC PDM) or ART Communicator) t-circuit and polarity reve ic, start-of-scale value 0 C (77 °F)) r: Span ratio (r	lEC 61158-2 ersal. Each connection against the stainless steel seal display and set span)	
without HART communication With HART communication Physical bus Protection against polarity reversal Accuracy Reference conditions All error data refer always refer to the set span) Error in measurement and fixed-point setting including hysteresis and repeatability) Linear characteristic - r ≤ 10 - 10 < r ≤ 30	to 22.0 mA $R_{\rm B} \leq (U_{\rm H} - 10.5 \text{ V})/0.02$ $U_{\rm H}$: Power supply in V $R_{\rm B} = 230 \dots 500 \Omega$ (SIM $R_{\rm B} = 230 \dots 1100 \Omega$ (H.) Protected against shor supply voltage. To EN 60770-1 Increasing characterist room temperature 25 °0 $\leq (0.0029 \cdot r + 0.071) \%$ $\leq (0.0045 \cdot r + 0.071) \%$	3 A in Ω, MATIC PDM) or ART Communicator) t-circuit and polarity reve ic, start-of-scale value 0 C (77 °F)) r: Span ratio (r	lEC 61158-2 ersal. Each connection aga bar, stainless steel seal di = max. span / set span) ≤ 0,075 %	

DS III series for differential pressure and flow

	HART	PROFIBUS PA or FOUNDATION Fieldbus
• Square-root characteristic (flow 25 50%)	TIANT .	≤ 0,2 %
- r ≤ 10	≤ 0,2 %	≥ 0,∠ /0
- 10 < r ≤ 30	≤ 0,4 %	
Long-term drift (temperature change ± 30 °C	≤ (0.25 · r) % every 5 years	≤ (0.25 % every 5 years
(± 54 °F))	static pressure max. 70 bar g (1015 psi g)	static pressure max. 70 bar g (1015 psi g)
20 mbar (0.29 psi)-measuring cell	≤ (0.2 · r) per year	≤ 0.2 per year
nfluence of ambient temperature		1
• at -10 +60 °C (14 140 °F)	\leq (0.08 · r + 0.1) %	≤ 0,3 %
• at -4010 °C and +60 +85 °C (-40 +14 °F and 140 185 °F)	≤ (0.1 · r + 0.15) %/10 K (Twice the value with 20-mbar (0.29 psi) measuring cell)	≤ 0.25 %/10 K
nfluence of static pressure		
on the zero point	≤ (0.15 · r) % per 100 bar (1450 psi)	≤ 0.15 % je 100 bar (1450 psi)
- 20 mbar (0.29 psi)-measuring cell	≤ (0.15 · r) % per 32 bar (464 psi)	≤ 0.15 % je 32 bar (464 psi)
on the span	≤ 0.2 % je 100 bar (1450 psi)	-
- 20 mbar (0.29 psi)-measuring cell	≤ 0.2 % je 32 bar (464 psi)	-
Measured Value Resolution	-	3 · 10 ⁻⁵ of nominal measuring range
Rated operating conditions		·
Degree of protection (to EN 60529)	IP65	
Process temperature		
• Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)	
• Measuring cell with inert filling liquid	-20 +100 °C (-4 +212 °F)	
In conjunction with dust explosion protection	-20 +60 °C (-4 +140 °F)	
Ambient conditions		
Ambient temperature		
- Digital indicators	-30 +85 °C (-22 +185 °F)	
Storage temperature	-50 +85 °C (-58 +185 °F)	
Climatic class		
- Condensation	Permissible	
• Electromagnetic compatibility		
- Emitted interference and interference immunity	To EN 61326 and NAMUR NE 21	
Material of the mounting bracket		
• Steel	Sheet steel, Mat. No. 1.0330, chrome-plated	
Stainless steel	Stainless steel, Mat. No. 1.4301 (SS304)	
Design		
Weight (without options)	≈ 4.5 kg (≈ 9.9 lb)	
Housing material	Poor in copper die-cast aluminium, GD-AlSi1:	2 or stainless steel precision casting, mat. No. 1.440
Wetted parts materials		_
• Seal diaphragm	Stainless steel, mat. No. 1.4404/316L or Hast tantalum or gold	telloy C276, mat. No. 2.4819, Monel, mat. No. 2.4360
Measuring cell filling	Silicone oil or inert filling liquid (max. 160 bar	(2320 psi g) with oxygen measurement)
Process connection	Female thread 1/4-18 NPT and flange connect $^{7}/_{16}$ -20 UNF to EN 61518	tion with mounting thread M10 to DIN 19213 or
Power supply $ extcolor{black}{m{U}_{\!\! extrm{H}}}$		Supplied through bus
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-
Separate 24 V power supply necessary	-	No
Bus voltage		1
• Not Ex	-	932 V

DS III series for differential pressure and flow

SITRANS P, DS III series, for differential pro	HART	PROFIBUS PA or FOUNDATION Fieldbus
Power supply U_{\vdash}	HALL	THO I DOG FA OF FOUNDATION FIELDIUS
Current consumption		12.5 mA
Basic current (max.)	-	
• Startup current ≤ basic current	-	Yes
Max. current in event of fault South disconnection alextración (EDE) available.	-	15.5 mA
Fault disconnection electronics (FDE) avail.	-	Yes
Certificate and approvals		
Classification according to pressure equipment directive (DRGL 97/23/EC)		
PN 32/160 (MWP 464/2320 psi)	For gases of fluid group 1 and liquids of fluid gro graph 3 (sound engineering practice)	up 1; complies with requirements of Article 3, para
PN 420 (MWP 6092 psi)		up 1; complies with basic safety requirements of category III, conformity evaluation module H by the
Explosion protection		
Intrinsic safety "i"	PTB 99 ATEX 2122	
- Identification	Ex II 1/2 G EEx ia/ib IIB/IIC T6	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class -40 +70 °C (-40 +158 °F) temperature class -40 +60 °C (-40 +140 °F) temperature class	T5;
- Connection	To certified intrinsically-safe circuits with maximum values: $U_{\rm i} = 30 \text{ V}, \ I_{\rm i} = 100 \text{ mA}, \ P_{\rm i} = 750 \text{ mW}; \ R_{\rm i} = 300 \ \Omega$	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	$L_{\rm i} = 0.4 \rm mH, C_{\rm i} = 6 \rm nF$	$L_{i} = 7 \mu\text{H}, C_{i} = 1.1 \text{nF}$
• Explosion-proof "d"	PTB 99 ATEX 1160	[2] , [2] , [3]
- Identification	Ex II 1/2 G EEx d IIC T4/T6	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class -40 +60 °C (-40 +140 °F) temperature class	T4; T6
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{H} = 9 \dots 32 \text{ V DC}$
Dust explosion protection for zone 20	PTB 01 ATEX 2055	
- Identification	Ex II 1 D IP65 T 120 °C Ex II 1/2 D IP65 T 120 °C	
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)	
- Max.surface temperature	120 °C (248 °F)	
- Connection	To certified intrinsically-safe circuits with maximum values: $U_{\rm i}=30$ V, $I_{\rm i}=100$ mA, $P_{\rm i}=750$ mW, $P_{\rm i}=300$ Ω	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_{\rm i} = 7 \mu \text{H}, C_{\rm i} = 1.1 \text{nF}$
 Dust explosion protection for zone 21/22 	PTB 01 ATEX 2055	
- Identification	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: $U_{H} = 9 \dots 32 \text{ V DC}$; $P_{\text{max}} = 1.2 \text{ W}$
Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	Planned
- Identification	Ex II 3 G EEx nA L IIC T4/T5/T6	-
Explosion protection to FM	Certificate of Compliance 3008490	
- Identification (XP/DIP) or (IS); (NI)	CL I, DIV 1, GP ABCD T4T6; CL II, DIV 1, GP E DIV 2, GP ABCD T4T6; CL II, DIV 2, GP FG; CL	
Explosion protection to CSA	Certificate of Compliance 1153651	
- Identification (XP/DIP) or (IS)	·	FG; CL III; Ex ia IIC T4T6; CL I, DIV 2, GP ABCD

DS III series for differential pressure and flow

HART communication	
HART communication	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measuring value) or 10 (two measuring values)
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
Analog input	
 Adaptation to customer- specific process variables 	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃ , adjustable 	0 100 s
- Simulation function	Input /Output
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
 Physical block 	1
Transducer blocks	2
Pressure transducer block	
 Can be calibrated by applying two pressures 	Yes
- Monitoring of sensor limits	Yes
 Specification of a container characteristic with 	Max. 30 nodes
 Square-rooted characteristic for flow measurement 	Yes
 Gradual volume suppression and implementation point of square-root extraction 	Parameterizable
- Simulation function for mea- sured pressure value and sen- sor temperature	Constant value or over parameterizable ramp function

Communication FOUNDATION Fieldbus					
Function blocks	3 function blocks analog input, 1 function block PID				
 Analog input 					
 Adaptation to customer- specific process variables 	Yes, linearly rising or falling characteristic				
 Electrical damping T₆₃, adjustable 	0 100 s				
- Simulation function	Output/input (can be locked within the device with a bridge)				
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)				
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively				
 Square-rooted characteristic for flow measurement 	Yes				
• PID	Standard FF function block				
 Physical block 	1 Resource block				
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD				
Pressure transducer block					
 Can be calibrated by applying two pressures 	Yes				
- Monitoring of sensor limits	Yes				
- Simulation function: Measured pressure value, sensor temperature and electronics temperature	Constant value or over parameterizable ramp function				

SITRANS P measuring instruments for pressure

Transmitters for gauge, absolute and differential pressure, flow and level

DS III series for differential pressure and flow

Selection and Ordering			<u> </u>
	•		Order No.
tial pressure and flow, PN 32/160 (MWP 464/2			7 M F 4 4 3 3 -
Measuring cell filling	Measuring cell cleaning		
Silicone oil Inert liquid ¹⁾	Standard Grease-free	•	1 3
Span			
PN 32 (MWP 464 psi) 1 20 mbar ²⁾	(0.4015 8.03 inH ₂ O)	•	В
PN 160 (MWP 2320 psi)	` /		
1 60 mbar	(0.4015 24.09 inH ₂ O)	▶	С
2.5 250 mbar	(1.004 100.4 inH ₂ O)	▶	D
6 600 mbar	(2.409 240.9 inH ₂ O)	▶	E
16 1600 mbar	(6.424 642.4 inH ₂ O)	•	F
50 5000 mbar	(20.08 2008 inH ₂ O)	•	G
0.3 30 bar	(4.35 435 psi)	•	Н
Wetted parts materials (stainless steel process	flanges)		
Seal diaphragm	Parts of measuring cell	_	
Stainless steel	Stainless steel	▶	Α
Hastelloy	Stainless steel		В
Hastelloy	Hastelloy		С
Tantalum ³⁾	Tantalum		E
Monel ³⁾	Monel		Н
Gold ³⁾	Gold		L
Version for diaphragm s	seal ^{4) 5)}		Y
 Sealing screw opposit Mounting thread ⁷/₁₆ Mounting thread M1 (only for replacemer Vent on side of proces Mounting thread ⁷/₁₆ Mounting thread M1 (only for replacemer 	g-20 UNF to EN 61518 0 to DIN 19213 1t needs) ss flange ²⁾ g-20 UNF to EN 61518 0 to DIN 19213	•	2 0 6 4
	nt needs)		
Non-wetted parts mate	erials		
Non-wetted parts mate Process flange screws Stainless steel	erials	>	2 3
Non-wetted parts mate Process flange screws Stainless steel Stainless steel	erials Electronics housing Die-cast aluminium Stainless steel precision	>	2 3
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version	erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶⁾		2 3
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶⁾ English label inscriptions,		2 3
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Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version • Standard version • International version, I documentation in 5 lar Explosion protection • Without • With ATEX, Type of procession of the proce	Erials Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Detection: i a)" ix d)" ⁷) explosion-proof		2 3 1 2 A B D P
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Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version • Standard version • International version, I documentation in 5 lar Explosion protection • Without • With ATEX, Type of pro "Intrinsic safety (EEx - "Explosion-proof (EEx - "Intrinsic safety and enclosure (EEx ia + - "Ex nA/nL (zone 2)" - "Intrinsic safety, expl	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Detection: Ela)" Ex d)" ⁷) explosion-proof EEx d)" ⁸)		2 3 1 2 A B D P
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version • Standard version • International version, I documentation in 5 lat Explosion protection • Without • With ATEX, Type of pro "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and enclosure (EEx ia + - "Ex nA/nL (zone 2)" - "Intrinsic safety, expland dust explosion parts of the p	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Dietection: Exia)" Exx d)" ⁷) explosion-proof EEx d)" ⁸) Iosion-proof enclosure protection	>	2 3 1 2 A B D P
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version • Standard version • International version, I documentation in 5 lar Explosion protection • With ATEX, Type of pro "Intrinsic safety (EEx - "Intrinsic safety and enclosure (EEx ia + - "Ex nA/nL (zone 2)" - "Intrinsic safety, expl and dust explosion profex ia + EEx d + Zone decrease."	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, inguages on CD Dietection: Ela)" Ext d)"7) explosion-proof EEx d)"8) dosion-proof enclosure protection one 1D/2D)"8)	>	2 3 1 2 A B D P
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, I documentation in 5 lar Explosion protection Without With ATEX, Type of pro- "Intrinsic safety (EEx- "Explosion-proof (EE- "Intrinsic safety and enclosure (EEx ia + "Ex nA/nL (zone 2)" "Intrinsic safety, expland dust explosion (EEx ia + EEx d + Zo With FM + CSA, Type	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Diection: (a)" explosion-proof EEx d)" ⁸) Iosion-proof enclosure protection one 1D/2D)" ⁸) of protection:	>	2 3 1 2 A B D P E R
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version • Standard version • International version, I documentation in 5 lar Explosion protection • Without • With ATEX, Type of pro "Intrinsic safety (EEx "Explosion-proof (EE "Intrinsic safety and enclosure (EEx ia + - "Ex nA/nL (zone 2)" - "Intrinsic safety, expland dust explosion procession in the control of the control	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Diection: (a)" explosion-proof EEx d)" ⁸) Iosion-proof enclosure protection one 1D/2D)" ⁸) of protection:	>	2 3 1 2 A B D P
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version • Standard version • International version, I documentation in 5 lar Explosion protection • Without • With ATEX, Type of pro "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and enclosure (EEx ia + - "Ex nA/nL (zone 2)" - "Intrinsic safety, expland dust explosion (EEx ia + EEx d + Zo • With FM + CSA, Type - "Intrinsic safety and (is + xp)" - "Intrinsic safety and (is + xp)"	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Diection: (a)" explosion-proof EEx d)" ⁸) Iosion-proof enclosure protection one 1D/2D)" ⁸) of protection: explosion-proof explosion-proof	>	2 3 1 2 A B D P E R
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, I documentation in 5 lar Explosion protection Without With ATEX, Type of pro- "Intrinsic safety (EEx- "Explosion-proof (EE- "Intrinsic safety and enclosure (EEx ia + "Ex nA/nL (zone 2)" "Intrinsic safety, exploand dust explosion (EEx ia + EEx d + Zoone)" With FM + CSA, Type "Intrinsic safety and (is + xp)" Electrical connection	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision Casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precisions Casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precisions Casting ⁶) Die-cast aluminium Stainless steel precision Casting ⁶) Die-cast aluminium Stainless steel precision Casting ⁶) Die-cast aluminium Stainless steel precision Casting ⁶)	>	2 3 1 2 A B D P E R
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, I documentation in 5 lar Explosion protection Without With ATEX, Type of pro- "Intrinsic safety (EEx- "Explosion-proof (EE- "Intrinsic safety and enclosure (EEx ia + - "Ex nA/nL (zone 2)" "Intrinsic safety, expland dust explosion (EEx ia + EEx d + Zo With FM + CSA, Type - "Intrinsic safety and (is + xp)" Electrical connection / Screwed gland Pg 13	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium English label inscriptions, nguages on CD	>	2 3 1 2 A B D P E R
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version Standard version International version, I documentation in 5 lar Explosion protection Without With ATEX, Type of pro- "Intrinsic safety (EEx - "Explosion-proof (EE - "Intrinsic safety and enclosure (EEx ia + - "Ex nA/nL (zone 2)" - "Intrinsic safety, expland dust explosion (EEx ia + EEx d + Zo With FM + CSA, Type - "Intrinsic safety and (is + xp)" Electrical connection of Screwed gland Pg 13 Screwed gland M20x	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision Casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision Casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision Casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision Casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision Casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision Casting ⁶)	>	2 3 1 2 A B D P E R
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version • Standard version • International version, I documentation in 5 lar Explosion protection • Without • With ATEX, Type of procession protection • Without • With ATEX, Type of procession protection • Without • With ATEX, Type of procession protection • "Intrinsic safety (EEx in the procession protection protectio	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD Die-cast aluminium English	>	2 3 1 2 A B D P E R
Non-wetted parts mate Process flange screws Stainless steel Stainless steel Version • Standard version, • International version, • documentation in 5 lar Explosion protection • Without • With ATEX, Type of pro "Intrinsic safety (EEx "Explosion-proof (EE "Intrinsic safety and enclosure (EEx ia + - "Ex nA/nL (zone 2)" - "Intrinsic safety, expland dust explosion procession in the safety in the safet	Electronics housing Die-cast aluminium Stainless steel precision casting ⁶) English label inscriptions, nguages on CD otection: (ia)" (ix d)" ⁷) explosion-proof EEx d)" ⁸) dosion-proof enclosure protection one 1D/2D)" ⁸) of protection: explosion-proof (cable entry .5 ⁹) 1.5 NPT nousing) incl. mating	>	2 3 1 2 A B D P E R

Selection and Ordering data	Order No.
SITRANS P pressure transmitters for differential pressure and flow, Series DS III HART PN 32/160 (MWP 464/2320 psi)	7 M F 4 4 3 3 -
Display	
Without indicator	0
 Without visible digital indicator (digital indicator hidden, setting: mA) 	1
With visible digital indication	6
 With customer-specific digital indicator (setting as specified, Order code "Y21" or "Y22" required) 	7

Available ex stock

Power supply units see "SITRANS I power supply units and isolation amplifiers".

Factory-mounting of shut-off valves and valve manifolds see page 2/147

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- Not suitable for connection of remote seal. Position of the top vent valve in the process flanges (see dimensional drawing).
- $^{3)}$ Not together with max. span 20 and 60 mbar (8.03 and 24.09 in $\rm H_2O)$
- When the manufacture's certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 5) Whe the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
- 6) Not together with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 7) Without cable gland, with blanking plug
- 8) With enclosed cable gland EEx ia and blanking plug
- 9) Not together with type of protection "Explosion-proof" and and type of protection "Ex nA".
- 10) M12 delivered without cable socket.

DS III series for differential pressure and flow

Selection and Ordering		Orde	er N	0.
SITRANS P pressure t for differential pressur PN 32/160 (MWP 464/2	e and flow			
DS III PA series (PROF		7 M F	4 4	34-
DS III FF series (FOUN	,			35-
out in the series (1 out	DATION Fieldbus)			-
Measuring cell filling	Measuring cell		Н	
mododinig con immig	cleaning			
Silicone oil	Standard	1		
Inert liquid ¹⁾	Grease-free	3		
Nominal measuring ra	nge			
PN 32 (MWP 464 psi) 20 mbar ²⁾	(0.02 in U.O)	В		
	(8.03 inH ₂ O)	В		
PN 160 (MWP 2320 psi) 60 mbar		_		
250 mbar	(24.09 inH ₂ O) (100.4 inH ₂ O)	C		
600 mbar	(240.9 inH ₂ O)	E		
1600 mbar	(642.4 inH ₂ O)	F		
5 bar	(2008 inH ₂ O)	G		
30 bar	(435 psi)	Н		
Wetted parts materials	.			
(stainless steel process				
Seal diaphragm	Parts of measuring cell			
Stainless steel	Stainless steel	4	١	
Hastelloy	Stainless steel	E	3	
Hastelloy	Hastelloy	C	;	
Tantalum ³⁾	Tantalum	E		
Monel ³⁾	Monel	H		
Gold ³⁾ Version as diaphragm s	Gold	L		
	eai / */	_ '		
Process connection	T with flange connection			
 Sealing screw opposit 	•			
- Mounting thread ⁷ / ₁₆			_	
 Mounting thread M1 			0	
(only for replacemen			U	
 Venting on side of pro 				
- Mounting thread ⁷ / ₁₆			6	
- Mounting thread M1			4	
(only for replacemen				
Non-wetted parts mate	erials			
Process flange screws	Electronics housing	_		
Stainless steel	Die-cast aluminium		2	
Stainless steel	Stainless steel precision		3	
Varaian	casting	-		
Version • Standard version				1
	English label inscriptions,			2
documentation in 5 la				
Explosion protection				
• Without				Α
 With ATEX, Type of pro- "Intringia agents" (FEX) 				В
- "Intrinsic safety (EEx	,			В
- "Explosion-proof (EE				D
- "Intrinsic safety and				Р
enclosure (EEx ia +				E
- "n (Zone 2)" (planned				R
 "Intrinsic safety, expl and dust explosion; 	osion-proof effclosure protection (EEx ia +			ĸ
EEx d + Zone 1D/2D	protection (EEx ia +))" ⁷⁾ (not for DS III FF)			
 With FM + CSA, Type 	or protootion.			
 With FM + CSA, Type "Intrinsic safety and 	•			NC

Selection and Ordering data	Order No.
SITRANS P pressure transmitters for differential pressure and flow PN 32/160 (MWP 464/2320 psi)	
DS III PA series (PROFIBUS PA)	7 M F 4 4 3 4 -
DS III FF series (FOUNDATION Fieldbus)	7 M F 4 4 3 5 -
Electrical connection / cable entry	
 Screwed gland M20x1.5 	В
 Screwed gland ½-14 NPT 	С
 M12 connectors (metal)⁸⁾ 	F
Display	-
Without indicator	0
 Without visible digital indicator (digital indicator hidden, setting: mA) 	1
 With visible digital indication 	6
 With customer-specific digital indication (setting as specified, Order code "Y21" or required) 	7

Factory-mounting of shut-off valves and valve manifolds see page

Included in delivery of the device:

- Brief instructions (Leporello)
- CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) For oxygen application, add Order code E10.
- Not suitable for connection of remote seal. Position of the top vent valve in the process flanges (see dimensional drawing).
- $^{3)}$ Not together with max. span 20 and 60 mbar (8.03 and 24.09 in $\rm H_2O)$
- 4) When the manufacture's certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.
- 5) Whe the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.
- 6) Without cable gland, with blanking plug.
- 7) With enclosed cable gland EEx ia and blanking plug.
- 8) M12 delivered without cable socket.

for differential pressure and flow

for differential pressure and flow				
Selection and Ordering data	Order code			
Further designs Add "-Z" to Order No. and specify Order code.		HART	PA	FF
Pressure transmitter with mounting				
bracket made of:	404		,	
SteelStainless steel	A01 A02	1	1	✓
O-rings for process flanges				
(instead of FPM (Viton))	400		,	
PTFE (Teflon)FEP (with silicone core, approved for food)	A20 A21	✓	1	*
 FFPM (Kalrez, compound 4079) 	A22	1	1	V
• NBR (Buna N)	A23	~	V	•
Plug • Han 7D (metal, gray)	A30	✓		
Han 8U (instead of Han 7D)	A31 A40	✓		
Sealing screws 1/4-18 NPT, with vent valve in mat. of process	A40	1	✓	~
flanges				
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription (instead of German) • English	B11	1	1	1
• French	B12	✓	✓	1
Spanish Italian	B13 B14	✓	1	1
English rating plate (calibration certificate)		1	· /	1
Pressure units in inH ₂ O or psi				
Quality inspection certificate (Factory calibration) to IEC 60770-2 1)	C11	✓	✓	✓
Acceptance test certificate ²⁾ To EN 10 204-3.1	C12	✓	✓	✓
Factory certificate To EN 10 204-2.2	C14	✓	✓	1
"Functional Safety (SIL)" certificate	C20	✓		
"PROFIsafe" certificate and protocol	C21		✓	
Setting of upper limit of output signal to 22.0 mA	D05	1		
Manufacturer's declaration acc. to NACE (only together with seal diaphragm made of Hastelloy and stainless steel)	D07	✓	✓	✓
Type of protection IP68 (only for M20x1.5 and ½-14 NPT)	D12	✓	✓	✓
Digital indicator alongside the input keys (only together with the devices 7MF44332A.6 orA.7-Z, Y21 or Y22 + Y01)	D27	*	✓	✓
Process flange screws made of Monel (max. nominal pressure PN20)	D34	✓	✓	✓
Supplied with oval flange set (2 items), PTFE packings and stainles steel screws in thread of process flanges	D37	*	✓	*
Use in or on zone 1D/2D (only together with type of protection "Intrinsic safety (EEx ia)")	E01	✓	✓	✓
Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)")	E02	✓	✓	✓
TÜV approval to AD/TRD (only together with type of protection "Intrinsic safety (EEx ia)")	E06	1		
Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)", to WHG and VbF, not together with measuring cell filling "inert liquid")	E08	~	✓	✓

Selection and Ordering data	Order	code		
Further designs Add "-Z" to Order No. and specify Order code.		HART	PA	FF
Oxygen application (max. 120 bar (1740 psi) at 60°C (140 °F) with oxygen measurement and inert liquid)	E10	4	✓	✓
Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B)	E25	*	1	✓
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B)	E55	*	✓	✓
Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D)	E56	✓	✓	✓
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	✓	✓	✓
Interchanging of process connection side	H01	✓	✓	✓
Vent on side for gas measurements	H02	✓	✓	✓
Stainless steel process flanges for vertical differential pressure lines (not together with K01, K02 and K04) ³⁾	H03	✓	✓	✓
Process flange • Hastelloy • Monel • Stainless steel with PVDF insert max. PN 10 (MWP 145 psi), max. temperature of medium 90 °C (194 °F)	K01 K02 K04	* * *		* * *
For ½-14 NPT inner process connection on the side in the middle of the process flange, vent valve not possible				

¹⁾ When the manufacture's certificate M (calibration certificate) has to be ordered for transmitters with diaphragm seals, it is recommended only to order this certificate exclusively with the diaphragm seals. The measuring accuracy of the total combination is certified here.

2) When the acceptance test certificate 3.1 for transmitters with direct-connected diaphragm seals is ordered, this certificate must also be ordered with the corresponding seals.

with the corresponding seals.

³⁾ Not suitable for connection of remote seal

for differential pressure and flow

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Add "-Z" to Order No. and specify Order code.				
Measuring range to be set Specify in plain text:				
 With linear characteristic (max. 5 digits): Y01: up to mbar, bar, kPa, MPa, psi 	Y01	√		
 With square-rooted characteristic (max. 5 digits): Y02: up to mbar, bar, kPa, MPa, psi 	Y02	•		
Measuring point number (TAG No.) Max. 16 char., specify in plain text: Y15:	Y15	✓	✓	✓
Measuring point text 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: mA): Y21: mbar, bar, kPa, MPa, psi,	Y21	✓	✓	✓
Note: The following pressure units can be selected: bar, mbar, mm H ₂ O*), inH ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM oder % *) ref. temperature 20 °C				
Setting of pressure indicator in	Y22 ²⁾	✓		
non-pressure units ¹⁾ Specify in plain text: Y22: up to I/min, m ³ /h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters)	† Y01 or Y02			
Preset bus address (possible between 1 and 126) Specify in plain text: Y25:	Y25		✓	

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

^{✓ =} available

Preset values can only be modified over SIMATIC PDM.
 Not together with over-filling safety device for flammable and non-flammable liquids (Order code "E08")

for differential pressure and flow

Salaction and Orderin	n data	Order No.
Selection and Orderin	g data ransmitters for differen-	7 M F 4 5 3 3 -
tial pressure and flow PN 420 (MWP 6092 ps	Series DS III HART	7 M F 4 5 5 5 -
Measuring cell filling	Measuring cell cleaning	
Silicone oil	Standard	1
Span		
2.5 250 mbar	(1.004 100.4 inH ₂ O)	D
6 600 mbar	(2.409 240.9 inH ₂ O)	E
16 1600 mbar	(6.424 642.4 inH ₂ O)	F
50 5000 mbar	(20.08 2008 inH ₂ O)	G
0.3 30 bar	(4.35 435 psi)	_ Н
Wetted parts materials		
(stainless steel process	o ,	
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy Gold ¹⁾	Stainless steel	В
	Gold	
Process connection	OT with floor and	
	T with flange connection	
Sealing screw opposit		
	6-20 UNF to EN 61518	3
 Mounting thread M1 (only for replacement 		1
	cess flanges. Position of	
the top vent valve in t	he process flanges (see	
dimensional drawing)		
	₆ -20 UNF to EN 61518	7
 Mounting thread M1 (only for replacement 		5
Non-wetted parts mate Process flange screws		
Stainless steel Stainless steel	Die-cast aluminium Stainless steel precision casting ²⁾	2 3
Version		
Standard version		1
	English label inscriptions,	2
documentation in 5 la	nguages on CD	
Explosion protection		
• Without		Α
With ATEX, Type of pr		
- "Intrinsic safety (EE)		В
- "Explosion-proof (EE		D
- "Intrinsic safety and	explosion-proof	Р
enclosure (EEx ia +	EEX d)" 17	Е
- "Ex nA/nL (zone 2)" "Intrinsic safety exp	locion proof analogura	E R
and dust explosion	losion-proof enclosure protection (EEx ia +	n
EEx d + Zone 1D/20	0)" ⁴⁾	
 With FM + CSA, Type 	of protection:	
 "Intrinsic safety and (is + xp)"³⁾, max PN 		NC
Electrical connection	/ cable entry	
Screwed gland Pg 13	.5 ⁵⁾	A
• Screwed gland M20x		В
• Screwed gland ½-14		С
Han 7D plug (plastic	housing) incl. mating	D
connector ⁵⁾	-1)6)	_
 M12 connectors (met 	ai)-′	F

Selection and Ordering data	Order No.
SITRANS P pressure transmitters for differential pressure and flow, Series DS III HART PN 420 (MWP 6092 psi)	7 M F 4 5 3 3 -
Display	
Without indicator	0
 Without visible digital indicator (digital indicator hidden, setting: mA) 	1
With visible digital indication	6
 With customer-specific digital indicator (setting as specified, Order code "Y21" or "Y22" required) 	7

Power supply units see "SITRANS I power supply units and isolation

Factory-mounting of shut-off valves and valve manifolds see page

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

- $^{1)}$ Not together with max. span 600 mbar (240.9 inH $_2$ O)
- 2) Not together with Electrical connection "Screwed gland Pg 13.5" and "Han7D plug".
- 3) Without cable gland, with blanking plug
- 4) With enclosed cable gland EEx ia and blanking plug
- $^{5)}\,$ Not together with type of protection "Explosion-proof" and and type of protection "Ex nA".
- 6) Cannot be used together with the following types of protection: "Explosion-proof" and "Intrinsic safety and explosion-proof".

DS III series for differential pressure and flow

Selection and Ord	lering data	Order No.
	ure transmitters for differen- flow, Series DS III HART 2 psi)	
DS III PA (PROFIB	US PA) series	7MF4534-
DS III FF series (F	OUNDATION Fieldbus)	7MF4535-
		1-1-1-1
Nominal measurir	ng range	
250 mbar	(100.4 inH ₂ O)	D
600 mbar	(240.9 inH ₂ O)	E
1600 mbar	(642.4 inH ₂ O)	F
5 bar 30 bar	(2008 inH ₂ O) (435 psi)	G H
Wetted parts mate	, , ,	- "
(stainless steel pro		
Seal diaphragm	Parts of measuring cell	
Stainless steel	Stainless steel	A
Hastelloy	Stainless steel	В
Gold ¹⁾	Gold	L
Process connection		
	8 NPT with flange connection	
Sealing screw op Mounting throat	posite process connection d ⁷ / ₁₆ -20 UNF to EN 61518	3
	d M12 to DIN 19213	1
(only for replace	ement needs)	
Venting on side of the tag was to a side of tag was to a s	f process flanges. Position of	
dimensional draw	e in the process flanges (see	
	d ⁷ / ₁₆ -20 UNF to EN 61518	7
- Mounting thread	d M12 to DIN 19213	5
(only for replace	·	
Non-wetted parts Process flange screen	materials ews Electronics housing	
Stainless steel	Die-cast aluminium	2
Stainless steel	Stainless steel precision casting	3
Version		
Standard version		1
	ion, English label inscriptions, 5 languages on CD	2
Explosion protect		-
 Without 		Α
 With ATEX, Type 		
- "Intrinsic safety		В
- "Explosion-proo	and explosion-proof	D P
enclosure (EEx	ia + EEx d)" ³⁾	
- "Ex nA/nL (zone		E
- "Intrinsic safety,	explosion-proof enclosure	R
EEx d + Zone 1	sion protection (EEx ia + D/2D)" ³⁾ (not for DS III FF)	
• With FM + CSA, 7		
- "Intrinsic safety (is + xp)" ²⁾ , max	and explosion-proof PN 360	N C
Electrical connect	tion / cable entry	
- O	120×1 5	R
 Screwed gland N 		В
 Screwed gland iv Screwed gland iv Plug M12 incl. ma 	2-14 NPT	C F

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

Factory-mounting of shut-off valves and valve manifolds see page

- Included in delivery of the device:

 Brief instructions (Leporello)

 CD-ROM with detailed documentation
- Sealing plug(s) or sealing screw(s) for the process flanges(s)
- 1) Not together with max. span 600 mbar (240.9 inH₂O)
- 2) Without cable gland, with blanking plug.
- 3) With enclosed cable gland EEx ia and blanking plug.
- 4) Not together with types of protection "Explosion-proof" and "Intrinsic safety and explosion-proof"

for differential pressure and flow

Selection and Ordering data	Order			1
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order code.				
Pressure transmitter with mounting				
bracket made of: • Steel	A01	1	1	1
• Stainless steel	A02	1	1	1
O-rings for process flanges				
(instead of FPM (Viton))				_
PTFE (Teflon)FEP (with silicone core, approved for food)	A20 A21	*	√	1
• FFPM (Kalrez, compound 4079)	A22	✓	1	4 4 4
• NBR (Buna N)	A23	✓	✓	1
Plug				
Han 7D (metal, gray) Han 7D (instant of the 7D)	A30 A31	1		
Han 8U (instead of Han 7D) Seeling agreement		*		,
Sealing screws 1/4-18 NPT, with vent valve in material of pro-	A40	•	•	V
cess flanges				
Cable sockets for M12 connectors (metal)	A50	✓	✓	✓
Rating plate inscription				
(instead of German) • English	B11	1	1	1
• French	B12	✓	V	✓
• Spanish	B13	✓	✓	1
• Italian	B14	✓	✓	✓
English rating plate	B21	✓	✓	1
Pressure units in inH ₂ O or psi				
Quality inspection certificate (Factory cali- bration) to IEC 60770-2	C11	1	√	~
Acceptance test certificate	C12	✓	✓	1
To EN 10204-3.1				
Factory certificate To EN 10204-2.2	C14	✓	✓	1
"Functional Safety (SIL)" certificate	C20	✓		
"PROFIsafe" certificate and protocol	C21		1	
Setting of upper limit of output signal to 22.0 mA	D05	✓		
Manufacturer's declaration acc. to NACE	D07	✓	1	1
(only together with seal diaphragm made of				
Type of protection IP68	D12	1	1	1
(only for M20x1.5 and ½-14 NPT)	D12			
(not together with Han 7D / Han 8U plug, Pg 13.5 screwed gland)				
Digital indicator alongside the input keys	D27	1	1	1
(only together with the devices 7MF4533-	JE1	·		
2A.6 orA.7-Z, Y21 or Y22 + Y01)	E01	./	./	
Use in or on zone 1D/2D (only together with type of protection	E01	•	•	٧
"Intrinsic safety (EEx ia)")				
Use on zone 0	E02	✓	✓	✓
(only together with type of protection "Intrinsic safety (EEx ia)")				
Explosion-proof "Intrinsic safety" to	E25	1	1	1
INMETRO (Brazil)				
(only for transmitter 7MF4B)	CEF			.,
Explosion-proof "Intrinsic safety" to NEPSI (China)	E55	•	•	V
(only for transmitter 7MF4B)				

Selection and Ordering data	Order	code		
Further designs		HART	PA	FF
Add "-Z" to Order No. and specify Order code.				
Explosion protection "Explosion-proof" to NEPSI (China)	E56	✓	✓	1
(only for transmitter 7MF4D)				
Explosion-proof "Zone 2" to NEPSI (China) (only for transmitter 7MF4E)	E57	√	✓	✓
Interchanging of process connection side	H01	1	✓	1
Stainless steel process flanges for vertical differential pressure lines	H03	✓	✓	✓
Additional data				
Add "-Z" to Order No. and specify Order code.				
Measuring range to be set				
Specify in plain text: • With linear characteristic (max. 5 digits):	Y01	1		
Y01: up to mbar, bar, kPa, MPa, psi		·		
 With square-rooted characteristic (max. 5 digits): 	Y02	✓		
Y02: up to mbar, bar, kPa, MPa, psi				
Measuring point number (TAG No.) Max. 16 characters, specify in plain text: Y15:		*	✓	✓
Measuring point text	Y16	1	1	1
Max. 27 characters, specify in plain text: Y16:				
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	*		
Setting of pressure indication in pressure units	Y21	✓	✓	✓
Specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi,				
Note: The following pressure units can be selected:				
bar, mbar, mm H ₂ O ^{*)} , inH ₂ O ^{*)} , ftH ₂ O ^{*)} , mmHG, inHG, psi, Pa, kPa, MPa, g/cm ² , kg/cm ² , Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indication in	Y22 +	1		
non-pressure units ¹⁾ Specify in plain text:	Y01 or Y02			
y22: up to l/min, m³/h, m, USgpm, (specification of measuring range in pressure units "Y01" or "Y02" is essential, unit with max. 5 characters)				
Preset bus address	Y25		1	
(possible between 1 and 126) Specify in plain text: Y25:				

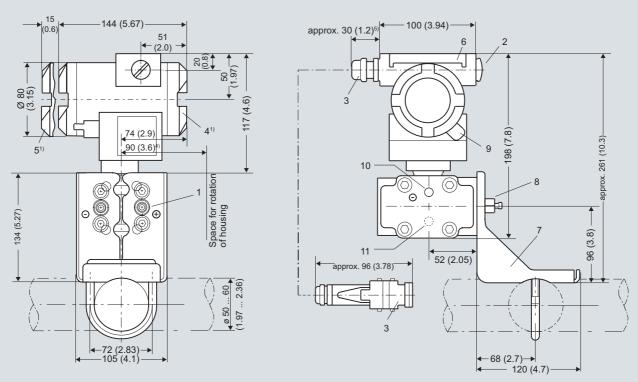
Only "Y01", "Y21", "Y22", "Y25" and "D05" can be factory preset

^{✓ =} available

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

DS III series for differential pressure and flow

Dimensional drawings



- Process connection: 1/4-18 NPT (EN 61518)
- Blanking plug
- Electrical connection:
 - screwed gland Pg 13,5 (adapter) 2)3),
 - screwed gland M20x1,5 3
 - screwed gland ½-14 NPT or
 - Han 7D/ Han 8U plug 2) 3)
- Terminal side
- Electronics side, digital display (longer overall length for cover with window)
- Protective cover over keys
- Mounting bracket (option)
- Sealing screw (optionally with vent valve)
- Screw cover safety bracket (only for type of protection "Explosion-proof enclosure", not shown in the drawing)
- 10 Lateral venting for liquid measurement (Standard)
- Lateral venting for gas measurement (suffix H02)

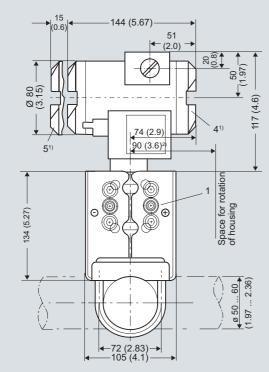
- 1) Allow approx. 20 mm (0.79 inch) thread length to permit
- Not with type of protection "explosion-proof enclosure"
- Not with type of protection "FM + CSA [is + xp]" 3)
- 92 mm (3.62 inch) for minimum distance to permit rotation with 4) indicator
- 45 mm (1.8 inch) for Pg 13,5 with adapter

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

approx. 30 (1.2)

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level

for differential pressure and flow



- Process connection: 1/4-18 NPT (EN 61518)
- Blanking plug
- Electrical connection:
 - screwed gland M20x1,5 4),
 - screwed gland 1/2-14 NPT or
 - PROFIBUS plug M12 3) 4)
- Electronic side, digital display (longer overall length for cover with window)
- Protective cover over keys
- Mounting bracket (option)
- Sealing screw (optionally with vent valve)
- Screw cover safety bracket (only for explosion-proof enclosure, not shown in the drawing)
- 10 Lateral venting for liquid measurement (Standard)
- 11 Lateral venting for gas measurement (suffix H02)

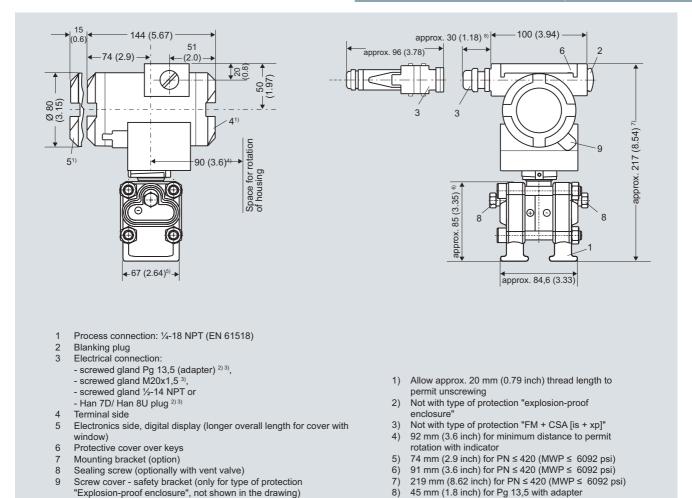
98 (7.8) Θ 96 (3.8) 52 (2.05) 68 (2.7) 120 (4.7)

100 (3.94)

- 1) Allow approx. 20 mm (0.79 inch) thread length in addition
- 92 mm (3.62 inch) for minimum distance to permit rotation indicator
- Not with type of protection "explosion-proof enclosure" Not with type of protection "FM + CSA" 3)

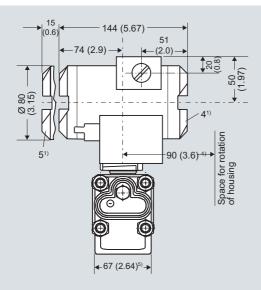
SITRANS P pressure transmitters, DS III PA and FF series for differential pressure and flow, dimensions in mm (inch)

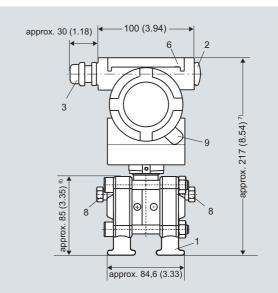
DS III series for differential pressure and flow



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

for differential pressure and flow





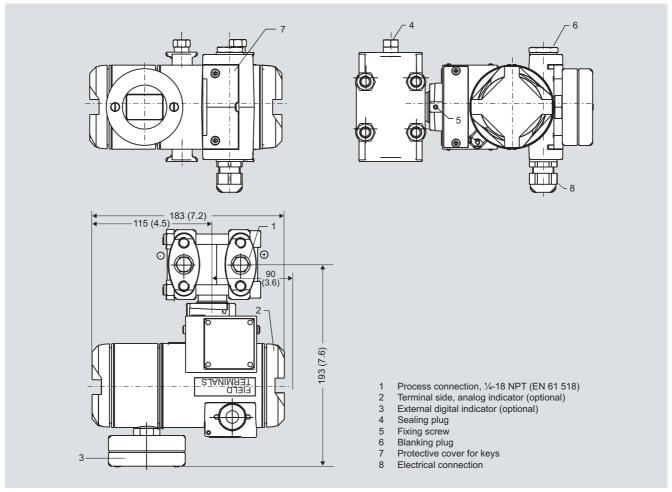
- Process connection 1/4-18 NPT (EN 61 518)
- Blanking plug
- Electrical connection:
 - screwed gland M20x1.5 3),
 - screwed gland 1/2-14 NPT or
 - PROFIBUS plug M12 2) 3) Terminal side
- Electronics side, digital display (longer overall length for cover with window)
- Protective cover over keys
- Mounting bracket (option)
- Sealing screw (optionally with vent valve)
- Screw cover safety bracket (only for explosion-proof enclosure, not shown in the drawing)
- Allow approx. 20 mm (0.79 inch) thread length to permit unscrewing
- Not with type of protection "explosion-proof enclosure"
- Not with type of protection "FM + CSA [is + xp]"
- 92 mm (3.6 inch) for minimum distance to permit rotation with indicator
- 74 mm (2.9 inch) for PN \leq 420 (MWP \leq 6092 psi)
- 91 mm (3.6 inch) for PN \leq 420 (MWP \leq 6092 psi)
- 219 mm (8.62 inch) for PN ≤ 420 (MWP ≤ 6092 psi)

SITRANS P pressure transmitters, DS III PA and FF series for differential pressure and flow, with process covers for vertical differential pressure lines, option "H03", dimensions in mm (inch)



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

DS III series for differential pressure and flow



SITRANS P pressure transmitters, DS III FF series for differential pressure and flow, with digital indicator beside control keys, for vertical differential pressure lines, option "D27", dimensions in mm (inch)



SITRANS P pressure transmitters, DS III series for differential pressure and flow, with digital indicator beside control keys

DS III series for level

Technical specifications

Technical specifications SITRANS P. DS III series for level					
C	HART		PROFIBUS PA or FOU	NDATION Fieldhus	
Input	IIANI		PROFIBOS PA OF TOO	INDATION Fieldbus	
Measured variable	Level				
Spans (infinitely adjustable) or nominal measuring range and	Span	Maximum working pressure	Nominal measuring range	Maximum working pressure	
max. permissible working pressure	25 250 mbar g (0.36 3.63 psi g)	See "Mounting flange"	250 mbar g (3.63 psi g)	See "Mounting flange"	
	25 600 mbar g (0.36 8.7 psi g)	See "Mounting flange"	600 mbar g (8.7 psi g)	See "Mounting flange"	
	53 1600 mbar g (0.77 23.2 psi g)	See "Mounting flange"	1600 mbar g (23.2 psi g)	See "Mounting flange"	
	160 5000 mbar g (2.32 72.5 psi g)	See "Mounting flange"	5000 mbar g (72.5 psi g)	See "Mounting flange"	
Lower measuring limit					
 Measuring cell with silicone oil filling 	-100% of max. span or	30 mbar (0.435 psi a), de	epending on mounting fla	ange	
Upper measuring limit	100% of max. span		100% of the max. nomi	nal measuring range	
Output					
Output signal	4 20 mA		Digital PROFIBUS PA o signal	r FOUNDATION Fieldbus	
 Lower limit (infinitely adjustable) 	3.55 mA, factory preset	to 3.84 mA	-		
Upper limit (infinitely adjustable)	23 mA, factory preset to set to 22.0 mA	20.5 mA or optionally	-		
Load			T		
Without HART communication	$R_{\rm B} \le (U_{\rm H}$ - 10.5 V)/0.023 A in Ω , $U_{\rm H}$: Power supply in V				
With HART communication	$R_{\rm B} = 230 \dots 500 \ \Omega \ ({\rm SIMATIC\ PDM}) \ {\rm or} \ R_{\rm B} = 230 \dots 1100 \ \Omega \ ({\rm HART\ Communicator})$				
Physical bus	-		IEC 61158-2		
Protection against polarity reversal	Protected against short-circuit and polarity reversal. Each connection against the other with masupply voltage.			ainst the other with max.	
Accuracy	To EN 60770-1				
Reference conditions (All error data refer always refer to the set span)	Increasing characteristing, room temperature 2	c, start-of-scale value 0 t 25 °C (77 °F)) r: Span rati	oar, stainless steel seal of o (r = max. span / set sp	liaphragm, silicone oil fill- pan)	
Error in measurement and fixed-point setting (including hysteresis and repeatability)			1		
Linear characteristic			≤ 0.15 %		
- r ≤ 10	≤ 0.15 %				
- 10 < r ≤ 30	≤ 0.3 %				
- 30 < r ≤ 100	$\leq (0.0075 \cdot r + 0.075) \%$				
Long-term drift (temperature change ±30 °C (±54 °F))	≤ (0.25 · r) % every 5 ye static pressure max. 70	ears bar g (1015 psi g)	≤ (0.25 % every 5 years static pressure max. 70		
Influence of ambient temperature					
• at -10 +60 °C (14 140 °F)					
- 250 mbar (3.63 psi) measuring cell	\leq (0.5 · r + 0.2) % (0.4 instead of 0.2 with	10 < r ≤ 30)	≤ 0,7 %		
- 600 mbar (8.7 psi) measuring cell	\leq (0.3 · r + 0.2) % (0.4 instead of 0.2 with	,	≤ 0,5 %		
- 1600 and 5000 mbar (23.2 and 72.5 psi) measuring cells	≤ (0.25 · r + 0.2) % (0.4 ≤ 30)	instead of 0.2 with 10 < r	≤ 0,45 %		
• at -4010 °C and +60 +85 °C (-40 +14 °F and 140 185 °F)	1/0.05	,	40.40/1101/		
- 250 mbar (3.63 psi) measuring cell	\leq (0.25 · r +0.15) %/10 double values with 10 <	: r ≤ 30	≤ 0.4 %/10 K		
- 600 mbar (8.7 psi) measuring cell	\leq (0.15 · r +0.15) %/10 double values with 10 <	: r ≤ 30	≤ 0.3 %/10 K		
 1600 and 5000 mbar (23.2 and 72.5 psi) measuring cells 	\leq (0.12 · r +0.15) %/10 double values with 10 <		≤ 0.27 %/10 K		

DS III series for level

SITRANS P, DS III series for level	HART	PROFIBUS PA or FOUNDATION Fieldbus	
Influence of static pressure			
• on the zero point			
- 250 mbar (3.63 psi) measuring cell	≤ (0.3 · r) % per nominal pressure	≤ 0.3 % per nominal pressure	
- 600 mbar (8.7 psi) measuring cell	≤ (0.15 · r) % per nominal pressure	≤ 0.15 % per nominal pressure	
- 1600 and 5000 mbar (23.2 and 72.5 psi)	≤ (0.1 · r) % per nominal pressure	≤ 0.1 % per nominal pressure	
measuring cells	2 (0.1 · 1) % per florifficial pressure	30.1 % per norminal pressure	
• on the span	≤ (0.1 · r) % per nominal pressure	≤ 0.1 % per nominal pressure	
Measured Value Resolution	-	3 · 10 ⁻⁵ of nominal measuring range	
Rated operating conditions			
Degree of protection (to EN 60529)	IP65		
Process temperature	Note: Always take into account assignment of m missible working pressure of the respective flan	nax. permissible working temperature to max. per ige connection!	
Measuring cell with silicone oil filling	-40 +100 °C (-40 +212 °F)		
- High-pressure side	p _{abs} ≥ 1bar: -40 +175 °C (-40 +347 °F)		
	p _{abs} ≥ 1bar: -40 +80 °C (-40 +176 °F)		
- Low-pressure side	-40 +100 °C (-40 +212 °F)		
	-20 +60 °C (-4 +140 °F) in conjunction with	dust explosion protection	
Ambient conditions			
Ambient temperature			
- Digital indicators	-30 +85 °C (-22 +185 °F)		
Storage temperature	-50 +85 °C (-58 +185 °F)		
Climatic class			
- Condensation	Permissible		
Electromagnetic compatibility			
- Emitted interference and interference immunity	To EN 61326 and NAMUR NE 21		
Design			
Weight (without options)			
 To EN (pressure transmitter with mounting flange, without tube) 	≈ 11 13 kg (≈ 24.2 28.7 lb)		
 To ASME (pressure transmitter with mounting flange, without tube) 	≈ 11 18 kg (≈ 24.2 39.7 lb)		
Wetted parts materials	Poor in copper die-cast aluminium, GD-AlSi12 or	stainless steel precision casting, mat. No. 1.4408	
Housing material			
High-pressure side			
Seal diaphragm of mounting flange	Stainless steel, mat. No. 1.4404/316L, Monel, m Hastelloy C276, mat. No. 2.4819, Hastelloy C4,		
Measuring cell filling	Silicone oil		
Process connection			
High-pressure side	Flange to EN and ASME		
Low-pressure side	Female thread 1/4-18 NPT and flange connection $^{7}/_{16}$ -20 UNF to EN 61518	n with mounting thread M10 to DIN 19213 or	
Power supply $\emph{\textbf{U}}_{H}$		Supplied through bus	
Terminal voltage on transmitter	10.5 45 V DC 10.5 30 V DC in intrinsically-safe mode	-	
Separate 24 V power supply necessary	-	No	
Bus voltage			
• Not Ex	-	9 32 V	
With intrinsically-safe operation	-	9 24 V	
Current consumption			
Basic current (max.)	-	12.5 mA	
 Startup current ≤ basic current 	-	Yes	
		45.5 4	
Max. current in event of fault	-	15.5 mA	

DS III series for level

SITRANS P, DS III series for level					
	HART	PROFIBUS PA or FOUNDATION Fieldbus			
Certificate and approvals					
Classification according to pressure equipment directive (DRGL 97/23/EC)	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of Article 3, paragraph 3 (sound engineering practice)				
Explosion protection					
• Intrinsic safety "i"	PTB 99 ATEX 2122				
- Identification	Ex II 1/2 G EEx ia/ib IIB/IIC T6	Ex II 1/2 G EEx ia/ib IIB/IIC T6			
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +70 °C (-40 +158 °F) temperature class T5; -40 +60 °C (-40 +140 °F) temperature class T6				
- Connection	To certified intrinsically-safe circuits with maximum values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW; $R_{\rm i}$ = 300 Ω	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$			
- Effective internal inductance/capacitance	$L_{i} = 0.4 \text{ mH}, C_{i} = 6 \text{ nF}$	$L_{\rm i} = 7 \mu \text{H}, C_{\rm i} = 1.1 \text{nF}$			
• Explosion-proof "d"	PTB 99 ATEX 1160				
- Identification	Ex II 1/2 G EEx d IIC T4/T6				
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F) temperature class T4; -40 +60 °C (-40 +140 °F) temperature class T6				
- Connection	To circuits with values: $U_{\rm H}$ = 10.5 45 V DC	To circuits with values: $U_{\rm H}$ = 9 32 V DC			
• Dust explosion protection for zone 20	PTB 01 ATEX 2055				
- Identification	Ex II 1 D IP65 T 120 °C Ex II 1/2 D IP65 T 120 °C				
- Permissible ambient temperature	-40 +85 °C (-40 +185 °F)				
- Max.surface temperature	120 °C (248 °F)				
- Connection	To certified intrinsically-safe circuits with maximum values: $U_{\rm i}$ = 30 V, $I_{\rm i}$ = 100 mA, $P_{\rm i}$ = 750 mW, $R_{\rm i}$ = 300 Ω	FISCO supply unit: $U_0 = 17.5 \text{ V}$, $I_0 = 380 \text{ mA}$, $P_0 = 5.32 \text{ W}$ Linear barrier: $U_0 = 24 \text{ V}$, $I_0 = 250 \text{ mA}$, $P_0 = 1.2 \text{ W}$			
- Effective internal inductance/capacitance	$L_{\rm i} = 0.4 {\rm mH}, C_{\rm i} = 6 {\rm nF}$	$L_{i} = 7 \mu H, C_{i} = 1.1 nF$			
• Dust explosion protection for zone 21/22	PTB 01 ATEX 2055				
- Identification	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: $U_H = 9 \dots 32 \text{ V DC}$; $P_{\text{max}} = 1.2 \text{ W}$			
• Type of protection "n" (zone 2)	TÜV 01 ATEX 1696 X	TÜV 01 ATEX 1696 X			
- Identification	Ex II 3 G EEx nA L IIC T4/T5/T6	Ex II 3 G EEx nA L IIC T4/T5/T6			
 Explosion protection 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				

Communication FOUNDATION

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level

Fieldbus Function blocks DS III series for level

3 function blocks analog input,

HART communication	
HART communication	230 1100 Ω
Protocol	HART Version 5.x
Software for computer	SIMATIC PDM
PROFIBUS PA communication	
Simultaneous communication with master class 2 (max.)	4
The address can be set using	Configuration tool or local operation (standard setting address 126)
Cyclic data usage	
Output byte	5 (one measuring value) or 10 (two measuring values)
• Input byte	0, 1, or 2 (register operating mode and reset function for metering)
Internal preprocessing	
Device profile	PROFIBUS PA Profile for Process Control Devices Version 3.0, Class B
Function blocks	2
Analog input	
 Adaptation to customer- specific process variables 	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 100 s
- Simulation function	Input /Output
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
• Register (totalizer)	Can be reset, preset, optional direction of counting, simulation function of register output
- Failure mode	Can be parameterized (summation with last good value, continuous summation, summation with incorrect value)
- Limit monitoring	One upper and lower warning limit and one alarm limit respectively
 Physical block 	1
Transducer blocks	2
Pressure transducer block	
 Can be calibrated by applying two pressures 	Yes
- Monitoring of sensor limits	Yes
 Specification of a container characteristic with 	Max. 30 nodes
 Square-rooted characteristic for flow measurement 	Yes
 Gradual volume suppression and implementation point of square-root extraction 	Parameterizable
- Simulation function for mea- sured pressure value and sen- sor temperature	Constant value or over parameter- izable ramp function

	1 function block PID
Analog input	
 Adaptation to customer- specific process variables 	Yes, linearly rising or falling characteristic
 Electrical damping T₆₃, adjustable 	0 100 s
- Simulation function	Output/input (can be locked within the device with a bridge)
- Failure mode	Can be parameterized (last good value, substitute value, incorrect value)
- Limit monitoring	Yes, one upper and lower warning limit and one alarm limit respectively
 Square-rooted characteristic for flow measurement 	Yes
• PID	Standard FF function block
Physical block	1 Resource block
Transducer blocks	1 transducer block Pressure with calibration, 1 transducer block LCD
Pressure transducer block	
 Can be calibrated by applying two pressures 	Yes
- Monitoring of sensor limits	Yes
 Simulation function: Measured pressure value, sensor temper- ature and electronics tempera- ture 	Constant value or over parameterizable ramp function
Mounting flange	
Nom. diam.	Nom. press.

Mounting flange	
Nom. diam.	Nom. press.
• To EN 1092-1	
- DN 80	PN 40
- DN 100	PN16, PN40
• To ASME B16.5	
- 3 inch	Class 150, class 300
- 4 inch	Class 150, class 300

SITRANS P measuring instruments for pressure Transmitters for gauge, absolute and differential pressure, flow and level

DS III series for level

Selection and Ordering		Orde		
SITRANS P pressure t series DS III HART	ransmitters for level	7MF	463	3 -
Series D5 III HART		Y	-	ш
Measuring cell filling	Measuring cell cleaning			
Silicone oil	Standard	1		
Span				
25 250 mbar	(0.36 3.63 psi)	D		
25 600 mbar	(0.36 8.70 psi)	Е		
53 1600 mbar	(0.8 23.2 psi)	F		
0.16 5 bar	(2.3 72.5 psi)	G		
Process connection of	f low-pressure side			
	T with flange connection 20 UNF to EN 61518 to DIN 19213		2	
Non-wetted parts mate	erials			
Process flange screws	Electronics housing			
Stainless steel	Die-cast aluminium		2	
Stainless steel	Stainless steel precision casting ¹⁾		3	
Version				
 Standard version 				1
 International version, I documentation in 5 la 	English label inscriptions, nguages on CD		:	2
Explosion protection				
 Without 				Α
 With ATEX, Type of pro 				
 "Intrinsic safety (EEx 				В
- "Explosion-proof (EE				D
- "Intrinsic safety and	explosign-proof			Р
enclosure (EEx ia +	EEx d)" ³⁾			
- "Ex nA/nL (zone 2)"				Е
 "Intrinsic safety, expl and dust explosion p EEx d + Zone 1D/2D 	osion-proof enclosure protection (EEx ia +))" ³⁾			R
• With FM + CSA, Type				
- "Intrinsic safety and				NC
$(is + xp)^{-1}$	• •			
Electrical connection				
 Screwed gland Pg 13 	.5 ⁴⁾			Α
 Screwed gland M20x⁻ 	1.5			В
 Screwed gland ½-14 I 				С
• Han 7D plug (plastic h	nousing) incl. mating			D
 M12 connectors (meta) 	al) ⁵⁾			F
Display	A1)			,
Without indicator				
	indicator (digital indicator ►			
hidden, setting: mA)				
• With visible digital ind	ication			
• With customer-specific	c digital indicator (setting ode "Y21" or "Y22" re-			

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

Item line 2: 7MF4912-3GE01

Power supply units see "SITRANS I power supply units and isolation amplifiers".

Included in delivery of the device:

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

- Not together with Electrical connection "Screwed gland Pg 13.5" and "Han7Ď plug".
- Without cable gland, with blanking plug.
- 3) With enclosed cable gland EEx ia and blanking plug.
- 4) Not together with type of protection "Explosion-proof" and type of protection
- 5) M12 delivered without cable socket.

DS III series for leve

Selection and Ordering	g data	Orde	er No.
SITRANS P pressure t for level	ransmitter		
DS III PA series (PROF	IBUS PA)	7 M F	4634-
DS III FF series (FOUN	•	7 M E	4635-
DO III 11 SCIEG (I OOK	DATION Ficialias		4000
		1 - Y	
Nominal measuring ra	•	_	
250 mbar	(3.63 psi)	D	
600 mbar	(8.70 psi)	E	
1600 mbar	(23.2 psi)	F	
5 bar	(72.5 psi)	G	
Process connection of			
	T with flange connection		
Mounting thread M10			0
 (only for replacement Mounting thread ⁷/₁₆-2 			2
			2
Non-wetted parts mate			
Process flange screws	Electronics housing		
Stainless steel	Die-cast aluminium		2
Stainless steel	Stainless steel precision		3
	casting		
Version			
 Standard version 			1
	English label inscriptions,		2
documentation in 5 la	nguages on CD	_	
Explosion protection			
 Without 			Α
 With ATEX, Type of pre 			
 "Intrinsic safety (EEx 			В
- "Explosion-proof (EE			D
- "Intrinsic safety and	explosion-proof e		Р
nclosure (EEx ia + E	EX U) =/		-
- "Ex nA/nL (zone2)"	looion proof analogues		E R
and dust explosion i	losion-proof enclosure		ĸ
EEx d + Zone 1D/2D	orotection (EEx ia +))" ²⁾ (not for DS III FF)		
• With FM + CSA, Type			
- "Intrinsic safety and	explosion-proof		NC
(is + xp)"1)			
Electrical connection	cable entry	-	
 Screwed gland M20x 	•		В
• Screwed gland ½-14 NPT			С
 Plug M12 incl. mating 	connector ³⁾		F
Display			
Without indicator			0
	indicator (digital indicator ▶		1
hidden, setting: mA)			·
 With visible digital ind 	ication		6
• With customer-specific	c digital indication (setting		7
as specified, Order co	ode "Y21" or required)		
· · · · · · · · · · · · · · · · · · ·			

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

Ordering example:

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

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

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

(EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" E55 ✓ ✓	Selection and Ordering data	Order	code		
Specify Order code. O-rings for process flanges on low-pressure side (instead of FPM (Viton)) - PTFE (Telfon) - PTFE (Telfon) - FEPP (wit silicone core, approved for food) - FFPM (Kalrez, compound 4079) - NBR (Buna N) Plug - Han 7D (metal, gray) - Han 8U (instead of Han 7D) Sealing screws - 18 NPT, with vent valve in material of process flanges Cable sockets for M12 connectors (metal) - English - French - English - French - Spanish - Italian B14 - French - Spanish - Italian B14 - Fressure units in inH ₂ O or psi Quality inspection certificate (Factory calibration) to IEC 60770-2 Acceptance test certificate To EN 10204-3.1 Factory certificate To EN 10204-2.2 "PROFisafe" certificate and protocol Setting of upper limit of output signal to 22.0 mA Type of protection IP68 (only for M20x1.5 and ½-14 NPT) Supplied with oval flange Use on zone 1D / 2D (only together with type of protection 'Intrinsic safety (EEx ia)') Use on zone 1D / 2D (only together with type of protection 'Intrinsic safety (EEx ia)') Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4	Further designs		HART	PA	F
low-pressure side (instead of FPM (Viton)) PTPE (Teflon) PTPE (Teflon) PTPE (Teflon) PTPE (Teflon) PTPE (With silicone core, approved for food) PFPM (Kalrez, compound 4079) Plug Han 7D (metal, gray) Han 8U (instead of Han 7D) Sealing screws					
(instead of FPM (Viton)) PTIFE (Teflon) PTIFE (Teflon) PEPC (with silicone core, approved for food) PRIME Normal (Marez, compound 4079) PRIME					
PTFE (Teflon) FEP (with silicone core, approved for food) FEP (with silicone) FEP (All Suna N) FEP (Blua N) FEP (Shanish Fer (Blua N) FER Fer (Blu	-				
• FEP (with silicone core, approved for food) • FFPM (Kalrez, compound 4079) • FFPM (Kalrez, compound 4079) • NBR (Buna N) Plug • Han 7D (metal, gray) • Han 8U (instead of Han 7D) Sealing screws '4-18 NPT, with vent valve in material of process flanges Cable sockets for M12 connectors (metal) • English • Erench • English • French • English • French • Spanish • Italian B11 • French • Spanish • Italian English rating plate Pressure units in inH ₂ O or psi Quality inspection certificate (Teatory calibration) to IEC 60770-2 Acceptance test certificate To EN 10204-3.1 Factory certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate "PROFIsafe" certificate and protocol Setting of upper limit of output signal to 22.0 mA Type of protection IP68 (only for M20X1.5 and ½-14 NPT) Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange Use on zone 10 / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to INPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Zone 2" to NEPSI (China) E57 V V	* "	A20	/	1	
• FFPM (Kalrez, compound 4079) • NBR (Buna N) Plug • NBR (Buna N) • Han 7D (metal, gray) • Han 8U (instead of Han 7D) Sealing screws ½-18 NPT, with vent valve in material of process flanges Cable sockets for M12 connectors (metal) Rating plate inscription (instead of German) • English • French • Spanish • Italian B11 • ✓ • Spanish • Italian B14 • ✓ Fressure units in inH ₂ O or psi Quality inspection certificate (Factory calibration) to IEC 60770-2 Acceptance test certificate To EN 10204-3.1 Factory certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate Conly for M20x1.5 and ½-14 NPT) Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange Use on zone 10 / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MWVP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Tone 2" to NEPSI (China) Explosion-proof "Zone 2" to NEPSI (China)				1	
• NBR (Buna N) Plug • Han 7D (metal, gray) • Han 8U (instead of Han 7D) Sealing screws ½-18 NPT, with vent valve in material of process flanges Cable sockets for M12 connectors (metal) Rating plate inscription (instead of German) • English • English • French • Spanish • Italian B11 ✓ ✓ French • Spanish • Italian B14 Fressure units in inH ₂ O or psi Quality inspection certificate (Tefectory calibration) to IEC 60770-2 Acceptance test certificate To EN 10204-3.1 Factory certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate C11 ✓ ✓ Setting of upper limit of output signal to 22.0 mA Type of protection IP68 (only for M20x1.5 and ½-14 NPT) Supplied with oval flange (1 item), PTEE packing and stainless steel screws in thread of process flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Sone 2" to NEPSI (China) E57 ✓ ✓ Explosion-proof "Zone 2" to NEPSI (China) E57 ✓ ✓ Explosion-proof "Zone 2" to NEPSI (China) E57 ✓ ✓ Explosion-proof "Zone 2" to NEPSI (China) E57					
• Han 7D (metal, gray) • Han 8U (instead of Han 7D) Sealing screws V-18 NPT, with vent valve in material of process flanges Cable sockets for M12 connectors (metal) Rating plate inscription (instead of German) • English • French • Spanish • Italian • Spanish • Italian English rating plate Pressure units in inH ₂ O or psi Quality inspection certificate (Factory calibration) to IEC 60770-2 Acceptance test certificate (Factory certificate To EN 10204-3.1 Factory certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate C20 "PROFIsafe" certificate and protocol Setting of upper limit of output signal to 22.0 mA Type of protection IP68 (only for M20X1.5 and ½-14 NPT) Supplied with oval flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Sone 2" to NEPSI (China) Explosion-proof "Zone 2" to NEPSI (China) Explosion-proof "Zone 2" to NEPSI (China) Explosion-proof "Zone 2" to NEPSI (China)	,		1	1	
• Han 7D (metal, gray) • Han 8U (instead of Han 7D) Sealing screws V-18 NPT, with vent valve in material of process flanges Cable sockets for M12 connectors (metal) Rating plate inscription (instead of German) • English • French • Spanish • Italian • Spanish • Italian English rating plate Pressure units in inH ₂ O or psi Quality inspection certificate (Factory calibration) to IEC 60770-2 Acceptance test certificate (Factory certificate To EN 10204-3.1 Factory certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate C20 "PROFIsafe" certificate and protocol Setting of upper limit of output signal to 22.0 mA Type of protection IP68 (only for M20X1.5 and ½-14 NPT) Supplied with oval flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B.) Explosion-proof "Sone 2" to NEPSI (China) Explosion-proof "Zone 2" to NEPSI (China) Explosion-proof "Zone 2" to NEPSI (China) Explosion-proof "Zone 2" to NEPSI (China)	Plua				
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1/4-18 NPT, with vent valve in material of process flanges Cable sockets for M12 connectors (metal) A50 V	Han 8U (instead of Han 7D)	A31	✓		
Cable sockets for M12 connectors (metal) Rating plate inscription (instead of German) • English • French • Spanish • Italian B14 • Y Foresure units in inH2O or psi Quality inspection certificate (Factory calibration) to IEC 60770-2 Acceptance test certificate To EN 10204-3.1 Factory certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate "PROFIsafe" certificate and protocol Setting of upper limit of output signal to 22.0 mA Type of protection IP68 (only for M20x1.5 and ½-14 NPT) Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Coverfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion-proof "Zone 2" to NEPSI (China) E57 ✓ ✓	Sealing screws				
Cable sockets for M12 connectors (metal) Rating plate inscription (instead of German) • English • French • Spanish • Italian English rating plate Pressure units in inH ₂ O or psi Quality inspection certificate (Factory calibration) to IEC 60770-2 Acceptance test certificate To EN 10204-3.1 Factory certificate (C12		A40	✓	✓	
Rating plate inscription (instead of German) • English • French • Spanish • Italian English rating plate Pressure units in inH ₂ O or psi Quality inspection certificate (Factory calibration) to IEC 60770-2 Acceptance test certificate To EN 10204-3.1 Factory certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate C20 "PROFIsafe" certificate and protocol Setting of upper limit of output signal to 22.0 mA Type of protection IP68 (only for M20x1.5 and ½-14 NPT) Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx la)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx la)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx la)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion-proof "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4B) Explosion-proof "Sone 2" to NEPSI (China) Explosion-proof "Tone 2" to NEPSI (China)	ů .			,	
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To EN 10204-3.1 Factory certificate To EN 10204-2.2 "Functional Safety (SIL)" certificate "PROFIsafe" certificate and protocol Setting of upper limit of output signal to 22.0 mA Type of protection IP68 (only for M20x1.5 and ½-14 NPT) Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion-proof "Esplosion-proof" to NEPSI (China) (only for transmitter 7MF4B) Explosion-proof "Zone 2" to NEPSI (China) E57		C11	✓	✓	
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"PROFIsafe" certificate and protocol Setting of upper limit of output signal to 22.0 mA Type of protection IP68 (only for M20x1.5 and ½-14 NPT) Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4B) Explosion-proof "Zone 2" to NEPSI (China) E57					
Setting of upper limit of output signal to 22.0 mA Type of protection IP68 (only for M20x1.5 and ½-14 NPT) Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4B) Explosion-proof "Zone 2" to NEPSI (China) E57	• • •		V		
to 22.0 mA Type of protection IP68 (only for M20x1.5 and ½-14 NPT) Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion-proof "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57	"PROFIsafe" certificate and protocol	C21		✓	
(only for M20x1.5 and ½-14 NPT) Supplied with oval flange (1 item), PTFE packing and stainless steel screws in thread of process flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57		D05	✓		
(1 item), PTFE packing and stainless steel screws in thread of process flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57		D12	✓	✓	
Screws in thread of process flange Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57	Supplied with oval flange	D37	✓	✓	
Use on zone 1D / 2D (only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57	(1 item), PTFE packing and stainless steel				
(only together with type of protection "Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57					
"Intrinsic safety (EEx ia)") Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57		E01	1	✓	
Use on zone 0 (only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57					
(only together with type of protection "Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57	, , , , ,	F02	1	1	
"Intrinsic safety (EEx ia)") Overfilling safety device for flammable and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57		LU2	•	•	
and non-flammable liquids (max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to iNMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57					
(max. PN 32 (MVWP 464 psi), basic device with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57		E08	✓	✓	
with type of protection "Intrinsic safety (EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57	•				
(EEx ia)") Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57					
Explosion-proof "Intrinsic safety" to INMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57					
to iNMETRO (Brazil) (only for transmitter 7MF4B) Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57	Explosion-proof "Intrinsic safety"	E25	1	1	
Explosion-proof "Intrinsic safety" to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57					
to NEPSI (China) (only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57	(only for transmitter 7MF4				
(only for transmitter 7MF4B) Explosion protection "Explosion-proof" to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57 ✓ ✓		E55	✓	✓	
Explosion protection "Explosion-proof" E56 to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57 ✓					
to NEPSI (China) (only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57					
(only for transmitter 7MF4D) Explosion-proof "Zone 2" to NEPSI (China) E57		E56	V	✓	
Explosion-proof "Zone 2" to NEPSI (China) E57	` ,				
(only for transmitter 7MF4E)	,	E57	1	1	
. ,	(only for transmitter 7MF4E)				
Interchanging of process connection side H01 ✓ ✓					

DS III series for level

Selection and Ordering data	Order	code		
Additional data		HART	PA	FF
Add "-Z" to Order No. and specify Order code.				
Measuring range to be set Specify in plain text (max. 5 digits): Y01: up to mbar, bar, kPa, MPa, psi	Y01	✓		
Measuring point number (TAG No.) Max. 16 characters, specify in plain text: Y15:	Y15	✓	✓	1
Measuring point text Max. 27 characters, specify in plain text: Y16:	Y16	✓	✓	1
Entry of HART address (TAG) Max. 8 characters, specify in plain text: Y17:	Y17	✓		
Setting of pressure indicator in pressure	Y21	✓	✓	✓
units Specify in plain text (standard setting: mA): Y21: mbar, bar, kPa, MPa, psi,				
Note: The following pressure units can be selected: bar, mbar, mm H ₂ O*), inH ₂ O*), ftH ₂ O*), mmHG, inHG, psi, Pa, kPa, MPa, g/cm², kg/cm², Torr, ATM or % *) ref. temperature 20 °C				
Setting of pressure indicator in	Y22 ¹⁾	✓		
non-pressure units ²⁾ Specify in plain text: Y22: up to //min, m ³ /h, m, USgpm, (specification of measuring range in pressure units "Y01" is essential, unit with max. 5 characters)	+ Y01			
Preset bus address (possible between 1 and 126) Specify in plain text: Y25:	Y25		✓	

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

- ✓ = available
- Not together with over-filling safety device for flammable and non-flammable liquids (Order code "E08")
 Preset values can only be modified over SIMATIC PDM.

Selection and Or	dering data		Order No.0	Ord code
Mounting flange		D)	7MF491	
Directly mounted of SITRANS P pressu for level, for DS III	٥,	3		
Connection acc.	to EN 1092-1			
Nom. diam. DN 80 DN 100	Nom. press. PN 40 PN 16 PN 40		D G H	
Connection acc.	to ASME B16.5 Nom. press.			
3 inch	Class 150 Class 300		Q R	
4 inch	Class 150 Class 300		T U	
Other version, add Order code and p Nominal diameter:			Z	J 1 Y
Wetted parts mat Stainless steel 3 Coated with PF Coated with PT Coated with EC Monel 400, mat.	16L FA FE CTFE ¹⁾		A D E 0 F G	

Selection and Ordering	g data		Order l	No.O	rd.	С	ode
Mounting flange		D)	7 M F 4	91:	2 -		
Directly mounted on the SITRANS P pressure tra for level, for DS III series • Hastelloy B2, mat. No • Hastelloy C276, mat. I • Hastelloy C4, mat. No • Tantalum	nsmitter (converter part) s . 2.4617 No. 2.4819		H J U K				
Other version, add Order code and plain to material of parts in cont Sealing face, see "Techn	act with the medium:		Z		K	1	Y
Tube length							
• Without	(4.07)		0				
• 50 mm	(1.97 inch)		1				
• 100 mm • 150 mm	(3.94 inch) (5.90 inch)		2				
• 200 mm	(5.90 inch)		4				
Other version: add Order code and plain to Tube length:	,		9		L	1	Y
Filling liquid							
 Silicone oil M5 				1			
 Silicone oil M50 				2			
 High-temperature oil 				3			
 Halocarbon oil (for O₂ 	measurements)			4			
 Glycerin / water²⁾ Food oil (FDA-listed) 				6 7			
Other version, add Order code and plain to filling liquid:	ext:			9	M	1	Y
1) _							

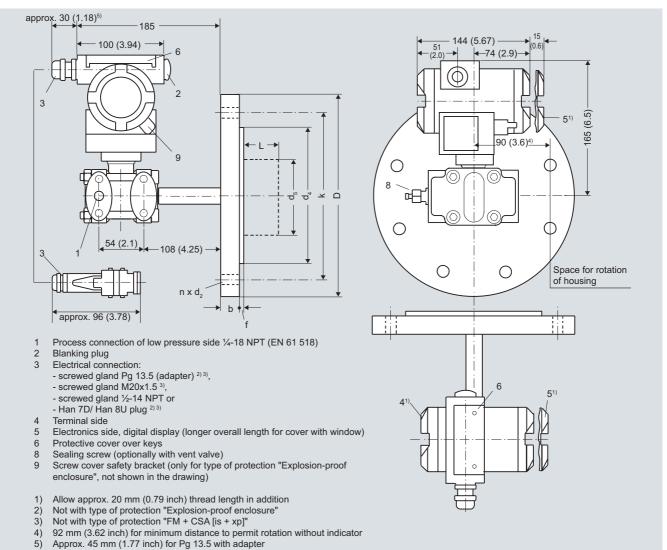
- 1) For vacuum on request2) Not suitable for use in low-pressure range
- D) Subject to export regulations AL:N, ECCN: EAR99H

Selection and Ordering data	Order co	ode	
Further designs Add "-Z" to Order No. and specify Order code.		HART	PA and FF
Flame flashover lock-out For mounting on zone 0 (including documentation)	A01	✓	✓
Quality inspection certificate (Factory calibration) to IEC 60770-2	C11	✓	✓
Acceptance test certificate To EN 10204-3.1	C12	✓	✓
Vacuum-proof design (for use in low-pressure range)	V04	✓	✓
Calculation of span of associated pressure transmitter (enclose filled-in questionnaire with order) Note: suffix "Y01" required with pressure transmitter!	Y05	✓	✓

✓ = available

DS III series for level

Dimensional drawings



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

Connection to EN 1092-1

Nom. diam.	Nom. press.	b	D	d	d_2	d_4	d_5	d _M	f	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
DN 80	PN 40	24	200	90	18	138	76	72 ¹⁾	2	160	8	0, 50, 100,
DN 100	PN 40	20	220	115	18	158	94	89	2	180	8	150 or 200
	PN 40	24	235	115	22	162	94	89	2	190	8	

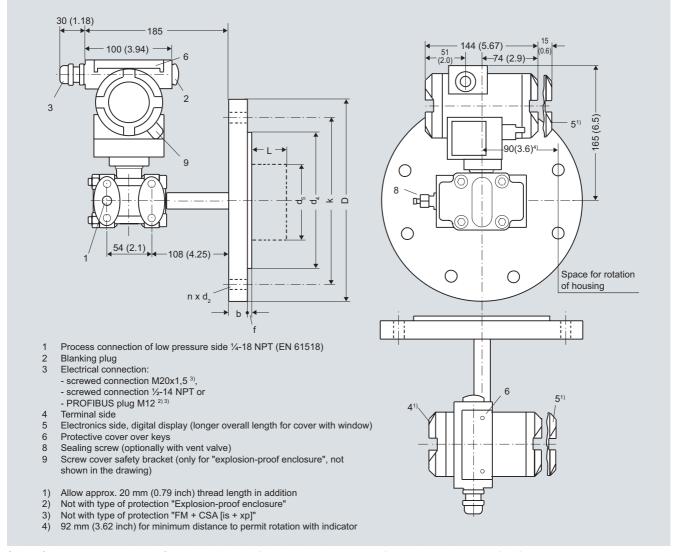
Connection to ASME B16.5

Nom. diam.	Nom. press.	b	D	d ₂	d_4	d_5	d _M	f	k	n	L
	lb/sq.in.	inch	inch	inch	inch	inch	inch	inch	inch		inch
		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)
3 inch	150	0.94 (23.8)	7.5 (190.5)	0.75 (19.0)	5 (127)	3 (76)	2.81 ¹⁾ (72)	0.06 (1.6)	6 (152.4)	4	0, 2, 3.94, 5.94 or 7.87 (0, 50, 100, 150 or 200)
	300	1.12 (28.6)	8.25 (209.5)	0.87 (22.2)	5 (127)	3 (76)	2.81 ¹⁾ (72)	0.06 (1.6)	6.69 (168.3)	8	
4 inch	150	0.94 (23.8)	9 (228.5)	0.75 (19.0)	6.19 (157.2)	3.69 (94)	3.5 (89)	0.06 (1.6)	7.5 (190.5)	8	
	300	1.25 (31.7)	10 (254)	0.87 (22.2)	6.19 (157.2)	3.69 (94)	3.5 (89)	0.06 (1.6)	7.88 (200)	8	

d: Internal diameter of gasket to DIN 2690

d_M: Effective diaphragm diameter

DS III series for level



SITRANS P pressure transmitters, DS III PA and FF series for level, including mounting flange, dimensions in mm (inch)

Connection to EN 1092-1

Nom. diam.	Nom. press.	b	D	d	d_2	d ₄	d ₅	d _M	f	k	n	L
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
DN 80	PN 40	24	200	90	18	138	76	72 ¹⁾	2	160	8	0, 50, 100,
DN 100	PN 40	20	220	115	18	158	94	89	2	180	8	150 or 200
	PN 40	24	235	115	22	162	94	89	2	190	8	

Connection to ASME B16.5

Nom. diam.	Nom. press.	b	D	d_2	d ₄	d ₅	d _M	f	k	n	L
	lb/sq.in.	inch	inch	inch	inch	inch	inch	inch	inch		inch
		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)
3 inch	150	0.94 (23.8)	7.5 (190.5)	0.75 (19.0)	5 (127)	3 (76)	2.81 ¹⁾ (72)	0.06 (1.6)	6 (152.4)	4	0, 2, 3.94, 5.94 or 7.87 (0, 50, 100, 150 or 200)
	300	1.12 (28.6)	8.25 (209.5)	0.87 (22.2)	5 (127)	3 (76)	2.81 ¹⁾ (72)	0.06 (1.6)	6.69 (168.3)	8	-
4 inch	150	0.94 (23.8)	9 (228.5)	0.75 (19.0)	6.19 (157.2)	3.69 (94)	3.5 (89)	0.06 (1.6)	7.5 (190.5)	8	-
	300	1.25 (31.7)	10 (254)	0.87 (22.2)	6.19 (157.2)	3.69 (94)	3.5 (89)	0.06 (1.6)	7.88 (200)	8	

d: Internal diameter of gasket to DIN 2690

d_M: Effective diaphragm diameter